ENVIRONMENTAL REVIEW

Towards a sustainable future

Faced with the inextricably-linked, twin environmental crises of climate change and diminishing biodiversity, we commit to making every effort to play our part in helping to address these challenges.



Key highlights

14.1m tCO₂*

(2019/20:13.1mtCO₂)

Carbon dioxide emissions avoided as a result of 35.3 TWh of offshore wind renewable energy generated

341m²

Additional green space created as part of the Regent Street public realm improvements

21%

(2019/20:9.3%)

Reduction in absolute, year-on-year, carbon dioxide emissions on our direct-managed portfolio

*For methodology see our Environmental data supplement online at: thecrownestate.co.uk/Environmental-Data

These are the Sustainable Development Goals on which we have an impact and have the opportunity to make a difference













Vattenfall's Ormonde

wind farm, west of Barrow-in-Furness

in the Irish Sea

We acknowledge that our business activity has an impact on the natural environment which, when aggregated with that of others, has long-term global implications. In addition, we recognise that growing the financial returns we generate for the nation are not enough. We have an equal responsibility to help meet the wider challenges it faces, including stepping-up with purpose and pace to address the climate emergency.

Our developing Value Creation Framework (VCF), see page 15, will provide a framework for the creation of holistic financial, environmental and social value we wish to deliver as we work to our strategy, aligning to our purpose. We believe all three dimensions of value work together and that creating social and environmental value will deliver greater long-term financial performance.

From an environmental perspective, this means focusing, with a long-term view, on opportunities to:

- Contribute to the UK's green agenda and;
- Contribute to the UK's agenda on biodiversity.

The scope of our contribution in these areas will be defined as we work to our new strategy, with our compass being our commitment to align with the 1.5°C goal of the Paris Climate Agreement, with a target to become a net zero carbon business by 2030 and climate positive thereafter. This is a significant commitment: we do not yet have all the answers and know that there will be challenges along the way which will require innovation and collaboration.

Since making our net zero commitment in December 2020 we have started work on a number of different workstreams and, with others, are identifying opportunities to optimise the potential of the nation's seabed as a source of clean energy and carbon capture in a way which also protects marine biodiversity and the natural environment.

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Work has commenced on the development of 1.5°C Science-Based Targets (SBT) and a trajectory for the decarbonisation of our real estate. We are piloting two asset-level net zero plans for 1 St James's Market, London, and Rushden Lakes, Northamptonshire, and have started work on a 10-year landscape restoration and replanting scheme at Windsor. Further examples of progress against our commitment can be found on page 9.

The task at hand is immense. We need to act beyond our immediate interests on all issues which have an impact on the environment, innovating and working with stakeholders who share our ambitions, to amplify our contribution to securing the nation's green future.

The challenge of accurate measurement of environmental and social metrics has been brought into sharp focus as we have been working to develop the VCF. If we are to provide evidence of progress we need to establish baselines, define meaningful KPIs, and improve data quality, validating and benchmarking it for legitimacy.

More supporting data to this Environmental review can be found online in our Environmental data supplement at: thecrownestate.co.uk/Environmental-Data

Contributing to the UK's green agenda

We have a role to play in the green agenda with regard to the climate emergency and a number of other relevant environmental issues such as air quality and resource efficiency (e.g. materials, waste and water). We are helping to address the climate emergency through decarbonisation of the design, construction and operation of our real estate; adapting to weather changes which are already becoming apparent; and building resilience across our portfolio.

Our contribution to a low carbon economy is significant as manager of the seabed around England, Wales and Northern Ireland. We will leverage our position to optimise a low carbon economy by enabling sustainable and coordinated deployment of affordable green energy technologies on the seabed, including encouraging technological and environmental innovation such as Floating Wind and Carbon Capture, Utilisation and Storage (CCUS). You can read more on this is in our Marine review on page 37.

Our contribution to the UK's green agenda is reported under the following activities:

- Climate action
- Valuing resources

Climate action

We continue to work to mitigate the effects of climate change and to adapt to those effects already evident. Our objective with regard to mitigation is to decarbonise our real estate by improving its energy performance, reducing embodied carbon in developments, generating and procuring renewable energy, and improving air quality. Regarding adaptation, our objective is to build the resilience of our business, those of our customers and our communities by understanding, responding and adapting to the physical risks of climate change. Our work on adaptation is covered on page 22.

In this section we report, under specific headings, to show progress towards our objectives and in accordance with regulation and best practice, starting with the Taskforce for Climate-related Financial Disclosure (TCFD) as it is relevant to both climate change mitigation and adaptation.

TCFD

As part of our net zero commitment we are preparing our business to be resilient in the face of higher levels of warming, and are using the TCFD framework to inform our strategy, drive the testing of climate scenarios, and as a basis for climate-related project implementation and disclosure.

We are assessing the physical risk of climate change on our portfolio and transition risk in the form of increasing compliance related to a decarbonising economy and disruption in the supply chain. Preliminary scenario analysis on the risk of flooding and wind-related events has already been undertaken on our London and Regional portfolios. It will be extended in scope, and to the rest of the portfolio, to inform a proper assessment of risk and to drive action to adapt where necessary.

The adoption of our net zero commitment will help us to manage our transition risks and also highlight opportunities where we can support the UK's transition to a low carbon economy through management of the seabed.

We will disclose progress on both physical and transition risks, together with opportunities, in next year's report.

Governance and strategy: A 'struggling environment and natural world' has been acknowledged by the Board as a major trend affecting our ability to create value over the short, medium and long term. This, together with our commitment to become a net zero carbon business by 2030, has informed our new strategy which is detailed on pages 12-13. Our Board's activity on climate-related issues is detailed on page 64.

Risk management: Climate change has been identified as a risk to the business. Further details and the process by which we identify and manage risks is set out on pages 46-52.

Metrics and targets: Current metrics and targets related to climate-related risks and opportunities to mitigate climate change are reported below in the Energy, Carbon and Renewables sections. New targets are being developed as part of our commitment to net zero.

Energy use

A reduction in our energy use and carbon intensity of our real estate activities is key to achieving net zero. As part of our emerging cross-business decarbonisation trajectory we will be updating our Development Sustainability Principles (DSPs) v3 to take account of our net zero ambition.

Absolute energy use across our direct-managed portfolio has declined by 24% this year. On a like-for-like basis (properties with data for the last two consecutive years) there has been a 25% reduction. The reduction was mainly due to COVID-19, which resulted in lower occupancy levels from properties which were closed during lockdown. Conversely, in order to keep our buildings COVID-19 secure and in accordance with latest industry quidance, ventilation run times were extended to circulate fresh air, with ventilation in WCs in office space extended to 24 hours a day. Additionally, upgraded Air Handling Units have been installed at a number of Regent Street and Regional assets, which require more energy to pump air through the robust filters.

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Energy consumption - absolute (direct-managed portfolio)1

	Absolute (MWh)			Like-for-like (MWh)			
Source	2019/20	2020/21	Year-on-year % change	2019/20	2020/21	Year-on-year % change	
Electricity	68,073	52,262	-23%	62,675	44,788	-29%	
Fuel	38,293	28,408	-26%	29,911	24,830	-17%	
Total	106,366	80,670	-24%	92,586	69,618	-25%	
Number of assets	158	145	-8%	108	108		
Energy intensity (kWh/m²) - baseline 2019/202	191	136	-29%				

Data notes:

This year we have revised our methodology for measuring energy and carbon intensity to make it simpler, more accurate and in line with industry approach. We have applied it to, and restated, 2019/20 intensity data to give comparability, which shows a 29% decrease in kWh/m² over the past year.

For transparency it should be noted that the strict application of data quality criteria has meant that intensity data represents 39% of the portfolio floor area whilst the assets represented contribute to 59% of the absolute energy consumed on the portfolio. Work on data quality will continue.

Detail of the methodology is found in our Environmental reporting criteria online at: thecrownestate.co.uk/assurance-reporting

Numerous energy saving measures have been implemented this year, across 23 assets, with expected energy savings of 1.504m kWh and equivalent cost savings of £139,682. Energy savings equate to 343 tCO₂e.

Energy saving measures relate to LED lighting updates, Air Handling Unit upgrades, Building Management System installation, and software and strategy updates, ductwork insulation, chiller coil cleaning, calorifier and boiler replacement and variable speed drive installation.

More detail and costs of energy by source can be found in our Environmental data supplement online at: thecrownestate. co.uk/Environmental-Data

Summary methodology for quantification and reporting of energy and carbon data

We quantify and report our organisational greenhouse gas (GHG) emissions according to the GHG Protocol, using the operational control approach. Energy use data has been collated and converted into carbon dioxide equivalent (CO₂e) using the UK Government 2020 Conversion Factors for Company Reporting in order to calculate emissions from corresponding activity data.

For the full methodology see the Environmental data supplement at: thecrownestate.co.uk/

Carbon dioxide emissions

There has been a 21% decrease in absolute emissions from our direct-managed portfolio over 2020/21. This was largely due to the impact of COVID-19, which resulted in a reduction in the use of our commercial space, and decarbonisation of the grid. Intensity emissions have reduced by 34%. In the table below Scope 2 emissions are reported under the location-based and market-based methodologies.

Carbon dioxide emissions - absolute (direct-managed portfolio - Scopes 1 and 2)1

		 2018/19	2019/20	2020/21
Emission scopes		(tCO ₂ e)	(tCO ₂ e)	(tCO₂e)
Scope 1	Direct emissions from fleet and heating of buildings	6,678	7,457	5,546≜
Scope 2 (location-based)	Emissions from generated electricity usage	11,738	9,247	7,681≜
	Gross Scope 1 and 2 emissions	18,416	16,704	13,227
	Year-on-year percentage decrease	8.9%	9.3%	21%
Scope 2 (market-based)	Emissions from generated electricity usage	1,325	1,760	4,253≜
Emissions intensity (tCO ₂	e/m²) - 2019/20 baseline²		44	29

Data notes:

Definitions

Location-based emissions: emissions from electricity usage calculated in accordance with the spread of energy sources in the National Grid over the year in question (e.g. fossil fuels and renewables).

Market-based emissions: emissions from electricity usage calculated taking into account the sources of the energy purchased (e.g. validated renewable sources) and the corresponding emissions actually released into the atmosphere (i.e. as a result of the purchase of non-renewable sources).

¹Absolute figures for 2020/21 relate to 88% of direct-managed floor areas, of our London and Regional portfolios and the Windsor Estate.

² Data reported is Group-level intensity for our direct-managed portfolio – see the breakdown between office/mixed-use, retail shopping centres and retail parks in the Environmental data supplement online: the crownestate.co.uk/Environmental-Data

¹Absolute figures for 2020/21 relate to 88% of direct-managed floor areas (m²), of our London and Regional portfolios and the Windsor Estate.

²Carbon intensity data represents 39% of the direct-managed portfolio floor area. However, assets contributing to the intensity data account for 59% of the absolute energy consumed at direct-managed properties. See also data note ² accompanying the Energy table at the top of the page.

Indirect emissions (Scope 3)

Our Scope 3, indirect, emissions are those we produce as a result of our activity and include those produced as a result of work we commission through our supply chain and those we enable through our leasing and licensing activity. They occur from sources not owned or controlled by us.

Carbon dioxide emissions - absolute (indirect - Scope 3)

Emission scopes	GHG Protocol category	2018/19 (tCO ₂ e)	2019/20 (tCO ₂ e)	2020/21 (tCO ₂ e)
Scope 3	Category 3: transmission and distribution losses (modelled)	1,677	1,477	1,048
Scope 3	Category 6: business travel	178	181	52
Scope 3 (location-based)	Category 13: evidenced customer-purchased energy	8,048	8,232	4,549
	Gross scope 3 emissions	9,903	9,890	5,649≜
	Year-on-year percentage decrease	10.6%	0.1%	42.9%
Scope 3 (market-based)	Category 13: evidenced customer-purchased energy	185	15	1,030

Understanding the extent of our Scope 3 emissions and influencing their reduction is a challenge which has to be overcome. As with other organisations, we know that our Scope 3 emissions dwarf our direct emissions. To date we have voluntarily disclosed a very small proportion of our Scope 3 emissions, where we have had the data (see table above). There are 15 Scope 3 categories listed in the GHG Protocol and as part of the work being undertaken to set SBTs we will identify our most material emissions, and increase the breadth and depth of our reporting in order to track progress against our net zero commitment. As a start, next year we expect to report additionally on emissions from construction and refurbishment, waste, forestry and purchased goods and services.

We are developing a Supplier Charter which will include requirements of suppliers with regard to carbon emissions. Our DSPs are to be updated to align with industry best practice in construction and we will take the opportunity to add requirements to significantly reduce both embodied carbon and operational energy use.

A further breakdown of our Scope 1, 2 and 3 emissions, as reported above, can be found in our Environmental data supplement online at: thecrownestate.co.uk/ Environmental-Data

Renewables

We purchase renewable energy, generate renewable energy onsite and facilitate the significant generation of offshore wind renewables.

71% (2019/20: 88%) of our electricity purchased (relating to 61% of electricity meters) during the year was from renewable sources, which significantly reduces our emissions released into the atmosphere. This is exemplified in the two carbon dioxide emissions tables above (Scopes 2 and 3) where location-based emissions (based on a spread of sources of energy in the grid)

are compared with corresponding market-based emissions (renewable sources).

The percentage of electricity purchased from renewable sources is lower than reported last year (and emissions consequently higher) as a result of improvements in data availability. Supplier analysis has been carried out at an energy meter, as opposed to a building, level. This practice will help us to identify meters which are not yet on a green tariff. Our target is to procure 100% of our electricity from renewable sources by 2023 and all energy from renewable sources by 2030.

We currently have limited onsite renewables in the form of solar photovoltaics (PVs) across our direct-managed portfolio. During lockdown very few meter readings were taken, resulting in limited data for reporting. Ongoing maintenance was also affected and new PV metering projects delayed.

We are exploring more opportunities for PV installation across our Regional portfolio and on all new developments. In light of our net zero commitment and as part of our new strategy we have begun a review of our Rural portfolio to determine the potential for new renewable energy opportunities to augment existing let wind and solar sites.

As manager of the seabed we enable our customers to generate a significant amount of renewable energy which currently delivers the demand for about a third of all UK homes and supports the Government goal of delivery of 40GW by 2030. During 2020/21 operational capacity of the offshore wind sector increased from 9.31GW to 9.61GW (an increase of 0.3GW (an increase of 0.3GW), meeting our target of 8-10GW by 2020. The generation of 35.3 TWh of energy during 2020/21 equates to avoided carbon emissions of 14.1m tCO2. You can read more on our offshore wind story and its contribution

to the transition to a low carbon economy and net zero carbon on pages 37-39.

External air quality

Air quality is a particularly significant issue in London and a high priority in Westminster. We want to play our part in improving air quality and are exploring ways of working with other landowners and Westminster City Council to make a more significant impact. As members of the Air Quality Network initiative (led by Imperial College London) in January 2021 we introduced an air quality monitoring station at Waterloo Place. It is the first monitor in London to measure ozone gas in the atmosphere. A temporary monitor, measuring only oxides of nitrogen (NOx), has been in place on nearby Heddon Street since May 2020. Two full years' data is required before we have meaningful analysis given the abnormal year we have had with reduced traffic due to lockdown. Other measures we have introduced across our portfolio to help to improve air quality, include sustainable travel (see below) and tree planting in London (see page 23).

Sustainable travel

Alongside the decarbonisation of our directly managed portfolio we are working with our partners and customers to promote sustainable travel.

With our regional managing agent, to date, we have rolled out Sustainable Travel Plans for all but two of our directly-managed retail and shopping parks to encourage more people to use public transport, cycle or walk. Measures introduced include walking maps and safe routes, changing rooms and showers for cyclists and walkers, bike pools, cycling proficiency training and discounted public transport initiatives. These will deliver benefits to people working on site, our customers and local communities in terms of improved health, wellbeing, air quality and productivity, as well as contribute to a reduction in carbon emissions.

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Whilst we already have a number of electric vehicle charging points across our Regional portfolio, over the coming year we will be launching our electric vehicle charging infrastructure strategy for our Regional portfolio and the Windsor Estate. At Fosse Park, Leicestershire, 16 electric vehicle chargers, eight of which are Tesla superchargers with higher power ratings, are now available to customers.

In London we continue to offer our consolidated freight delivery service to retail customers and will be piloting an extension of the service to include personal deliveries and non-perishable office supplies. We are exploring the use of a bi-fuel vehicle while we await the delivery of our new electric vehicle.

On the Windsor Estate we continue to review the use of alternative fuels for all vehicles. Approximately 20% (eight) of our leased road-going vehicles are electric. The opportunity to switch to fully electric or plug-in hybrids will come at the next fleet change in 2023/24 when technology in this area will have progressed. We own three electric agricultural vehicles and will review viable sustainable alternatives to others as they become available in the market.

While in our Marine business, following our introduction of one of our aggregates' customers to building materials company, AC Marine Aggregates, we were pleased to see the revival of the use of barges to transport aggregates. Taking them from Hull into the centre of Leeds, via the existing river and canal system, revitalises an underutilised and sustainable freight transport system. Single use of a 500-tonne barge takes the equivalent of 25 standard tipper trucks off the road, with the associated improvement in air quality and reduction in traffic congestion.

Adaptation

We have been working with stakeholders, where we can, to adapt our assets to evident climate changes and upgrading infrastructure to cope with prevailing weather systems. Whilst TCFD scenario analysis will help to identify further opportunities to adapt across the business, adaptation has been ongoing. For many years our Windsor forests have been planted with more climate resilient tree species.

We were involved in the introduction of the Sandscaping concept to the UK, a first of a kind engineering solution designed to reduce the effects of coastal erosion using millions of tonnes of sand. Following regular monitoring, the first Sandscaping scheme at Bacton, Norfolk, (constructed in 2019), is performing as planned. We continue to work with other stakeholders to evaluate further potential for Sandscaping.

Another example of recent work is the repair of an eroded section of Crown Estate owned sea defences at Hawkins Point on Sunk Island, on the north bank of the Humber, which was completed in the autumn. During 2021 we intend to create a long-term plan for Crown Estate defences within the emerging Humber Strategy, working closely with the Environment Agency.

While at Fosse Park we are building resilience by installing 2,800 sq m of permeable paving and planting 5,000 sq m of soft landscaping to help allow water run-off and reduce flooding.

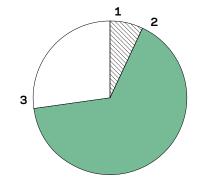
Valuing resources

In line with circular economy principles, our objective is to sustainably source and use materials and natural resources, designing out waste and maximising reuse and recycling across our real estate portfolio.

Achievement of this objective is closely linked to our net zero commitment. Disposal of waste, consumption of water and the procurement and use of raw materials all contribute to our carbon footprint, as well as having social impacts.

Efficient use of all natural resources is critical to their continued availability. Our DSPs set requirements of our construction projects and provide a framework for the responsible sourcing of materials. We engage with our customers through sustainability days and Fit-Out Guides, in which we encourage careful consideration of the use of all resources and suggest sustainable options. We are developing a Supplier Charter which will also cover best practice in the use of resources.

Operational waste - end disposal breakdown 2020/21



- 1 Anaerobic digestion
- 2 Recycled
- (following on-site segregation)
- 3 Incineration off-site (with energy recovery)
- 7% 66%
- 27%



Above: We welcomed Bike-Drop to our London portfolio, helping to reopen the West End in a safe and sustainable way.

Over the past year, due to lockdown, operational waste generated reduced by 73% with 100% diverted from landfill. Of this, 73% was recycled (including anaerobic digestion) against a target of 80% by 2022/23. Much of the waste generated was recyclable cardboard packaging from new stock. With regard to construction waste, 91% was diverted from landfill.

In last year's Annual Report we highlighted the Food Waste Pledge whereby 13 restaurants committed to reduce their food waste by 25% in one year. Due to COVID-19 we did not obtain a full year's data and report an 8% reduction in food consumption over 10 months, with an increase in food recycling of 10%. It was clear reductions were gaining momentum over time and the scheme would have seen better results over a longer period. However, the pledge resulted in improved data quality with all restaurants committing to continue measurement and the vast majority wishing to continue with the pledge.

Whilst water consumption is not as material to our business as other environmental impacts, much of our portfolio is situated in water-stressed areas. We continue to measure and monitor water use and abstraction, and to identify opportunities to maximise water efficiency. Data on water, and more on waste, can be found in our Environmental data supplement online at: thecrownestate.co.uk/Environmental-Data

Contribution to the UK's agenda on biodiversity

We recognise our role as stewards of the natural environment and biodiversity across our portfolio. Our two environmental contributions (to the UK's green agenda and on biodiversity) are mutually reinforcing. Nature-based solutions are going to be an important part of our net zero strategy and enhancement of habitats will have a long-term role in reducing the extent of climate change. In collaboration with other landowners we can have a bigger impact, especially in rural areas. Wherever possible we aim to create valuable green space (terrestrial) and blue space (seabed) to provide, and protect, existing habitats.

Enhancing biodiversity

Our objective is to actively invest to support the essential role played by biodiversity in the provision of ecosystem services, through the creation, protection, restoration and enhancement of natural habitats on land and at sea.

In order to measure our progress it is clear that we need to both understand our natural capital baseline and develop an appropriate measure of biodiversity net gain for all parts of our portfolio. We will be working with others to achieve this terrestrially and for the seabed.

Habitat creation

Our Windsor Estate provides a unique and diverse haven for biodiversity which requires careful visitor management to prevent damage to ecosystems. Commercial forestry felling delivers a continuous creation of new habitats for ground-nesting birds. Our 10-year landscape restoration and replanting scheme will deliver many new trees and hedgerows and create biodiversity corridors (see the case study on page 44 for more detail).

The diverse range of trees will also contribute to carbon sequestration, climate resilience and prevent wholesale risk from pests and disease. Windsor's Sites of Special Scientific Interest remain classified as 100% in favourable condition.

Offshore we are working in collaboration with the Government, statutory bodies and NGOs in a number of initiatives to create and restore habitats, and to develop policy and broad targets on biodiversity net gain on the seabed. These include:

- Reversing centuries of decline of estuarine and coastal habitats by restoring seagrass meadows, salt marshes and oyster reefs, known as the ReMeMaRe initiative, led by the Environment Agency
- A working group to address the regulatory hurdles to beneficial reuse of dredged material, primarily for habitat creation, for example to create protective bunds for saltmarshes or nature reserves. We recently contributed to the production of a guidance manual on beneficial reuse of material with detail of our role in providing seabed rights.

There are a number of other initiatives in the pipeline and we expect to be able to report more on these in the coming years.

Further opportunities for habitat creation are being explored across our Regional portfolio. At Fosse Park, as part of the new extension, we are already planting 100 sq m of living green walls, 2,010 sq m of new wild flower meadows and 122 linear metres of new native hedgerows. Other examples include honey bee hives and Bikes in Bloom at Princesshay, Exeter: a wildflower meadow and bird boxes at Ocean Retail Park, Portsmouth; and a green wall at Silverlink, Newcastle. The total area of greenspace across the Regional portfolio is 17.6 hectares and of this approximately six hectares is 'higher value' habitat as defined in our Regional Landscaping Handbook.

While in London, as part of the Regent Street public realm improvements, we planted 62 semi-mature trees (16 different species) and 332 planters (equating to 341 sq m of greening) as a means of encouraging greater biodiversity, improving air quality and general wellbeing (read more on page 41). This supplements the greening we already have across the rooftops of our London estate as part of Wild West End (a partnership of landowners in central London, the London Wildlife Trust and the Greater London Authority). In total we now have 3,703 sq m of additional, valuable green space in London, against our target of 5,000 sq m by 2023.

Below: The Crown Estate sponsors the Underwater Photographer of the Year award (British Waters Living Together category). Below is a highly commended entry by Trevor Rees.

