



Cabinet Office

# Net Zero – 2030

## PPN 06/21 Carbon Reduction Plan

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# Carbon Reduction Plan

Supplier name: Ark Data Centres Limited

Publication date: February 2023

## Commitment to achieving Net Zero

**Ark Data Centres Limited** and its subsidiary **Crown Hosting Data Centres Limited** are committed to achieving Net Zero emissions by 2030.

Ark Data Centres Limited (Ark) has been recording a subset of Scope 1 and Scope 2 emissions since 2014. These have been routinely reported as part of the company's EU ETS, Climate Change Agreement and ISO 50001 management reporting processes.

In 2020 Ark extended the scope of CO<sub>2e</sub> emissions reporting to include:

- Scope 1 – All operational direct emissions.
- Scope 2 - Operational indirect emissions from purchased electricity, steam, heating and cooling.
- The following Scope 3 operational emissions:
  - Upstream transportation and distribution.
  - Waste generated in operations.
  - Business travel.
  - Employee commuting and homeworking.
  - Downstream transportation and distribution.

Due to the impact of the COVID pandemic the data was collected from 2019, rather than 2020 and therefore 2019 forms the Baseline Emissions Footprint for this Carbon Reduction Plan.

The emissions inventory reported has not undergone specific third-party assurance/verification. However, all the data within the report has been, or is in the process of being verified by third parties as follows:

- a) Scope 1 energy related emissions have been/are independently verified as part of the CCA/ISO 50001 auditing processes employed by Ark.
- b) Scope 2 emissions have been/are independently verified by Ark Data Centres' energy procurement advisor. All utility supplied electricity is REGO backed renewable energy. The Meridian Park campus benefits from a direct wire PPA with the London Energy Limited (LEL) energy from waste plant. The amount of renewable energy supplied from this plant varies depending on the composition of the waste supplied to fuel the plant. The emissions arising from this plant are recorded as part of Ark's Scope 2 emissions.
- c) Scope 3 emissions have been compiled by EHS Projects, an external consultancy that has supported Ark to identify and collate data sources suitable for estimating scope 3 emissions. All scope 3 emissions data have been verified during emissions calculation and data production.



The greenhouse gas emissions inventory and data have been prepared following the [Greenhouse Gas Protocol Corporate Accounting and Reporting Standard](#), [GHG Protocol Scope 2 Guidance](#) and [GHG Protocol Corporate Value Chain \(Scope 3\) Accounting and Reporting Standard](#).

Reference has also been made to the UK Government [Environmental reporting guidelines](#) and GHG conversions have been prepared using the UK [Government conversion factors for company reporting of greenhouse gas emissions](#).

## Baseline Emissions Footprint

Baseline emissions are a record of the greenhouse gases that have been produced in the past and were produced prior to the introduction of any strategies to reduce emissions. Baseline emissions are the reference point against which emissions reduction can be measured.

Emissions data for the baseline year 2019 and subsequent years 2020, 2021 and 2022 are presented in the following tables.

A more detailed summary table presenting the summary data by campus and source is presented in Appendix 1.

### Baseline Year: 2019

#### Additional Details relating to the Baseline Emissions calculations.

Scope 1, operational direct emissions on Ark campuses arise from two sources:

- *Gas oil (diesel) for standby generators.* In a normal year, gasoil GHG emissions arise solely from the maintenance and testing of standby generators. Under normal maintenance operations, GHG emissions from the standby generators are low; however, if the backup generation was required, in an emergency, for an extended period (e.g. a long-term electricity power failure) then associated GHG emissions would accumulate rapidly due to the carbon intensity of gas oil fuel.
- *F-Gas losses.* These are fugitive emissions from F-Gas containing equipment such as air conditioning, caused by the unintended leakage of the refrigerant gas from the equipment. This is quantified by the amount of F-Gas refilled during equipment maintenance or replacement.

These Scope 1 emissions are reported separately in the tables below.

Scope 2, indirect emissions from purchased electricity on Ark campuses arise from two sources:

- *Utility supplied electricity.* Ark Data Centres procures 100% REGO (Renewable Energy Guarantees of Origin) certificate-backed renewable electricity from their energy supplier.
  - *Direct wire Power Purchase Agreement (PPA) supplied electricity.* From 2021, Meridian Park has benefitted from a direct wire PPA for electricity from the neighbouring Energy from Waste (EfW) plant operated by London Energy. As an EfW plant, the GHG
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emissions intensity of the purchased electricity is dependent on and varies with its waste fuel supply, for which an annual average kgCO<sub>2</sub>e is calculated.

These Scope 2 emissions are reported separately in the tables below.

Scope 3, indirect operational emissions on Ark campuses are currently measured and reported annually from the following GHG emissions categories:

- Upstream transportation and distribution.
- Waste generated in operations.
- Business travel.
- Employee commuting and homeworking.
- Downstream transportation and distribution.

These Scope 3 emissions are reported separately in the tables below.

<b>2019 Baseline year emissions:</b>	
<b>EMISSIONS</b>	<b>TOTAL (tCO<sub>2</sub>e)</b>
<b>Scope 1</b>	
<i>Standby Generation</i>	126
<i>F-Gas</i>	5,134
<b>Scope 1 Total</b>	<b>5,260</b>
<b>Scope 2</b>	
<i>Utility Supply (market-based)</i>	0
<i>PPA Supply</i>	<i>Not connected</i>
<i>Utility Supply (location-based)</i>	33,032
<b>Scope 2 Total (using market-based emissions)</b>	<b>0</b>
<b>Scope 3</b>	
<i>Upstream transport &amp; distribution</i>	17
<i>Waste generated in operations</i>	2
<i>Business travel</i>	211
<i>Employee commuting and homeworking</i>	200
<i>Downstream transportation and distribution</i>	0
<b>Scope 3 Total</b>	<b>430</b>
<b>Total Emissions 2019 (using market-based Scope 2 emissions)</b>	<b>5,690</b>



<b>Reporting Year 2020 emissions:</b>	
<b>EMISSIONS</b>	<b>TOTAL (tCO<sub>2</sub>e)</b>
<b>Scope 1</b>	
<i>Standby Generation</i>	192
<i>F-Gas</i>	4,930
<b>Scope 1 Total</b>	<b>5,122</b>
<b>Scope 2</b>	
<i>Utility Supply (market-based)</i>	0
<i>PPA Supply</i>	Not connected
<i>Utility Supply (location-based)</i>	36,580
<b>Scope 2 Total (using market-based emissions)</b>	<b>0</b>
<b>Scope 3</b>	
<i>Upstream transport &amp; distribution</i>	11
<i>Waste generated in operations</i>	2
<i>Business travel</i>	33
<i>Employee commuting and homeworking</i>	106
<i>Downstream transportation and distribution</i>	0
<b>Scope 3 Total</b>	<b>152</b>
<b>Total Emissions 2020 (using market-based Scope 2 emissions)</b>	<b>5,275</b>



<b>Reporting Year 2021 emissions:</b>	
<b>EMISSIONS</b>	<b>TOTAL (tCO<sub>2</sub>e)</b>
<b>Scope 1</b>	
<i>Standby Generation</i>	163
<i>F-Gas</i>	1,275
<b>Scope 1 Total</b>	<b>1,438</b>
<b>Scope 2</b>	
<i>Utility Supply (market-based)</i>	0
<i>PPA Supply</i>	143
<i>Utility Supply (location-based)</i>	38,627
<b>Scope 2 Total (using market-based emissions)</b>	<b>143</b>
<b>Scope 3</b>	
<i>Upstream transport &amp; distribution</i>	19
<i>Waste generated in operations</i>	4
<i>Business travel</i>	40
<i>Employee commuting and homeworking</i>	152
<i>Downstream transportation and distribution</i>	0
<b>Scope 3 Total</b>	<b>215</b>
<b>Total Emissions 2021 (using market-based Scope 2 emissions)</b>	<b>1,796</b>



## Current Emissions Reporting

Reporting Year 2022 emissions:	
EMISSIONS	TOTAL (tCO <sub>2</sub> e)
<b>Scope 1</b>	
<i>Standby Generation</i>	5
<i>F-Gas</i>	1,146
<b>Scope 1 Total</b>	<b>1,151</b>
<b>Scope 2</b>	
<i>Utility Supply (market-based)</i>	0
<i>PPA Supply</i>	10
<i>Utility Supply (location-based)</i>	42,761
<b>Scope 2 Total (using market-based emissions)</b>	<b>10</b>
<b>Scope 3</b>	
<i>Upstream transport &amp; distribution</i>	37
<i>Waste generated in operations</i>	4
<i>Business travel</i>	57
<i>Employee commuting and homeworking</i>	231
<i>Downstream transportation and distribution</i>	0
<b>Scope 3 Total</b>	<b>329</b>
<b>Total Emissions 2022 (using market-based Scope 2 emissions)</b>	<b>1,490</b>

## Emissions reduction targets

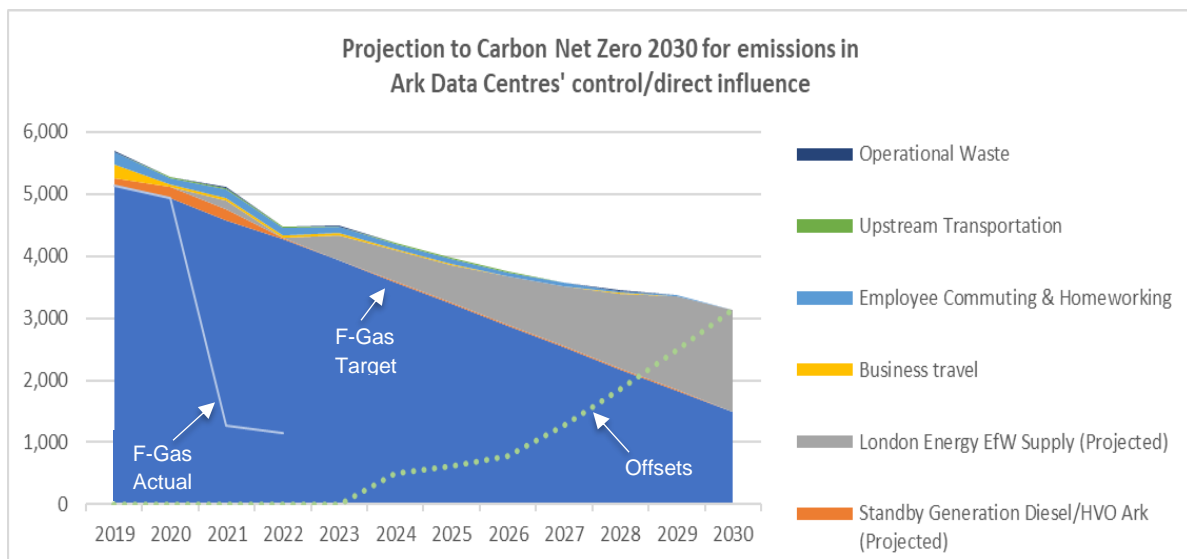
In order to continue our progress to achieving Net Zero, we have adopted the following carbon reduction targets:

- Emissions arising from Standby Generation associated with maintenance and testing to the minimum maintainable level of 16tCO<sub>2</sub>e/annum by 2030.
- Fugitive emissions of F-Gas will be reduced and maintained at 1% of the installed F-Gas inventory on the Ark campuses. This equates to 1,482tCO<sub>2</sub>e/annum by 2030.
- Ark will continue to procure and utilise 100% REGO backed (or equivalent) renewable energy for all utility supply contracts. This equates to 0tCO<sub>2</sub>e/annum by 2030.
- Ark is not in a position to control the emissions associated with the (Efw) plant operated by London Energy at the Meridian Park Campus. These emissions will rise as the IT load in the Meridian Park facility rise. It is anticipated that this will equate to 1,638tCO<sub>2</sub>e/annum by 2030. These emissions will be offset in alignment with the Oxford Principles for Net Zero Aligned Carbon Offsetting.

- Scope 3 emissions will be reduced to net zero by 2030 by:
  - Providing on campus EV charging points to encourage the use of electric vehicles for commuting and UK based business travel.
  - Where business travel results in GHG emissions (e.g. international flights) ensure that appropriate offsets are procured prior to travel.
  - Promoting the use of zero emission vehicles and transport systems in our supply chain to achieve net zero for Upstream transportation by 2030.
  - Our business generates no downstream emissions as all services to customers are carried out on campus or online.

We project that carbon emissions will decrease over the next five years to 2,286tCO<sub>2</sub>e by 2027. This is a reduction of 60% over our 2019 emissions of 5,690tCO<sub>2</sub>e.

Progress against these targets can be seen in the graph below:



The above chart shows:

- Fugitive emissions of F-Gas are the single biggest component of CO<sub>2</sub>e emissions on the Ark estate. The remediation measures and improved F-Gas maintenance processes implemented in 2020 and 2022 have significantly reduced fugitive emissions to close to the target of 1% of the installed inventory.
- Emissions from the EfW Plant providing energy over a direct wire PPA to the Meridian Park facility is projected to be the largest source of emissions to the Ark estate by 2023.

By 2023 the above emission sources will have been reduced to the minimum level practicable and these emissions will be offset in accordance with “*The Oxford Principles for Net Zero Aligned Carbon Offsetting*”:

1. Cut emissions, use high quality offsets, and regularly revise offsetting strategy as best practice evolves.
2. Shift to carbon removal offsetting.
3. Shift to long-lived storage.
4. Support the development of net zero aligned offsetting.





## Carbon Reduction Projects

### Completed Carbon Reduction Initiatives

The following environmental management measures and projects have been completed or implemented since the 2019 baseline:

1. Replacement of single port valves with dual port valves on plant containing F-Gas, along with improved maintenance procedures over a two-year improvement programme (2020 - 2021) has achieved a 75% reduction in emissions from this source over the 2019 baseline year. This reduced level of annual F-gas losses from equipment may not be achievable in all future years; therefore, more conservative annual F-gas loss GHG emissions have been incorporated into the carbon reduction plan as illustrated above.
2. At the end of 2021 and the beginning of 2022 Ark replaced all the diesel in the standby generation sets with HVO. This change has resulted in a 96% reduction in emissions from this source over the 2019 baseline year. This reduced level of emissions from standby generation may not be achievable in all future years; therefore, a more conservative level of emissions for standby generation has been incorporated into the carbon reduction plan as illustrated above.

The carbon emission reduction declared from these schemes in the Carbon Reduction Plan by 2022 by these schemes equates to reduction in excess of 1,200tCO<sub>2</sub>e, a reduction in excess of 21% against the 2019 baseline of 5,690 tCO<sub>2</sub>e and the measures will be in effect when performing the contract.

### Future Carbon Reduction Initiatives

At present Ark has a number of projects underway that could lead to further carbon reductions in future:

- A. A feasibility study is underway to replace the refrigerant (F-Gas) in older cooling plant with a newer refrigerant that has a significantly lower Global Warming Potential (GWP). If the feasibility study demonstrates that the proposal is technical feasible and commercially viable, it will be implemented.
- B. New facilities are being designed without the need for significant volumes of refrigerant and where refrigerant is required that with lowest GWP is being specified.
- C. The installation of EV charging points on Ark campuses. At present there are 4nr EV chargers at Spring Park, 2nr EV chargers at Cody Park and 4nr EV chargers at Meridian Park. Each campus has plans to install EV charges to 20% of the car parking spaces, as the additional chargers are rolled out the impact on employee commuting and business travel will be monitored.



## Declaration and Sign Off

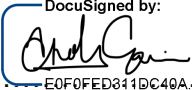
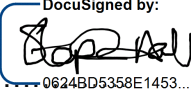
This Carbon Reduction Plan has been completed in accordance with PPN 06/21 and associated guidance and reporting standard for Carbon Reduction Plans.

Emissions have been reported and recorded in accordance with the published reporting standard for Carbon Reduction Plans and the GHG Reporting Protocol corporate standard<sup>1</sup> and uses the appropriate Government emission conversion factors for greenhouse gas company reporting<sup>2</sup>.

Scope 1 and Scope 2 emissions have been reported in accordance with SECR requirements, and the required subset of Scope 3 emissions have been reported in accordance with the published reporting standard for Carbon Reduction Plans and the Corporate Value Chain (Scope 3) Standard<sup>3</sup>.

This Carbon Reduction Plan has been reviewed and signed off by the board of directors (or equivalent management body).

### Signed on behalf of the Supplier:

Andy Garvin		Stephen Hall	
.....	E0F0FED311D640A.....	.....	0624BD5358E1453.....
Date: 26 July 2023		26 July 2023	
.....		.....	

<sup>1</sup> <https://ghgprotocol.org/corporate-standard>

<sup>2</sup> <https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>

<sup>3</sup> <https://ghgprotocol.org/standards/scope-3-standard>



## **APPENDIX 1**

GHG Emission Summary 2019 – 2022  
By Campus and Source



## Scope 1 Emissions 2019 – 2022

SCOPE 1 - Operating Emissions		2019		2020		2021		2022		Commentary
Location	Source	Type	(TCO <sub>2e</sub> )	Type	(TCO <sub>2e</sub> )	Type	(TCO <sub>2e</sub> )	Type	(TCO <sub>2e</sub> )	
Cody Park	Standby Generation	Gas Oil	97.59	Gas Oil	56.5	Gas Oil	52.9	HVO	2.9	All diesel fuel for standby generation changed to HVO in 2022 hence reduction in CO <sub>2e</sub> emissions
	M&E Infrastructure	FGas	2,578.8	FGas	1,493.4	FGas	802.4	FGas	593.6	Emissions from FGas losses during maintenance. In line with expectations following 2019 and 2020 maintenance works
	<i>Scope 1 Emissions</i>			2,676.4		1,549.9		855.3		596.5
Spring Park	Standby Generation	Gas Oil	28.34	Gas Oil	129.1	Gas Oil	49.8	HVO	1.5	All diesel fuel for standby generation changed to HVO in 2022 hence reduction in CO <sub>2e</sub> emissions
	M&E Infrastructure	FGas	2,555.0	FGas	3,437.0	FGas	470.1	FGas	550.2	Emissions from FGas losses during maintenance. In line with expectations following 2019 and 2020 maintenance works
	<i>Scope 1 Emissions</i>			2,583.3		3,566.1		519.9		551.8
Meridian Park	Standby Generation	Gas Oil	NA	Gas Oil	6.6	Gas Oil	60.4	HVO	0.1	All diesel fuel for standby generation changed to HVO in 2022 hence reduction in CO <sub>2e</sub> emissions. Limited on load run hours due to constraints imposed by utilising the Grid Connection for most of the year.
	M&E Infrastructure	FGas	NA	FGas	-	FGas	2.5	FGas	2.5	Emissions from FGas losses during maintenance. In line with expectations.
	<i>Scope 1 Emissions</i>			NA		6.6		62.9		2.6
Ark	<b>Total Scope 1 Emissions</b>		<b>5,260</b>		<b>5,123</b>		<b>1,438</b>		<b>1,151</b>	

Note Emission conversion factors obtained from Government conversion factors for company reporting of greenhouse gas emissions:

[Government conversion factors for company reporting of greenhouse gas emissions - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/government-conversion-factors-for-company-reporting-of-greenhouse-gas-emissions)

2019	255.6 tonnes CO <sub>2e</sub> /GWh
2020	233.1 tonnes CO <sub>2e</sub> /GWh
2021	212.3 tonnes CO <sub>2e</sub> /GWh
2022	193.4 tonnes CO <sub>2e</sub> /GWh



## Scope 2, 3 and Total Emissions 2019 – 2022

SCOPE 2 - Operating Emissions		Utility Supply 2019		Utility Supply 2020		Utility Supply 2021		Utility Supply 2022		Commentary
Location	Source	GWh	(TCO <sub>2e</sub> )	GWh	(TCO <sub>2e</sub> )	GWh	(TCO <sub>2e</sub> )	GWh	(TCO <sub>2e</sub> )	
Cody Park	Location Based	88.924	22,729	106.587	24,850	117.486	24,946	129.879	25,116	Meridian Park benefits from a direct wire PPA from the neighbouring Energy from Waste (EfW) plant operated by London Energy. For commercial reasons the EfW is the preferred supply, as an EfW it has Carbon Intensity that is dependent on its waste fuel supply. In 2021 this was 0.0114kgCO <sub>2e</sub> /kWh. When the EfW Supply is not available Meridian Park, like Spring and Cody Park is supplied with 100% REGO Backed Renewable Energy procured from BGB on a 3 year flexible supply contract. The different supplies and associated CO <sub>2e</sub> emissions for Meridian Park are reported separately in this table.
Spring Park	Location Based	40.308	10,303	47.566	11,090	58.359	12,391	64.384	12,451	
Meridian Park	PPA	NA	NA	NA	NA	12.503	143	0.845	10	
	Location Based	NA	NA	2.747	640	6.072	1,289	26.812	5,185	
Ark	<b>Total Scope 2 Location Based Emissions</b>	<b>129.231</b>	<b>33,032</b>	<b>156.900</b>	<b>36,580</b>	<b>194.421</b>	<b>38,769</b>	<b>221.920</b>	<b>42,761</b>	
Cody Park	Market Based	88.924	0	106.587	0	117.486	0	129.879	-	
Spring Park	Market Based	40.308	0	47.566	0	58.359	0	64.384	-	
Meridian Park	PPA	NA	NA	NA	NA	12.503	143	0.845	10	
	Market Based	NA	NA	2.747	0	6.072	0	26.812	-	
Ark	<b>Total Scope 2 Market Based Emissions</b>	<b>129.231</b>	<b>-</b>	<b>156.9</b>	<b>-</b>	<b>194.4</b>	<b>142.5</b>	<b>221.9</b>	<b>10</b>	
<b>SCOPE 3 - Operating Emissions</b>										
		<b>2019</b>		<b>2020</b>		<b>2021</b>		<b>2022</b>		<b>Commentary</b>
<b>Category</b>		<b>(TCO<sub>2e</sub>)</b>		<b>(TCO<sub>2e</sub>)</b>		<b>(TCO<sub>2e</sub>)</b>		<b>(TCO<sub>2e</sub>)</b>		
Business Travel		211		33		40		57		The increases shown between 2020 and 2022 are primarily due to the return to "business as usual" following the COVID lock downs in 2019 and 2020
Employee Commuting & Homeworking		200		106		152		231		
Waste Generated		2		2		4		5		
Upstream Transportation		17		11		19		37		
Downstream Transportation		N/A		N/A		N/A		N/A		
Ark	<b>Total Scope 3 Emissions</b>	<b>430</b>		<b>152</b>		<b>215</b>		<b>329</b>		
Ark	<b>Total Scope 1, 2 &amp; 3 Emissions (Scope 2 Market Based)</b>	<b>5,690</b>		<b>5,275</b>		<b>1,796</b>		<b>1,490</b>		