

Summary of Estimated Energy Use and Associated Operational GHG Emissions

The whole building energy use intensity figures for each building have been calculated following the TM54 methodology, drawing on professional experience and data from similar developments. However, given the early stage of the project and the limited design information available, these figures are based on technical assumptions informed by benchmark figures from projects of comparable design and operation, to provide a representative assessment of potential emissions.

For LON06, LON07 and LON08, a Power Usage Effectiveness (PUE) of 1.35 has been modelled. This is considered to be a conservative assumption, with data centres of this scale and nature typically able to achieve lower PUEs due to advances in energy-efficient cooling and high-performance IT infrastructure.

To account for the continual decarbonisation of the UK electricity grid over the assumed years of operation, the total estimated annual energy use for each building was multiplied by the projected greenhouse gas (GHG) conversion factors provided by the Department for Energy Security and Net Zero.¹

This was used to determine the total estimated lifetime operational emissions associated with each building.

[1] Department for Energy Security & Net Zero (2023). Electricity emissions Factors to 2100 [online]. Available at:

<https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fmedia%2F6567994fcc1ec5000d8eef17%2Fdata-tables-1-19.xlsx&wdOrigin=BROWSELINK>

Building	Whole Building Energy Use Intensity (kWh/m ² /year)	Gross External Area (m ²)	Total Estimated Annual Energy Use (kWh/year)	Total Estimated Lifetime Operational Emissions (tCO ₂ e)
LON06	13,945.35	23,237.70	324,057,842.03	277,717.57
LON07	14,464.94	39,294.60	568,394,044.00	487,113.70
LON08	10,355.72	25,882.70	268,033,915.00	229,705.07
Innovation Hub	150.00	1,907.00	286,053.50	245.15
Total	38,916.01	90,322.00	1,160,771,854.53	994,781.48