Energy consumption of the Janet Network

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An estimate of the scale of the carbon emission of usage of the Janet Network.

Methodology

The methodology is straightforward. Janet uses dark fibre leased from BT and similar networking infrastructure to BT's core network. We therefore assume the energy consumption is comparable.

- BT publishes its yearly energy consumption and amount of data carried: resp. 2,591 GWh and 50,000 PB in 2020 [BT Environmental Data and Emissions 2020/21, accessed 2023-03-28]
- Janet publishes its dayly data transfer: 3 PB/day [Jisc Janet, accessed 2023-03-28]
- For UK energy carbon intensity, we use 178 ton CO2e / GWh, this is the average intensity for 2022 [National Grid ESO Carbon Intensity Historic Data, accessed 2023-03-28]

Based on these numbers, Janet carries about 1,100 PB/year (3*365). So a reasonable estimate for Janet's energy consumption is around 57 GWh (2,591*1.1/50). This corresponds to 10,000 ton CO2e (57*178).