

Unregulated power loads

Calculated using methodology outlined in CIBSE Technical Memorandum TM54

INDIVIDUAL EQUIPMENT

Assuming offices have 1 workstation per 10m²

Total office area = 426m² = 43 workstations in total

Typical workstation equipment = 1 desktop PC + 2 screens + miscellaneous

Average power demand = 65W/desktop + 30W/screen + 15W miscellaneous = 125W

Sleep mode demand = 10W/workstation

Hours of operation = 5 days x 10 hours x 52 weeks = 2600 hours

Total hours in year = 8760 hours

Annual energy consumption = {43 x [(125 x 2600) + (10 x (8760-2600))]} / 1000

= 16,624 kWh/yr

COMMUNAL EQUIPMENT

Assuming photocopier and fridge per office

Average power demand = 250W/photocopier + 130W/fridge

= 380W per office

Sleep mode power demand = 40W/photocopier + 20W/fridge

= 40 + 20 = 60W per office

Hours of operation = 7 days x 14 hours x 52 weeks = 5096 hours

Annual energy consumption = {4 x [(380 x 5096) + (60 x (8760-5096))]} / 1000

= 8,624 kWh/yr

TOTAL

Individual power demand + communal power demand = Total power demand

16,624 + 8,624 = **25,248 kWh/yr**

Emissions associated with unregulated power demand = 25,248 x 0.519 (grid supplied electricity)

= 13.1 tonnes CO₂

= 3.02 tonnes CO₂ Average Commercial Unit