

Cutting Costs & Carbon Emissions With Modular UPS – ‘Before & After’

‘Before’ – The Existing Master Plus UPS Setup

<i>Locations</i>	<i>Equipment</i>	<i>Load %</i>	<i>Efficiency %</i>	<i>kW Hour Usage Per Year</i>
Switchroom A1, A2, B1 & B2 UPS Room	4 x MP 800- 2.4MVA N+1	25	89.00	6,407,595
UPS Room – 1.1, 1.2, 1.3, 1.4 and 1.5	5 x MP 400 - 1.6MVA N+1	46	93.90	7,836,421
Switchroom UPS 2.12.1 & 2.12.2	2 x MP 250 - 250kVA N+1	19	92.00	714,130
Switchroom 3 UPS 3.2, 3.3 & 3.4	3 x MP 800 - 1.6MVA N+1	45	92.80	8,269,137
Switchroom 4 UPS A, B, C & D	4 x MP 800 - 2.4MVA N+1	41	92.80	7,663,818
Mechanical Plant UPS Room 4.13 & 4.14	2 x MHT 400 - 400kVA N+1	12	92.00	866,478

- **Total kW Hour Usage Per Year = 31,757,579**
- **Overall Energy Cost Per Year (based on £0.087 per kWhr) = £2,762,909.37**
- **Additional Total Heat Output from air conditioning = 414 kW**
- **Additional Total Heat Costs from air conditioning = £315,517.68**
- **Total CO₂ Emissions Per Year = 2,147kg**

Cutting Costs & Carbon Emissions With Modular UPS – ‘Before & After’ (cont...)

‘After’ – The New Multi Power UPS Setup

<i>Locations</i>	<i>Equipment</i>	<i>Efficiency %</i>	<i>kW Hour Usage Per Year</i>
Switchroom A1, A2, B1 & B2 UPS Room	16 x 42kW/kVA Modules - 672kVA N+3	96.00	5,940,375
UPS Room – 1.1, 1.2, 1.3, 1.4 and 1.5	20 x 42kW/kVA Modules - 840kVA N+3	96.00	7,665,000
Switchroom UPS 2.12.1 & 2.12.2	2 x 42kW/kVA Modules - 84kVA N+1	96.20	682,952
Switchroom 3 UPS 3.2, 3.3 & 3.4	22 x 42kW/kVA Modules - 924kVA N+4	96.00	7,993,500
Switchroom 4 UPS A, B, C & D	21 x 42kW/kVA Modules - 840kVA N+3	96.00	7,400,375
Mechanical Plant UPS Room 4.13 & 4.14	3 x 42kW/kVA Modules - 126kVA N+1	96.20	828,648

- **Total kW Hour Usage Per Year = 30,510,850 (a saving of 1,246,729 kW Hours per year)**
- **Overall Energy Cost Per Year (based on £0.087 per kWhr) = £2,654,443.95 (a saving of £108,465.42 per year)**
- **Additional Total Heat Output from air conditioning = 116.7 kW (a 71.81% reduction)**
- **Additional Total Heat Costs from air conditioning = £88,939.40 (a saving of £226,578.28 per year)**
- **Total CO₂ Emissions Per Year = 603.5kg (a 71.89% reduction)**

Total energy and air conditioning savings per year = £335,043.70