

CATERING FOR A SUSTAINABLE FUTURE GROUP

ENERGY BENCHMARKS FOR CATERING FACILITIES

Fine Dining Restaurant:

The facility is of a high standard with a separate bar and reception area, the seating in the dining area is widely spaced. The menu is extensive using all fresh food which is prepared and cooked to order.

Fine Dining Energy Consumption Mix

42% Environmental & 58% Operational

Area required for 100 seats:

Seating area	100 x 2.0m ² = 200m ²
Bar area	100 x 1.2m ² = 120m ²
Production	100 x 0.9m ² = 90m ²
Cloakrooms etc	100 x 0.03m ² = 30m ²

Total area required 440m²

Seating Turnover:

2 Times per Day

Number of Meals

Number of seats x Daily Turnover per seat x Trading Days = Number of Covers

100 x 2 x 365 = 73,000 meals.

TYPICAL:

Total Energy Consumption per Year

Fossil Fuel 440m ² x 1250 Kwh - m ² - per year	=	550,000 Kw
Electricity 440m ² x 730 Kwh - m ² - per year	=	321,200 Kw

Total 440m² x 1980 Kwh - m² - per year = 871,200 Kw

Environmental Energy Consumption per Year

Fossil Fuel 550,000 Kw x 42% = 231,000 Kw (525 Kwh/m ²)
Electricity 321,200 Kw x 42% = 134,904 Kw (307 Kwh/m ²)

Total 871,200 Kw x 42% = 365,904 Kw (832 Kwh/m²)

Operational Energy Consumption per Year

Fossil Fuel 550,000 Kw x 58% = 319,000 Kw

Electricity 321,200 Kw x 58% = 186,296 Kw

Total 871,200 Kw x 58% = 505,296 Kw

Operational Energy Consumption per Meal

Energy Consumption ÷ Number of Covers

Fossil Fuel 319,000 Kw ÷ 73,000 = 1.33 Kw per meal

Electricity 186,296 Kw ÷ 73,000 = 0.78 Kw per meal

Total 505,296 Kw ÷ 73,000 = 6.92 Kw per meal

Annual CO₂ Emission Levels

Environmental Emissions

Fossil Fuel 231,000 x 0.19 = 43,890 kg CO₂

Electricity 134,904 x 0.43 = 58,009 kg CO₂

Operational Emissions

Fossil Fuel 319,000 x 0.19 = 60,610 kg CO₂

Electricity 186,296 x 0.43 = 80,107 kg CO₂

Total Emissions 242,616 kg CO₂ (66,234 Kg Carbon)

**242,616 kg CO₂ ÷ 73,000 = 3.32 kg CO₂ per meal
(0.907 kg Carbon per meal)**

GOOD PRACTICE:

Total Energy Consumption per Year

Fossil Fuel 440m² x 1100 kWh - m² - per year = 484,000 Kw

Electricity 440m² x 650 kWh - m² - per year = 286,000 Kw

Total 440m² x 1750 kWh - m² - per year = 770,000 Kw

Environmental Energy Consumption per Year

Fossil Fuel 484,000 Kw x 42% = 203,280 Kw (462 Kwh/m²)

Electricity 286,000 Kw x 42% = 120,120 Kw (273 Kwh/m²)

Total 770,000 Kw x 42% = 323,400 Kw (735 Kwh/m²)

Operational Energy Consumption per Year

Fossil Fuel 484,000 Kw x 58% = 280,720 Kw

Electricity 286,000 Kw x 58% = 165,880 Kw

Total 411,250 Kw x 58% = 446,600 Kw

Operational Energy Consumption per Meal

Energy Consumption ÷ Number of Covers

Fossil Fuel 280,720 Kw ÷ 73,000 = 3.85 Kw per meal

Electricity 165,880 Kw ÷ 73,000 = 2.27 Kw per meal

Total 446,600 Kw ÷ 73,000 = 6.12 Kw per meal

Annual CO₂ Emission Levels

Environmental Emissions

Fossil Fuel 203,280 x 0.19 = 38,623 kg CO₂

Electricity 120,120 x 0.43 = 51,652 kg CO₂

Operational Emissions

Fossil Fuel 280,720 x 0.19 = 53,337 kg CO₂

Electricity 165,880 x 0.43 = 71,328 kg CO₂

Total Emissions 214,940 kg CO₂ (58,679 Kg Carbon)

**214,940 kg CO₂ ÷ 73,000 = 2.94 kg CO₂ per meal
(0.804 kg Carbon per meal)**

The annual reduction in carbon by adopting Good Practice for this facility is 7,555 kg Carbon (11.4%)

By using Good Practice and a mixture of fossil fuel and electricity this facility will discharge 214,940 kg CO₂ /Kwh per year and this would increase to 331,100 kg CO₂ /Kwh per year, a 54% increase if it was run only on electricity supplied from the national grid.

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