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UNEP U4E Sustainable Procurement Guidelines for Data Centres and Computer Servers.

The number of data centres in developing countries is set to grow rapidly, driven by economic expansion, increased demand for data (especially in edge computing, artificial intelligence, cryptocurrencies and other applications) and a rising need for data sovereignty in processing and storage.

Data centres are extremely energy-intensive facilities with a significant carbon footprint. Their capacity is often measured by IT-installed power, ranging from a few kilowatts (kW) for small data centres to a few hundreds of megawatts (MW) for the largest ones. Typically, the electricity required to run IT equipment accounts for 40–70% of the total energy consumption. Most of the energy powering servers and ancillary equipment is ultimately converted to waste heat that then must be managed by cooling systems. Consequently, the second highest energy consumption is for cooling, typically accounting for 20%–50%. Depending on the cooling system of a data centre, the facility might require access to an abundant and secure source of clean water which could be challenging for many regions where water is scarce.

The impact of data centres is enormous and rapidly increasing. The International Energy Agency (IEA) estimated that worldwide data centres used 460 TWh in 2022 - around 2% of global electricity and that such **electricity demand could double towards 2026**. Efficiency improvements and regulations will be crucial in restraining data centres energy consumption. Nevertheless, there is still a lack of regulation and effective normative around this sector – as an example, only at this moment, the European Commission is developing the European Regulation for Data Centers.

Against this background, UNEP United For Efficiency initiative (U4E - <https://united4efficiency.org/>) has developed **Sustainable Procurement Guidelines for Data Centres and Computer Servers**. These guidelines are designed to help organizations set robust criteria and processes that improve the energy efficiency of their current or upcoming facilities. By reducing energy consumption and operating costs, enhancing competitiveness, and preserving critical resources such as high-quality water and national electricity, the guidelines support countries digitalization objectives while lowering their carbon footprint.

The Guidelines offer recommendations on several key performance criteria and operating conditions that are most relevant and impactful for the selecting of energy efficient data centre and computer servers. The criteria covers indicators such as **power usage effectiveness, water usage effectiveness, the IT equipment energy efficiency, and cooling effectiveness ratio** – are based on international best practices and established global standards (e.g., EU Code of Conduct series, Energy Star, ISO/IEC 30134, among others).