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Assessing the environmental impact of data centres**Part 2: Building environmental assessment methods and life cycle assessment**

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ABSTRACT

Data centres consume high levels of energy to power the IT equipment contained within them, and extract the heat they produce. Because of the industry's heavy reliance on power, data centre metrics have historically used operational efficiency as a proxy for sustainability. More recently the industry has begun to recognise that its focus needs to go beyond energy consumption, with the creation of metrics for issues such as carbon, water and compute efficiency. However, single-issue metrics often consider only the operational phase, omitting impacts from other issues, during other stages in a facility's lifetime. Further approaches exist to assess more holistically the impact of data centres, such as building environmental assessment methods, but none have the capacity to capture fully the interlinked nature of a system, where improvements in one area and to one impact, can adversely affect a totally different area and totally different impacts.

The following review of literature summarises the approach of the data centre industry to environmental impact, and provides direction for future research. Part 2 describes the use of building environmental assessment methods and tools; and concludes the need to apply life cycle thinking to more holistically assess the environmental impact of data centres.

Keywords

Data centres; Environmental impact; Life cycle assessment; Building environmental assessment methods; Life cycle assessment tools.

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