

Data centres can become net zero and sustainable - a new report by Ramboll finds

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EINPresswire.com/ -- A [new report](#) released today at Climate Week NYC by Ramboll, a global engineering, architecture and sustainability consulting company, lays out a strategic roadmap to address the negative environmental impact of data centres. The report offers tangible ways to reduce negative impacts related to carbon emissions, water, biodiversity, and material use.

'Developing sustainable data centres: A strategic roadmap to achieve net zero carbon and reduce environmental impact' offers full value chain solutions in designing, developing and delivering data centres, and outlines a series of achievable benchmarks for owners, developers, operators, and consultants. This first-of-its-kind report addresses the key areas affecting data centre sustainability: embodied carbon, operational carbon, biodiversity, circularity, energy, and water.

"The construction of data centres powered by the rise of artificial intelligence is booming across the globe, driving unprecedented demand for electricity and significantly contributing to global greenhouse gas emissions, increased water consumption, waste production, habitat destruction, and resource depletion," says Ed Ansett, Ramboll's Global Director of Technology and Innovation. "These challenges can be managed and mitigated if data centres are built with climate, biodiversity, and circularity impacts in mind from the very start."

Tackling operational and embodied carbon

Data centres accounted for about 1.5 percent of global electricity consumption last year and the



Ramboll developing sustainable data centres

amount is expected to double by 2030, according to the International Energy Agency (IEA). Due to the large quantities of energy consumed, operational carbon is the dominant component of total carbon emitted by data centres. The report reveals that an operational carbon benchmark of net zero is achievable through optimised energy efficiency and renewable energy procurement, energy reuse and export, and demand response.

Embodied carbon, contained in the structure and materials of data centres, can be reduced by using low carbon steel and concrete, locally sourced materials, or reused materials from decommissioned buildings.

Designing for positive net outcomes for biodiversity

It is vital to integrate biodiversity considerations into planning, design, construction, and operation of data centres to minimise the negative impact on ecosystems, protect existing natural habitats, and promote diversity of species within and around the data centres. For example, it is recommended to conduct early-stage ecological surveys to identify protected species, habitats, and ecological corridors, as well as engage landscape architects early in the process to influence site layouts.

Focus on circularity and water neutrality

Data centres can further minimise their environmental footprint by implementing circularity practices. The proposed circularity benchmark for data centres is that all materials are reused, reusable or recyclable, with zero output to landfill or incineration. Notoriously data centres consume large quantities of water, causing concern in water-scarce areas. The problem can be addressed with overall water neutrality that's achievable with appropriate water reduction and reuse strategies. Data centres operators should avoid water-based cooling, maximise cycles of concentration, and use additional water resources such as rainwater.

"There are economic benefits for data centres owners if they focus on circular practices," explains Ed Ansett. "For instance, the sole physical byproduct of data centre energy consumption is heat, which has historically been unused and released to atmosphere. Data centres are in an excellent position to export what would otherwise be wasted energy."

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For questions or media queries reach out to press@ramboll.com

About Ramboll

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