ICT Solutions for Brilliant Minds

CSC

Position Paper 4.1.2023
EU rating scheme for data centres
CSC – IT Center for Science Ltd.

The ICT sector's sustainability is a crucial factor for both the EU's climate goals and the industry's own outlook which cannot neglect ambitious climate, energy and environmental targets. CSC welcomes the creation of an EU-wide data centre sustainability rating scheme and is pleased to note the comprehensive approach the draft regulation takes to the sustainability of the operational phase of a data centre. However, for the rating scheme to be truly impactful, it must address the sustainability of the whole lifecycle of a data centre from construction through the operational phase to decommissioning. A **comprehensive, life-cycle based rating scheme** would be a good basis for further work on reducing the climate and environmental footprint of all energy-intensive industries through EU regulations, funding programmes, KPIs and incentives.

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When it comes to the operational phase of a data centre, the source is at least as relevant as the amount of energy consumed. Therefore, we are very happy to not the introduction of the **Renewable Energy Factor** (REF) in the sustainability indicators proposed in Annex III. The **Energy Reuse Factor** (ERF) is equally important, including the way the waste heat reuse is proposed to be measured as a KPI. It is key, for instance, to subtract the waste heat used for cooling, like proposed, to arrive at the real waste heat reuse rate outside data centre itself, as cooling can take as much as one third of the data centre's overall energy consumption.

However, attention must be drawn to the **relationship between Energy Reuse Factor (ERF) and Power Usage Effectiveness (PUE)**: in applications with extensive waste heat reuse outside the data centre perimeter, some extra power is needed to make the heat reusable in the district grid. This makes for a higher (better) energy reuse but also for a higher (worse) PUE. While the ERF should be the highlighted indicator particularly when developing the scheme further in the coming years, there should be a way to report a PUE reading in alternative ways: one calculated with the energy needed to generate district heat and another one without. This would compensate for the inherent tradeoff between ERF and PUE and create a more level playing field, also so that all data centres have an incentive towards greater energy reuse in the future.

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While the proposed indicators are good at taking into account the various aspects of the sustainability of the operational phase, the impact of the rating scheme will be limited unless it is expanded to cover the whole lifecycle of a data centre. Considering that buildings are responsible for around 40 percent of all annual greenhouse gas emissions[1], it is clear that a

[1] https://www.datacenterdynamics.com/en/analysis/sustainable-data-centers-require-sustainable-construction/

large part the carbon footprint of a data centre are created already at the **construction phase**. Similarly, the **decommissioning phase** can be a significant source of emissions unless the reuse and recycling of the parts (and possibly the site) of the data centre are done to the extent possible.

The best way to address the footprint of the construction phase is to use is to use **brownfield sites**, i.e. existing facilities redesigned to new purposes. CSC's own experience of building a data centre in the premises of an old paper mill[2] has shown that using a brownfield site can reduce the need for new construction materials to the extent that the carbon footprint of the construction project is reduced by 80 %. Therefore, a sustainability indicator on a yes – no basis should be added to the list in Annex III to show whether the data centre is located on a brownfield, or reused site. This would encourage making better use of existing sites instead of building on undeveloped land (greenfield), thus lowering some costs and improving the overall environmental footprint. Additionally, an indicator related to the **reuse and recycling rates** at the decommissioning phase should be developed.

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For more information on CSC's views on the sustainability of the ICT sector, along with links to further reading, see our statement on strengthening the role of digitalisation in EU climate policy[3]

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[2] https://www.csc.fi/en/kajaani-datacenter
[3] https://www.csc.fi/-/digitalisation-to-play-a-stronger-role-in-climate-policy-csc-gave-input-to-the-preparation-of-the-eu-climate-target-for-2040