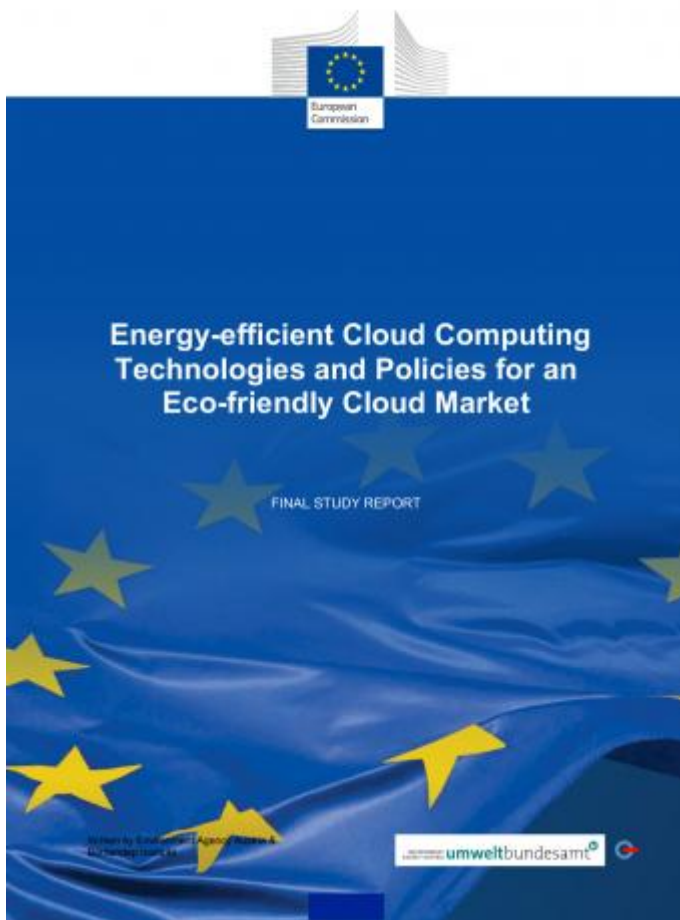


## Energy-efficient Cloud Computing Technologies and Policies for an Eco-friendly Cloud Market

This study addresses the issue of growing energy consumption due to the expansion of cloud services in Europe.



European Commission

front cover of study

The topic of energy-efficient cloud computing has become a priority on the EU political agenda and the European Digital Strategy sets the goal of achieving climate-neutral, highly energy-efficient and sustainable data centres by no later than 2030.

The study's main findings are:

- In 2018 the energy consumption of data centres in the EU was 76.8 TWh. This is expected to rise to 98,52 TWh by 2030, a 28% increase.

- This increase in absolute terms can as well be seen in relative terms: within the EU, data centres accounted for 2.7% of electricity demand in 2018 and will reach 3.21% by 2030 if development continues on the current trajectory.
- There is a growing trend towards edge computing because of increasing digitalisation and the associated need to capture, transfer and process more and more data. In 2018, edge data centres accounted for 2% of the energy used by data centres. This share is expected to rise to 12% by 2025.

Furthermore, the study finds that, due to the nature of cloud computing and the diversity of cloud service providers, there is no single solution to reach the 2030 target. Nevertheless, existing instruments can – to varying degrees – be used as a starting point or at least as an inspiration for further developments or new designs of policy instruments. Examples include the EU Code of Conduct on Data Centre Energy efficiency, and the forthcoming reviews of the Ecodesign Regulation on servers and data storage products and the Energy Efficiency Directive.

Thanks to the findings of the study, the Commission has a better understanding of the current situation in the EU, enabling it to better target further action to foster energy efficient data centres and cloud services. The recommendations on future policy actions will be used to identify next steps to green data centres and cloud computing. These recommendations will feed a further study, which explores more specific and actionable policy measures, and assess their impact on the energy efficiency of data centres in the EU.

Final study report

(updated version 27/11/2020)

## **Related topics**

Creating a digital society  
Cloud Computing  
Investing in network and technologies  
5G  
Building a European data economy  
Smart manufacturing  
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