

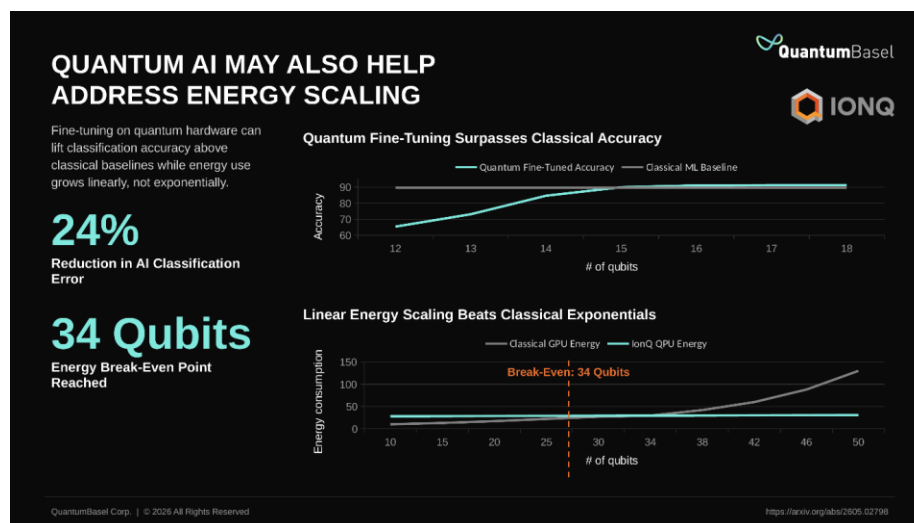
The potential of quantum technology in the context of energy efficiency

The future of energy is being developed not only on the roof of our substation, but also at our centre of competence for quantum computing & AI, QuantumBasel, located on the campus. A recent study by QuantumBasel and IonQ researchers has now been reviewed and accepted for the prestigious IEEE Quantum Week 2026.

The present study focuses on the question of whether quantum computers could be not just an alternative, but perhaps even a more energy-efficient alternative to classical graphics processing units (GPUs) and systems for certain AI tasks. The result of this investigation revealed that, for a specific system size – approximately 34 so-called algorithmic qubits – the quantum system exhibited a reduced energy consumption in comparison to a comparable classical simulation of the quantum circuits.

This phenomenon has been termed an 'energy inflection point' by the researchers. The energy requirements of quantum systems increase only linearly with the number of qubits, whilst classical hardware becomes significantly more energy-hungry in simulating the respective quantum circuits as AI models grow. It should be noted, however, that thus far, the testing of the system has been conducted on a single use case and on a single system. This should therefore be regarded as an initial indication only.

Further information regarding the study can be found [here](#).



Additional Sources:

- <https://arxiv.org/pdf/2605.02798>
- [IonQ Blog: “Why Quantum Fine-Tuning is the Scalable Answer to AI's Power Crisis”](#)
- [Quantum Zeitgeist: “IonQ Quantum Fine-Tuning Beats Classical Simulations On Energy Use”](#)
- [Quantum Zeitgeist Weekly Digest \(Juli 2026\)](#)
- [Foreign Policy Journal: “IonQ And QuantumBasel Research Shows Quantum Systems Cut AI Energy Consumption Past 34-Qubit Threshold”](#)