# DIGITAL CLIMATE ALLIANCE

## Promise and Peril: Sustainability & the Rise of Artificial Intelligence

### AI's Handprint: The Role of AI in Climate Solutions

- AI can make meaningful contributions to an array of efforts related to climate change, from fundamental science to reducing emissions across sectors.
  - **Energy Sector**- AI can aggregate and orchestrate the interaction among distributed resources to create virtual power plants that provide grid services and demand response. AI can also help unleash flexible demand, especially in load-constrained regions where market signals help prioritize voluntary load shedding at certain times of the day versus having to resort to mandatory curtailments.
  - **Buildings Sector**- AI can reduce energy use in buildings by optimizing rooftop air conditioning units that lack broader building energy management systems, achieving significant energy use reductions.

### AI's Footprint: The Environmental Impacts of AI

- AI has many positive impacts on sustainability, but it is also important to consider AI's own environmental footprint.
  - **Energy and Water Use**- While projections about the energy demand and emissions associated with AI exist, the actual future numbers remain unclear. They depend on numerous factors, including the efficiency of future hardware and AI models, demand for AI services, and the amount of clean energy used to power data centers.
  - **Solutions to Reduce the Impacts of AI**- Solutions include energy efficiency optimization, liquid cooling technologies, reuse of waste heat, circular economy efforts, and increased federal research and development to reduce data centers' environmental footprint.

### About Us

The Digital Climate Alliance (DCA) is a coalition of forward-thinking companies that are committed to using digital tools to decarbonize the economy. Coalition members recognize the urgent need to address the climate crisis and believe in the transformative impact of technology in driving significant emissions reductions.

Baker Hughes · BLACK & VEATCH · DELL Technologies · Google · intel · NVIDIA · Schneider Electric · TRANE TECHNOLOGIES

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## Policy Recommendations

### Mitigating AI's Footprint

1. Establish a **distinct category for data centers** in the U.S. Energy Information Administration's Commercial Buildings Energy Consumption Survey.

2. Direct Lawrence Berkeley National Laboratory (LBNL) to **update its data center efficiency report every two years.**

3. Create a dedicated **"policy home" within the Executive Branch** to develop and implement a coordinated policy approach for **AI infrastructure governance** across federal agencies.

4. Include **sustainability metrics** in the implementation of the **Federal Data Center Enhancement Act of 2023**, specifically through enhanced internal management and increased reliance on third-party data center providers.

5. Encourage the **adoption of liquid cooling solutions** in both new and existing data centers deploying high performance computing applications/AI infrastructure.

6. Support the development and **adoption of waste heat recovery systems** within data centers.

7. Urge the U.S. Department of Energy to **develop a research agenda** that reduces data centers' environmental footprint.

### Enhancing AI's Handprint

8. Promote measures to **encourage AI literacy and skills development** in the public sector.

9. Direct the Federal Energy Regulatory Commission (FERC), the North American Electric Reliability Corporation (NERC), and state public utility commissions to **evaluate barriers to flexible demand that exist in wholesale and retail markets**.

10. Accelerate the deployment and utilization of **dynamic line rating, virtual power plants,** and **other grid enhancing technologies**.

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