2024 United States Data Center Energy Usage Report

Dr. Sarah J. Smith

Midwest Energy Solutions
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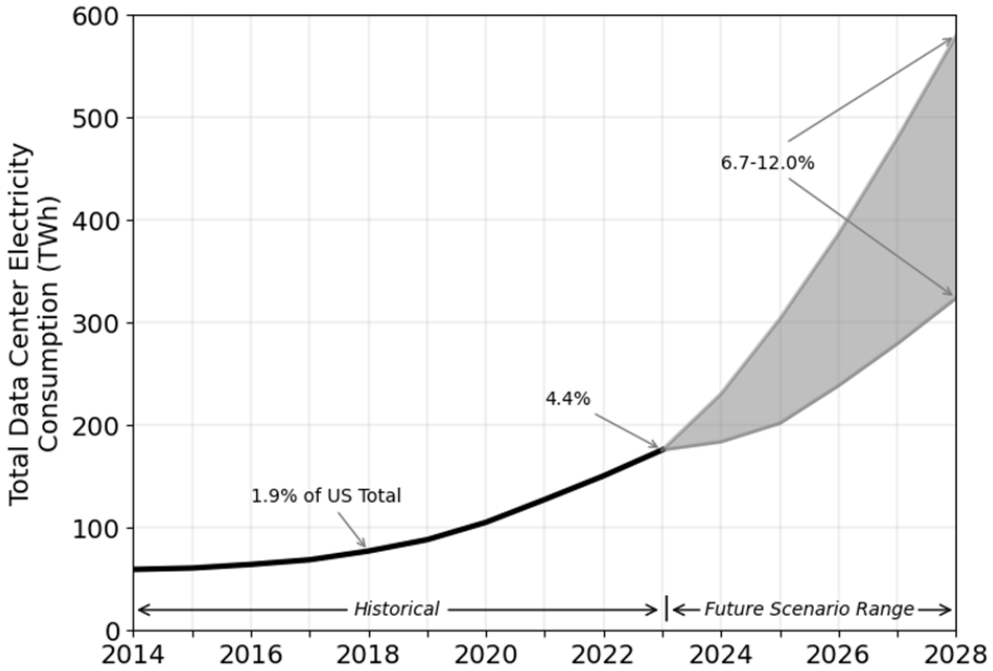
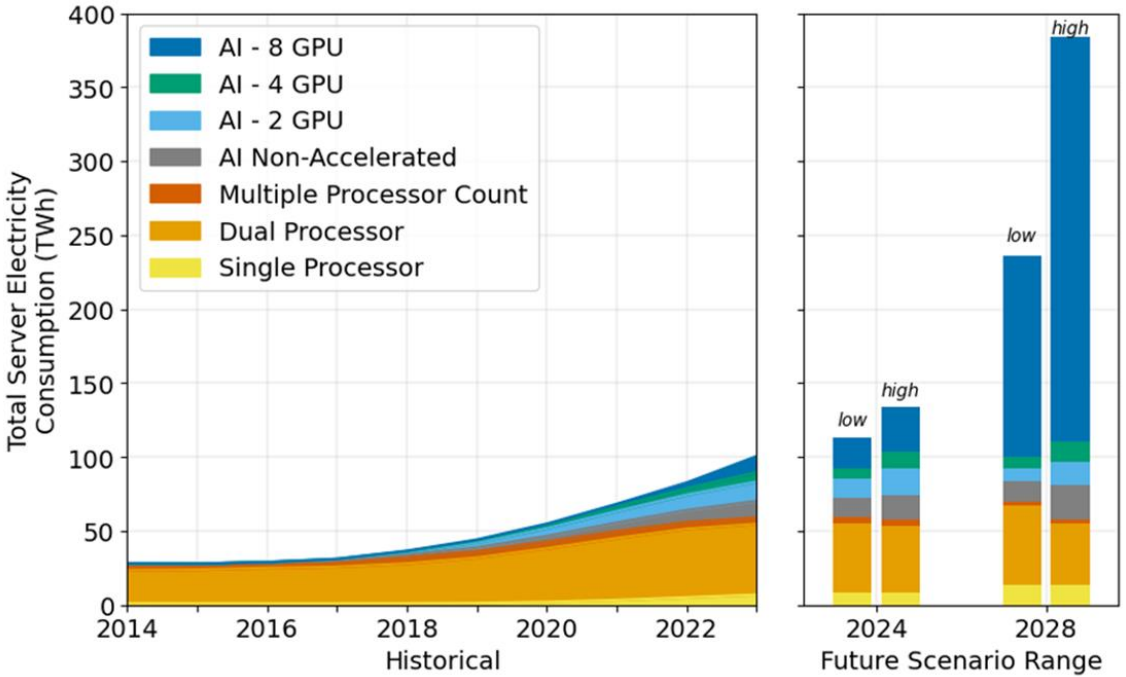
Total Data Center Estimates

Total electricity use 176 TWh in 2023; modeled range 325-580 TWh in 2028



Server Data Center Estimates

Electricity use by server type based on report assumptions



Additional considerations

- Forecasts are very uncertain
  - Short timeline (3-4 years) can be based on orders placed for chips, facilities under construction, and so on.
  - Longer timelines are much more speculative, especially when considering local demands
- Unit conversions can be tricky
  - LBL reporting focuses primarily on **electricity consumed (e.g. kWh, TWh)**
  - Data center industry tends to talk in terms of **facility nameplate capacity** (e.g. MW, GW). This does not necessarily relate directly to the peak load of the facility, or the peak consumption of the IT equipment, or any value that can be used to convert to estimated consumption.
- Context is important
  - Data center demand growth is real, and it is happening fast. But demand growth in other sectors is expected. These should all be considered holistically.

Appendix

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Berkeley Lab data center energy use modeling