

BLACKGRID LABS

Infrastructure Beneath the World

The Demand Shock: Data Centres, Electrification, and the Coordination Gap

Research on separating announced electricity demand from evidenced commitments and testing capacity under different load scenarios.

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In essence

Why we are talking about this

New compute demand and electrification make planning more uncertain. Adding project announcements together can hide duplication and differences in how likely, flexible or time-sensitive each load is.

Purpose

Develop a demand record that distinguishes evidence from forecasts and supports transparent capacity decisions.

What we found and focus on

- The IEA projects substantial growth in data-centre electricity demand; its outlook is a scenario, not a list of committed Canadian loads. [1]
- An announcement, queue application and signed connection agreement are different evidence classes.
- The same project may appear in more than one record and needs an identity check.
- Annual energy and demand at the constrained hour need separate accounting.
- Electric vehicles, heating, industry and data centres need different load assumptions.
- Flexibility should be counted only under stated operating and contractual conditions.
- Forecast uncertainty remains even when the accounting is repeatable.
- This edition provides no verified national total or estimate of phantom load.

Conclusion and next steps

Design a small demand register, reconcile it with its sources, and test capacity decisions across explicit weather, timing and project-completion scenarios.

Full revised research

What is changing

The IEA's 2025 Energy and AI report projects growth in electricity use by data centres. It explains why planners need to examine compute demand, but its global scenarios do not establish the load at a Canadian substation. [1]

This paper focuses on the accounting needed before local allocation decisions. It does not claim that a private BGL register has measured the Canadian queue or established a national capacity shortfall.

A record of commitments

For each project, record the applicant, location, proposed size, timing, source date and evidence status. Keep announcements, applications, agreements, construction and operating loads in separate categories. A project moving between stages should keep its history.

Check for duplicate names, corporate affiliates and alternative sites. A duplicated entry should be resolved with evidence rather than a guess. If uncertainty remains, retain it and show how it changes the aggregate.

Energy, peak and flexibility

A project's annual consumption is not its contribution to the constrained hour. Planning needs a load shape and the conditions under which that shape changes. Seasonal heating demand, industrial shifts and compute workloads require different assumptions.

Flexible demand also needs a definition: how much can be reduced, for how long, on what notice, and at what cost? A proposed flexible workload should not be treated as dependable relief without an enforceable arrangement and a performance test.

Forecasts remain necessary

Evidence about present commitments does not determine future demand. Completion dates, utilization and weather remain uncertain. A governed register can make those assumptions visible while forecasts and scenarios estimate what could happen.

The Electricity Advisory Council's 2024 report supplies a broader planning context. It does not prove that ledger software eliminates forecasting uncertainty or settles competing claims on capacity. [2]

A testable research method

Begin with a limited region and publicly traceable projects. Have another analyst classify the same records independently. Measure disagreements and the frequency of duplicates before using the register for planning.

Run several demand scenarios with identical network assumptions. Report which decisions change when a project is delayed, removed, duplicated or less flexible than expected. Keep insufficient evidence visible instead of burying it in a single forecast.

Conclusion and next steps

Better evidence about commitments can improve a capacity discussion. It will not remove the need for forecasts, engineering studies or a legitimate allocation policy.

Publish the classification rules and a small example register. Reconcile it independently, then test whether it changes a real planning decision in a useful and defensible way.

Sources

Numbered citations refer to these sources. Proposed methods and next steps are BGL research proposals, not results established by the cited publications. Links checked for this revision on October 11, 2026.

[1] IEA: Energy and AI, executive summary (2025)

https://www.iea.org/reports/energy-and-ai/executive-summary

[2] Canada Electricity Advisory Council: Powering Canada, a blueprint for success (2024)

https://natural-resources.canada.ca/energy-sources/powering-canada-blueprint-success