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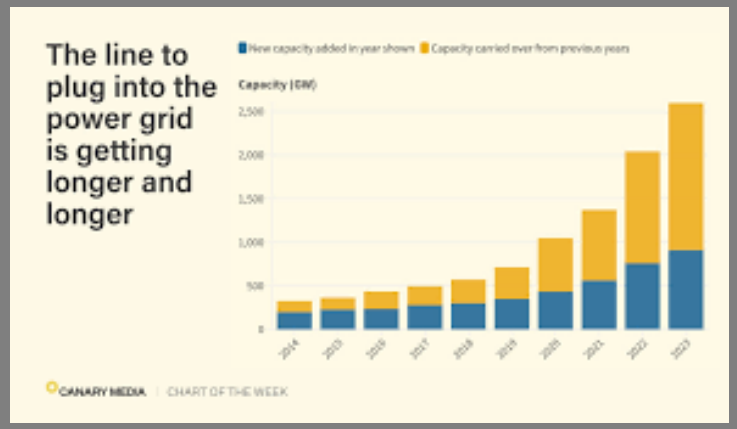
Can AI Solve the Clean Energy Grid Interconnection Problem?

Hurry up and wait



The growing backlog in interconnections queues throughout the country are well documented.

Literally terawatts of clean energy sit for years waiting to attach to the grid.

- According to a Lawrence Berkley National Laboratory report, in the U.S. alone, there was almost 2,600 gigawatts of mostly solar, wind, and battery storage projects sitting in interconnection queues at the end of 2023.
- That was a 27% increase over 2022.
- The 2024 numbers are being tallied, but the odds are good the number didn't go down.

Interconnection has been a growing and largely unaddressed problem. One of the many challenges is not enough qualified engineers to review applications.

Add growing electricity demand for the first time in decades and things are likely to get worse unless the problem is adequately addressed.

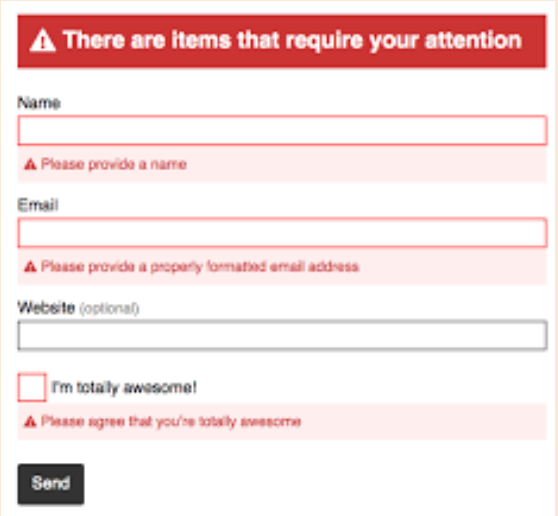
AI to the rescue?

- In the hope of solving the problem, the Department of Energy's Grid Deployment Office (at least for now) is dangling $30 million to speed the interconnection process along.
- Having spent a good deal of my career in technology, I know hype from reality, and most of the propaganda about AI is still hype at this point.
- With that said, this is a perfect application for where AI is today.
- The question then becomes whether the Trump administration will see it the same way. Project 2025 calls for defunding Grid Deployment Office programs except those that "appear to be properly focused on enhancing the reliability and security of the electric grid."

Application errors are undoubtedly causing delays, but even for humans, that's an easy problem to solve.

I'm not buying that this is the most pressing problem. It sounds more like the utility industry attempting to deflect blame.

What's the plan?



- The strategy is to apply AI algorithms to quickly assess which interconnection applications are deficient and allow project developers to be quickly notified.
- This type of task is a slam dunk for AI. It should be able to be quickly trained to spot errors and omissions.
- Utilities say that 90% of applications has some sort of deficiency, and that this is a major source of delay.

What the bigger problem?

Federal Energy Regulatory Commission (FERC) Order 2023 is intended to revise interconnection from a first-come, first-serve process to a first-ready first-served one.

That change is long overdue. The question now is: what will happen to all the recent FERC orders including 2023?

The process itself

- The interconnection process was never well thought out. Before the flood of clean energy projects there wasn't a need.
- Once the renewable "gold rush" started that all changed, but the process didn't.
- First-ready, first-served is a good start, but who decides which projects are most ready? Utilities don't have enough power engineers to review applications. Can AI solve this problem as well?
- Another problem is determining necessary grid upgrades. All the best locations to connect to the grid have long been claimed. Now, more often than not, expensive upgrades are necessary. These need to be quickly identified. This is a more challenging problem to train AI to solve.

The bottom line: AI can help, but if it's only focused on application errors it won't put much of a dent in the queues.

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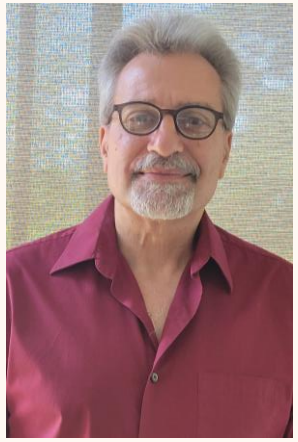

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