

CLIMATE CHANGE AND ENERGY

What's driving electricity demand? It isn't just AI and data centers.

Three things to know about electricity in 2025.

By Casey Crownhart

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Electricity demand rose by 4.3% in 2024 and will continue to grow at close to 4% annually through 2027, according to [a new report](#) from the International Energy Agency.

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If that sounds familiar, it may be because there's been a constant stream of headlines about energy demand recently, largely because of the influx of data centers—especially those needed to power the AI that's spreading seemingly everywhere. These technologies are sucking up more power from the grid, but they're just a small part of a much larger story.

What's actually behind this demand growth is complicated. Much of the increase comes from China, India, and Southeast Asia. Air-conditioning, electric vehicles, and factories all play a role. And of course, we can't entirely discount the data centers. Here are a few key things to know about global electricity in 2025, and where things are going next.

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### **China, India, and Southeast Asia are the ones to watch.**

Between now and 2027, about 85% of electricity demand growth is expected to come from developing and emerging economies. China is an especially major force, having accounted for over half of global electricity demand growth last year.

The influence of even individual sectors in China is staggering. For example, in 2024, about 300 terawatt-hours' worth of electricity was used *just to produce solar modules, batteries, and electric vehicles*. That's as much electricity as Italy uses in a year. And this sector is growing quickly.

A boom in heavy industry, an increase in the number of air conditioners, and a robust electric-vehicle market are all adding to China's power demand. India and Southeast Asia are also going to have above-average increases in demand, driven by economic growth and increased adoption of air conditioners.

And there's a lot of growth yet to come, as 600 million people across Africa still don't have access to reliable electricity.

### **Data centers are a somewhat minor factor globally, but they can't be counted out.**

According to [another IEA projection](#) published last year, data centers are expected to account for less than 10% of global electricity demand growth between now and 2030. That's less than the expected growth due to other contributors like electric vehicles, air conditioners, and heavy industry.

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improvements. Data centers are reversing that trend.

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Take the US, for example. The IEA report points to other research showing that the 10 states hosting the most data center growth saw a 10% increase in electricity demand between 2019 and 2023. Demand in the other 40 states declined by about 3% over the same period.

One caveat here is that nobody knows for sure what's going to happen with data centers in the future, particularly those needed to run AI. Projections are all over the place, and small changes could drastically alter the amount of energy required for the technology. ([See the DeepSeek drama.](#))

One bit I found interesting here is that China could see data centers emerge as yet another source of growing electricity demand in the future, with demand projected to double between now and 2027 (though, again, it's all quite uncertain).

**What this all means for climate change is complicated.**

Growth in electricity demand can be seen as a good thing for our climate. Using a heat pump rather than a natural-gas heating system can help reduce emissions even as it increases electricity use. But as we add demand to the grid, it's important to remember that in many places, it's still largely reliant on fossil fuels.

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The good news in all this is that there's enough expansion in renewable and low-emissions electricity sources to cover the growth in demand. The rapid deployment of solar power alone contributes enough energy to cover half the demand growth expected through 2027. Nuclear power is also expected to see new heights soon, with recovery in France, restarts in Japan, and new reactors in China and India adding to a stronger global industry.

It isn't inherently bad that the grid is growing. More people having air-conditioning and more factories making solar panels are all firmly in the "positive" column, I'd argue. But keeping up with this breakneck pace of demand growth is going to be a challenge—one that could have major effects on our ability to cut emissions.

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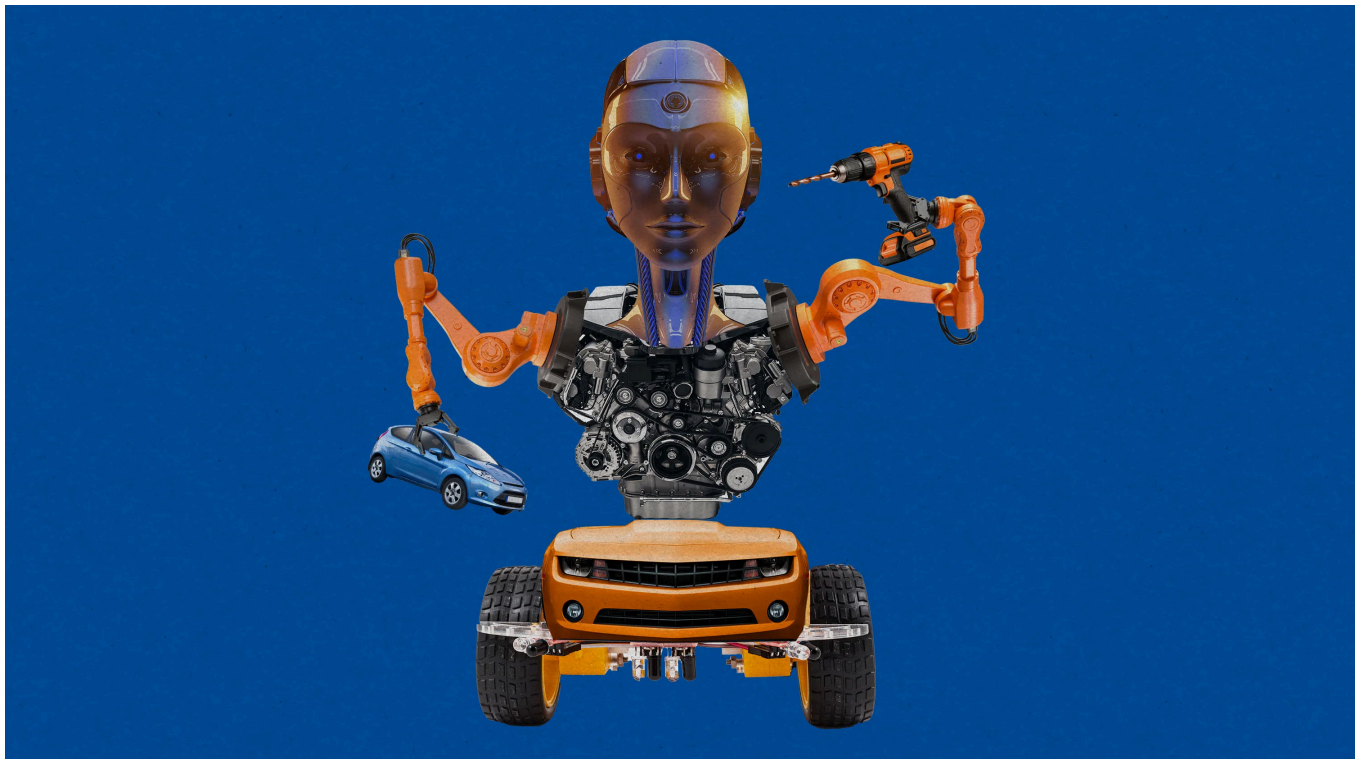
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by Casey Crownhart



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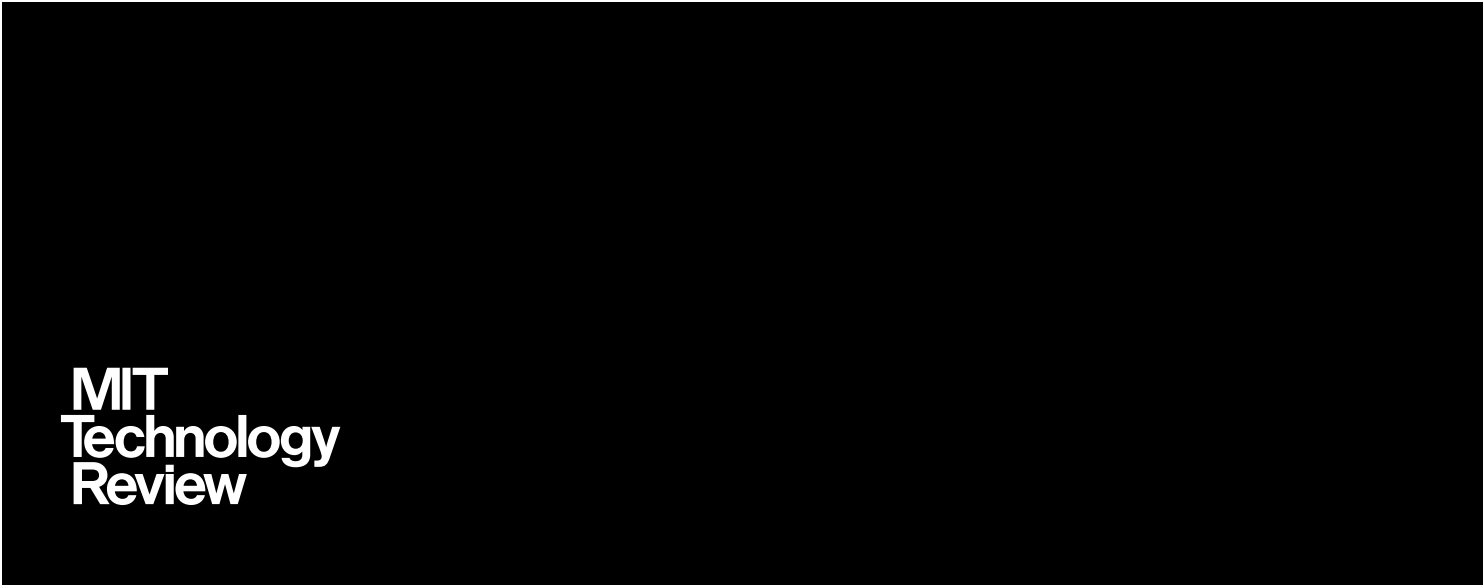
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