



Are data centers driving up utility costs? (Episode 27)

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As Americans face rising utility costs, much of the blame is being directed at the construction of new energy-intensive data centers. But are data centers actually the main culprit? Host Monica de Bolle is joined by Douglas Giuffre (S&P Global Energy) to discuss the multiple factors at play in soaring electricity charges. These range from supply chain disruptions to lack of investment in generating capacity, and changes in energy policy at the federal and state level. Data centers, he explains, aren't the center of the problem—yet.

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MONICA DE BOLLE: Homeowners and other consumers are complaining more vocally about rising utility costs. A lot of the blame is being directed at plans to build big new data centers to accommodate expanded use of artificial intelligence tools in business and at home. But are data centers solely to blame?

Not so much. True, data centers have the potential to drive up costs, especially electricity, for businesses. But other factors, like supply chain issues and capacity building generally, are the more likely culprit for current price increases.

You're listening to an episode of Policy for the Planet, a podcast exploring the global response to the climate crisis. I'm your host Monica de Bolle, a senior fellow at the Peterson Institute for International Economics.



To help us dive in deeper to why utility costs are rising, I'm joined by:

DOUGLAS GIUFFRE: Doug Giuffre, I'm an executive director and I lead the Amerigus Power and Renewables Research Team at S &P Global Energy.

MONICA DE BOLLE: Doug has more than 15 years of energy industry experience, specifically in supply and demand forecasting, demand response, and capacity markets.

Hi, Doug. It's a pleasure to have you on Policy for the Planet. Thank you so much for joining us, in particular, to talk about this fascinating issue of what's happening to utility prices and electricity prices in the US. So let me start us off by asking you a very broad question, which is just give us an overview of what the lay of the land is currently regarding utility prices.

DOUGLAS GIUFFRE: Absolutely, Monica. Thanks so much for having me. What's happening in the power sector today is that electricity prices have been rising faster than the general rate of inflation. And we've been seeing it now in general since 2022. That is a significant departure from where we were for much of the last decade, where retail electricity prices were fairly flat. And one of the interesting things that we're seeing is that it is certainly high on the minds of utility executives.

So when we look at their earnings calls and query the transcripts for how often do they mention the word affordability, you can look back 2017, 2018 and very minimal mention of affordability. That began to ramp up after 2021. When we had the pandemic, people were working from home more often. And so we are seeing higher residential electricity consumption.

We also had some unemployment. And so people had more of an energy burden. After 2021, we had the Russian invasion of Ukraine that increased global natural gas prices. That translates pretty directly into the price a lot of consumers pay for their electricity. That was a significant spike that we saw in 2022 and into 2023 in some markets. But we've consented continuing to see that upward pressure on retail electricity prices. And there are a number of drivers that vary depending on the jurisdiction you're in. And this is one of the challenges here for the industry to communicate what's happening, but also for the general public to understand, because the differences really do vary depending on where you are.

In California, for instance, we've seen a lot of pressure stemming from wildfire and mitigation costs with that. And some of the markets, it has been related to increased



transmission and distribution spending. We've got an agent grid and there's been a lot of investments that have been made to upgrade that. And those costs are now flowing through the customers. And in other markets, has data centers have contributed, but that is certainly not universal.

And but there's just, I think, a misperception, the public at large, of what's happening today.

MONICA DE BOLLE: So would you say that this overall perception that data centers are at the core of the rise in electricity prices, that is simply not true in a very general way?

DOUGLAS GIUFFRE: That is not true, yes. When we look across the country, where you see very heavy concentrations of data centers aren't consistent with where the electricity price increases have been prior to 2025. So I said we've seen escalation 2022, 2023, and 2024. That is really before we've seen the recent surge in data centers. We've seen it in markets like New England, very little data center activity there. We've seen it in California, very little data center activity there. Now that said, the PJM capacity market has made headlines around the country for how high prices have gotten there the last few auctions.

A lot of that increase in capacity prices, which is a component of people's retail electricity bills that is attributable to data centers. And it's only now beginning to hit retail electricity prices and that is going to put upward pressure. But data centers are very regionally concentrated and they will have an impact on retail electricity prices in some jurisdictions, but it's not broadly why as a country we've seen electricity prices increasing faster than inflation.

MONICA DE BOLLE: Yeah, this is very interesting. With respect to what you were saying before about capacity, investments, and so on, what has happened? I mean, what has happened to investments in the power sector, investments on transmission capacity, distribution capacity? And can we say something about, know, sort of on a kind of historical basis, what has been the outlook over the last few years with respect to that?

DOUGLAS GIUFFRE: Yeah, the power sector is in an interesting place where the landscape has changed dramatically in the last two years. We had been in a state as an industry of sluggish electricity demand growth outside of certain areas like Texas.



Broadly, electricity demand had been flat since 2009 or 2010. Very little growth. Some markets were seeing declining demand.

And so the industry had a mindset that we're not a growing industry. We're transitioning away from some of the older conventional technologies for power supply, like coal, potentially some gas, old gas and oil units are being phased out. And transitioning and building a lot of wind, solar and battery supply.

Two thirds of the coal fleet in the US today is over 50 years old, and that is a typical age of retirement. And so we were kind of seeing a natural cycle here that a lot of the old coal plants were being retired and they're reaching the end of their use for life. As data centers have emerged and now we have expectations universally for much stronger electricity demand going forward, it's required a shift in mindset for the industry.

The challenges... Data centers work on a different time scale in the power sector. Data centers can be developed in two to three years. A lot of power sector infrastructure is much longer lead times. And this quick pivot is helping to push up prices. There's gas turbines that have backlogs in driving up gas turbine prices, meaning future power is going to be more expensive because of all the constraints in supply chains to meet all the surging electricity demand.

As it relates to transmission distribution investment, historically, we were not keeping pace with developing transmission distribution. That began to ramp up early last decade. The industry began spending much more. And a lot of it is going into hardening the system, making it more resilient to winter storms. But that can be very expensive. And we are seeing those costs begin to flow through.

We often talk about it's very challenging to build transmission lines in this country because you have NIMBYs and you have a lot of local opposition to the transmission. But the reality is the industry does spend a lot. It's just not on very long transmission lines. It's for a lot of local upgrades, which are still necessary, but those costs need to be recovered by ratepayers.

MONICA DE BOLLE: Yeah, what you just said right now is really interesting because in earlier in this season of the the of the podcast, we had an episode specifically on electricity in China. And there, of course, the story on investment capacity transmission is the opposite of what's been happening in the in the United States as of late. mean, China has been investing very heavily and it's not local. It's countrywide. So it's pretty much going everywhere. And



It's a big contrast. mean, when you look at the things that you're saying compared to some of the things that we covered in episode 22 with a China electricity expert, really draws, I think, a stark picture of where we are in comparison. So thank you so much for bringing that up. I want to go back to the supply issues or the supply chain issues that you mentioned, which pretty much are covering every single source of power that we can think of, right? Because it's affecting coal, as you said, it's affecting LNG, and it's certainly affecting wind and solar, not least of which because of the IRA subsidy rollbacks, which by the way, we also talked about in this podcast. But anyway, give me, if you could, a sense of these supply chain problems that pretty much cover everything.

DOUGLAS GIUFFRE: Yeah, I think it relates to, like I mentioned, the timelines that the industry is on. The way we've been describing it is the industry is facing a power crunch. We are likely to see significant load growth over the next five years. I mentioned the last 15 years as an industry, the US power sector was growing under 1.5 % per year.

And now we're likely to grow 2.5 % per year to 2030. And a lot of that is regionally concentrated. As I mentioned, that requires the industry to pivot quickly. But that is very challenging to do. take gas turbines, for instance. The US power sector prior to 2024 was ordering on average about 6 gigawatts of gas turbines per year. That quickly ramped up to about 14 gigawatts in 2024 and through the first three quarters of this year, we're over 30 gigawatts.

So we are massively ramping it up, but the providers, the companies that are developing the GE, the Novas of the world, they're constrained in meeting all this demand. And so the backlog is meaning that new projects, new gas projects probably aren't coming online until 2029, 2030, 2031. We'll have some in the meantime, but this massive order book is going to take some time to hit the market and provide power to the system. At the same time, we have challenges with wind and solar. We have, as you mentioned, the rollback of the Inflation Reduction Act's tax credits. In the near term, that is going to accelerate deployment as developers would like to take advantage of the tax credits before they expire.

But we also have meaningful challenges in terms of interconnection cues, which are backlogged, transmission studies that need to be done to connect them to the grid. We also have growing local opposition to wind and solar and battery deployment. And this is something that predates the Trump administration. We can look back at data to say 2016. And when you poll Democrats and Republicans, how they, their favorability of wind and solar. In 2016, 2017, both viewed them very favorably. As this country's grown



more polarized, Republican favorability of both wind and solar declined dramatically. And the reason why that's relevant is a lot of capacity, particularly for wind, tends to be located in the middle of the country in red states.

And so... even before the IRA tax credit to roll back, the industry was facing a lot of challenges in bringing new supply online. Now we are, as the Trump administration, you know, had an executive order arguing that we have an energy emergency. We do in a sense that demand is growing very rapidly and supply is constrained and how quickly it can respond. And so we really need to take, and I would think the industry is taking an all of the above approach where they're building all kinds of different technologies, will just be limited to the amount that we can put on the grid over the next five years.

MONICA DE BOLLE: So how heterogeneous would the effect be? I'm thinking of looking at a map of the United States. How heterogeneous will the impact be on consumers, on electricity consumers, households, and not just companies, but households as well? Can you say something about that? Is that?

DOUGLAS GIUFFRE: Yeah, and as far as it relates to retail electricity rate increases, these are a function of complex rate making by utility commissions around the country. And so there are conflicting opinions the impact data centers may have. I mentioned in the PJM market, because the data centers are so large there, that is such a large volume of new demand.

And the way the market is currently organized, those costs are flowing on other consumers. PJM's market monitor, Monitoring Analytics, put out a report last year and a follow-up earlier this year where they point out that a significant driver of the price increase in the PJM footprint is attributable to data centers. Had we not had data centers included in these load forecasts, capacity costs would have been much, much lower.

Certainly data centers contribute there. Now, the current trend today is that utilities, regulators, and the data center developers and hyperscalers are very sensitive to this issue and would like to do their best to insulate other consumers from the impact of data centers on them. So we're seeing a lot more large load tariffs which requires the data center to guarantee they're going to consume a certain amount of power, sign long-term contracts, different things to ensure that the infrastructure spending associated with their new electricity loads will not be felt by households and other businesses. That is going to be, have to be carefully managed. So it's not for certain that data centers are



going to push up retail electricity prices for others, but we can't point to the PJM market, at least today and point to the impact they've had.

Like I mentioned upfront, there are different drivers of retail price increase. So data centers today do not have a large presence in New York or New England. And so the price pressures they'll feel will be from other drivers, including fuel costs. So natural gas is the leading source of electricity in New England and New York. To the extent we see higher electricity prices, which both S &P global experts predict for 2026 and the NYMEX forward curve is also pointing to higher prices.

That will directly translate into higher electricity prices in those regions. Other regions that have a more diverse fuel mix may be insulated from that a bit. And some of the states that never restructured their power markets, they have vertically integrated utilities. They can sign long-term contracts and try and mitigate some of these increases. So as we've seen in the past, we have a wide range of retail electricity prices today when you look across the 50 states. The changes over the last five years have varied. I would expect that over the next five years we'll continue to see significant variation.

MONICA DE BOLLE: Is it possible to say anything about what kind of impact this might have on inflation going forward?

DOUGLAS GIUFFRE: I think it's a key component of inflation. Just broadly, the supply chain challenges the industry is facing. Energy is electricity is growing in importance and all of our lives to the extent we electrify further. So adoption of electric vehicles. I was just this week speaking with a local municipal electric company in Massachusetts. And, you know, they're talking about electrification of buildings. So heat pumps there.

And wondering, is this the right decision? If electricity prices are going to continue escalating there, this is a bigger cost burden for their consumers. At the same time, it's very challenging to build new natural gas pipelines in this country, particularly into New England. So there are not a lot of options to bring other fuel sources there. So to the extent we do see electricity price escalation,

I think that can be a broad driver of inflation. It certainly impacts the energy burden and affordability issue that consumers are facing. Like I mentioned, when you look at how often utility CEOs are mentioning affordability on their earnings calls, it's 10 times the rate it was in 2019.



MONICA DE BOLLE: Yeah, that's a critical point. That's a very important point. So when you kind of look at the landscape with the assessments that you have, how optimistic are you that the US will be able to adequately address the bottlenecks that it currently has?

DOUGLAS GIUFFRE: Great question. I think the industry can manage modest low growth faster than we've seen in the last five to 10 years, maybe thinking something along the lines of 2 % per year. Now, what's interesting, prior to the emergence of data centers in late 2023, our in-house forecast of electricity demand was about 1 % per year. This is, say, going up to 2035.

The reason why, and that was a significant departure from where we had been the previous 10 years. It was owing to electrification, new electric vehicles, heat pumps, et cetera. Those were big drivers. When we layer on data centers, we think it's more like two to two and a half percent per year, huge jump. the industry, I think we are viewed somewhat bearish by others in the industry.

MONICA DE BOLLE: Wow, that's a huge dump.

DOUGLAS GIUFFRE: There a lot of forecasts are north of 3 % per year for the US. There are pockets in this country, Virginia for instance, which will probably see 6 or 7 % per year growth. So I think the industry can manage with challenges 2 to 2.5 % growth. If we were to see 3 % or more, very, very challenging to think we could meet that kind of demand even over the next 5 to 10 years.

MONICA DE BOLLE: So Doug, we've talked about how the retail costs of electricity in the US are going up in the future. What can the US do to offset that? Or is there anything the US can do to offset that?

DOUGLAS GIUFFRE: Well, one of the big trends today is because the grid is so constrained, data centers cannot be interconnected as rapidly as they would like. So they've decided, what if we bring our own generation and we just build it on site? And so we are tracking a considerable amount of projects that are building their generation on site. Their plan, generally but not exclusively, is to build it, operate that resource on site and behind the meter for two to three years until they can get a grid connection and then they become grid facing.

But they've already brought their own supply, they're adding both supply and demand to the grid. That is really probably the best solution. And we'd be technology agnostic at



S&P Global as to what those technologies should be. In reality today, it's largely natural gas. So about 85 to 90 % of the projects that are looking to build on site are looking at natural gas. It is just the fastest and it's dispatchable, meaning it's not subject to the wind or the sun. I think we'll see a lot of batteries deployed there, but their concerns, and I spoke with a developer last week, their concern is making sure they have power for days at a time to a week if there is a winter storm that limits power availability.

And batteries just aren't filling that role today. You really need natural gas. so in the near term, that will be the resource that a lot of these co-location or onsite generation resources rely on.

MONICA DE BOLLE: One thing that that brings to my mind is what kind of regulatory, I mean, I don't know if we can get very much in the weeds on this, but what sorts of regulatory issues would come up with that? Because I imagine there would be quite a few.

DOUGLAS GIUFFRE: Yeah, the Federal Energy Regulatory Commission just issued an order looking at this co-location question. It was targeted specifically for the PJM market, but you can see where the federal regulator is thinking we may go here. And they're looking for flexibility from the grid operators so that we can accommodate these data centers, get them operating and online, bring on some local generation. And let's say you build a 1000 megawatt data center and you have a 900 megawatt gas-fired resource on site, really all you need from the grid is the delta, the difference there, 100 megawatts.

And so it's a lot easier to build the infrastructure necessary to accommodate 100 megawatts on grid than it would be for the full 1000 megawatts. And so the Federal Energy Regulatory Commission is given guidance and they want to see a new tariff and regulations in place in PJM to accommodate that.

Beyond that, you do have your local and all your permits you need to get to accommodate those resources. And I'm sure we'll see NIMBYism as we see more data centers and generation emerging in different parts of the country. But from a federal regulatory perspective, they're seeming to be very accommodating.

MONICA DE BOLLE: Well, this is perfect. Thank you so much, Doug. I think you have laid a lot of issues for us to think about and ending on that note, I think is, you know, gives us a lot of food for thought. So thank you so much for coming on the show and for explaining all these issues to us.



DOUGLAS GIUFFRE: Thank you so much for having me. It was fun

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