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Innovative Supply and Demand Solutions

OPENING STATEMENT OF TRAVIS KAVULLA
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Thank you for the invitation to speak to you today. There are a number of concrete steps that both states and PJM can take to ensure the regional grid remains resource adequate while promoting economic development, making ordinary Americans' power bills affordable, and securing an American competitive advantage in the artificial-intelligence space. The PJM marketplace previously has shown itself capable of facilitating an immense amount of capital investment in power generation—with the risk of that investment shouldered by private investors and not captive utility ratepayers—all while achieving public policy goals around affordability and sustainability.[1] Previous transitions have not been easy, but their history teaches us the value of leveraging the market to policy ends, instead of persistently interfering with its operations in the hope that scattered and inconsistent government interventions will lead to better outcomes.

With that in mind, I am presenting changes to PJM and state regulatory policies below that are consistent with the historic successes of PJM, while avoiding recent pitfalls that have fallen short of its worthy legacy. Any of these changes require a robust consideration of their details and, where available, I have included additional details about those policy recommendations to materials that have been previously published by myself and others.

[1] A decade ago, PJM's market led to billions in investment of new and refurbished resources totaling over 41,000 MWs of new and incremental additions, against the backdrop of nearly the same number of MWs retiring. This changeover coincided with a 70 percent reduction in CO2 emissions. This was all done even while energy prices fell by more than 40 percent. Travis Kavulla, *Remarks on the State of Competitive Electricity Markets*, NARUC Annual Meeting General Session (Nov. 2023). https://www.nrg.com/assets/documents/energy-policy/_2023/kavulla-debates-competitive-vs-monopoly-electricity-markets-at-naruc-annual-meeting-nov-2023.pdf

Avoiding exposure to the volatile 'spot' price for capacity. The cost of buying a new unit of electric generating capacity is high and it is trending higher. Buyers in competition with one another, not just within PJM but across the country and the world, are supporting high prices for the scarce equipment that backs the capacity product, especially natural gas-fired turbines and related electrical equipment. Hardly a day passes without new, ambitious announcements of very large data centers seeking to construct facilities that use the power-demand equivalent of a large American town. Skilled labor supply also is backlogged and undersupplied relative to this potential demand growth. There is little that either states or PJM can do in the short term to stage interventions in the market for labor or the market for generating equipment, and attempts to do so likely would simply escalate pricing. What both states and PJM can do, however, is to promote "capital formation" in power generation that assures those related markets of consistent and long-term demand for the supply of electric generating capacity. This can occur through regulatory policies that encourage or require bilateral contracting.

At present, the majority of customers in PJM, including nearly all customers in the competitive retail markets that exist in most PJM states, are exposed to the "spot price" for capacity. This is something of a paradox given the formal name of PJM's capacity market: the Base *Residual* Auction. If that name is anything to go by, the exposure of many customers to a spot price that, by design, must nimbly escalate (and de-escalate) in response to scarcity (or abundance) was clearly not the intended end state of the market's original design. It was intended always to be a price signal that existed at the margins, not for the whole. Indeed, the risk of exposing one's whole demand to a spot market is something no reasonable firm would do in virtually any industry, if the firm could help it. Businesses typically crave a measure of certainty around the cost of goods they sell, and if they cannot obtain it, they will either risk-adjust the price of the product they offer to account for the uncertainty, or leverage contractual terms that shift that risk to their consumers. There are some market designs that will tend to drive more dependency upon an auction's single-point-in-time price, and some that will result in more bilateral contracting to hedge exposure to any given auction result or reserve price. For PJM, exposure to spot pricing was an unintended outcome of well-intentioned decision-making.[2] It has

[2] I detailed three specific reasons for why we have arrived at this situation in recent testimony to the Federal Energy Regulatory Commission's technical conference on resource adequacy. *Opening Statement of Travis Kavulla*, FERC Docket AD25-7-000, (May 2025) at 6-7. https://www.nrg.com/assets/documents/energy-policy/ad25-7-comments-of-travis-kavulla-nrg-ferc-technical-conference-resource-adequacy-051625.pdf

led to twin bad outcomes: an affordability problem for consumers exposed to the rapidly escalating spot price, and a lack of longer-term revenue certainty for sellers and builders of capacity in the market. The rather obvious solution to not being exposed to spot pricing is to promote the formation of longer-term arrangements. But how?

It is important to note there is nothing prohibiting long-term arrangements *right now*, at least in the competitive market. In fact, as NRG has explained to the Pennsylvania PUC, we fully hedge our retail obligations as a matter of corporate risk policy, though the tenor of our retail contracts ultimately is something determined by our customers' preference for short-term versus long-term contracts; but when a customer opts for a longer-term arrangement, we naturally will hedge the position for that term.[3] Certain large customers, including data centers, have availed themselves of longer-term options.[4] Personally, as a consumer, I have done the same. Last year, I signed a five-year fixed-rate retail contract with a competitive retailer; I have thus insulated, or "hedged," myself against rising capacity prices.[5] By contrast, regulated utilities use pass-through "trackers" or "adjustment clauses" such that no customer's rate ever is truly locked in for any meaningful length of time. And unfortunately, few ordinary customers who do have a choice in provider appear to have exercised their option to buy a long-term contract. In my experience, few are actually aware of this choice. This is sadly unsurprising. A vast literature in behavioral economics suggests customers need a "nudge" to take decisive actions around ephemeral products, such as power supply.[6] Even as warning signs began to emerge about potentially rising capacity prices, I saw few if any communications by government officeholders or utilities encouraging people to shop and, specifically, to consider long-term deals when doing so. While certain customers have helped themselves to longer-term price stability that the competitive retail market for power offers, this has been an exception to the trend. So where we find ourselves

[3] *NRG Comments on Resource Adequacy*, Pennsylvania PUC Docket No. M-2024-3051988 (Jan. 2025) ["NRG Pennsylvania Comments"], at 11-14.
[4] Brian Martucci, *Constellation plans 2028 restart of Three Mile Island unit 1, spurred by Microsoft PPA*, Utility Dive (Sept. 20, 2024), https://www.utilitydive.com/news/constellation-three-mile-island-nuclear-power-plant-microsoft-data-center-ppa/727652/.
[5] Tragically, Maryland in Senate Bill 1 (2025) essentially eliminated residential retail choice for electricity, ironically ensuring that residential customers in the future are tied to the roller-coaster of spot market pricing. It would be difficult to dream up a worse law for the current moment than this one.
[6] *See generally*: Sunstein & Thaler, *Nudge: Improving Decisions of Health, Wealth, and Happiness* (2009).

today is a place where customers are exposed to marginal-cost pricing at a time when the marginal cost is quite high compared to recent past years.

So what is to be done? Some have supported a "solution" whereby regulated utilities get back in the game for power generation. This is a terrible idea. It would be a profound irony for policymakers—in trying to protect ordinary consumers in the era of demand growth from data centers—to end up perpetuating a huge cost shift by allowing utilities to build new power generation that *all* residential or other commercial and industrial customers, not just data centers, were obliged to pay for. This "solution" would actually ensure the outcome that policymakers are ostensibly trying to avoid by entertaining the concept. This "solution" is illusory and should be discarded out of hand.

Instead, a genuine solution is to use government's influence to "nudge" consumers into seeking more stably priced capacity through longer term deals. They can do this by advising and advertising their availability. In other markets, we have seen how merely a governmental rebranding of the default product offer causes a significant portion of the market to shift toward longer-term retail contracts.[7] If encouragement is not adequate, governments may also consider *requiring* load-serving entities (which include both competitive retailers like NRG and providers of regulated products) to obtain purchased capacity through contracts that have a longer term than the typical deals facing the retail market. This would lead to more retail offers of a longer tenor, create a secondary market for capacity that exists outside of the PJM spot auction, and retain competition among buyers in the market and so obviate a solution that depends upon regulated utilities' captive customer base. The spot auction of PJM, meanwhile, could be reduced in its duration to a prompt auction (with or without seasonality) since it would be returned to its proper function of producing a true marginal, "spot" price for capacity. This solution either could take place through PJM's federally regulated tariff or through states' individual action, though in either case some coordination would be necessary to promote efficient outcomes.

[7] Alberta recently rebranded its "regulated rate option" to the "rate of last resort" and, together with an extensive government-backed marketing campaign, now has a majority of customers on competitive supply deals, most of which are longer-term in nature.

Planning and interconnecting data center loads. Significant AI-fueled load growth will occur, but there are profound uncertainties about the degree and location of that growth. In PJM, regulated utilities have a long-documented history of making incorrect forecasts and putting their customers at risk in the process.[8]

At present, utilities plan to expand their grid, and suppliers (whether they are regulated utilities or competitive suppliers) plan to develop and supply power generation, based on inbound requests from data centers (and all other loads) to regulated utilities. These inbound requests collectively represent an unbelievable level of demand growth in the system. "Unbelievable" is not just my opinion about this, but the market's generally which, despite these enormous load-growth forecasts, has power futures trading at levels that are not significantly above present-day pricing.[9] This does not make a lot of sense; if demand growth actually were expected to rise at levels well above supply's ability to keep pace monotonically, the future price of energy now traded on the market would be higher than today. This is the basic logic of the relationship between supply and demand. There are several plausible explanations for the phenomenon we now observe (i.e., futures prices are not rising despite incremental demand forecasts well in excess of incremental supply forecasts) but the most persuasive explanation is that demand will grow, but not by the extraordinary extent that some forecasts portend. Two implications about the current way we are undertaking policy relative to data centers' energization flow from this observation.

First, in the competitive market, every deal for power supply needs to stand on its own in economic terms. When NRG signs a deal with a data center, that is between two parties at arm's length and we as a power supplier have no recourse to a captive customer base upon which to slough off costs should that particular deal turn out to be a bad one. The same cannot be said of regulated utilities. Virtually all regulated utilities in PJM, including in the nation's most exuberant data-center market, Virginia, are seeking to grow their fleet of generation to meet an uncertain and speculative demand predicated on data center growth. These utilities are typically

[8] *Comments of NRG Energy*, Virginia SCC Docket PUR-2024-00144 (Jan. 2025). https://www.nrg.com/assets/documents/energy-policy/nrg-comments-on-virginia-commission-data-center-technical-conference.pdf

[9] Notably, Alberta's power market, through a planning approach did see a demonstrable uptick in its futures pricing—sending a clear investment signal to power generators—when it announced a plan for and solicitation of a specified quantity of data center load that the province could reliably interconnect.

financing these deals out of the same corporate pool they use to finance their spending generally—adding these investments to the so-called "rate base" used to serve all customers. In doing so, they are exposing their legacy customers to an undue degree of risk. In investigations of utility "ring-fencing," which are a family of policies intended to protect legacy customers from utility adventurism, experts have found the status quo badly lacking basis protections that cohere to industry standards.[10] The better approach would be to expect and require that every new large load in this system procure its energy supply with an arm's-length contract from the competitive market. Understanding the risk of this market, numerous electric co-operatives are undertaking this very strategy, but the investor-owned utilities, subject to a perverse and lazy incentive to grow profits by growing rate base, have a concentrated incentive to attempt to serve this load by generation in their "rate base" are not follow the same risk-conscious approach as their electric co-operative brethren. This is exceptionally risky and could end very badly for consumers of those utilities.[11]

Second, there is likely a better way to plan the grid and add new generation needed to serve additional demand than the uncoordinated in-bound request process that characterizes the status quo. PJM and utility companies should put at the front of the line those data centers and related sources of power supply that are tied together in long-term, executed commitments to purchase capacity resulting from new sources of power generation. This departs from a time-worn principle of grid regulation that dictates that generator interconnection should proceed on a "first-in-time, first-in-right" basis. This principle is being honored only in the breach due to Band-Aid approaches that expedite necessary generation additions without openly admitting that the Gold Rush-era rule of "first in time, first in right" has come to its natural end. Rather than laboring under this zombie policy, both generator and load interconnection policy should face a more principled departure in the form of allowing large consumers' demonstrated commercial interest be the basis of prioritization for grid interconnection. Chairman Eric Blank of the

[10] Scott Hempling, *Data Centers in Competitive Retail Electricity Markets* (2025). https://www.nrg.com/assets/documents/energy-policy/scott-hempling-white-paper-on-utility-reform-and-data-centers.pdf

[11] And again, as noted in the section above, it is especially poor public policy to allow regulated utilities to build new generation charged to *all* customers *in the first instance* based on fears of data center load growth.

Colorado Public Utilities Commission and I have recently published an extensive paper for the *Energy Bar Association Brief* on this concept, focusing on generator interconnection.[12]

The same considerations that apply to the reform of the generator-interconnection process may apply to the load side. In this vein, it is worthwhile to consider whether a kind of "network open season" would be a worthy concept in PJM, one which allows electric distribution companies and transmission providers (often two sides of the same house) to work within the PJM framework to put out to bid a plan that they view as right-sized to serve prospective data center load and other new large load, from which those loads would be given a chance to subscribe to in order to receive a tradeable right to access the grid at or about their proposed point of interconnection. This would mirror the experience of the natural-gas pipeline industry, which has shown itself capable of building infrastructure on the back of often voluntarily subscribed demand. This kind of approach would help right-size the grid while directly allocating the costs of its expansion to those who incurred those costs: data centers.

Demand-side rate design and technology. There are two sides to every market, and the demand side should be co-equal with the supply side for the attention that policymakers give in this space. That is especially true for *state* policymakers, since they are the exclusive regulators of retail electricity matters in the United States. NRG has advocated for time-of-use plans as the default rate for utility customers who do not choose a competitive supplier. This would shape the residential and small commercial demand in the market in a manner that reduces overall capacity supply obligations in the PJM market. Additionally, some but not all states in PJM have direct-load-control programs for the major source of residential load in summertime, which is air-conditioning. We have seen just in the past year how transient reliability events suggest the need for more responsive load control or, if that does not happen, rolling blackouts. The latter cannot be allowed to become the norm, and the former is something that is possible without sacrificing comfort and can be achieved through entirely voluntary consumer behavior. It should be pursued. But importantly, these programs need to be aligned to the product offerings in the competitive

[12] Eric Blank and Travis Kavulla, *The End of the Grid's Gold Rush Era: Toward Customer-Oriented Approaches to Generator Interconnection* (Vol. 6, Issue 1, 2025). https://www.eba-net.org/wp-content/uploads/2025/08/EBA-Brief-2025-Vol-1.pdf

retail market. Too often, competitive retailers have no visibility, can gain no advantage, and thus can offer no incentives to residential customers for adopting flexible-demand products that would assist to achieve both reliability and affordability outcomes. In both Maryland[13] and Pennsylvania,[14] leaders in their own way in earlier generations of demand-side advancements, I have suggested a handful of concrete reforms that would allow each state to flex demand and thus avoid needing to pay for as much capacity on the supply side.

Once again, I am honored to have been given the opportunity to address you today, and delighted to offer some of these solutions to the Governors' technical conference. I look forward to the next steps that you, PJM, FERC, and all stakeholders can take to achieve reliable and affordable electricity for our growing economy.

[13] *Prefiled Statement of Travis Kavulla*, Maryland PSC Docket PC66, (Nov. 2024). https://www.nrg.com/assets/documents/energy-policy/pc66_prefiled_statement_of_travis_kavulla_112224_resource_adequacy_maryland_psc.pdf

[14] NRG Pennsylvania Comments at 18-27. https://www.nrg.com/assets/documents/energy-policy/nrg-energy-comments-on-resource-adequacy.pdf