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Demand Response and Market Power

Bruce R. Huber*

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I. INTRODUCTION

The legal structure of energy regulation is probably more obscure now than ever before: the traditional model of utility regulation that prevailed through the 1970s has given way to a morass of state and federal policies, comprehensible only to a committed few.¹ As is the case with, say, financial regulation, energy regulation is an über-technical domain that many recognize as fantastically important but few are willing to master. Professor Sharon Jacobs has done a service to the academy and the industry by writing a thoughtful, clear, and accurate account of a complicated aspect of energy law.² She educates her readers about the concept of “demand response,” and then describes its propagation in recent years while making the broader argument that the Federal Energy Regulatory Commission (“FERC”)—the federal government’s principal energy regulator—has engaged in a strategy of “bypassing federalism” that may entail more costs than benefits.

“Bypassing federalism,” as Professor Jacobs defines it, is a bit like the proverbial dance with the 800-pound gorilla. She seems to have in mind federal

* Associate Professor of Law, Notre Dame Law School. Thank you to Sharon Jacobs for her superb article, to the *Iowa Law Review Bulletin* editors for their invitation to respond and their very helpful editorial work, and to Katrina Wyman for her thoughtful comments on this essay.

1. See generally RICHARD F. HIRSH, *POWER LOSS: THE ORIGINS OF DEREGULATION AND RESTRUCTURING IN THE AMERICAN ELECTRIC UTILITY SYSTEM* (1999).

2. Sharon B. Jacobs, *Bypassing Federalism and the Administrative Law of Negawatts*, 100 IOWA L. REV. 885 (2015).

agencies' attempts to shape the states' energy policy, in spite of jurisdictional limitations, simply by doing—and hoping that the states will either fall in line or get out of the way. Rather than overtly challenging limits on its authority, an agency “bypasses federalism” when it uses “clear jurisdictional authority” to “work a de facto, rather than de jure, reallocation of power . . . in the hopes that its actions will have effects beyond the area of its immediate control.”³

Professor Jacobs is right to call attention both to demand response and to FERC's approach to matters of jurisdictional doubt. The former is a policy idea that many consider an important weapon in the regulatory arsenal; the latter has become quite a sensitive topic as of late. For her part, Jacobs is decidedly cool towards FERC's demand response program. She describes in detail not only the problems of bypassing, but also the possible environmental drawbacks of demand response, including especially its potential to “crowd out” energy efficiency developments, which Jacobs sees as a superior alternative.⁴

I have a bit more sympathy towards FERC's efforts in the demand response space. While I share many of Professor Jacobs' concerns about boundary lines in a federal system,⁵ I am relatively untroubled by the FERC orders of which she writes.⁶ They represent, in my view, a fair and legally defensible attempt to, among other things, diffuse the market power of energy producers at times of extremely high energy demand—times when, within very recent memory, producers have exploited the complexities of energy markets to walk away with billions of ratepayer dollars.⁷

II. EFFICIENCY AND THE ELECTRICITY INDUSTRY

From its inception in the days of Thomas Edison and Sam Insull, the electricity industry has had to contend with a fundamental difficulty: electricity demand is erratic, but electricity cannot easily be stored. If electricity is to be provided on demand reliably, there must be enough electric generating plants out there to satisfy the highest peaks of demand—even if those “peaking” plants are only needed for a few hours each year. This is exceedingly inefficient, and over the years, the industry has used various approaches to shift demand away from peak moments. The specifics have evolved, but the core of these approaches has, since Insull, depended on pricing to shape the behavior of electricity consumers. In essence, utilities have tried to discourage electricity use at times of high demand while simultaneously trying to induce consumption at times of more moderate demand.

3. *Id.* at 913.

4. *Id.* at 916–31.

5. *Id.* at 931–38.

6. The two orders at the heart of FERC's demand response program are Order 719 and Order 745. *See id.* at 913–16. Order 719 required independent system operators and regional transmission operators to “accept bids from aggregators of retail customer demand response ‘on a basis comparable to other resources.’” *Id.* at 913 (internal citation omitted). Order 745 required system operators to compensate aggregators at the “locational marginal price,” thereby raising the ire of power suppliers. *Id.* at 915.

7. *See generally* BETHANY MCLEAN & PETER ELKIND, *THE SMARTEST GUYS IN THE ROOM: THE AMAZING RISE AND SCANDALOUS FALL OF ENRON* (2003).

However, one might well ask: how much do electric utilities actually care about efficiency? Utilities have traditionally operated as regulated monopolies; if the cost of a new power plant can be passed through to consumers, why not build it? Yes, utilities might independently pursue efficient production to keep costs low and to grow demand. But all else being equal, electric utilities would rather sell more power than less, even if that entails building more generators. After all, it is capital investment that earns the regulated rate of return; operating costs are conventionally recovered dollar-for-dollar with no return to investors.⁸

This alerts us to a question that increasingly vexes electricity regulation. Why would a utility whose business depends on selling a product ever seek to reduce demand for that product?⁹ Herein lies the modern energy regulator's Sisyphean rock. Regulators are tasked with giving effect to societal demands for conservation, for efficiency, for cheap but clean energy, and must do all of this while preserving a sustainable (read: profitable) role for investor-owned utilities. Frankly, energy law has struggled to create incentives for utilities to promote user efficiency that do not concomitantly undermine the fundamental utility model.

Demand response is the most recent iteration of this dilemma. While traditional demand-shifting strategies relied on altering users' long-run demand patterns, demand response addresses literally the precise moments of peak demand. In the programs most subject to dispute, utilities offer to pay their customers, in essence, for cutting their use at those infrequent moments of peak demand.¹⁰ Nevertheless, utilities will probably always harbor some ambivalence towards programs that actually diminish electricity demand.

Thus a robust demand response program—a program premised on consumer welfare—will probably require some regulatory nudging, and it will involve more than a few headaches. As Professor Jacobs explains, utilities and regulators (who are tasked with approving the utility's rate structure) must decide on an appropriate price for a customer's commitment to turn off the lights (or, more likely, the air conditioning) at the crucial moment.¹¹ This involves the inherently slippery determination of what is the appropriate baseline against which the customer's usage reduction should be measured.¹² Next, there must be a way of ensuring that customers will actually honor this commitment and a way of verifying they have

8. As early as the 1960s, economists noticed that this form of cost-of-service regulation created an incentive to overinvest in capital (namely, generating plants). This phenomenon is known as the Averch-Johnson Effect. Harvey Averch & Leland L. Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 AMER. ECON. REV. 1052 (1962).

9. See Michael P. Vandenbergh & Jim Rossi, *Good for You, Bad for Us: The Financial Disincentive for Net Demand Reduction*, 65 VAND. L. REV. 1527 (2012).

10. As Professor Jacobs notes, utility pricing plans that raise the price of electricity at peak times are sometimes also labeled as demand response programs. They are fundamentally different from programs that actually compensate users for cutting usage, and deserve to be treated as analytically distinct. See Jacobs, *supra* note 2, at 897 (distinguishing between rate-based and incentive-based demand response programs).

11. *Id.* at 903.

12. *Id.* at 919–22.

done so after the fact.¹³ As the overseers of the state electricity system, regulators must attend to all of this with a view to the integrity of the system. They must make sure that such arrangements serve consumers well, do not degrade the grid's reliability, and do not undermine environmental goals.¹⁴

These challenges, though steep, are not insurmountable. But they are difficult enough that FERC could well conclude that state regulatory programs are not delivering enough demand response, a conclusion that would find support in data about the actual diffusion of demand response programs.¹⁵

III. FERC AND MARKET RESTRUCTURING

Professor Jacobs is concerned about the impact of federal regulation in an area of traditional state control. Indeed, the shift to an enhanced FERC role has been underway for some time and for good reason.¹⁶ The traditional electric utility—the one whose bonds your grandparents bought because of its steady-as-she-goes dividends—was a vertically-integrated entity. It generated most of its own power, transmitted that power to its service area, and then distributed the power to individual customers. It was a monopoly within its service area, and a state utility commission set its rates. It would have had little to do with FERC, because the primary statute under which FERC regulates electric markets, the Federal Power Act,¹⁷ specifically limits FERC's regulatory authority to the “transmission of electric energy in *interstate* commerce and the sale of such energy at wholesale in *interstate* commerce.”¹⁸

Beginning in roughly the 1990s, FERC helped bring about a substantial restructuring of the electricity industry. Inspired by its success in restructuring natural gas markets, the agency responded to prompts from Congress¹⁹ and initiated an ambitious effort to introduce competition into wholesale energy markets.²⁰ It is only a bit of a stretch to say that FERC first had to *create* those markets, almost from whole cloth, out of the existing universe of vertically-integrated utilities like the one

13. *Id.* at 922–23.

14. Although one might think that reduced demand would translate into reduced emissions, demand response can actually increase emissions if customers simply shift load off the grid and onto on-site backup diesel generators. *Id.* at 926–31.

15. *See, e.g.*, FED. ENERGY REGULATORY COMM'N, NATIONAL ACTION PLAN ON DEMAND RESPONSE 5–6 (2010).

16. *See* Jacobs, *supra* note 2, at 931–38.

17. Federal Power Act, 16 U.S.C. §§ 791–828c (2012).

18. *Id.* § 824(a) (emphasis added).

19. The key moves from Congress were the Public Utilities Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (codified as amended in scattered sections of 16 U.S.C.), and the Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776 (codified as amended in scattered sections of 15–16, 42 U.S.C.).

20. *See generally* HIRSH, *supra* note 1. This regulatory shift is but one manifestation of a broader transformation in American economic regulation. *See generally* Joseph D. Kearney & Thomas W. Merrill, *The Great Transformation of Regulated Industries Law*, 98 COLUM. L. REV. 1323 (1998).

described above.²¹ One of FERC's key moves was to induce the creation of independent, non-governmental, regional grid management entities, voluntarily constituted by member utilities within a given region.²² These "independent system operators" ("ISOs") took over the day-to-day operation of the regional electric grid as well as the buy-and-sell transactions that linked generators with local utilities. Thus, in areas that responded to FERC's incentives, the traditional model of vertically-integrated utilities gave way to a new model in which electricity generation, transmission, and distribution were increasingly separated among different business entities. ISOs became the all-important market hubs where these entities met.

This model brought about some salutary changes in our national energy system. It facilitated renewable energy deployment by making it easier for independent, non-utility players to bring their power to the market. It probably reduced the price of energy for most customers by enabling much more robust competition among power generators. But it also put an important segment of the electricity supply chain outside of the reach of state regulators. Wholesale power and regional transmission markets, if they were to be regulated at all, would have to be regulated by FERC.

Regulation of these markets would prove critical, a point made painfully clear during the California energy crisis of the late 1990s. In that sorry situation, power companies manipulated marketplace rules to abscond with billions of ratepayer dollars.²³ One of the tactics employed by Enron, in all likelihood the worst offender, was to create artificial energy shortages—or exacerbate actual ones—to drive up the clearing price in the California ISO's marketplace. At moments of high demand for electricity, the shortage forced the ISO to offer higher and higher rates to bring idle generators online. In a similar situation under the traditional model, the utility would not command such a premium; its rates would have been established in advance by the utility commission. Power sold into the crisis, then, reaped enormous returns. It became abundantly clear to FERC, and anyone else who was watching, that the success—indeed, the survival—of wholesale markets depended on FERC's ability to limit market manipulation and the exercise of market power, especially in moments of high demand when the marketplace is at its most vulnerable. Faced with energy scarcity, FERC—not state regulators alone—had to act to protect consumers and the market.

21. Utilities had become increasingly interconnected over the previous decades, as the word "grid" suggests, but there was nothing like a true marketplace for wholesale energy.

22. See Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540, 21,551–52 (May 10, 1996) (codified at 18 C.F.R. pts. 35, 385).

23. See Timothy P. Duane, *Regulation's Rationale: Learning from the California Energy Crisis*, 19 YALE J. ON REG. 471, 504–17 (2002).

IV. TAMING POWER PRODUCERS

Analysts often evaluate demand response in terms of its effects on the operation of the electric system: the efficiency of the system, the reliability of the system, the emissions created by the system, and so forth. Professor Jacobs elaborates on these aspects with admirable clarity.²⁴ But demand response can also play a critical role in limiting the market power of power generators. Ordinarily, demand for electricity is relatively inelastic. Consumers buy and use electricity when they perceive they need it, without much attention to its price. Power generators know this and can exploit this fact to profit from elevated demand; without demand-side adjustments, buyers are somewhat at the mercy of generators.

Demand response changes all that. It introduces another element into the marketplace. It gives purchasers of electricity some leverage against producers by giving them an opportunity to reduce their demand rather than pay exorbitant prices for peak production. This is one reason why producers almost uniformly oppose demand response. Even more irksome to power producers is that, under some proposals (including FERC's), the payments that customers receive for turning off their lights come from other customers—that is, every other customer pays a slightly higher rate to compensate those who are willing to go without. The marginal price of power goes up slightly, but someone else pockets the extra cash.

If demand response were confined to the state level, in so-called retail markets, it would be structurally limited in important ways. Retailers have only a limited incentive to procure demand response commitments from their customers, and most customers lack the capacity, the incentive, or perhaps even the necessary level of awareness to enter the fray. One way that customers can be drawn into the system more readily is via aggregators. These are middlemen who, as Jacobs explains, “aggregate smaller demand response commitments from customers and bid them into the markets as a package.”²⁵ The markets to which Jacobs refers, however, are not particularly strong or particularly remunerative at the state level.

For this and other reasons, FERC took various steps to encourage the development of *regional* demand response programs. The ISOs that organize the regional wholesale marketplace would implement these programs. Wholesale transactions are premised on an auction system, and FERC's rules required ISOs, in essence, to pay aggregators the market price for power.²⁶ Setting prices for demand response resources in this way was a boon to aggregators. FERC essentially harnessed the efforts of these entrepreneurs to draw many more participants into the marketplace. In so doing, the FERC was creating a crucial defense against power producers' dark art of exploiting peaks in demand for tremendous profit. FERC may

24. Jacobs, *supra* note 2, at 904–30.

25. *Id.* at 900.

26. *Id.* at 915.

have been “bypassing federalism” but it was doing so for reasons of consumer protection and market fairness, and many states welcomed the effort.²⁷

V. FERC AND FEDERALISM

ISOs have of necessity become the critical focal points for many of FERC’s ongoing regulatory interventions, for FERC explicitly relies on regional markets to bring about the “just and reasonable” rates that the law requires it to establish.²⁸ This arrangement would have shocked the authors of the Federal Power Act, who had in mind the traditional model of utility regulation, and indeed the present language of the Act seems an ill fit for FERC’s 21st century approach. Although Congress and the Supreme Court have generally approved of FERC’s creative legal interpretations of the Act,²⁹ it is nonetheless the case that some of FERC’s particular initiatives, including its efforts to promote demand response at the wholesale level, seem very new wine in some very old wineskins.

To repeat, the Federal Power Act limits FERC’s regulatory authority to the “transmission of electric energy in interstate commerce and the sale of such energy at wholesale in interstate commerce.”³⁰ For this reason, in most instances FERC cannot directly regulate end users of energy or the transactions in which they buy power from a local utility. These matters—including related programs, like demand response programs—are generally matters for state regulation. If federal regulators wish to reach them, they must do so indirectly, via the ISOs.

Thus, when FERC decided to encourage demand response as a matter of federal policy, it did so by creating rules for ISOs. FERC told the ISOs, in essence, that their regional power markets not only had to accept bids from demand response aggregators (the “middlemen” referenced above),³¹ but had to do so “on a basis comparable to other resources.”³² FERC later ruled that ISOs had to pay the same price for a megawatt as for a watt: demand response resources, said the Commission, had to be paid the prevailing market price for energy.³³

This is where FERC has fallen into legal trouble. In an opinion delivered in May of 2014, the U.S. Court of Appeals for the District of Columbia Circuit ruled that FERC had “encroach[ed] on the states’ exclusive jurisdiction to regulate the retail market.”³⁴ An end user’s purchase of electricity, after all, is a retail transaction;

27. Maryland, Pennsylvania, and California, in fact, defended FERC’s position in the litigation described in Part V of this Essay.

28. See 16 U.S.C. § 824d(a) (2012).

29. See, e.g., *New York v. Fed. Energy Regulatory Comm’n*, 535 U.S. 1 (2002) (upholding FERC Order 888, probably the most transformative rule ever issued by the Commission).

30. 16 U.S.C. § 824(a).

31. See *supra* note 25 and accompanying text.

32. *Wholesale Competition in Regions with Organized Electric Markets*, 73 Fed. Reg. 64,100, 64,101 (Oct. 28, 2008) (codified at 18 C.F.R. pt. 35).

33. *Id.* at 64,102–03; *Demand Response Compensation in Organized Wholesale Energy Markets*, 76 Fed. Reg. 16,658, 16,658–59 (Mar. 24, 2011) (codified at 18 C.F.R. pt. 35).

34. *Elec. Power Supply Ass’n. v. Fed. Energy Regulatory Comm’n*, 753 F.3d 216, 218 (D.C. Cir. 2014).

the fact that end users' buying decisions were bundled and sold into a wholesale market as though they were generated electricity did not transform them into wholesale transactions. The appellate panel wrote that the rationale by which the agency asserted jurisdiction over demand response compensation—that demand response rules directly affect wholesale markets³⁵—“has no limiting principle” and could be applied to allow FERC to regulate “the steel, fuel, and labor markets.”³⁶ Moreover, the court went further and declared that even if FERC had the requisite authority, the rule would still be “arbitrary and capricious” in that it doubly compensated demand responders by paying them the market price for energy while not also charging them for their avoided retail purchase.³⁷

In January of 2015, the Solicitor General of the United States petitioned the Supreme Court for a writ of certiorari to review the D.C. Circuit opinion. The circuit court has stayed its opinion until the Supreme Court decides the issue. I, for one, hope that the Supreme Court will hear the case and reverse. I regard the benefits of FERC's approach to demand response to outweigh the risks that Professor Jacobs associates with bypassing.³⁸ Moreover, Judge Janice Rogers Brown's opinion for the circuit court exaggerates the clarity of the distinction between wholesale and retail regulation of electricity.³⁹ Judge Edwards' dissent has the better of it, arguing that the court should have deferred to FERC in light of ambiguity about whether forgone consumption constitutes a retail sale under the Federal Power Act.⁴⁰

One might read the D.C. Circuit opinion and conclude that FERC is blazing new trails—that its demand response policy is a bold and creative step, borne of FERC's frustration with statutory limits on federal jurisdiction, and one that attempts a “de facto . . . reallocation of power.”⁴¹ But this conclusion would be inconsistent with FERC's history. Since its creation, FERC (and its predecessor, the Federal Power Commission (“FPC”)) has had to contend with jurisdictional ambiguity, and the current demand response flap is far from the first instance in which FERC has inserted itself into a regulatory domain that the states already occupy. For that matter, nor is it the first time that FERC has used “clear jurisdictional authority” rather than “challenging jurisdictional boundaries head on,” in the hopes that its actions will bring recalcitrant states in line with federal policy goals.⁴²

35. 16 U.S.C. § 824d(a) grants the FERC the authority to ensure that “all rules and regulations affecting or pertaining to” wholesale rates are “just and reasonable.”

36. *Elec. Power Supply Ass'n*, 753 F.3d at 221.

37. *Id.* at 224–25. The dispute over how to compensate demand response aggregators may well have given rise to the lawsuit in the first place. Many economists regard FERC's approach to compensation as an economic mistake, if not a violation of law. *See generally* Brief of Robert L. Borlick, Joseph Bowring, James Bushnell, and 18 Other Leading Economists as *Amici Curiae* in Support of Petitioners, *Elec. Power Supply Ass'n*, 753 F.3d at 216 (No. 11-1486), available at http://www.hks.harvard.edu/fs/whogan/Economists%20amicus%20brief_061312.pdf.

38. *See* Jacobs, *supra* note 2, at 916–18.

39. *Elec. Power Supply Ass'n*, 753 F.3d at 220–21.

40. *Elec. Power Supply Ass'n*, 753 F.3d at 227 (Edwards, J., dissenting).

41. Jacobs, *supra* note 2, at 890.

42. *Id.* at 889; *see also supra* Part III.

To the contrary: since day one, the Federal Power Act has included the facile declaration that federal authority would “extend only to those matters which are not subject to regulation by the States.”⁴³ This attempt at a bright line merely begs the question. To offer just one example, the statutory promise to avoid matters subject to regulation by the states is in some tension with the authority to regulate wholesale electricity sales: all wholesale sales, or only those sales that a state could not constitutionally regulate? This was, in essence, the question presented to the Supreme Court by *Federal Power Commission v. Southern California Edison Co.* in 1964.⁴⁴ The case involved tiny Colton, California, and the power it purchased from Southern California Edison, power which Edison itself purchased from various sources, including several sources outside of California such as the Hoover Dam.⁴⁵ The FPC regulated the sale of Hoover Dam power to Edison, while for years California had regulated Edison’s sale to Colton.⁴⁶ Colton now petitioned the FPC to regulate this latter transaction.⁴⁷

This was a case in which the states had a clear and longstanding claim on regulatory authority. Just as in the present case, FERC did not seek a congressional adjustment of its authority, but rather took a different view than the states of what the statute actually required. It was ultimately an interpretive dispute about the language of the statute, a dispute that the federal courts were well equipped to resolve—and resolve it they did, in favor of FERC. The Supreme Court noted along the way that the Federal Power Act’s reservation of the state’s authority “was merely a policy declaration . . . of great generality,” and one that could not “nullify a clear and specific grant of jurisdiction, even if the particular grant seems inconsistent with the broadly expressed purpose.”⁴⁸

So it would seem in the present dispute. The Federal Power Act grants FERC authority over “all rules and regulations affecting” wholesale electric rates.⁴⁹ It is difficult to imagine that the Act’s general “policy declaration,” in favor of state authority, should prevent FERC from issuing rules that marshal demand-side resources into service against the possibility of profound market abuse.

VI. CONCLUSION

Every maker of public policy knows that discerning the appropriate jurisdictional balance between federal and state governments is a never-ending process. In the field of energy policy, what was once a disparate batch of self-contained local power systems has evolved into a broadly interconnected grid into which the old state utilities commissions do not as easily fit. As is so often the case,

43. 16 U.S.C. § 824(a) (2012).

44. *Fed. Power Comm’n v. S. Cal. Edison Co.*, 376 U.S. 205 (1964).

45. *Id.* at 206–08.

46. *Id.* at 206–07.

47. *Id.*

48. *Id.* at 215 (quoting *Conn. Light & Power Co. v. Fed. Power Comm’n*, 324 U.S. 515, 527 (1945))(internal quotation marks omitted).

49. 16 U.S.C. § 824d(a) (2012).

Congress has been unable to agree on reforms befitting the changing times, leaving courts and agencies to labor in the fog of outdated laws. Certainly, as Professor Jacobs notes, ratifying agencies' more strident aggrandizements may well "create a disincentive for congressional action since, by making archaic statutory provisions more functional, it masks the need for legislative amendment."⁵⁰ But if we wish to prod Congress into keeping up with the times, gambling with the electric grid may not be best place to start. FERC's effort to sharpen a tool that diminishes the market power of energy producers is an important one, and one well worth pursuing in spite of jurisdictional friction.

50. Jacobs, *supra* note 2, at 918.