Nos. 14-840 & 14-841

IN THE

Supreme Court of the United States

FEDERAL ENERGY REGULATORY COMMISSION,
Petitioner,

v.

ELECTRIC POWER SUPPLY ASSOCIATION, ET AL.,
Respondents.

ENERNOC, INC. ET AL.,
Petitioners,

v.

ELECTRIC POWER SUPPLY ASSOCIATION, ET AL.,
Respondents.

ON WRITS OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

BRIEF FOR ELECTRICITY CONSUMERS AND DEMAND RESPONSE PROVIDERS AS AMICI CURIAE IN SUPPORT OF PETITIONERS

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INTEREST OF AMICI CURIAE[1]

Amici curiae Aqua America, Inc., Colonial Pipeline Co., Comverge, Inc., Cpower Corp., the Calvert County Board of Education, the Electricity Consumers Resource Council, EnergyHub, Inc., Ferrite International Co., Icetec Energy Services, Industrial Energy Consumers of America, SolarCity Corp., and the University of Maryland, College Park, submit this brief in support of petitioners.

Amici are a diverse group unified by a common theme: the tremendous value of demand response. The group includes a public school system, a state university, an energy pipeline company, a water utility, a solar power and energy storage provider, an industrial metals manufacturer, and two associations representing industrial businesses. The group also includes demand response providers, i.e., companies that enable millions of commercial, industrial, institutional, and residential electric power consumers to participate in demand response programs.

Amici and their customers participate in demand response in various ways. For example, a factory may delay a manufacturing process until night, a school may reduce its lighting in the middle of the day, or a collection of numerous residential customers may lower their air conditioning usage remotely on a hot day. The compensation amici have received for their participation in demand response programs has allowed them to keep factories open, maintain educational programs that oth-

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[1] No counsel for a party authored this brief in whole or in part, and no person, other than amici or their counsel, made any monetary contribution to the preparation or submission of this brief. Letters consenting to the filing of this brief have been filed with the Clerk of the Court.

erwise would have been eliminated, and lower household electric bills.

Amici's participation in demand response has also promoted important system-wide benefits. Through demand response, amici help market operators bring demand into balance with supply on a real-time basis. Whether by saving a particular regional energy market hundreds of millions of dollars on a single hot summer day, lowering a capacity market's costs by billions of dollars annually, or making the electricity system more robust and reliable, demand response provides significant value to the electricity markets in which amici participate.

For these reasons, amici have a strong interest in this Court reversing the decision below in its entirety.

SUMMARY OF ARGUMENT

Amici do not repeat all of petitioners' arguments but rather expand on two key points. First, States cannot step into the void left by the decision below. They are legally incapable of regulating wholesale demand response programs and practically unable to replicate the benefits of such programs through retail-level programs. Under longstanding precedent of this Court, this reality strongly supports FERC's assertion of jurisdiction. Second, FERC's compensation decision amounts simply to a determination that market operators should not dispatch more expensive generation when demand response can cost-effectively balance supply and demand at the wholesale level. FERC's judgment merits substantial deference.

1. The Federal Power Act establishes a complementary system of state and federal regulation of the nation's electricity markets. Stakeholders thus benefit

from the relative advantages that both States and FERC can provide in making the system more efficient, effective, and reliable. In accordance with this arrangement, this Court has held that it will not interpret the Act to create a regulatory gap. That is, if States cannot "practicably regulate a given area," then federal authority must be available.

The decision below would create precisely such a gap. Over the last twenty years, large parts of the nation's wholesale electricity system have come to be administered on an interstate basis by independent system operators ("ISOs"). These FERC-regulated entities have achieved significant efficiencies by balancing supply and demand and ensuring reliability across state lines. Demand response is a critical tool that ISOs have used to address challenges in achieving these objectives in wholesale markets.

States, however, are legally and practically incapable of regulating these programs in wholesale markets. In markets administered by interstate ISOs, States cannot replicate the benefits of wholesale demand response programs through programs of their own on the retail level. It is only at the ISO level that the appropriate price signals, dispatch flexibility, and balancing can occur to realize fully the benefits of demand response. Under this Court's precedent, this inability of the States to regulate or replicate these ISO programs supports the reasonableness of FERC's jurisdiction.

2. Order 745 is not arbitrary or capricious. Wholesale energy markets pay resources based on the value those resources provide, not based on the resources' costs or profits in offering the services. In this case, FERC determined that when demand response is as capable of balancing supply and demand as genera-

tion and is cost effective, an ISO should value it the same as generation and thus it should be paid the same amount that generation is paid: locational marginal price ("LMP").

This is a reasonable choice. The Electric Power Supply Association, et al. ("EPSA") instead asserts that demand response providers should be paid "LMP-G," where "G" represents the retail cost of electricity that demand response participants do not buy, i.e., their cost savings as a result of providing demand response. By substantially reducing the compensation that demand response providers would receive below the amount that generation receives, EPSA's approach would require ISOs to dispatch expensive generation when demand response was capable of balancing supply and demand at a cheaper price, thus raising prices for consumers overall. The Federal Power Act does not require FERC to adopt such an approach, especially given that it would result in price discrimination against demand response providers, and in higher prices for consumers.

EPSA suggests that demand response should be devalued because purportedly society would lose the benefit of the productive use to which the demand response customer would have put that electricity. But FERC's mandate is not to maximize social welfare generally; it is to ensure just, reasonable, and not unduly discriminatory rates. This is difficult in light of the unique and complex challenges of administering national electricity markets, and so Congress entrusted FERC with significant discretion in weighing competing priorities. Because a central mechanism by which FERC carries out its mandate is facilitating the efficient balancing of supply and demand by ISOs, it is ap-

propriate for FERC to focus on the ability to balance supply and demand in assessing value.

EPSA's social-welfare argument is flawed in other respects as well. In many cases demand response merely shifts productive activity to off-peak hours and in other cases its effects are entirely intangible. Furthermore, demand response has many positive externalities that, if anything, make it more socially valuable than generation, including increasing system reliability, lowering wholesale price volatility, and decreasing strain on the transmission system during peak times.

FERC's decision is further supported by its determination that certain barriers, including previous inadequate compensation, had been stifling demand response participation in wholesale markets. Based on years of actual experience, FERC reasonably concluded that compensating demand response in accordance with its value is necessary to address this underutilization and thereby ensure just and reasonable rates.

Finally, EPSA hypothesizes that Order 745 will increase incentives for abuse, but even if that somehow were true, it only presents a reason to ensure ISO protocols are robust to address potential problems—which is exactly what Order 745 did. It is no reason to undercompensate beneficial activity.

In sum, Order 745 was well within FERC's jurisdiction and discretion, and therefore the decision below should be reversed.

ARGUMENT

I. THE STATES' INABILITY TO EFFECTIVELY REPLICATE FERC'S EFFORTS CONFIRMS THAT FERC HAS JURISDICTION TO ISSUE ORDER 745

Petitioners have cogently explained how Order 745 clearly falls within FERC's "exclusive" authority under the Federal Power Act to ensure that wholesale rates and "rates[] and practices … affecting [wholesale] rates[] are just and reasonable," rather than within the States' exclusive authority to regulate retail sales. *Northwest Cent. Pipeline Corp.* v. *State Corp. Comm'n*, 489 U.S. 493, 506 (1989); 16 U.S.C. §§ 824(a), (b)(1), 824d(a) & 824e(a).[2] Even if it were unclear how these provisions of the Act applied to Order 745, however, the Act's broader structure and the realities of the nation's energy system would lead to the same conclusion.

Through the Federal Power Act, Congress intended to create a comprehensive and effective structure for regulating the nation's energy system, with FERC and the States having complementary authorities that avoided the creation of any regulatory gaps. There is no exception for demand response. Quite the contrary—Congress has declared that "the policy of the United States [is] that … unnecessary barriers to demand response participation in energy, capacity and ancillary service markets"—that is, the wholesale markets regulated by FERC—"shall be eliminated." Energy Policy Act of 2005, Pub. L. No. 109-58, § 1252(f), 119 Stat. 594, 966 (16 U.S.C. § 2642 note). Because fulfilling this intent legally and practically requires demand response

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[2] This Court has an "established practice of citing interchangeably decisions interpreting the pertinent sections" of the Natural Gas Act and the Federal Power Act. *Arkansas La. Gas Co.* v. *Hall*, 453 U.S. 571, 577 n.7 (1981).

to exist at the wholesale level, a level at which the States have no authority or ability to regulate, the decision below would create the very kind of regulatory "no man's land" that Congress intended to avert. FERC, therefore, must have authority under the Act to regulate demand response at the wholesale level.

At bottom, EPSA is arguing that demand response, in all its aspects in all its forms, is categorically a matter of exclusive State concern. This Court has taken a much more nuanced approach to determining in whose regulatory domain a particular activity falls. *Cf. Oneok* v. *Learjet*, No. 13-271, slip op. 13 (Apr. 21, 2015). Because States are necessarily limited in their ability to fully regulate demand response, it is entirely consistent with congressional intent that certain aspects of demand response, including those at issue here, be regulated by FERC while others are regulated by the States.

A. The Federal Power Act Provides For Comprehensive And Effective Federal Authority Except Where It Reserves Authority To The States

In enacting the Federal Power Act, Congress "'meant to create a comprehensive and effective regulatory scheme' of dual state and federal authority." *FPC* v. *Louisiana Power & Light Co.*, 406 U.S. 621, 631 (1972) (quoting *Panhandle E. Pipe Line Co.* v. *Public Serv. Comm'n*, 332 U.S. 507, 520 (1947) (citation omitted)). Under this scheme, Congress intended federal authority "to be broadly complementary to that reserved to the States, so that there would be no 'gaps.'" *Id.*

Thus, "in a borderline case where congressional authority is not explicit [the Court] must ask whether

state authority can practicably regulate a given area and, if … it cannot, then [the Court is] impelled to decide that federal authority governs," lest "'a "no man's land" … be created.'" *Louisiana Power*, 406 U.S. at 631 (quoting *FPC* v. *Transcontinental Gas Pipe Line Corp.*, 365 U.S. 1, 19-20 (1961)). "This congressional blueprint has guided judicial interpretation of the broad language defining [FERC] jurisdiction." *Id.*

B. States Cannot Regulate Wholesale Demand Response

A dual approach to demand response not only was prescribed by Congress but also makes good sense. Both FERC and the States bring their own relative advantages to bear on the regulation of demand response. On the one hand, States are properly positioned to make policy judgments regarding the retail pricing schemes that allow demand response programs to suit their local needs. On the other hand, demand response is a critical tool in wholesale markets that only FERC can regulate.

Consistent with congressional policy, over the past two decades electricity markets have became more effective and reliable through the creation of FERC-regulated interstate ISOs.[3] These ISOs are charged by FERC with balancing supply and demand within the markets they administer—known as "organized markets"—on both a real-time and prospective basis, and with ensuring efficient reliability of the electric grid.

Demand response is a market resource for addressing two fundamental problems that have impaired

[3] For ease of reference, this brief includes within the category of ISOs the closely related regional transmission organizations ("RTOs").

ISOs' ability to achieve these objectives: the relative inelasticity of retail demand for electric power, and the inefficiency of relying solely on generation to ensure system reliability and resource adequacy. The basic challenge in solving these problems is to create market structures for consumers that achieve efficient levels of demand. In this arena, the States, as discussed below, are legally and practically unable to function as an effective substitute for FERC.

1. Economic demand response

Energy markets are characterized by relative inelasticity of electricity demand because consumers generally pay fixed rates, which respond to wholesale price changes only long after the fact. As a result, instead of consumers naturally modulating their consumption in response to retail price changes to maintain an efficient balance of supply and demand, ISOs have had to call on increasingly expensive marginal supply in times of high demand, which eventually raises retail electricity prices. To remedy this problem, FERC-regulated ISOs have established economic demand response programs, in which demand response providers bid into wholesale energy markets, typically on a day-ahead basis, to reduce demand if the market clears at or above their particular bid price. Such programs thus increase elasticity of demand by enabling the provider's customers to experience wholesale price changes and compensating them at the clearing price for reducing electricity consumption.

States are free to implement, and do implement, their own demand response programs at the retail lev-

el.[4] Such programs generally involve some limited variation in retail pricing that creates a price incentive for customers to reduce demand in peak hours.[5] These programs are often salutary, but they cannot supplant wholesale demand response programs in the interstate markets operated by ISOs. The States are constitutionally incapable of regulating interstate electricity markets. Indeed, Congress' motivation for enacting the Federal Power Act was to address that limitation and the "gap" in the regulation of electricity markets it created. *See New York* v. *FERC*, 535 U.S. 1, 5-6 (2002) (explaining the "*Attleboro* gap").

All that States could muster in the absence of federal regulation of demand response would be a patchwork of potentially inconsistent regulations and local demand response programs that could not replicate the benefits of wholesale economic demand response pro-

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[4] Moreover, FERC has been respectful of the States' efforts to regulate retail demand response when approving demand response programs at the wholesale level. *See* 18 C.F.R. § 35.28(g)(1)(i)(A) (limiting requirement that ISOs accept demand response bids when "not permitted by the laws or regulations of the relevant electric retail regulatory authority"); Order Accepting Tariff Sheets As Modified, 95 FERC ¶ 61,306, 62,043 (May 30, 2001) (same in approving ISO tariff).

[5] State-administered demand response programs at the retail level could include, for example: "critical-peak pricing," in which customers pay lower prices in most hours in exchange for paying very high prices during peak events; "peak time rebates" where customers are given rebates for reducing demand in certain peak hours; "time-of-use pricing," which charges customers different fixed rates depending on the time of day that the power is consumed; and "real-time pricing," which exposes the consumer to changes in wholesale prices directly. *See generally* FERC, *Energy Primer: A Handbook of Energy Market Basics* 47-48 (July 2012), *at* http://www.ferc.gov/market-oversight/guide/energy-primer.pdf.

grams regulated by FERC and implemented by ISOs at the interstate level.

The critical question in facilitating economic demand response is determining how to pay for the compensation to customers that is necessary to reduce demand throughout the wholesale market. Demand response in a given regional organized market benefits all of its ratepayers. An ISO, therefore, is ideally positioned to account for the total costs and benefits of such compensation.

EPSA argues that this compensation could come from state-regulated load-serving entities ("LSEs")—entities that supply power to end-use consumers—which could set up demand response programs with their retail customers. *See* EPSA Br. in Opp. 31 (arguing that "traditional public utilities and competitive power suppliers that purchase power in the wholesale market and then re-sell it to their retail customers can contract with retail customers and offer them incentives to reduce their demand consistent with state regulation, which will in turn, allow those load-serving entities to reduce their purchases in the wholesale market"). But this simplistic assertion ignores key practical realities of the markets. As other amici have recognized, the scheme EPSA lays out likely could not be dispatched by the ISO or directly integrated into the market-clearing price, limiting the ability of such a demand response program to compete with generation effectively. *See* NRG Cert. Amicus Br. 9; EnerNOC Br. 40.

Moroever, FERC has recognized the "longstanding" and "difficult to address" problem that utilities are unlikely to encourage their customers to reduce demand. FERC, *Assessment of Demand Response and*

Advanced Metering 72 (Aug. 2006, rev. Dec. 2008) ("2006 FERC Report"), *at* http://www.ferc.gov/legal/staff-reports/demand-response.pdf; *see also* FERC, *2010 Assessment of Demand Response and Advanced Metering* 47 (Feb. 2011), *at* http://www.ferc.gov/legal/staff-reports/2010-dr-report.pdf (reiterating concern). Utilities are generally paid as a function of the total power they distribute; accordingly, reducing power sales will either reduce their revenue, which they obviously do not want, or cause them to petition for rate increases. Furthermore, even LSEs that are not utilities may not have the necessary price incentives. LSEs are often indifferent to short-term wholesale price increases because they either own their generation (if vertically integrated), enter into fixed-price contracts with generators, or have otherwise largely hedged their power purchases. Thus, LSEs may not immediately see the necessary price signals for their customers to reduce demand.

As even a major generator and LSE has noted, independent demand response providers create essential competition to overcome the traditional reluctance of utilities and LSEs to facilitate demand response. *See* NRG Cert. Amicus Br. 10. In wholesale markets, third-party demand response providers have enabled customers to manage their electricity usage and coordinated their participation in demand response programs in order to provide significant benefits to their customers and all ratepayers in those markets. However, LSEs have a financial disincentive to allow third-party provision of services in their service territory in addition to the disincentive to reduce demand for electricity. It is

not clear how EPSA's scheme would permit any competition in the aggregation of demand response.[6]

Nor would the States within organized interstate markets be positioned to provide this compensation themselves. The benefits of such compensation would be diffused across all States within the same organized market but the cost would be concentrated within the single State implementing the program. States are generally reluctant to impose the full costs of demand response programs on their own ratepayers when those ratepayers will not capture all the benefits of the investments. *See* NERA Economic Consulting, *Distributed Resources: Incentives* 11 (May 2006), *at* http://www.nera.com/content/dam/nera/publications/archive1/PUB_distributed_resources_8.2006.pdf (discussing inefficiencies due to the misalignment of costs and benefits of demand response).[7]

State-level dynamic pricing programs, whereby retail prices vary somewhat based on the time of day or market conditions, would not solve the problem, either. Most of these dynamic pricing programs are generally economically equivalent to a compensation-based program, in that a utility or LSE pays the consumer a rebate for reducing demand during a peak period. Thus, these programs would suffer from the same problems

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[6] And even if somehow, against their economic interest, LSEs did permit participation by third-party demand response providers, a diverse multitude of LSE programs with potentially conflicting requirements would severely hinder any such participation.

[7] A State served by a vertically integrated utility could provide such an incentive, as the State's ratepayers would also fully internalize the benefits of lower prices and reduced congestion resulting from the demand reduction. But these States lose out on the efficiencies that sparked creation of the ISOs in the first place.

just discussed. Indeed, to the extent that these programs exist today in States that are part of organized markets, the relevant LSE or utility often acquires the compensation for the consumer by offering that consumer's demand response into the ISO's wholesale energy markets.[8]

More generally, fully dynamic pricing (that is, where consumers are exposed to the full volatility in wholesale prices) is neither feasible nor desirable from a policy perspective. Large and small consumers alike tend to prefer stable pricing because of their aversion to price spikes, and States support that preference. In addition, consumers are always free to contract around a dynamic pricing scheme by purchasing their power at a fixed price. Such hedging limits the potential effectiveness of dynamic pricing as a long-term solution. Moreover it demonstrates that inelasticity of retail demand is not a temporary phenomenon, but rather a

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[8] EPSA disingenuously claims that somehow the elimination of wholesale demand response programs "may benefit State demand response initiatives." EPSA Br. in Opp. 29-30. EPSA supports this assertion with concerns by certain States regarding FERC's proposed compensation scheme. *Id.* But whether a State may express concerns with a particular wholesale compensation scheme is entirely distinct from whether the State would prefer to see the wholesale demand response programs eliminated altogether. In fact, some of the very States on which EPSA relies expressly confirm the importance of wholesale demand response to their initiatives. *See* C.A.J.A. 386 (recognition by Public Utilities Commission of Ohio of numerous benefits of "demand response resources participating in the real-time energy market"); Delaware Public Service Commission Comments to FERC Regarding D.C. Circuit May 23, 2014 Opinion Vacating FERC Order No. 745, FERC Docket No. RM10-17-000 (July 2, 2014) (urging FERC "to pursue vigorously all available means for seeking reversal" of the decision below).

fixed feature of the electricity market that must be addressed by wholesale-level demand response programs.

2. Reliability-based demand response

Electricity supply must be available when needed. To ensure short-term reliability and long-term adequacy of supply, many ISOs manage not only energy markets, but also capacity markets.[9] In capacity markets, LSEs traditionally pay generators, through an auction, for the commitment to produce power on the ISO's request. The auctions generally occur long before the capacity is needed, to encourage the maintenance or building of sufficient generation capacity. Fulfilling these commitments can be expensive, and the resulting generation is often inefficient. In some cases, generators are paid substantial sums to maintain or build power plants that might run only a few hours in an entire year.

ISOs have created other demand response programs to help ensure short-term reliability and long-term resource adequacy in their electricity markets. In these programs, demand response providers commit, months or years in advance, to reduce demand when called. These commitments can then be offered into the capacity markets for compensation, just like genera-

[9] Although Order 745 directly addressed only the energy markets, neither the decision below nor the generators before this Court expressly limited their reasoning to demand response compensation in those markets. Indeed, following the Court of Appeals' decision, generators rushed to FERC to argue that that decision also deprived FERC of authority to allow demand response resources to participate in capacity markets. *See*, *e.g.*, Comments of the Electric Power Supply Association, FERC Docket No. EL15-21-000 (Dec. 4, 2014). It is therefore appropriate for this Court to consider the impact its decision will have on demand response participation in the capacity markets.

tion. ISOs appropriately have recognized that having demand response providers on stand-by to reduce demand during periods of high usage is more efficient than building excess power plants that may run only a few hours in a year.[10]

As with economic demand response, States are legally incapable of regulating reliability-based demand response in organized markets. *See supra* p. 10.

And again, States are unable to replicate the benefits of reliability-based demand response programs through programs of their own. Currently, ISOs decide whether to ensure system reliability by dispatching marginal generation or demand response, and they do so on an interstate basis. For example, PJM can compensate for a temporarily downed generator in Pennsylvania by calling on commitments by customers in Maryland to lower their consumption. Similarly,

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[10] This benefit of demand response is most visible in its effect on capacity market prices. One independent analysis calculated that, without demand response, capacity prices for the 2017/2018 delivery year could have tripled in certain PJM zones. *See* Boshart, *Navigant: Absent DR Participation, PJM Capacity Prices Could Jump up to 3-fold*, SNL Financial (Oct. 6, 2014), *at* https://www.snl.com/InteractiveX/Article.aspx?cdid=A-29411194-12081. Moreover, removing demand response in PJM would increase system-wide capacity costs by up to $9 billion for that same year. *See* FERC Pet. 32; EnerNOC Pet. 29-30. Having to redo capacity auctions in PJM for 2016/17 and 2015/16 would potentially increase costs by $10 billion and $14 billion, respectively. *See* Monitoring Analytics, *Analysis of the 2016/2017 RPM Base Residual Auction* 37 (Apr. 18, 2014), *at* http://www.monitoringanalytics.com/reports/Reports/2014/IMM_Analysis_of_the_20162017_RPM_Base_Residual_Auction_20140418.pdf; Monitoring Analytics, *Analysis of the 2015/2016 RPM Base Residual Auction* 5 (Sept. 24, 2013), *at* http://www.monitoringanalytics.com/reports/Reports/2013/Analysis_of_2015_2016_RPM_Base_Residual_Auction_20130924.pdf. And these figures are just for a single organized market.

through the capacity market mechanism, an interstate ISO can ensure long-term resource adequacy by balancing a lack of generation capacity in one State with demand response resources in another State. Thus, to be effective in ensuring reliability in an organized market, demand response resources must participate at the ISO-level.

For this reason, while States in organized markets may have their own reliability-based programs, those programs likely could not exist if demand response could not participate in FERC-regulated capacity markets. Those programs, generally operated by state utilities, function much as private demand response aggregators at the wholesale level, permitting their customers to act as demand response resources and then offering the aggregated resources into ISO capacity auctions in return for compensation. Such programs are cost-effective largely because this capacity market participation offsets the state utilities' capacity obligations in ISO auctions.

Indeed, recognizing that the decision below has endangered States' ability to fund their own programs, States in organized markets have voiced strong opposition to the decision. *See, e.g.*, Joint States Br. 23-24 (explaining that Maryland's and Pennsylvania's demand response programs have relied in significant part on PJM capacity market revenues for funding); Delaware Public Service Commission Comments to FERC Regarding D.C. Circuit May 23, 2014 Opinion Vacating FERC Order No. 745, FERC Docket No. RM10-17-000 (July 2, 2014) (noting that Delaware's $26 million Delmarva program and statutory efficiency goals are now

in jeopardy because of potential inability to access demand response in wholesale markets).[11]

* * *

Before the decision below, the implementation of various kinds of demand response programs reflected the approach Congress envisioned of complementary state and federal regulation. Those programs also built on the tremendous advances of the past decades, in which interstate ISOs have realized substantial efficiencies across state lines. States cannot regulate these ISO demand response programs, nor can they replicate them with programs of their own. Thus, the decision below creates a regulatory no-man's land and threatens to unravel the progress that these ISOs have achieved. The Federal Power Act does not require this result.

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[11] After the Court of Appeals' ruling, PJM proposed allowing LSEs to use demand response to offset their ISO capacity obligations, while barring independent demand response aggregators from bidding into the market. *See* PJM Interconnection, L.L.C., Revisions to the Reliability Pricing Market and Related Rules in the PJM Open Access Transmission Tariff and Reliability Assurance Agreement Among Load Serving Entities, FERC Docket No. ER15-852-000 (Jan. 14, 2015). FERC rejected this proposal, which PJM conceded would have eliminated the providers that "have historically accounted for a majority of the demand response registered in PJM." *Id.* at 3. The proposal was both legally and practically defective. There is no basis in the Federal Power Act to conclude that FERC has authority to regulate demand response programs provided at the wholesale level by LSEs but not by other entities. Moreover, as discussed above, demand response providers create essential competition to overcome the reluctance of LSEs and utilities to offer demand response. PJM itself described its proposal as only a "stop-gap" program that is inferior to the status quo, and recognized that demand response participation "could be substantially lower under this proposal than it has been historically." *Id.* at 2-3.

II. FERC Reasonably Decided That Demand Response Should Be Paid The Locational Marginal Price

Order 745 is reasonable. FERC properly determined that when demand response is as capable as generation of balancing supply and demand and is cost-effective, an ISO should value it the same as generation and thus it should be paid the same amount that generation is paid: the LMP, or locational marginal price.

EPSA instead argues that, even when the above conditions are met, FERC was required to value demand response less than generation, namely, as a LMP minus the avoided retail cost of electricity, G. But EPSA's argument rests on a cramped characterization of economic efficiency—which includes the factors it wants but ignores the rest—that is not required by the Federal Power Act. Particularly in light of the complexities of the electricity markets, FERC has ample discretion in weighing different considerations in its ratemaking. FERC's judgment was based on its relevant expertise and experience; it merits substantial deference.

A. The LMP System Pays Resources Based On Value Provided And Does Not Inquire Into Costs

EPSA insists that the price paid to demand response participants in wholesale energy markets should reflect those participants' costs. But that is not how pricing in wholesale energy markets works. The standard wholesale price paid to power generators reflects the value of the electricity they provide, not their costs.

Under the locational marginal pricing system in deregulated markets, generators typically provide offers

that indicate the minimum price they would need to be paid to generate a particular quantity of load at a particular location and at a particular moment in time.[12] Based on these signals and other constraints like transmission availability, the ISO identifies the lowest cost method of serving the load throughout the interstate electricity grid it manages. It does so by calculating, at every point in the system, the instantaneous marginal cost of serving the *last* unit of load required at that location, even if some proportion of the load (before the last unit) could be served at a lower cost. This is referred to as the locational marginal price, or "LMP." The LMP then serves both as a dispatch signal and the market-clearing price: any generator whose offer at a particular location is at or below the LMP is dispatched by the ISO and paid LMP by the LSE for the electricity they receive from the generator.

Because costs of generation vary significantly across generators, the marginal cost of supply can be steeply increasing, particularly during times of peak load. In these circumstances, most generators in the system—certainly those that bid below the market-clearing price—will be paid more than their original offers, and thus more than their cost, upon dispatch.[13] As FERC explains, in determining appropriate compensation it generally does not "inquire into the costs or benefits of production for the individual resources participating as supply resources." Order 745 ¶ 62 (EnerNOC

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[12] *See generally* Synapse Energy Economics, *LMP Electricity Markets: Market Operations, Market Power, and Value for Consumers* (Feb. 5, 2006), *at* http://www.publicpower.org/files/PDFs/SynapseLMPElectricityMarkets013107.pdf.

[13] Thus, even though ISOs may generally require generators to base their offers on their actual costs, that does not mean that generators are *paid* on the basis of their actual costs.

Pet. App. 186a). As a result, if the LMP is $150/MW, an efficient baseload plant that produces power for $15/MW will receive the same compensation as the inefficient plant producing it for $150/MW. The more-efficient generators get to pocket the difference between their cost and the LMP as profit.

Therefore, the LMP system in deregulated markets compensates resources based on the *value* they provide, not the costs they incur. LMP is a measure of that value because it represents the amount the system would have to pay the next resource to offer the same generation if the cheaper one were to disappear.

EPSA is wrong to focus on whether demand response customers in essence "do better" than generators because they also avoid the retail cost of electricity not bought, "G." The avoided electricity cost for demand response participants is just one part of the internal calculus that a customer will consider when assessing whether to offer demand response, alongside numerous other costs such as comfort and convenience (especially for residential customers), business interruptions, investment in metering technology, and overtime. Indeed, *everyone* in the market has costs and benefits associated with their participation, and so more-efficient generators "do better" than less-efficient ones since all generators are paid LMP. Just as FERC generally "does not inquire into the costs or benefits of production" of generation resources, it should not "single out demand response resources for adjustments to compensation," so long as the value of the resource to the ISO is the same. Order 745 ¶ 62 (EnerNOC Pet. App. 186a).

B. Demand Response Provides Equal Value To Generation In Balancing The Markets And Thus FERC Reasonably Decided Not To Discriminate Against It

The question FERC grappled with, then, was whether demand response offers equal value to generation to the ISO in the relevant sense. FERC rightly and reasonably determined that it does, and so payment of LMP is appropriate.

1. Demand response provides equal value to the ISO because an incremental megawatt of load can equally be supplied by one megawatt of generation or one megawatt of demand response. *See* Order 745 ¶ 55 (EnerNOC Pet. App. 181a) ("Generation and load must be balanced by the RTOs and ISOs when clearing the day-ahead and real-time energy markets, and such balancing can be accomplished by changes in either supply or demand."). Or, as even an expert supporting EPSA, Dr. Robert Borlick, put it before FERC, "economic demand response and generation are equivalent balancing resources." Response of Robert L. Borlick to Professor Alfred E. Kahn 4, FERC Docket No. RM10-17-000 (Oct. 9, 2010) (capitalization omitted).

As discussed above, FERC has encouraged the development of ISOs in deregulated markets because their ability to balance supply and demand across state lines improves efficiency and thus helps ensure just and reasonable rates. So FERC reasonably can focus on the resource's ability to balance supply and demand in assessing its value. Providing for demand response to be compensated at less than generation would improperly force ISOs to discriminate against demand response, requiring ISOs to choose a more expensive way

to balance supply and demand. The Federal Power Act does not require that result.

An example helps to demonstrate how an LMP-G approach improperly would force the ISO to discriminate against demand response, ultimately to the detriment of consumers. Suppose that after using generation to balance 1000 MW of load, an ISO must procure resources for an additional 10 MW of load. Incremental generation offers are $110/MW for the next 5 MW and $120/MW for the next 5 MW after that. There is also a demand response resource that, after considering the costs of an interruption to its operations, is willing to provide 10 MW of demand reduction in return for $100/MW. G is $30/MW.

Under Order 745, the ISO would see that the $100/MW demand response offer provides the cheapest resource to balance the load. But before dispatching it, the ISO would confirm, pursuant to Order 745, that the demand response offer passes the net benefits test. FERC required this test to address the "billing unit effect," in which in certain circumstances, it may be inefficient to dispatch demand response, even if it is the cheapest resource, because it would reduce the load base. *See* Order 745 ¶¶ 51-53 (EnerNOC Pet. App. 178a-179a) (explaining billing unit effect). If the test is passed, the demand response will be dispatched, and LMP will be $100/MW, whereas LMP would be $120/MW without demand response. The 1000 MW of generation and 10 MW of demand response will be paid this $100/MW, while the 1000 MW of load receiving the generation will pay $100/MW plus an additional $1/MW "uplift" to account for the reduction in load base by de-

mand response.[14] The net benefits test ensures that this uplift will be lower than the reduction in LMP caused by the demand response—here, the $1/MW uplift would be less than the $20/MW increase in LMP absent demand response—and thus that demand response is dispatched only when it results in lower costs for the system overall.

EPSA suggests that under its LMP-G approach, the demand response resource would be paid $70/MW in this example, rather than $100/MW. But that's not what would actually happen. Rather, the demand response resource had determined that it was willing to provide demand response only if it is paid at least $100/MW—that was the basis of its prior hypothetical offer—and that position would not be any different under EPSA's approach. So, under EPSA's approach, the demand response resource would have to increase its offer from $100/MW to $130/MW, ensuring that it will

[14] The reason for the uplift payment is, in short, that supply counts both generation and demand response, but load counts only the demand for generation. Without demand response, there would be 1010 MW of supply (all generation) paid for by 1010 MW of load, and so a perfect match between the two sides. If demand response is dispatched, however, the supply side remains 1010 MW (now 1000 MW of generation plus 10 MW of demand response), but the load side is reduced by the amount of demand response and is thus just 1000 MW—since, by definition, demand response resources are not using the supply of power. Because demand response resources cannot be charged for the power they are not using, but all supply resources must still be paid LMP even if demand response is dispatched, the load base has to cover the difference. This difference is the uplift, and it is calculated by evenly allocating the amount of the payment owed to the demand response providers across the load base. In this example, the total payment to demand response would be $1000 (10 MW x $100/MW). Allocating that payment over 1000 MW of load yields an uplift payment of $1/MW.

be dispatched only when its compensation would at least match its requirement of netting $100/MW. The result is that the two incremental generation offers will be dispatched instead of demand response, LMP will be $120/MW, and the load receiving the generation will pay $19/MW *more* than under Order 745.

Properly understood, then, the issue is not whether demand response should be paid more as a general matter; as the example shows, demand response customers will invariably adjust their offers so that they are paid at least what they need to justify the interruption. Instead, the question is whether an ISO should discriminate between two equivalent ways of balancing supply and demand, valuing demand response less and thus increasing system costs by dispatching demand response at the price it is willing to be paid only when the next unit of generation is more expensive by at least G.

There is no reason for such discrimination. As discussed, demand response is as capable of balancing supply and demand as generation is. Moreover, although demand response lowers the load base, the net benefits test ensures that the uplift would be more than offset by the reduction in LMP, and the dispatch of demand response is thus efficient.

2. In arguing that FERC unreasonably determined that ISOs should not discriminate against demand response, EPSA and its supporters fixate on one particular sense in which the dispatch of demand response may differ from the dispatch of generation: when demand response is dispatched, society may in some cases lose the value of whatever productive use the demand response provider (or more precisely, its customers) would otherwise have made of that electricity. Thus, using highly stylized examples, amici sup-

porting EPSA below speculated that Order 745 would cause customers to "forgo socially valuable activity." Borlick et al. C.A. Amicus Br. 18. Under EPSA's approach, this activity is valued at G because that is the amount that the demand response provider otherwise would have paid to engage in that activity.

This argument is flawed. FERC's mandate is not to maximize social welfare generally, nor is FERC obligated to adhere to EPSA's interpretation of economics textbooks. *See Permian Basin Area Rate Cases*, 390 U.S. 747, 776-777 (1968) ("rate-making agencies are not bound to the service of any single regulatory formula; they are permitted, unless their statutory authority otherwise plainly indicates, to make the pragmatic adjustments which may be called for by particular circumstances" (quotation marks omitted)); *see also* Order 745 ¶ 46 (EnerNOC Pet. App. 175a) (noting that FERC "is not limited to textbook economic analysis of the markets subject to our jurisdiction, but also may account for the practical realities of how those markets operate"). Rather, in addition to ensuring that rates are not unduly discriminatory or preferential (which as discussed, Order 745 does), FERC must ensure that wholesale electricity rates are just and reasonable. *See* 16 U.S.C. § 824d.

This is no easy feat: unlike any other market in the world, electricity markets require continuous and instantaneous balancing of supply and demand, feature a steeply increasing marginal supply curve, and demand the utmost reliability in operation in light of electricity's importance for basic human necessities. *See* Order 745 ¶ 56 (EnerNOC Pet. App. 181a) (recognizing "distinctive" characteristics of electricity markets in explaining decision). In these complex circumstances, FERC ensures just and reasonable rates in significant

part by relying on ISOs in organized markets to balance supply and demand effectively and efficiently across state lines. Thus, it is entirely appropriate for FERC to focus on the value demand response provides in balancing supply and demand when assessing its value as a supply resource. This determination is owed "great deference." *Morgan Stanley Capital Grp., Inc.* v. *Public Util. Dist. No. 1 of Snohomish Cty.*, 554 U.S. 527, 532 (2008) (the "statutory requirement that rates be 'just and reasonable' is obviously incapable of precise judicial definition").[15]

In any event, EPSA is wrong in thinking that dispatch of demand response causes the systematic loss of social value. In many cases, such loss would not occur or would be entirely speculative. For example, many businesses have supplies or inventory to accommodate just such curtailment of electricity consumption. And if the demand response merely shifts an industrial production process from one particularly hot summer weekday to a cooler weekend, then the social benefits of that process will still be realized while sparing the system the costs of highly expensive peak-time power. In other cases, the social value lost when the demand response customer reduces consumption may be entirely intangible, such as students sitting in classrooms that are 1 degree warmer in the summer or an office building's decorative water fountain being off for an hour.

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[15] For the same reason, EPSA missed the point below when it argued that the LMP-G approach is necessary to ensure that demand response customers see the same price signal as if the electricity markets had full real-time retail pricing. *See* EPSA C.A. Br. 52. Nothing in the Federal Power Act requires FERC to replicate retail pricing signals. FERC is free to determine that another signal better comports with its mandate to ensure just and reasonable wholesale rates.

Nothing in the Federal Power Act requires FERC to discriminate against demand response because of these unlikely, speculative, or intangible effects.

EPSA also ignores the countless positive externalities of dispatching demand response and negative externalities of dispatching generation that FERC recognized in Order 745. Demand response lowers wholesale price volatility by reducing the hourly variation in consumption patterns.[16] By reducing peak load, demand response limits strain on shared resources like the transmission system. It mitigates generators' market power by developing an alternative means to supply load. *See* Order 745 ¶ 10 (EnerNOC Pet. App. 147a). It increases reliability by giving ISOs another tool to balance supply and demand in emergencies that is qualitatively different from generation. *See id.* (EnerNOC Pet. App. 147a-148a).[17] To the extent it reduces total load, demand response benefits the environment, and it also helps promotes the use of renewables like wind and

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[16] *See* Order 745 ¶ 10 n.16 (EnerNOC Pet. App. 147a) ("Demand response tends to flatten an area's load profile, which in turn may reduce the need to construct and use more costly resources during periods of high demand; the overall effect is to lower the average cost of producing energy." (quoting ISO-RTO Council Report, Harnessing the Power of Demand How RTOs and ISOs Are Integrating Demand Response into Wholesale Electricity Markets)).

[17] FERC has recognized that demand response can be more effective than generation in responding to emergencies. First, it can be much quicker: it is often easier to turn off consumption than to start a new generator. Second, it can be more reliable, because it is a "statistical resource." *See* 2006 FERC Report 119-120. That is, whereas the failure of a few consumers to fulfill their commitments to reduce consumption when requested has a small effect on the relationship between supply and demand, the failure of a generator to provide power on request has a substantial effect.

solar power because it can efficiently plug gaps in those sources' otherwise intermittent generation.[18]

Thus, if FERC were to account for the full range of costs and benefits of demand response, it could well conclude that LMP *undercompensates* demand response participation in organized markets. Instead, FERC has decided to focus simply on the value that demand response provides in balancing supply and demand. That focus, though more specific than it could be, is reasonable.

C. FERC Reasonably Recognized That Uniform Pricing Would Remove An Improper Barrier To Demand Response Participation

FERC's experience with demand response also shows that valuing demand response equally to generation is essential to achieving successful demand response programs and is therefore reasonable.

In the notice of proposed rulemaking, FERC found that despite the benefits they offer, at that point "demand response providers collectively play[ed] a small role in wholesale markets." Notice of Proposed Rulemaking ¶ 9, FERC Docket Nos. RM10-17-000, EL09-68-000 (Mar. 18, 2010) ("NPRM") (J.A. 32). With the experience of "several years of observing demand response participation in ISO and RTO markets with different, and often evolving, demand response structures," FERC expressed concern that "some existing[]

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[18] For example, a recent Navigant study concluded that demand response could reduce carbon dioxide emissions by 2%, which is 10% of the Environmental Protection Agency's target of 20% reductions by 2030. *See* Navigant, *Carbon Dioxide Reductions from Demand Response* 1 (Nov. 25, 2014), *at* http://www.ieca-us.com/wp-content/uploads/Carbon-Dioxide-Reductions-from-Demand-Response_Navigant_11.25.14.pdf.

inadequate compensation structures have hindered the development of demand response" *Id.* For example, FERC noted that when PJM went from essentially an LMP mechanism,[19] demand response dropped by 36.8%. *Id.* ¶ 10 (J.A. 33). With Order 745, then, FERC reasonably concluded that uniform compensation at LMP was necessary to spur development of this valuable resource. *See* Order 745 ¶ 57 (EnerNOC Pet. App. 181a-183a); Order 745-A ¶ 74 (EnerNOC Pet. App. 92a) (explaining need for uniform approach).[20]

This does not mean, as amici for EPSA claimed below, that FERC "assume[d] that more demand response is always better, regardless of the amount." Borlick et al. C.A. Amicus Br. 18 (quotation marks omitted). FERC simply recognized that demand response had (at least) equal value to generation in balancing supply and demand, that existing compensation schemes discriminating against demand response were underutilizing this value, and that adjusting the compensation for demand response to be equal to the compensation for generation would thereby ensure more just and reasonable rates. This is precisely the kind of policy judgment Congress entrusted FERC to make, particularly in light of its policy directive that "unnec-

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[19] PJM provided for payment of LMP when LMP was at least $75/MWh and paid LMP minus the generation and transmission components of the retail rate when LMP was less than $75/MWh. NPRM ¶ 10 n.33 (J.A. 33).

[20] Experience has proven FERC prescient. In a report analyzing the first several months of implementation of Order 745, PJM found that demand response participation had significantly increased and that the performance of demand response had "dramatically improved." PJM, *2012 Economic Demand Response Performance Report*, *at* http://www.pjm.com/~/media/markets-ops/dsr/20150701-order-745-impact-on-economic-dr.ashx.

essary barriers to demand response participation in energy, capacity and ancillary service markets shall be eliminated." Energy Policy Act of 2005, Pub. L. No. 109-58, § 1252(f), 119 Stat. 594, 965-966 (16 U.S.C. § 2642 note).

D. FERC Properly Rejected EPSA's Arguments About Potential Abuse

Finally, some of EPSA's arguments amount to a claim that Order 745 could be abused, by encouraging parties to take steps to profit from the compensation approach in a way that does not lead to actual demand reductions. This is a red herring. Whenever a regulatory scheme compensates beneficial activity, there will be possibilities of abuse, whether that activity is demand response, generation, or something else. It is unremarkable that compensating demand response providers substantially less, as EPSA's proposed LMP-G pricing would do, might reduce the incentive for abuse. But that is no reason to undercompensate demand response.

Rather, the proper way to address such concerns is verification and enforcement. As FERC recognized in Order 745, "demand reductions that are not genuine may be violations of the Commission's anti-manipulation rules." Order 745 ¶ 95 (EnerNOC Pet. App. 208a); *see* 17 C.F.R. § 1.c.2 (prohibiting fraud, false statements, and manipulation in connection with purchase or sale of electric energy). Moreover, every ISO has specific measurement and verification protocols designed to ensure that demand response reductions are genuine. For example, PJM will only compensate those demand reductions that are "executed in response to the real-time and/or day-ahead LMP or as dispatched by PJM and that are not implemented as part of normal operations." PJM Manual 11 Energy & Ancillary Ser-

vices Operations (Apr. 9, 2015), ch. 10.1, *at* http://www.pjm.com/~/media/documents/manuals/m11.ashx. PJM further enumerates examples of ineligible demand reduction, which include "[s]ettlements based on On-Site Generator data if the On-Site Generation is not supporting demand reductions executed in response to … LMP," and "[c]onsecutive daily settlements that are the result of a change in normal demand patterns." *Id.* Repeat offenders can be suspended and referred to FERC's Office of Enforcement. *Id.*

EPSA in essence argues that Order 745 will increase the likelihood of violations of these rules, and now wants FERC to throw out the baby with the bathwater. But FERC is well within its power to be more exacting, as it is in allowing other beneficial practices that nonetheless could be abused. Indeed, generation likewise is vulnerable to market manipulation, and appropriately subject to compliance monitoring and enforcement. Thus, Order 745 properly directed ISOs to review their protocols in light of the change in compensation, and either explain how their protocols are adequate or propose any necessary changes in their compliance filings. *See* Order 745 ¶ 94 (EnerNOC Pet. App. 207a). FERC's approach is reasonable.[21]

CONCLUSION

For the foregoing reasons, the decision of the Court of Appeals should be reversed.

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[21] EPSA is free to raise any concerns it has with an ISO's measurement and verification protocols in those separate proceedings.

Respectfully submitted.

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