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 OF ROBERT L. BORLICK, JOSEPH BOWRING, JAMES BUSHNELL, AND 19 OTHER LEADING ECONOMISTS AS *AMICI CURIAE* IN SUPPORT OF RESPONDENTS

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QUESTIONS PRESENTED

The questions presented for the Court's review in this case are:

1. Whether the Federal Power Act, 16 U.S.C. §§ 791a *et seq.*, authorizes the Federal Energy Regulatory Commission (FERC) to induce retail reductions in electricity consumption and to recoup those payments through adjustments to wholesale rates.

2. Whether FERC's rule establishing the amount paid to induce those reductions in electricity consumption is arbitrary and capricious or otherwise unsupported by reasoned decisionmaking.

This brief of *amici curiae* addresses only the second question presented.

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INTEREST OF *AMICI CURIAE*

Amici curiae (listed in the Addendum) are leading economists and educators who have designed, studied, and written about the electricity markets affected by the

decisions under review here.[1] FERC's Final Rule establishes the rate paid for reducing purchases of electricity (called "demand response"). FERC now requires market participants to pay the full "locational marginal price" of electricity that is not consumed, treating non-consumption as equivalent to selling energy one owns or generates. See U.S. Br. 45-61.

Although *amici*'s views may diverge on other issues, they agree that FERC's decision cannot be reconciled with the economic principles FERC has repeatedly endorsed. FERC's pricing methodology overcompensates reduced consumption by compensating demand response as if parties that reduce consumption sell electricity they generate, or resell into the market energy they purchased. But demand-responders do neither: They decline to buy electricity at a particular rate; they do not provide electricity they own to others. Requiring that

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[1] Pursuant to this Court's Rule 37.6, counsel for *amici curiae* states that no counsel for a party authored this brief in whole or part or made a monetary contribution to the preparation and submission of this brief. Counsel's fees and expenses incurred to prepare this brief were paid by American Electric Power Service Corp., the Independent Power Producers of New York, Inc. and the New England Power Generators Association, Inc. No other person or entity made a monetary contribution intended to fund the preparation or submission of this brief. Robert Borlick, William Hogan, and Roy Shanker were compensated experts in FERC proceedings below. James Bushnell, Scott Harvey, and Benjamin Hobbs were compensated as members of the Market Surveillance Committee of the California Independent System Operator, Inc., which filed comments before FERC. Paul Centolella was a Commissioner on the Ohio Public Utilities Commission and, as part of his official duties, participated in submitting comments before FERC. All parties consented to the filing of this brief. Copies of the letters granting consent have been filed with the Clerk.

demand-responders be paid as if they contributed and sold their own electricity into the market creates excessive incentives to curtail demand. It induces the cessation of productive activity even when that harms social welfare. And it creates bizarre incentives by compensating those who operate their own (typically dirtier and more costly) generation "behind the meter" for self-consumption more generously than generators who supply electricity to the interstate grid for everyone's use. FERC's methodology harms social welfare and the long-term health of electricity markets. If FERC has legitimate reasons for imposing those costs, it never articulated them.

SUMMARY OF ARGUMENT

I.A. FERC has regulated wholesale electricity markets to promote efficient competition, mandating the use of a locational marginal price (LMP) that incorporates all costs of delivering the electricity necessary to meet real-time demand at each location. However, because end-use consumers in state-regulated retail markets often pay fixed rates, their energy consumption may be relatively inelastic, regardless of real-time changes in wholesale prices.

To make retail consumption more responsive to wholesale price changes, FERC mandated "demand-response" payments of full LMP to customers for *not* consuming electricity. Although FERC attempted to justify payment of full LMP on efficiency grounds, its analysis defies the economic principles FERC purported to follow.

B. Under FERC's rule, everyone actually supplying electricity to market at LMP must bear the cost of obtaining the electricity they sell. Generators must produce energy, and traders must buy it, to sell it at LMP. But not demand-responders. They are paid full LMP, as

if they "sold" electricity into the market, even though they do not own (or buy) electricity and supply it to market. They simply decline to consume electricity.

Basic math shows that paying full LMP encourages purchasers to forgo electricity consumption and productive activity even when it harms overall social welfare. FERC previously employed that math to conclude that paying full LMP would be an unjustified subsidy for demand response, as did the Federal Trade Commission in these proceedings.

FERC's rule also compensates users more handsomely for generating electricity solely for their own "behind-the-meter" use, discriminating against generators that offer electricity into the grid. That favors less efficient self-supply over public generation—even when self-supply costs more than prevailing LMP. FERC never attempted to justify that result.

II. FERC offered no economically plausible rationale for rejecting the more efficient alternative of LMP-minus-G (where G is the full retail price). FERC had previously approved that workable formula for compensating demand-responders.

III. FERC relies on the "net-benefits test," which requires RTOs to perform a complex calculation using "historical data" and an indeterminate list of factors. The necessity of superimposing a net-benefits test demonstrates that FERC's pricing rule is flawed. If paying full LMP produced appropriate pricing signals, FERC would not need to superimpose *another* test as a precondition for demand response.

By its terms, moreover, the test merely precludes demand-response payments unless those payments lower *the total amount consumers pay* for electricity. But *arti-*

ficially lowering prices can impede efficiency and deter necessary investment in new facilities. This Court and FERC have recognized that pricing must look to the interests of the market as a whole, including generators and customers. Any economist seeking to maximize benefits *to society* will measure *total social welfare*, not just the consumer side of the ledger. FERC never justified its exclusive focus on lower short-term prices and pointedly ignored the harm to social welfare its pricing scheme imposes. Regulators sometimes depart from efficiency to pursue other goals. But damaging efficiency while purporting to pursue it is arbitrary and capricious rather than reasoned decisionmaking.

ARGUMENT

FERC's Final Rule defies the basic economic principles upon which FERC established organized electricity markets. Declaring that it "is not limited to textbook economic analysis," FERC urged that it "may account for the practical realities of how [electricity] markets operate." Pet. App. 89a-90a. But FERC's decision defies both economic theory and the practical realities alike. FERC's formula for compensating decisions to reduce retail consumption exceeds what a competitive market would provide; systematically provides greater incentives to reduce consumption than to generate energy for useful purposes; and creates perverse incentives that injure consumers in the long run. Notwithstanding the many post-hoc rationalizations now asserted for that rule, FERC gave no rationale that makes theoretical or practical economic sense.

Amici find FERC's order disturbing. FERC purports to promote efficiency but instead undermines efficiency by creating obvious subsidies while denying that any subsidy exists. Regulators may sometimes depart from

efficiency to pursue other legitimate goals. Here, however, FERC departed from efficiency while purporting to pursue it, without acknowledging the costs of that departure.

I. FERC'S RULE IMPOSES INEFFICIENT DISTORTIONS WITHOUT REASONED JUSTIFICATION

There is a well-acknowledged disconnect between wholesale and retail energy markets. *Wholesale* prices for electricity, which are set in competitive, organized markets, reflect minute-to-minute fluctuations in demand and supply. But the *retail* rates paid by electricity consumers are often fixed in advance; purchasers pay a flat rate for each additional megawatt consumed regardless of real-time changes in supply and demand. As a result, real-time price signals are not transmitted to retail electricity consumers, whose demand remains highly inelastic to fluctuations in wholesale prices.

Here, FERC attempted to give retail customers incentives to curtail usage in response to wholesale price changes. But FERC created incentives that depart dramatically from proper competitive outcomes and any sensible notion of economic efficiency. By overcompensating reductions in demand, FERC discourages socially valuable, productive activity, without acknowledging that consequence. It likewise compensates self-generation more handsomely than generation for the public's benefit. At bottom, FERC has chosen to subsidize demand response without offering economic reasoning for that subsidy—or the corresponding burden on generators and small consumers who must fund it.

A. The Need for Proper Price Signals To Regulate Supply and Demand in Electricity Markets

1. *The Critical Role of Price in Energy Markets*

"Price is the 'central nervous system of the economy.'" *Nat'l Soc'y of Prof'l Eng'rs* v. *United States*, 435 U.S. 679, 692 (1978). "[T]he influence of prices on the behavior of consumers and producers is crucial for how a market economy allocates scarce resources." Mankiw, *Principles of Economics* 7 (5th ed. 2008). In efficient markets, rising prices signal the need to increase production (and trigger decreased consumption); falling prices signal the need to decrease production (and trigger greater consumption). The resulting buyer and seller conduct "naturally move[s] markets toward the equilibrium of supply and demand." *Id.* at 77.

Those bedrock principles apply to electricity markets. On the demand side, "[p]rice changes signal to customers in wholesale and retail markets that they should change their decisions about how much and when to consume electric power." Electric Energy Market Competition Task Force, *Report to Congress on Competition in Wholesale and Retail Markets for Electric Energy* 47 (2007). Suppliers respond as well. "If the cost of increasing [electricity] production is small, a relatively small price increase may * * * encourage producers to increase production in response to increased demand." *Id.* at 50. But if production costs are high, "suppliers will not increase production unless the price increases enough to cover the higher costs." *Ibid.*

FERC has recognized the importance of price signals to balance supply and demand. It restructured organized *wholesale* electricity markets to ensure accurate price signals. See *New York* v. *FERC*, 535 U.S. 1, 4-5 (2002). And it has used price signals by establishing auctions for

long-term supply. See, *e.g.*, *Md. Pub. Serv. Comm'n* v. *PJM Interconnection, L.L.C.*, 127 FERC ¶61,274 (2009).

2. *The Wholesale-Retail Disconnect on Pricing*

Although electricity markets are subject to the principles of supply and demand, there is a gulf between wholesale pricing (regulated by FERC) and retail pricing (regulated by States). That separation impedes the critical signaling function of price—an impediment FERC's rule here was supposed to overcome.

Wholesale rates are generally efficient. Most wholesale electricity in organized markets is priced according to "locational marginal pricing," or "LMP." Under LMP, "prices are designed to reflect the least-cost of meeting an incremental megawatt-hour of demand at each location on the grid, and thus prices vary based on location and time." *Sacramento Mun. Util. Dist.* v. *FERC*, 616 F.3d 520, 524 (D.C. Cir. 2010). LMP incorporates each cost component for delivering electricity to its destination—the cost of generating it, the cost of transmitting it from the generator, and "line losses" (energy losses that occur during transport). *Ibid.* LMP "communicate[s] the true market value of electricity at each location"; "create[s] financial incentives to dispatch the lowest cost energy"; and "encourage[s] transmission and generation investment at appropriate locations." *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶61,274 at 62,126 (2006). And LMP is dynamic: Because it "reflect[s] the supply-demand interaction," it "varies constantly," with prices changing in minute-by-minute increments. Borenstein, *Time-Varying Retail Electricity Prices: Theory and Practice*, in *Electricity Deregulation: Choices and Challenges* 317, 317 (Griffin & Puller eds., 2005). Wholesale market participants thus have an incentive to respond to

increased prices, triggered by peak-demand or supply shortfalls, by reducing purchases.

By contrast, retail rates typically do not reflect real-time price fluctuations. Borenstein, *supra*, at 317. Rather, the retail price "typically is constant for months at a time." *Ibid.* As a result, moment-to-moment or day-to-day wholesale price signals are not transmitted to most consumers. The wholesale price during a peak-usage period thus might increase dramatically, but retail consumers paying fixed rates have no economic incentive to decrease consumption in response. See Pet. App. 96a-98a. Consumer demand is thus rendered "inelastic" with respect to wholesale price. The lack of incentives to reduce demand during peak periods was one of the "most obvious culprit[s]" for the 2000-2001 California energy crisis. Hilke & Wise, *Who Turned Out the Lights? Competition and California's Power Crisis*, 15 Antitrust 76, 76 (2001).

One way to ensure appropriate incentives is dynamic pricing—charging retail customers the "relevant real-time or day-ahead LMP" of the electricity they consume. Hogan, *Providing Efficient Incentives for Demand Response* 12 (Oct. 29, 2009) ("*Whitepaper*"), http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=12228734 (Attach. A). Exposing consumers to market-driven, real-time price fluctuations requires consumers to consider the real-time cost of consumption—encouraging consumption during low-demand periods, and discouraging it during peak-demand periods. Borlick, *Pricing Negawatts*, 148 Pub. Utils. Fort. 14, 16 (2010). But real-time pricing is not always feasible, because of customer or legislative resistance and the costs of real-time metering equipment. Griffin & Puller, *Introduction* to *Electricity Deregulation: Choices & Challenges* 26 (Griffin & Puller

eds., 2005). As a result, wholesale and retail prices rarely converge in real time.

3. *Aligning Wholesale and Retail Incentives Through Demand-Response Payments*

To overcome the fact that many retail consumers do not receive real-time price signals that would inform consumption decisions, see J.A.293-294, regulators have attempted to recreate otherwise missing market incentives through "demand-response" policies. "Demand response means a reduction in the consumption of electric energy by customers from their expected consumption in response to an increase in the price of electric energy" or, more commonly, "incentive payments designed to induce lower consumption of electric energy." 18 C.F.R. §35.28(b)(4).

Properly structured incentives can increase social welfare. Excessive incentive payments for demand response, however, are problematic. They encourage businesses not to produce when it would be more efficient—and socially valuable—for them to continue production. They encourage large consumers to self-supply, even when their self-generated electricity is more costly to society. And they deter and distort investment in generation by artificially suppressing consumption and prices.

The key demand-response question thus asks *how much* to pay a retail customer to forgo purchasing electricity at a fixed price when wholesale prices climb. The obvious answer is to replicate market forces by asking what a fixed-price customer would *earn* by purchasing energy at retail and reselling it at the prevailing wholesale market price (*i.e.*, LMP). In that case, the customer's profit would be the difference between the price at which it sold electricity, and the contract price at which it could buy electricity. That difference provides an incen-

tive to forgo consumption only when doing so is more profitable than using the electricity to produce goods and services (*i.e.*, when non-production is more efficient than production).

Here, FERC instead required that retail customers be paid the market price for wholesale electricity—the full LMP—*without* subtracting the price the customer would have paid to buy it. See Pet. App. 100a-101a, 210a. The customer is thus compensated as if it acquired or generated electricity *for free* and sold electricity it owned to others in the market. As explained below, that result is neither justified nor justifiable.

B. FERC's Pricing Produces an Unacknowledged Subsidy That Harms Social Welfare

Throughout the rulemaking, FERC claimed that paying full LMP for demand response was justified by economic efficiency. FERC announced at the outset that "paying demand response resources the LMP will compensate those resources in a manner that reflects the marginal value of the resource." Pet. App. 91a; accord J.A. 35. Doing so, FERC stated, "will improve the competitiveness of the organized wholesale energy markets and * * * help to ensure that energy prices in those markets are just and reasonable." J.A. 35.

FERC maintained that focus in its Final Rule. It explained that pursuing these goals will "balance supply and demand," Pet. App. 96a, "caus[ing] wholesale and retail prices to converge on a price level reflecting demand's ability to respond to the marginal cost of energy," Pet. App. 216a. While purporting to pursue economic efficiency, however, FERC adopted an approach that distorts rather than reflects market forces and fundamental economic principles, creating implicit subsidies FERC cannot explicitly justify.

1. *Paying LMP Without Accounting for Input Cost Is Inconsistent with Basic Economics*

Any demand-response mechanism must account for the costs the consumer *avoids* by not purchasing electricity. In a competitive market, a consumer who receives electricity at a favorable rate might resell that electricity instead of using it. But the customer must *buy* electricity to *resell* it. The consumer who forgoes using electricity, and makes that electricity available to others for a price, thus receives the difference between the price at which he can sell electricity and the price he paid for it.

Here, FERC required demand-responders to be paid the full value of electricity they *decline* to purchase without accounting for what they would have paid for it—they get full LMP. That pays demand-responders as if they actually sell electricity to the market, having somehow generated or acquired it for free. But that erroneously assumes that *not buying* electricity is the same as *producing* it. A company that does not use electricity can in some loose sense be said to make that unused electricity available to others. But to make electricity available to others, it needs another input: It needs someone to *produce the electricity* that it has a right to use, does not use, and thereby leaves available for others. FERC's methodology ignores that essential input.

For that reason, FERC erred in assuming that not using one megawatt-hour of electricity (the so-called "*nega*watt-hour") is economically equivalent to *producing* one megawatt-hour of electricity. See U.S. Br. 49-50. That "assumption is wrong." Borlick, *Pricing Negawatts*, *supra*, at 14. "The characteristics of a megawatt and a 'negawatt' are different, both in terms of physics and in economic impact." Pet. App. 160a (Moeller, Comm'r, dissenting). In terms of physics, a megawatt exists and can

be measured; a "negawatt" is an imputed quantity calculated by comparing what the customer might have used to what it actually used. In terms of economics, a megawatt and a negawatt are not equivalent, because a negawatt does not include the costs the consumer *avoided* by not purchasing electricity. That is, the negawatt is not the costless generation of electricity. It is the non-use of energy that someone else generated, and built expensive facilities to create. See C.A. App. 483 (Hogan, *Demand Response Pricing in Organized Wholesale Markets*).

The fallacy of FERC's approach becomes evident if one imagines that this case concerned automobiles rather than energy. If a particular automobile is in high demand but short supply, the wholesale price might skyrocket to, for example, $50,000 per car (yielding profits for the manufacturer). A car dealer who has obligated himself to sell those cars to certain consumers at $40,000 might be willing to pay those consumers *not* to buy a car (this might be called a "*naught*omobile"). But no one would say the dealer should pay each potential buyer $50,000—the full cost of a new car—for merely declining to purchase one at $40,000. The dealer would at most offer the potential buyer $10,000—the amount the dealer would lose if the consumer insisted on making the purchase. FERC's approach gives the customer a windfall. He gets paid $50,000, as if he himself manufactured and sold an additional car.

Compare that to the treatment of a consumer who has *already* bought a car for $40,000, but has not taken delivery. No one would object to his reselling that car at the market rate of $50,000. He sells that car, which he paid for and owns, to others for the same $50,000 the manufacturer gets for selling an identical car. But then the consumer's profit is $10,000, not $50,000. Under FERC's

approach, however, that seller gets *less* profit for bringing an actual car to market than would someone who simply declined to buy one in the first instance. FERC never explains why the market price for selling an actual product into the market (that the seller owns or made) would be the same price the market pays others who offer nothing they own or paid for but who simply decline to make purchases.[2]

Even if a customer were deemed to "supply" something he never purchased or generated, FERC's rule still makes no sense. In energy markets, diverse generation sources compete: Coal-powered plants compete with hydroelectric dams, which compete with gas turbines. If FERC decreed that coal-powered plants need not pay for inputs needed to generate electricity—for example, that coal mines must provide coal for free—coal-powered generators receiving LMP would become more profitable. The same would be true if FERC ordered that coal-plants could take electricity from other generators, and resell it at LMP, without paying the original generator. In both situations, coal-plants would be paid for power that, by decree, they acquire for little or nothing. LMP would fall, as electricity sold by coal-plants—subsidized by free inputs—displace unsubsidized energy sources. That might (initially) benefit consumers. But it distorts the market in favor of one source that may not be the most efficient. Allowing lower-cost subsidized power

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[2] This is no mere hypothetical: Companies that profit by buying in day-ahead markets and reselling at LMP in real-time markets would now do better by not buying at all and receiving LMP. See, *e.g.*, Motion to Intervene and Comments of the California Department of Water Resources State Water Project at 4, FERC Dkt. No. RM10-17-000 (May 13, 2010).

drives down prices for other, potentially more efficient sources, deterring investment in power plants that might be socially desirable.

FERC's approach is almost indistinguishable from that hypothetical coal-plant subsidy. It directs that all resources that putatively make electricity "available" be paid LMP. Under that rule, everyone actually supplying electricity (nuclear plants, solar generators, and even traders importing energy from adjacent markets) must bear the cost of obtaining the electricity they make available. But not demand-response providers. They are deemed to have "sold" electricity into the market even though they have not generated or purchased any. FERC thus subsidizes demand response at the expense of other suppliers and the markets' long-term health. Pet. App. 170a (Moeller, Comm'r, dissenting).

It does not matter, as FERC urges (at 53-54), that demand-response providers incur *some* costs (*e.g.*, costs of shutting down factories, shifting production times, or organizing demand-responders), or that competing generators incur *some* costs in ramping down to stop providing electricity. The point is that FERC's order gives demand-responders one critical input for free—they effectively sell electricity they do not own without bearing the cost of generating or acquiring it. If the hypothetical coal order excused coal-plants from paying for only some of their inputs, it still would be a subsidy and it still would distort the market. The result is no different if one substitutes the word "demand-responders" for "coal power-plant."

Thus, even if demand response and generation were said to provide the same "marginal value," Pet. App. 91a, FERC's order allows one to obtain an input—the electricity it purports to make available—without paying for

it. There is a simple way to eliminate the subsidy. Demand-responders can be required to "pay" for the electricity they purport to offer. Demand-responders can start with a payment of LMP for the electricity they offer; but FERC must deduct the retail rate demand-responders would pay for the electricity if they were to buy it before reselling it at LMP.

2. *FERC's Rule Creates Irrational Incentives To Cease or Defer Socially Valuable Production*

FERC's approach produces irrational incentives that FERC never acknowledges. Basic math shows that paying demand-responders full LMP encourages productive facilities to cease operations even when that damages social welfare.

An example makes that clear. If a widget-maker must spend $.30 for electricity at retail to produce each widget, and it must spend $.10 per widget in other costs, the widget-maker ordinarily will produce widgets whenever the market price for widgets exceeds $.40. If the market price is $1.00, the widget-maker will make widgets at a $.60 profit. Society gains handsomely: The widget-maker converts $.40 worth of inputs into a product consumers value at $1 (or more).

Nonetheless, society is better off if the widget-maker stops production once LMP for electricity reaches $.91. At that point, the real cost of making a widget (labor and materials at $.10 per widget plus the $.91 per-widget electricity cost, totaling $1.01) exceeds the $1.00 market price. But a demand-response payment of LMP will induce the widget-maker to stop production earlier—when LMP reaches $.61. At that point, the widget-maker earns more by doing nothing: It avoids $.30 in electricity costs (at retail) and $.10 in production costs per widget (assuming production costs fall to zero when production

ceases). And it collects $.61 in demand-response payments, more than the net profit of $.60 it would earn from making widgets.

Society, however, is worse off. Society would benefit from production—it gets widgets worth $1 from inputs costing $.71 ($.61 in electricity and $.10 in other costs). Yet FERC's rule would cause the widget-maker to stop production. See J.A.193-194 (Hogan, *Implications for Consumers of the NOPR's Proposal To Pay the LMP for All Demand Response*). The pro-competition, consumer-protective Federal Trade Commission made precisely that point: Paying full LMP would "give the wrong incentives" by "creat[ing] situations in which a demand-response provider would find it more profitable to sell its power rights (*i.e.*, provide demand response) than to consume that power, even though the value to society of consuming that power exceeds the power's cost to society." J.A.282-283.[3]

The suggestion that widget-makers may *defer* production (rather than ceasing production), Priv. Pet. Br. 54, is no answer. Overcompensating demand response encourages curtailed consumption even when the social cost—whether of shifting or ceasing production—exceeds the social benefit. Changing the subject cannot change the calculation.

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[3] If LMP declines because of demand response, the calculations become more complex, but the result is unchanged: Demand-responders curtail consumption even when that harms social welfare. The same is true for behind-the-meter generation, discussed pp. 18-20, *infra*. See J.A.193-194 (Hogan, *Implications*, *supra*).

3. *The Rule Offers Arbitrary and Uneconomic Rewards Based on the Meter's Location*

A proper pricing rule should provide the same incentive—to consumers and generators alike—to invest in generation facilities. In other words, the incentives "should be the same with respect to placing the generator on the consumer side of the [electricity] meter versus [the grid] side of the meter." C.A. App. 484 (Hogan, *Demand Response Pricing*, *supra*). But FERC arbitrarily compensates users more handsomely for generating electricity solely for their own behind-the-meter use, discriminating against plants that offer electricity into the grid.

Returning to the widget-maker: Assume he can avoid drawing power from the public grid by building or operating his own generator. In an efficient market, he would self-supply only when it costs less than purchasing electricity. Thus, if self-generation costs $.60 per widget, he should not self-supply until LMP exceeds $.60. But under FERC's approach, he would self-supply sooner. If his retail electricity rate is $.30 per widget, the widget-maker will self-supply when LMP hits $.31 per widget. He spends $.60 running his own generator instead of paying $.30 retail, which would result in a net loss of $.30 per widget. But he then collects a demand-response payment of LMP, or $.31 per widget, for not buying the electricity from the grid. So he ends up $.01 ahead for each widget. Thus, even though the *economic* cost of self-generating electricity is almost double the grid price—$.60 per widget rather than LMP of $.31—the widget-maker will self-supply. And, under FERC's rule, that self-supply would appear as a "reduction in electricity consumption" even though the demand-response payment "has merely moved the consumption somewhere where it is not visible to the RTO." J.A. 198 (Hogan, *Implications*, *supra*).

The absurdity of that result crystalizes if one compares what would happen if the widget-maker offered the output of his generator into the market, rather than using it himself. If (once again) self-generation costs $.60 per widget, and LMP is $.31 per widget, the widget maker cannot profit by selling self-generated electricity: It costs him $.60 to make something he can sell for only $.31. Plus he must still pay for any electricity he draws from the grid for his own use (at the retail rate of $.30 assumed above). But if he moves the generator behind the meter and keeps it for his own use, he does better. He gets paid $.31 per widget in demand-response payments for not using electricity from the grid (instead generating it himself); and he saves the $.30 per widget he would have paid for the electricity he now generates for himself. Thus, even though total consumption in each example is identical, the result changes depending on *who* generates electricity and *where* it is metered or "seen." Paying full LMP thus provides a subsidy for self-supply. Indeed, "whether full LMP constitutes a subsidy isn't a serious economic question." Newell, *DR Distortion*, 148 Pub. Utils. Fort. 36, 41 (2010).

That behind-the-meter problem also provides "the seeds of [the Final Rule's] own demise." J.A.200 (Hogan, *Implications*, *supra*). Inefficient demand-response payments "must be recouped somewhere." *Id.* at 199. Under FERC's approach, "every dollar of benefit gained by the wholesale buyers is expropriated" in the short-term "from the generators." Borlick, *Paying for Demand-Side Response at the Wholesale Level: The Small Consumers' Perspective*, 24 Elec. J. 8, 16 (2011). That windfall for demand-responders will, in turn, "induce others to leave the [grid] system" and go behind-the-meter, creating an unsustainable inefficiency spiral.

J.A.200 (Hogan, *Implications*, *supra*). And that spiral will disproportionately affect "residential and small commercial consumers whose operations are not of sufficient size and scope" to warrant behind-the-meter self-generation, but who will ultimately pay the price for underinvestment in common generation units. *Id.* at 203.

Rather than address that concern, FERC "assum[ed] that consumers would not respond to these incentives to move generators behind the meter or operate inefficient backup equipment." J.A.205. But large, industrial consumers often have that option, mostly through "diesel units that lack emissions controls." J.A.1149 n.58 (Competitive Power Supplier Ass'ns). FERC agrees that demand-responders will self-supply using "standby generator[s]," touting that as a "cost" they incur. U.S. Br. 54. And FERC offered no "evidence to support [a contrary] assumption." J.A.205 (Hogan, *Implications*, *supra*). Favoring behind-the-meter generation is thus "nothing less than a subsidy for dirty"—and more costly—"generating resources." *Delaware Dep't of Natural Res.* v. *EPA*, No. 13-1093, slip op. at 23 (D.C. Cir. May 1, 2015) (quotation marks omitted). And the disparity in compensation based on the meter's location demonstrates the defect in FERC's approach: It facially discriminates, and distorts the market, by favoring behind-the-meter actions, including demand response, over in-front-of-the-meter activity like generation for public use.

II. Efficient Demand-Response Mechanisms Replicate the Market

In an efficient market, real-time pricing would require consumers to pay for their marginal consumption. See C.A. App. 482 (Hogan, *Demand Response Pricing*, *supra*). If our widget-maker were required to pay LMP for his electricity, he would continue making widgets until

LMP brought his total costs—for energy and other inputs—above the market price for widgets. He would not need demand-response payments to encourage him to decrease consumption when wholesale prices rise; he would do so whenever increasing input prices drive profits to zero.

Absent real-time pricing, however, demand response can provide a second-best solution—if one avoids creating subsidies. "Payments based on the LMP minus retail rate structure eliminate these subsidies." C.A. App. 1143 (Dr. Shanker). That mechanism is known as "LMP-minus-G," where "G" is the full retail rate the consumer would have paid for electricity. That methodology gives demand-response providers incentives that parallel those in competitive, real-time electricity markets. See C.A. App. 1139 (Shanker, *supra*); Newell, *supra*, at 37.

For example, if a consumer has a contract right to purchase electricity at a particular rate, it might purchase electricity and, in turn, sell it to others at LMP. If our widget-maker had a retail contract allowing him to purchase electricity at $.30 per unit, and LMP rose to $.91 per unit, he could stop production, exercise the implicit option to buy electricity for $.30, and sell the electricity at $.91, yielding a profit of $.61 per unit. "The net transaction for the customer would be the LMP minus the fixed price of the contract." Hogan, *Whitepaper*, *supra*, at 13.

LMP-minus-G mimics that result for demand response. It recognizes that "[e]conomic demand response isn't a sale of energy; rather, it's a sale of a call option on energy." Borlick, *Pricing Negawatts*, *supra*, at 14. Like other call options, its value is measured by the value of the underlying good, less the cost of exercising the option (the strike price)—here, the retail rate for electricity. If

the retail price is lower than LMP, buyers can sell for a profit (LMP less the retail rate). Failing to subtract the retail rate, however, allows the consumer to sell its electricity at full rates without exercising the option and thus without buying a key input. That induces demand-responders to sell load reductions, or self-supply, even when it is more efficient for them to purchase electricity from the grid.

FERC previously recognized as much. See *PJM Interconnection, L.L.C.*, 99 FERC ¶61,227 at 61,941 (2002). Indeed, FERC *refused* to mandate payment of full LMP because it would create an excessive incentive to curtail demand. See *PJM Indus. Customer Coal.* v. *PJM Interconnection, L.L.C.*, 121 FERC ¶61,315 at P26 & n.20 (2007). The RTO, it explained, already "reimburses [demand-responders] for the difference between the wholesale rate and their retail rate," *i.e.*, LMP-minus-G. *Id.* at P26. "That payment provides customers under retail rates with the same economic incentive to curtail load as if they were paying the wholesale rate itself." *Ibid.* FERC did the math to prove that conclusion: It showed that LMP-minus-G gives demand-responders the same incentives as efficient wholesale rates—and why paying full LMP creates excessive incentives.[4] FERC thus la-

[4] FERC stated: "The financial benefit [of reduced consumption] is comprised of two components: (i) the retail rate that is avoided by not consuming, and (ii) the payment received under the program, which is equal to the difference between the LMP and the retail rate." *PJM Indus.*, 121 FERC ¶61,315 at P26 n.19. Thus, "if the LMP is $600/MWh and the retail rate is $50/MWh, the customer who reduced consumption would avoid the $50/MWh retail charge and would receive a payment under the program of $550/MWh (*i.e.*, $600-$50), for a total financial benefit of $600/MWh, which is the value of the LMP." *Ibid.* Paying LMP, by contrast, would produce excessive

beled the payment of full LMP a "subsidy" that "could lead [consumers] to curtail cost-effective production." *Id.* at P26 n.20. Today, FERC identifies no error in its former math or economic analysis. Instead, it imposes precisely the subsidy it previously rejected.

The irony is that, by overcompensating demand response, FERC may doom truly efficient real-time pricing. The "technical barrier to dynamic pricing"—availability of time-sensitive metering for retail users—"should be lifted in the next five to 10 years." Faruqui & Palmer, *Dynamic Pricing and Its Discontents*, 34 Regulation 16, 17 (2011). But overcompensated demand-responders have little incentive to change to a more efficient model that eliminates their windfall subsidies.

III. Contrary Arguments Are Unfounded

Petitioners and supporting *amici* offer several economic justifications for FERC's full-LMP rule. None has merit. FERC did not rely on many of them. And many are naked requests for subsidies FERC never admitted providing, in never-justified amounts, to overcome barriers FERC never found.

A. FERC's Own Arguments Show That Paying Full LMP Effects an Unjustified Subsidy

FERC and its *amici* urge that FERC's pricing mechanism is efficient, while LMP-minus-G is not. But that consists mostly of assertion—not analysis.

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incentives: "[T]he financial benefit for reducing consumption would exceed the LMP. That is, with the subsidy payment, the customer would receive a payment of $600/MWh (*i.e.*, the LMP) and in addition would avoid the $50/MWh retail rate, for a total financial benefit of $650." *Ibid.*

1. Critically, there is much FERC and its *amici* do *not* say. They nowhere deny that FERC's pricing regime favors those who self-supply behind the meter over those who supply electricity to the grid for all. See pp. 18-20, *supra*. As the only economists to submit a brief below, we made precisely that point. C.A. *Amicus* Br. of Leading Economists 20-23. We made that point before FERC. See, *e.g.*, J.A. 196-205; see also pp. 2, 18-20, *supra*. No one offers an answer; none exists. Likewise, no economist seriously addresses the skewed incentives that paying LMP produces. See pp. 16-17, *supra*.[5]

Instead, FERC relies almost exclusively on a submission by Dr. Alfred Kahn, see Pet. App. 97a-98a, 101a, 214a, 217a-218a, which posits that demand response "is in all essential respects economically equivalent to supply response" (*i.e.*, increased generation) and should be compensated accordingly. Pet. App. 69a-70a. As FERC characterizes that theory, "reduction in demand provides the same benefits to a wholesale system as an equivalent increase in supply" and should "be compensated equivalently." U.S. Br. 47-48, 52-53 (invoking Dr. Kahn).

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[5] At times, FERC seems to embrace its refusal to address these costs. The "Final Rule does not attempt to measure what would have happened in a *retail* program," FERC declares, because the sole focus was "the net price effect of paying the demand response resources the LMP in the *wholesale* market." Pet. App. 238a (emphasis added); see Cicchetti Br. 30; ECDRP Br. 26. But neither economics nor precedent allows FERC to wreak havoc on retail incentives—ignoring damage to total social welfare—by myopically focusing on FERC-regulated wholesale markets in isolation. *FPC* v. *Conway Corp.*, 426 U.S. 271, 272-278 (1976). FERC must consider "the entire factual context in which the proposed wholesale rate will function," which "will naturally include those related to nonjurisdictional transactions." *Id.* at 280 (quotation marks omitted).

The late Dr. Kahn was one of the great economists of his time. Nonetheless, the arguments now imputed to him do not withstand economic scrutiny, and he never had or took the opportunity to address the critique of his initial analysis. The cited submission ignores the fact that retail customers who curtail consumption in exchange for demand-response payments receive *two* benefits. First, they benefit by avoiding the cost of purchasing electricity (a benefit generators do not receive). And they receive demand-response payments as well. When determining the compensation necessary to induce appropriate conduct, the effect of *both* benefits must be considered—as FERC previously recognized. See pp. 22 & n.4, *supra*. Professor Kahn's submission ignores the cost avoided by not buying electricity at retail. Generators, moreover, surrender electricity *they own* so others may use it, receiving full LMP for it. Traders buy electricity on the market, pay for it, and sell that paid-for electricity at full LMP. But demand-responders do not offer electricity they own. They surrender the *right to buy and use* electricity generated by others. Yet FERC insists they be paid the same rate as someone who sells electricity he bought, paid for, and owns.

No right-thinking economist would urge the market should pay a consumer who gives up a car *he bought and owns* the same price that would be paid to a consumer *who never paid for or acquired a car* but merely surrenders the unexercised option of buying it. FERC's order does just that. That difference makes the overcompensation—and the subsidy—clear. Because a generator must produce electricity, its profit is not LMP. It is LMP minus the costs incurred to deliver power, including all inputs to its generation. As a result, "[t]here is no need to deduct costs from the LMP payments made to genera-

tors because," when they receive LMP, "they earn the net amount equal to LMP minus" the cost of creating the power they sell. C.A. App. 651 (NEPGA).

2. The government responds (at 54) that, because FERC "does not ordinarily take into account the costs of production when paying generators LMP, it would not take into account a demand-response provider's costs either." See also Priv. Pet. Br. 52-53; ECDRP Br. 21. *If* demand-responders were selling electricity they owned, as generators do, that would make sense. But demand-responders do not sell electricity they own. They surrender only an *option* to buy electricity. By compensating demand-responders as if they owned electricity and were reselling it, FERC makes them owners of electricity for free. It is no different than if FERC decreed that coal-powered plants may sell electricity at full rates without paying for certain inputs. See pp. 14-16, *supra*. It is incongruous for a regulator like FERC to *order* the creation of a subsidy by giving one set of suppliers an input for free—treating them as owning electricity they did not buy—and then *defend* its order by saying it should never take costs into account. By doing so, FERC subsidizes demand response, forcing the system to "dispatch excessive and inefficient amounts" instead of generated electricity. Borlick, *Pricing Negawatts*, *supra*, at 17.

3. FERC's purported concerns about "practical difficulties" are unfounded (even FERC conceded LMP-minus-G was "perhaps feasible," Pet. App. 102a). Not one ISO or RTO—the entities that would implement this mechanism—suggested that LMP-minus-G would be problematic. PJM and the Midcontinent ISO *already* offset avoided retail costs with little practical difficulty. J.A. 1173 n.117 (Competitive Power Supplier Ass'n). FERC cited the New York PUC's assertion that sub-

tracting retail rates would be "an administrative burden" that could engender "confusion." Pet. App. 76a; see U.S. Br. 58-59. But the New York ISO, which would implement it, supported LMP-minus-G because it "avoids the need for [FERC's] complicated and contentious net-benefits test and cost allocation rules." C.A. App. 1153.

B. Reliance on the Net-Benefits Test Underscores the Irrationality of FERC's Approach

Ultimately, virtually every defense of FERC's orders falls back on FERC's "net-benefits" test. That test requires each RTO or ISO to use "historical data," and an indeterminate list of factors bearing on supply conditions (*e.g.*, fuel prices and generator unit availability), to calculate the point at which *consumer* benefits from reduced LMP exceed the cost of paying LMP to demand-response providers. Pet. App. 56a-57a.

1. FERC's need to overlay a net-benefits test represents an admission that its basic pricing methodology is flawed. If paying full LMP produced appropriate pricing signals, FERC would not need to superimpose *another* test as a precondition for demand response. As the Federal Trade Commission explained, "there is no need for a net benefits test so long as FERC utilizes efficient prices in compensating demand response providers"; "[t]he proposal to implement a net benefits test * * * arises * * * only if FERC sets inefficiently high compensation levels for demand response." C.A. App. 1180.

FERC ignores the practical problems with its net-benefits test. That test assumes an omniscient regulator who can accurately predict when demand response is appropriate, rather than allowing rational price signals to achieve that result. To replicate the effects of price signals, regulators would have to apply the net-benefits test for *each* proposed demand-response provider for *each*

transaction. It is far from clear that could be accomplished accurately. Thus, a "clear majority of the witnesses (representing a spectrum of interests that included demand response advocates, economists, generators, and the RTOs and ISOs)" opposed the test, characterizing it as exceedingly difficult to administer. Pet. App. 164a (Moeller, Comm'r, dissenting). And FERC's reliance on unsubstantiated "practical difficulties" to reject LMP-minus-G, while simultaneously imposing a complex and difficult net-benefits test to mitigate the impact of its erroneous rule, is not reasoned decisionmaking.

2. Even if perfectly administered, FERC's net-benefits test is fundamentally flawed. By its terms, the test precludes demand-response payments unless those payments lower the amount *consumers pay* for electricity. See U.S. Br. 55-56; Priv. Pet. Br. 43; Cicchetti Br. 29-30. FERC acknowledges that "[t]he cost allocation methodology required in the Final Rule is based upon the benefits of demand response *to wholesale load*"—*i.e.*, customers. Pet. App. 248a (emphasis added); see *id.* at 234a ("net benefits test" met when demand-response "payment is a cost-effective purchase *from the customer's standpoint*," *i.e.*, "[w]hen reductions in LMP from implementing demand response results in a reduction *in the total amount consumers pay* * * * greater than the money spent acquiring those demand-response resources at LMP") (emphasis added). The net-benefits test thus focuses exclusively on benefits to buyers, without looking to the impact on industry or society.

That erroneously assumes that lower prices are always beneficial. Manipulating markets to force prices below competitive rates may seem desirable for consumers in the short-run. But FERC has repeatedly held that artificially suppressed prices "deter investment in new

generation" and harm consumers in the long-run by "broadly hinder[ing] market development and performance." *Milford Power Co., LLC,* 119 FERC ¶61,167 at P31 & nn.48-51 (2007) (listing cases). The net-benefits test, by myopically focusing solely on whether prices are *lower* rather than whether they are *efficient*, ignores that wisdom.

Perhaps more important, the net-benefits test ignores half the societal benefits of economic activity. Any economist examining pricing and production to maximize benefits *to society* will measure *total social welfare*. Social welfare consists of the sum of the consumer surplus (the difference between how much the consumer values a good and what he pays for it), plus the producer surplus (the difference between the cost of production and the price). Mankiw, *Principles of Macroeconomics* 148 (5th ed. 2009). Social welfare—societal benefit—is maximized when *that sum* is maximized. *Ibid.*

But FERC's test looks only to *consumer* welfare—whether consumers end up paying less. See, *e.g.*, Pet. App. 234a-235a ("When demand response produces a sufficient reduction in LMP to cover the increased billing costs imposed on remaining customers, it is beneficial to customers; when the reduction does not cover costs, the demand response is not beneficial."); p. 28, *supra*. By doing that, FERC approves demand-response payments even where it *lowers total* social welfare (such as where the consumer benefit is merely a wealth transfer from producers). See Chao, *Price-Responsive Demand Management for a Smart Grid World*, 23 Elec. J. 7, 17 (2010). Dr. Kolstad, while purporting to support the order, thus concedes that "the test focuses exclusively on consumers' expenditures" and thus "cannot guarantee that compensating demand response at LMP optimizes overall social

welfare." Kolstad Br. 17-18. That test thus contradicts both FERC's understanding of its mandate, see pp. 7-8, 22, *supra*, and this Court's as well: For more than half a century, this Court has emphasized that "FERC must choose a method that entails an appropriate 'balancing of *investor and consumer* interests.'" *Morgan Stanley Capital Grp. Inc.* v. *Pub. Util. Dist. No. 1*, 554 U.S. 527, 532 (2008) (quoting *FPC* v. *Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944)) (emphasis added); accord *Permian Basin Area Rate Cases*, 390 U.S. 747, 776 (1968).

Because the net-benefits test looks at only half of that balance—the consumer interest in lower prices—Professor Cicchetti's brief studiously avoids addressing total social welfare. Instead, he states that "economic efficiency [is] improved" in various situations "because *buyers would pay less*" despite the cost of "compensat[ing] providers" for demand response. Br. 25-26 (emphasis added). The net-benefits test, he asserts, "prohibits the dispatch of DRR that is not cost-effective *from a buyer's* perspective." *Id.* at 27 (emphasis added). But efficiency is not the same as lower prices. Total social welfare is not the same as buyer welfare. And "balancing" the interests of generators and consumers is not the same as ensuring consumers always pay less.

Professor Cicchetti's publications (unlike his brief) recognize that. Professor Cicchetti cites (at 2) a paper he co-authored with Dr. William Hogan, *amicus* here. That paper concludes that demand-response payments "equal to the utility's marginal cost" of buying from the grid at LMP "would obviously be overkill. The conserver would be paid twice for the same decision, once when his/her bill was reduced [by the amount he conserved], and again when receiving a subsidy equal to avoided [wholesale] cost." Cicchetti & Hogan, *Including Unbundled De-*

mand-Side Options in Electric Utility Bidding Programs, Pub. Utils. Fort., June 8, 1989, at 9, 10. Critiquing the payment of full LMP, he urged that the "incentive given the [demand-responder] is wrong. He is paid twice: once by giving him the dollars for the conservation * * * , again by providing a free service. This misplaced incentive could result in inefficient over-investment in conservation." *Id.* at 11; see pp. 16-17, *supra*.[6]

Dr. Cicchetti may now believe that *social* goals justify inefficient pricing that lowers total welfare. But he never purports to pursue a goal other than efficient pricing. The same thing is true of FERC. Its stated goal was to "improve the competitiveness of the organized wholesale energy markets," J.A. 35, so as to "balance supply and demand," Pet. App. 96a. With respect to that goal, Dr. Cicchetti's scholarship, not his brief, is correct.

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[6] Dr. Cicchetti now offers a theory FERC never relied on, precluding its consideration here. See *SEC* v. *Chenery Corp.*, 332 U.S. 194, 196 (1947). Nonetheless, his new theory shows why LMP-minus-G, not full LMP, produces efficient results. Because utilities pay end-users for the right to limit their consumption at key moments—allowing the utility to limit its purchases—utilities incur some costs. But that does not speak to the rate utilities should be paid. Where utilities are saving money by not buying expensive wholesale electricity for customers who would pay lesser retail rates, they save LMP simply by reducing their purchases. Dr. Cicchetti would have them receive a demand-response payment of LMP on top of that, making the benefit *twice* LMP, less forgone retail revenue. Moreover, Dr. Cicchetti concedes that "large industrial end-users" (or demand-response aggregators) who sell demand response directly into wholesale markets "are an exception to" his critique. Cicchetti Br. 33 n.21. But Dr. Cicchetti does not explain why those suppliers should receive double payments. Moreover, if industrial end-users would receive only LMP-minus-G in an efficient market, the same should be true for other demand-responders.

3. FERC and its *amici* make various efforts to shore up FERC's leaky economics, but they fail for similar reasons. For example, Professor Cicchetti and others assert that demand response "should enter the wholesale market whenever its marginal cost is less than the marginal cost of supplying electricity." Cicchetti Br. 21; see EC-DRP Br. 22; U.S. Br. 48; Priv. Pet. Br. 47. True. But Dr. Cicchetti (and the others) ignore how FERC has distorted the concept of marginal cost. If demand-responders and generators were both bringing electricity to the market so others could use it, they each would bear the marginal cost of obtaining or generating that electricity; they would account for that cost when deciding when to enter the market. Under FERC's order, generators and traders do that—they are not relieved of paying the costs of the electricity they generate (or buy) and then sell. But demand-responders receive full price for electricity they never buy. The marginal cost of demand response is thus effectively subsidized by FERC's decree that they be treated as if they are selling electricity they own when they never buy or pay for it.

Those subsidies for non-consumption significantly reduce demand and lower prices. But "every dollar of benefit gained by the wholesale buyers is expropriated" in the short-term "from the generators." Borlick, *Paying for Demand-Side Response*, *supra*, at 16. "[M]ost of the parties advocating such a net benefits calculation explicitly base it on the 'benefits' of such price suppression." C.A. App. 1141-1142 (Shanker, *supra*). If there are non-economic, policy reasons for artificially suppressing prices and establishing a one-sided test that ignores total social welfare, regulators should acknowledge them and balance them against the resulting costs. Here, FERC did not do that. "[I]n the long run," the burden of its fail-

ure will not befall generators, RTOs or ISOs, or FERC. The costs will eventually be passed along to "residential and small business consumers," which cannot provide demand response, but end up paying demand-responders to displace otherwise more efficient generation. Borlick, *Paying for Demand-Side Response*, *supra*, at 8. That "is inefficient for the economy as a whole, distorts production and consumption decisions, and raises prices in the long run." C.A. App. 1142 (Shanker, *supra*); *see* Newell, *supra*, at 38.

C. Petitioner and Its *Amici* Seek Subsidies Not Supported by the Record

Finally, some parties urge that overcompensation is necessary to overcome putative "barriers to full demand response participation," Priv. Pet. Br. 46-47, or to cover "the cost of technology" and "infrastructure" "necessary to participate in wholesale markets," U.S. Br. 53-54, 55. Those are, at bottom, requests for a subsidy. Nothing in the record establishes the extent of any putative "barriers." There is no finding that paying full LMP is calibrated to overcome those "barriers." And there is no analysis suggesting that demand-response providers face more significant "barriers" than new generators, who must invest in multi-year, multi-billion-dollar plants. Undoubtedly, FERC effected a subsidy for demand response. It just refused to admit or justify it. That is arbitrary and capricious.[7]

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[7] Paying too much for demand response likewise is not calibrated to address any particular externality. See Borlick, *Paying for Demand-Side Response*, *supra*, at 11. It "do[es] nothing to induce electricity suppliers to reduce the environmental externalities they impose on others." Hogan, *Whitepaper*, *supra*, at 7. It merely induces generators to supply less energy—period. And because it encour-

The government also suggests (at 53-54) that FERC decided that higher payments were warranted to offset certain demand-responder costs, such as the cost of "obtaining power from another source" (*e.g.*, "standby generators") or the costs of "going without the foregone power in its production of goods." See also Priv. Pet. Br. 55 (overcoming increased labor costs).

Demand-responders do encounter costs when they curtail demand. See U.S. Br. 53-54; Priv. Pet. Br. 52-53; ECDRP Br. 22; Kolstad Br. 11. But they *should* consider those costs when deciding whether to curtail consumption. If those costs exceed the available payment for demand response, demand-responders should continue production (or should continue using electricity from the grid rather than switching to self-generation). Only if total benefits exceed total costs will curtailing production or shifting to self-generation benefit society as a whole. The problem with FERC's position is that it establishes an incentive to move to behind-the-meter, stand-by generation even when that costs *more* than electricity at market rates, or to cease or defer production when doing so damages total social welfare. See pp. 16-20, *supra*. FERC's failure to confront those distortions dooms its order.

CONCLUSION

The judgment of the court of appeals should be affirmed.

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ages unregulated behind-the-meter generation, overcompensating demand reduction may *increase* pollution.

Respectfully submitted.

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ADDENDUM

ADDENDUM
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