Michigan Journal of Environmental & Administrative Law

Volume 9 | Issue 1

2020

Uncovering Wholesale Electricity Market Principles

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10.36640/mjeal.9.1.uncovering

UNCOVERING WHOLESALE ELECTRICITY MARKET PRINCIPLES

Michael Panfil and Rama Zakaria *

ABSTRACT

This paper examines, enunciates, and makes explicit a set of market principles historically relied upon by the Federal Energy Regulatory Commission (FERC) to regulate wholesale electricity markets as required under the Federal Power Act (FPA). These identified competitive market principles are supported by policy and legal foundations that run through a myriad of FERC orders and court decisions. This paper seeks to make that history and those implicit market principles explicit by distilling and organizing Commission Orders and court decisions. It concludes that five market principles, each with multiple subprinciples, can be identified as elemental to how FERC understands and implements its statutory authority. Clear articulation of these foundational principles should help guide engaged entities as wholesale power markets continue to evolve.

Market Principle 1 states that wholesale market revenues should predominantly flow from well-designed energy and ancillary services markets. Market structures generally are found to be preferable to non-market structures. Moreover, energy and ancillary services markets, in relationship to wholesale capacity markets, are better able to efficiently promote a least-cost resource.

Market Principle 2 states that when altering market design, FERC and Independent System Operators (ISOs) should focus on only those services that are clearly needed, and ensure that any market design change does not unduly discriminate between resources. Market design changes focused on technology-neutral and well-defined granular services will help ensure that the design change does not lead to undue discrimination or preference that effectively favors certain resources. When such an impact still occurs, strong evidence showing that the rules are not unreasonable and arbitrary and that no non-unduly discriminatory and preferential alternative exists must support the change.

Market Principle 3 states that interventions that distort transparent and accurate pricing should be minimized. Out-of-market interventions, in particular, have the potential to distort price signals and undermine competition.

Market Principle 4 states that FERC's just and reasonable standard strongly favors rate decreasing outcomes. Markets are premised on the economic presumption that competition reduces prices, in furtherance of the just and reasonable standard.

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Market Principle 5 states that FERC and ISOs should facilitate and not undermine state public policy preferences. FERC and ISOs are not well-situated to serve as decision-makers in determining which state public policy preferences should be given effect. State public policy preferences that do not run afoul of FERC's authority under the FPA should thus be given full effect.

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INTRODUCTION

The Federal Energy Regulatory Commission (FERC or Commission) relies upon wholesale power markets run by Independent System Operators (ISOs)[1] to effectuate its statutory responsibility to ensure "just and reasonable rates" in much of the United States.[2] The efficacy and operation of those markets has been subject to recent scrutiny, with FERC approving significant changes to ISO New England's (ISO-NE) capacity market and tearing down PJM Interconnection's (PJM) capacity market in the mid-Atlantic, finding it to be unjust and unreasonable.[3] Both FERC actions struck at the core of the ISO markets, and were justified on

1. ISOs were established to provide non-discriminatory access to the electric grid, and are responsible for system planning, dispatch, grid operation and monitoring. *See* FRANCISCO FLORES-ESPINO ET AL., COMPETITIVE ELECTRICITY MARKET REGULATION IN THE UNITED STATES: A PRIMER 4 (2016). ISO members generally include transmission owners, generators, distributers, consumer advocates, and end-use customers. *See*, *e.g.*, *Membership Organization*, PJM LEARNING CENTER, https://learn.pjm.com/pjm-structure/member-org.aspx (last visited May 9, 2019); *see also* FLORES-ESPINO, *supra* at 30-35 (describing make-up, governance, and operations of ISOs). These quasi-governmental entities are also responsible for administering competitive wholesale markets, including the energy, ancillary services, and capacity markets. FLORES-ESPINO, *supra* at 3-4.

2. 16 U.S.C. § 824e (2012).

3. *See* Gavin Bade, *How FERC's 'Unprecedented' PJM Order Could Unravel Capacity Markets*, UTILITY DIVE (July 3, 2018), https://www.utilitydive.com/news/how-fercs-unprecedented-pjm-order-could-unravel-capacity-markets/527053/. *See also* Calpine Corp., Dynegy Inc., 163 FERC ¶ 61,236 (June 29, 2018), https://www.ferc.gov/CalendarFiles/20180629212349-EL16-49-000.pdf; ISO New England Inc., 162 FERC ¶ 61,205 (Mar. 9, 2018), https://www.ferc.gov/CalendarFiles/20180309230225-ER18-619-000.pdf.

the basis of foundational "first principles." In the March 2018 Order centered on the ISO-NE capacity market, the Commission stated that it was "guided by the first principles of capacity markets,"[4] namely that a capacity market should:

> facilitate robust competition for capacity supply obligations, provide price signals that guide the orderly entry and exit of capacity resources, result in the selection of the least-cost set of resources that possess the attributes sought by the markets, provide price transparency, shift risk as appropriate from customers to private capital, and mitigate market power.[5]

In sum, the Commission stated, "the purpose of basing capacity market constructs on these principles is to produce a level of investor confidence that is sufficient to ensure resource adequacy at just and reasonable rates."[6]

Just three months later a different set of foundational first principles was enunciated in an order finding PJM's capacity market structure to be unjust and unreasonable. There, the Commission found that PJM's structure had failed to meet the goal of protecting and increasing the "integrity" of the wholesale capacity market.[7] Both the ISO-NE and PJM orders framed the discussion around the validity of market structure proposals to address perceived tension between competitive wholesale capacity markets and state climate policies supporting generation resources providing environmental benefits.[8] This framing appears to primarily be pretense; based upon the first principles identified, the Commission assessed the proposals with different goals in mind. In a dissenting opinion, Commissioner Glick summarized the inconsistent state of play simply:

> In the order approving ISO New England Inc.'s Capacity Auctions . . . proposal, the Commission set out a series of "first principles," the purpose of which the Commission stated was to ensure adequate "investor confidence" in the capacity market. Ensuring "investor confidence" appeared, albeit briefly, to be the Commission's new standard for evaluating how capacity markets should address state policies. However, just three months later, the Commission appears to have settled on a new standard, the "integrity" of the market, for justifying interference with state policies. Other than a passing reference . . . the phrase "investor confidence" is absent from the Commission's discussion in today's order.[9]

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4. ISO New England Inc., 162 FERC ¶ 61,205, at P 21 (Mar. 9, 2018).

5. *Id.*

6. *Id.*

7. Calpine Corp., 163 FERC ¶ 61,236, at PP 150, 162 (June 29, 2018).

8. ISO New England Inc., 162 FERC ¶ 61,205, at P 6 (Mar. 9, 2018); Calpine Corp., 163 FERC ¶ 61,236, at PP 4, 21 (June 29, 2018).

9. Calpine Corp., 163 FERC ¶ 61,236, at 6 (June 29, 2018) (Glick, Comm'r, dissenting).

The Commission's desire to identify and rely upon foundational first principles is consistent with the scope and magnitude of the ISO-NE and PJM Orders. The first principles identified appear novel and fluid, however, and appear to depart from long-standing Commission precedent and activity.

No singular document exists that explicitly outlines, with specificity and underlying rationale, FERC's foundational first principles in regulating wholesale power markets. Rather, elemental preferences and foundational principles are spread across FERC Orders reaching decades into the past. This article seeks to make those implicit preferences, policies, and principles explicit by identifying, synthesizing, and examining prior Commission orders. In doing so, this article seeks to clarify the reasoning that the Commission itself has consistently relied upon throughout its history.

To this end, this paper identifies five foundational principles that the Commission has employed in decision-making. First, Market Principle 1 states that wholesale market revenues should predominantly flow from well-designed energy and ancillary services markets, rather than wholesale capacity markets, because market structures are preferable to non-market structures. Second, Market Principle 2 contends that when altering market design, FERC and Regional Transmission Organizations (RTO)/Independent System Operators (ISO) (hereinafter "ISO") should focus on only those services that are clearly needed and ensure that any market design change does not unduly discriminate between resources. Third, Market Principle 3 holds that interventions that distort transparent and accurate pricing should be minimized. Fourth, Market Principle 4 states that FERC's just and reasonable standard strongly favors rate decreasing outcomes. Finally, Market Principle 5 argues that FERC and ISOs should facilitate and not undermine state public policy preferences.

Each principle identified and explored in this article is founded upon previously enunciated Commission policy, legal analysis, and economics. Although the Commission's makeup itself may change from year to year, the rationale and logic undergirding its work has been remarkably durable and consistent since the introduction of competitive wholesale markets. The following principles uncover this recent history to identify FERC's foundational market principles.

I. MARKET PRINCIPLE 1: WHOLESALE MARKET REVENUES SHOULD PREDOMINATELY FLOW FROM WELL-DESIGNED ENERGY AND ANCILLARY SERVICES MARKETS

Wholesale market participants should principally rely upon revenues from well-designed energy and ancillary services markets,[10] rather than capacity markets.[11] This principle is based on three rationales. First, well-designed energy and ancillary services markets best effectuate FERC's duty to ensure just and reasonable rates, because these markets are best equipped to ensure the lowest cost technologies are dispatched first to meet demand. Second, wholesale energy markets direct compensation to delivered services, ensuring accurate price signaling. Finally, FERC has historically preferred competitive, market-based tools, which are most closely embodied by energy and ancillary services markets, because such solutions best effectuate FERC's duty to ensure just and reasonable rates.

A. *Well-Designed Energy and Ancillary Services Markets Best Effectuate FERC's Duty to Ensure Just and Reasonable Rates*

FERC is bound by the Federal Power Act (FPA) to ensure just and reasonable rates without undue discrimination or preferential treatment.[12] In restructured markets,[13] this mandate is effectuated through ISO-administered wholesale energy markets by "align[ing] revenue with the instantaneous supply and demand for electricity; generators and load change output and consumption in response to prices."[14] Wholesale energy and co-optimized ancillary services markets are the most

10. ISOs run both day-ahead and real-time markets for buying and selling energy, and pricing involves a locational component to account for transmission congestion. FLORES-ESPINO, *supra* note 1, at 12. Ancillary services markets provide compensation for "non-energy products and services that contribute to the safe and efficient operation of the grid." *Id.* at 14. These are "services necessary to support the reliability of the transmission system" such as frequency regulation and black-start capabilities. *Id.* For more information on various services and products, *see id.* at 14-15; FERC, ENERGY PRIMER: A HANDBOOK OF ENERGY MARKET BASICS 55-56 (2015).

11. A capacity market is not a market for "actual electricity." Advanced Energy Mgmt. All. v. FERC, 860 F.3d 656, 659 (D.C. Cir. 2017). Rather capacity is "a commitment to produce electricity or forgo the consumption of electricity when required." *Id.* The D.C. Circuit has described the sale of capacity as "a kind of option contract," which allows a utility to "call on the capacity resource to produce [needed] electricity." *Id.* The capacity markets in each ISO work somewhat differently, but many, including PJM and ISO-NE, have an annual auction for capacity to be provided during a delivery year three years out. FERC, ENERGY PRIMER: A HANDBOOK OF ENERGY MARKET BASICS 61 (2015).

12. 16 U.S.C. § 824d(a)-(b) (2012); 16 U.S.C. § 824e(a) (2012).

13. Many states restructured their electricity systems beginning in the 1990s to promote competition. During restructuring, states required utilities in their jurisdiction to divest their generation assets and, with encouragement from FERC, ISOs were formed with competitive wholesale markets. FLORES-ESPINO, *supra* note 1, at 9.

14. *See* Eric Gimon & Robbie Orvis, *The State of Wholesale Power Markets; Principles for Managing an Evolving Power Mix*, UTILITY DIVE (July 25, 2017), http://www.utilitydive.com/news/the-state-of-wholesale-power-markets-principles-for-managing-an-evolving-p/447839/.

competitive mechanisms available. They offer a well-defined, interchangeable commodity, with prices set by intersecting supply and demand curves.[15] These markets run without significant government intervention relative to capacity markets, and both supply and demand may enter and exit freely.[16] They should naturally and efficiently promote a least-cost resource mix, "allowing the lowest-cost technologies to generate electricity first," because these markets can generally be operated with little regulatory or administrative intervention and are based upon resource owner bid decisions, which in turn incorporate their costs and expected profits.[17]

Some ISOs also have organized capacity markets, created to "concentrat[e] revenue recovery in the administrative, years-forward standard capacity product, rather than in the more granular energy and ancillary services markets and voluntary long-term contracts."[18] Capacity markets arose out of concern from some that revenue insufficiency "due to price volatility, caps on market prices, and other regulatory limits to market operation," might prompt "early power plant closures and discourage investments in new generation capacity," such that capacity supply might not be able to keep up with demand.[19] To resolve this "missing money" concern, "capacity payments aim to supplement generators' energy and ancillary services revenue streams and provide investors with more predictability."[20] Whether

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15. *See* FED. ENERGY REG. COMM'N, ENERGY PRIMER 35-59 (2015), https://www.ferc.gov/market-oversight/guide/energy-primer.pdf.

16. *See, e.g.*, *id.*

17. Gimon & Orvis, *supra* note 14.

18. JAMES F. WILSON, "MISSING MONEY" REVISITED: EVOLUTION OF PJM'S RPM CAPACITY CONSTRUCT 1 (2016), https://www.publicpower.org/system/files/documents/markets-rpm_missing_money_revisited_wilson.pdf.

19. FLORES-ESPINO, *supra* note 1, at 16 (citations omitted). This is the "missing money problem:"

> [E]nergy prices in competitive wholesale electricity markets do not adequately reflect the value of investment in generation needed to create a reliable electric supply. Because electricity cannot be stored at a large scale, and electricity demand fluctuates significantly during the day and the year, sufficient capacity must be built to balance supply and demand reliably under any foreseeable demand conditions, in particular under maximum peak demand conditions (called "super-peak" demand). However, super-peak demand, by definition, occurs during only a small number of hours per year (e.g., 10 hours per year). It is only during those super-peak hours that the capacity is almost fully utilized. The fact that enough generation capacity must exist to meet the high demand during these times means that much of the generation capacity sits idle during the rest of the year. To be profitable enough to stay in the market, these generators must earn enough money on energy sales in the super-peak hours when they manage to clear the auction to cover both operations and maintenance costs, as well as their construction costs.

SYLWIA BIALEK & BURCIN UNEL, CAPACITY MARKETS AND EXTERNALITIES: AVOIDING UNNECESSARY AND PROBLEMATIC REFORMS 4 (2018), https://policyintegrity.org/files/publications/Capacity_Markets_and_Externalities_Report.pdf.

20. FLORES-ESPINO, *supra* note 1, at 16 (citations omitted).

capacity markets actually provide this benefit is subject to debate, as is whether the cure is worse than the disease.[21]

Problematically, capacity itself is an administratively defined good, and capacity markets thus necessarily require administrative intervention to define product offerings.[22] Capacity markets, unlike wholesale energy and ancillary services markets, involve explicit government price setting, such as the Minimum Offer Price Rule (MOPR).[23] Supply and demand likewise do not enter and exit freely; both are subject to participation requirements.[24] Capacity markets rely on a litany of assumptions, estimates, and subjective decisions by the market operator and regulator, and where these assumptions or decisions are inaccurate, inefficient results will necessarily follow.[25] Wholesale capacity markets are thus necessarily less com-

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21. *See* WILSON, *supra* note 18, at 4 (providing a critique of the Reliability Pricing Model as "ill-suited to guide changes in the resource mix going forward" and summarizing the shortcomings of capacity markets as formulated, including low prices, unpredictability, short time commitments, and excessive administrative costs); Michael Hogan, *Follow the Missing Money: Ensuring Reliability at Least Cost to Consumers in the Transition To a Low-Carbon Power System*, ELECTRICITY J., Jan.-Feb. 2017, at 55, 55 http://dx.doi.org/10.1016/j.tej.2016.12.006 (arguing that capacity markets are not solving the missing money problem, but instead creating a new problem: misallocated money); Delia D. Patterson & Harvey Reiter, *Chasing the Uncatchable*, FORTNIGHTLY MAG., June 2016, https://www.fortnightly.com/fortnightly/2016/06/chasing-uncatchable?authkey=3d2731c2dc2856f13f36b01521a2e4ffaffbef294f4b55f4c8b35ef078595c92.

22. *See* James F. Wilson, *Forward Capacity Market CONEfusion*, ELECTRICITY J., Nov. 2010, at 25, 26, https://doi.org/10.1016/j.tej.2010.09.013. "Centralized capacity market mechanisms involve many complex rules, combining market-like and administrative elements." *Id.* Two such fundamental administrative elements are "the choice of the duration of the capacity commitments determined through the mechanism[s] ([i.e., the] 'commitment period') and how far in advance to impose mandatory capacity obligations and hold the capacity auctions ([i.e., the] 'forward period')." *Id.*

23. The MOPR is a mechanism intended to "mitigate the exercise of buyer-side market power." ISO New England, Inc., 158 FERC ¶ 61,138, at P 10 (2017). It is used where a "seller may have the incentive and ability to depress prices below the competitive level" and requires the bidder to increase its bid to "more appropriately reflect the Cost of New Entry." PJM Interconnection, L.L.C., 119 FERC ¶ 61,318, at P 135 (2007). For example, ISO-NE's MOPR "requires new capacity resources to offer their capacity at prices that are at or above a price floor (the resources' net cost of new entry, or Net CONE)." ISO New England, Inc., 158 FERC ¶ 61,138, at P 2 (2017). For a fuller discussion on the evolution of the way FERC understands MOPRs, *see id.* (Bay, Comm'r, concurring).

24. PJM and ISO-NE have mandatory capacity markets, which means that supply must be entered in the market in order to receive a capacity payment or count toward an LSE's capacity obligation, and only capacity that clears the market can count toward an LSE's capacity requirement. *See, e.g.*, N.J. Bd. of Pub. Utils. v. Fed. Energy Reg. Comm'n, 744 F.3d 74, 83-84 (3d Cir. 2014) (explaining the structure of PJM's capacity market).

25. *See, e.g.*, James F. Wilson, Comment Letter on Notice Inviting Post-Technical Conference Comments (June 22, 2017), at 6 [hereinafter Wilson Comments] ("MOPR-style mitigation results in a mitigated, administrative price, it does not recreate a 'competitive' price. Such mitigated prices are likely to be too high, especially since MOPR rules are generally based on administrative Net CONE estimates that are far too high as indicated by recent capacity auction clearing prices that reflect competitive entry but are well below the administrative Net CONE values. Accordingly, MOPR-based prices will generally fail to signal the true state of supply and demand, exacerbating excess capacity and depressing energy and ancillary services prices.").

petitive and less able to effectuate FERC's statutory mandate of ensuring just and reasonable rates than wholesale energy and ancillary services markets.

As such, if revenue shifts from energy to capacity markets (i.e., capacity market revenues increase; energy market revenues decrease), the wholesale market system risks subjecting proportionally more investment to normative decisions and regulatory determinations.[26] Those decisions and determinations, in aggregate, are unlikely to closely mimic more economically efficient outcomes ensured by a less regulated wholesale energy market. Any imperfect capacity design choice, no matter how minimal, thus risks unneeded consumer cost increases by keeping uneconomic and unneeded resources from otherwise leaving the market.[27] All else equal, market based solutions should thus be given preference over non-market solutions to better effectuate FERC's mandate under the FPA. Although capacity markets are favored over wholly out-of-market constructs (such as Reliability Must Run (RMR) contracts),[28] a capacity market is more of an administrative construct (and therefore less market based) than an energy or ancillary service market, and therefore should be less favored. Exogenously shifting revenue from energy to capacity markets necessarily undermines efficient market entry and exit signals. Expert James Wilson further explains this concept:

> In contrast to the highly granular pricing in energy and ancillary services markets, RTO capacity constructs price a standard capacity product through administrative auctions creating a revenue stream based on various administrative parameters and subject to various administrative penalties. These constructs cannot effectively contribute to the accurate forward valuation of attributes. Chronic excess capacity is also a problem, as it suppresses prices in the short-term markets, preventing them from accurately valuing new resources and resource attributes, and also providing weak incentives for price-responsive demand and demand response.[29]

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26. The fact that a market change follows this market principle and shifts revenue from capacity to energy markets, by itself, is not sufficient to evaluating the proposed change. The market principles within this paper should be read in concert, rather than isolation, from one another.

27. *See* PAUL HIBBARD, SUSAN TIERNEY & KATHERINE FRANKLIN, ELECTRICITY MARKETS, RELIABILITY AND THE EVOLVING U.S. POWER SYSTEM 63 (2017), https://www.analysisgroup.com/globalassets/content/insights/publishing/ag_markets_reliability_final_june_2017.pdf ("The retirement of aging resources is a natural element of efficient and competitive market forces, and where markets are performing well, these retirements mainly represent the efficient exit of uncompetitive assets, and will lead to lower electricity prices for consumers over time.").

28. "RMR Agreements provide the rates, terms, and conditions by which . . . power plant owners [provide RMR service]. An RMR unit is generally a generator that a transmission provider can call upon when necessary to provide energy and ancillary services essential to the reliability of the transmission network. That is, some generating units 'must run' at certain times to protect the transmission system from voltage collapse, instability, and thermal overload." Gilroy Energy Ctr., 161 FERC ¶ 61,311, at P 1 n.3 (2017).

29. Wilson Comments, *supra* note 25, at 2.

Therefore, *market design changes that shift revenue from energy and ancillary services markets to capacity markets should be minimized (Subprinciple 1A)*. Indeed, where excess capacity beyond target reserve margins[30] becomes a recurring problem, it could lead to unjust and unreasonable rates and additional ratepayer costs. The concern is exacerbated when market interventions additionally violate Market Principle 2 and/or Market Principle 3.[31]

Recurring market interventions that shift revenues from the energy market to the capacity market result in power suppliers earning less money in the energy market and relying more heavily on capacity markets to account for lost revenue.[32] This can lead to a vicious cycle of capacity market interventions constantly striving to increase revenues in that market to recoup lost energy market revenue caused by the previous intervention. Thus, when capacity is over-procured, leading to lower capacity and energy market prices, the first response should not be to create new market rules to increase capacity market revenues for resource owners.[33] Participation in wholesale markets, like any markets, comes with implicit risk and reward. Oversupply, be it caused by low input costs, stagnant demand, or other factors, is in itself not a concern; lower than expected wholesale prices are instead, without more, market signaling that a new supply/demand equilibrium is economically efficient.[34] The recent PJM Independent Market Monitor's 2017 State of the Market Report appears to confirm this shift. Capacity charges continue to grow, and ener-

30. The reserve margin is the "percentage of installed capacity exceeding the expected peak demand during a specified period." FED. ENERGY REG. COMM'N, *Guide to Market Oversight: Glossary*, https://www.ferc.gov/market-oversight/guide/glossary.asp (last updated Mar. 15, 2016). A target reserve margin is a targeted amount of acquired capacity beyond expected peak demand, and which is set by a reliability entity based on the amount of power that needs to be procured for the system in addition to that needed for peak demand. *See, e.g.*, Cent. Hudson Gas & Elec. Corp. v. Fed. Energy Reg. Comm'n, 783 F.3d 92, 98 (2d Cir. 2015) (explaining the Installed Reserve Margin for NYISO).

31. *See infra*, Sections II & III.

32. *See* Gimon & Orvis, *supra* note 14, at 6-7 ("[P]ast experience suggests that rather than retire during times of low revenue, these least-needed resources push for further capacity market tweaks to increase revenue, leading to a vicious cycle of market 'fixes,' which drive revenue out of the energy markets and encourage oversupply.").

33. *See* Wilson Comments, *supra* note 25, at 7 ("I recommend that the Commission express a longer-term goal of seeing more revenues from the energy and ancillary services markets, and eventually phasing out the capacity constructs, or converting them to voluntary mechanisms, recognizing the changing nature of 'resource adequacy.' The energy and ancillary services markets hold the potential to efficiently guide the changing resource mix over time, including incorporating public policy objectives such as decarbonization that presently are not reflected in the markets; the capacity constructs cannot do this. Reducing the role of the capacity constructs will require resisting the frequent pressures to change them in ways that raise capacity prices and/or lead to clearing substantial excess capacity.").

34. *See* Fabien A. Roques, David M. Newberry & William J. Nuttall, *Investment Incentives and Electricity Market Design: The British Experience*, 4 REV. NETWORK ECON. 93, 96 (2005) ("[E]xcess generation capacity will eliminate scarcity rents driving prices to marginal cost. When this occurs, generators on the margin will not be able to cover their investment cost. Unless such generators receive extra revenues through some form of capacity payments this will result in early retirement or mothballing of plants which will reduce capacity and drive prices back to their long-run equilibrium level.").

gy charges continue to shrink year after year as a percentage of the total price per MWh, with capacity currently making up 21% and energy currently making up 58% of the total price per MWh.[35]

FERC and ISOs should strive for non-discriminatory market access to any resource. Diversity of resources may not be the most optimal market result, but market *access* for a diversity of resources enables the most optimal market result.[36] A shift in revenues from energy markets to capacity markets can undermine efforts to this end, insofar as capacity markets necessarily require some level of subjective decision-making that can stymie commensurate market access for all resources. FERC and ISOs should thus carefully consider how any market intervention could affect the shift of revenues between energy and capacity markets. If this careful consideration suggests that a market intervention could result in energy market revenues shifting to the capacity market, FERC and ISOs should conduct a rigorous need and alternatives analysis.[37] FERC and ISOs must then weigh expected benefits against expected costs, including but not limited to the cost to ratepayers from transferring revenue out of the energy market and the likelihood that the intervention will necessitate future and further interventions due to decreased energy market revenues.[38]

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35. MONITORING ANALYTICS, STATE OF THE MARKET REPORT FOR PJM 20 (2018), http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2017/2017-som-pjm-volume1.pdf.

36. "Long-term energy market stability concerns should be addressed by broadening access to new technologies and business models . . . ." Gimon & Orvis, *supra* note 14, at 4.

37. *See* William W. Hogan, Comment Letter on FERC Technical Conference (Aug. 25, 2011), at 2, https://sites.hks.harvard.edu/fs/whogan/Hogan_Statement_2011-08-25.pdf [hereinafter Hogan Statement] ("From the early days of recognition of [the 'missing money'] problem, there has been a focus on using capacity markets to compensate for the implementation and structural problems. This process continues as the [RTOs] and the [FERC] review and rethink the structure of capacity markets. While such review and reform of capacity markets is a good thing, it has long been my concern that the process has proceeded with too much weight placed on perfecting capacity markets and too little attention given to improving the implementation of electricity market design in order to reduce or eliminate the problem of the missing money.").

38. In discussing the changing nature of reliability, Sam Newell argues that "it is better to get the prices right — reflecting real-time conditions and telling the market what you need, when you need it — rather than just having a narrow administrative idea of reliability . . . [s]o [I] would like to see more money moving into the energy and ancillary services markets and out of the capacity markets." Rich Heidorn Jr., *Lawyers Take an Economics Class: Capacity Markets vs. Scarcity Pricing*, RTO INSIDER (June 13, 2016), https://www.rtoinsider.com/capacity-markets-vs-scarcity-pricing-27702/ (reporting on energy Bar Association panel discussion). James Wilson argues that not only should energy markets be the dominant revenue stream in a market, but that FERC and the ISOs implementing market interventions should be mindful that "it has always been recognized that the centralized capacity market is a transitional mechanism whose role should diminish as wholesale markets further develop and the demand side becomes more actively involved." *See* Wilson, *supra* note 22, at 35.

B. *Wholesale Energy Markets Direct Compensation to Delivered Services*

Unlike capacity markets, energy markets compensate for delivered services and products that provide value to consumers.[39] Capacity markets lack an incentive for actual delivery, and while recent efforts to peg capacity payments to resource performance in the Mid-Atlantic and New England capacity markets attempt to correct this missing incentive, they do so inefficiently, especially as compared to energy markets.[40] Indeed, energy-only markets remain the "economic gold-standard for performance and investment-quality incentives."[41] Price signals in energy markets provide incentives to consumers and suppliers of energy services to make economically efficient consumption and generation decisions and to invest in new resources where and when they are most needed. On the other hand, in capacity market constructs price signals are distorted by administrative intervention and necessarily subjective determinations. Yet for an efficient market, it is crucial to uncover accurate prices.

Energy and ancillary services markets should be well designed to maximize economic efficiency, improve price and investment signals, and reduce the need to rely upon capacity constructs to drive investment. *Markets should focus compensation on delivered services over idle capacity (Subprinciple 1B)*. Attempts to increase capacity payments to existing generators could further distort price signals in energy and ancillary services markets, which could trigger additional distortionary attempts that lead to reduced market efficiency and increased consumer costs.[42] Indeed, "markets that reflect the full marginal cost of reliability during periods of resource shortage and surplus, and therefore the full value of resource flexibility, can also deliver comparable reliability at lower cost to consumers."[43] However,

> many of the measures proposed to replace missing money operate outside of that market, on different time scales and using different parameters. They dilute and thus subvert the unique role energy prices can and should play in shaping investment in the resources needed to satisfy demand for reliable supply *at the lowest reasonable cost*. As a result, in trying

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39. *See, e.g.*, DEVIN HARTMAN, ENHANCING MARKET SIGNALS FOR ELECTRIC RESOURCE ADEQUACY 2 (2017) ("Of all market options, to pay for delivered service should lower costs compared to procuring differentiated, specialized forms of capacity.").

40. *See, e.g.*, Advanced Energy Mgmt. All. v. FERC, 860 F.3d 656 (D.C. Cir. 2017) (upholding FERC's approval of PJM's Capacity Performance rules regarding penalties and bonuses for meeting performance requirements).

41. PETER CRAMTON & STEVEN STOFT, THE CONVERGENCE OF MARKET DESIGNS FOR ADEQUATE GENERATING CAPACITY WITH SPECIAL ATTENTION TO THE CAISO'S RESOURCE ADEQUACY PROBLEM 18 (2006), http://ceepr.mit.edu/files/papers/2006-007.pdf.

42. MICHAEL HOGAN, HITTING THE MARK ON MISSING MONEY: HOW TO ENSURE RELIABILITY AT LEAST COST TO CONSUMERS 7 (2016), https://www.raponline.org/wp-content/uploads/2016/09/rap-hogan-hitting-mark-missing-money-2016-september.pdf.

43. *Id.*

to replace missing money they create a new problem: *misallocated money*, i.e., overcompensating some resources and undercompensating others.[44]

C. *FERC Has Historically Preferred Competitive, Market-Based Solutions*

Since restructuring, FERC has expressed a consistent preference for competitive, market-based design over administrative remedies.[45] Wholesale energy markets further this preference through locational marginal prices, which "are designed to encourage competitive, efficient outcomes through resource offers made consistent with marginal cost bidding."[46] Conversely, and as discussed below in Market Principle 2, FERC has consistently disfavored out-of-market interventions and actions.[47] Wholesale capacity markets exist between these two points; neither wholly a market nor administrative construct. As FERC has stated, "We agree . . . that [the Reliability Pricing Model (RPM)] is an administrative mechanism . . . . We disagree . . . that RPM is a return to cost-of-service ratemaking; a winning seller in the auctions will receive a market-based price reflecting the interplay of the supply bid with the demand curve."[48]

A capacity market has important benefits over wholly out-of-market interventions and relies upon competitive mechanisms to a greater extent than cost-of-service ratemaking.[49] Nevertheless, it retains administratively determined elements; as FERC noted in accepting PJM's sloped demand curve, for example, "all of the demand curves are administratively determined."[50] As such, wholesale capacity markets have Commission support in relation to out-of-market regimes, but are less market-based, and thus less Commission-preferred, than wholesale energy markets.

The Commission adopted PJM's capacity market while implicitly recognizing its preference for greater reliance upon wholesale energy markets. Here the Commission relied upon PJM's finding that "an administratively-determined capacity market is likely, of its own nature, to devolve in importance as revenues from the

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44. *Id.* at 3 (emphasis in original).

45. *See, e.g.*, PJM Interconnection, L.L.C., 107 FERC ¶ 61,112, at PP 19-20 (2004); PJM Interconnection, L.L.C., 117 FERC ¶ 61,331 (2006) (approving PJM Reliability Pricing Model).

46. U.S. FED. ENERGY REG. COMM'N, DOCKET NO. AD14-14-000, STAFF ANALYSIS OF ENERGY OFFER MITIGATION IN RTO AND ISO MARKETS (2014), https://www.ferc.gov/legal/staff-reports/2014/AD14-14-mitigation-rto-iso-markets.pdf.

47. *See, e.g.*, PJM Interconnection, L.L.C., 107 FERC ¶ 61,112, at P 20 (2004); Devon Power L.L.C., 103 FERC ¶ 61,082, at P 29 (2003).

48. *See* PJM Interconnection, L.L.C., 115 FERC ¶ 61,079, at P 71 (2006) (initial order on PJM's Reliability Pricing Model).

49. *See generally* Public Interest Organizations, Comment Letter on Proposed Grid Resiliency Pricing Rule (Oct. 23, 2017), http://blogs.edf.org/energyexchange/files/2017/10/DOE-Comments-Final.pdf at 74-78.

50. PJM Interconnection, L.L.C., 115 FERC ¶ 61,079, at P 105 (2006).

energy market increase, and enable generators to obtain sufficient revenue from energy sales that a capacity market mechanism may no longer be necessary."[51] Diminished reliance upon capacity markets was contemplated at the time of their adoption, with PJM arguing (and FERC agreeing):

> [C]apacity markets should diminish in importance to the extent energy markets in the future prove capable, standing alone, of offering adequate assurance of reliability. Accordingly, the RPM proposal . . . includes provisions that will automatically de-emphasize the capacity market as the energy market proves more effective at incenting capacity resources. Specifically, PJM has designed the [Variable Resource Requirement (VRR)] curve to reflect changes in the level of revenues received by generators from the energy and ancillary services markets; this revenue offset will reduce capacity prices as generation owners receive more net revenue from other sources. As a result, the RPM design will automatically track any transition towards greater emphasis on energy prices, whether in connection with changes to the offer price cap, development of scarcity pricing, or evolution of load management techniques and compensation.[52]

Modifications to wholesale capacity market designs that increase their significance in relationship to wholesale energy markets are thus contrary to the Commission's initial intent and guiding framework of preferring competitive to administrative designs.

II. MARKET PRINCIPLE 2: WHEN ALTERING MARKET DESIGN, FERC AND ISOS SHOULD FOCUS ON ONLY THOSE SERVICES THAT ARE CLEARLY NEEDED AND ENSURE THAT ANY MARKET DESIGN CHANGE DOES NOT UNDULY DISCRIMINATE BETWEEN RESOURCES

There are two important guideposts that should be followed when proposing market design changes. First, in considering design changes, FERC and ISOs should focus on services that are clearly needed. In doing so, FERC and ISOs should justify the need for a market change with a strong record of evidence. Second, these entities should ensure that alterations do not unduly discriminate between resources to both effectuate FERC's statutory responsibility and to further just and reasonable rates. To do so, FERC and ISOs should work both to allow for unimpeded participation by any new entrants and to ensure market access is commensurate to a resource's ability to compete. Both of these strategies facilitate more efficient and competitive markets, and therefore procure the lowest cost service to consumers.

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51. *Id.* at P 170 (quoting PJM's filing proposing a reliability pricing model).

52. *Id.*

A. *FERC Should Carefully Assess and Justify the Need for Any Market Proposal*

Before recommending or implementing an action, particularly those actions involving out-of-market interventions, FERC and ISOs must carefully weigh whether the action is truly needed. *Rigorous quantitative and qualitative analysis that demonstrates how the intervention is responsive to the market design issue identified should accompany and underlie any proposal (Subprinciple 2A)*. An action should not be approved unless the need for the change can be rigorously demonstrated and the proponent of the change can "clearly articulate how [the change] will improve the market."[53] "[I]nput from diverse stakeholders, including public interest organizations and resources," is one important way for both ISOs and FERC to ensure that they are properly weighing whether a market change is needed.[54] From a consumer perspective, a market intervention is economically justified only if it protects consumers from market power or if its total consumer benefits exceed its total consumer costs.

Additionally, ensuring that market rules are technology-, fuel-, and resource-neutral should be a north star for FERC and ISOs. A properly functioning market will procure the least-cost set of resources that fulfills the specific grid needs.[55] When the solution is a new service to be provided, ISOs and FERC should define that service in as granular or specific a manner as possible.[56] ISOs and FERC should also justify the need for the new service and demonstrate its absence under existing conditions. Solutions that can be directly integrated into the energy market, like an operating reserve demand curve, should be given preference.[57] By directly integrating the service within the energy market, the solution increases the efficiency and competitiveness of the energy market[58] and supports Market Principle 1. These types of narrowly tailored, market-oriented solutions reduce the role

53. Gimon & Orvis, *supra* note 14.

54. *See id.*

55. *See, e.g.*, ISO New England Inc., 162 FERC ¶ 61,205, at P 21 (2018) ("A capacity market should . . . result in the selection of the least-cost set of resources that possess the attributes sought by the markets . . . .").

56. *See* Gimon & Orvis, *supra* note 14.

57. *See* WILLIAM HOGAN, RESOURCE ADEQUACY MANDATES AND SCARCITY PRICING ("BELTS AND SUSPENDERS") 6 (Feb. 23, 2006), https://sites.hks.harvard.edu/fs/whogan/Hogan_PJM_Energy_Market_022306.pdf ("An effective operating reserves demand curve with simultaneous determination of energy and reserve prices could provide several advantages in addition to sending better signals for investment. An operating reserve demand curve would provide an effective administrative tool for incorporating scarcity prices that would be necessary to provide adequate incentives for increased energy demand bidding. Hence, this could help 'jumpstart' the demand side of the market. Further, by introducing some 'elasticity' in total energy and reserve demand, the operating reserve demand curve would make a contribution similar to demand bidding in lessening the incentives to exercise market power.").

58. *See* Gimon & Orvis, *supra* note 14.

of administratively and subjectively determining what types of resources or technologies should solve a particular issue and avert the potential for a discriminatory or preferential impact.[59]

To justify a market intervention, FERC requires substantial evidence in the record to support the necessity of the rule change.[60] This requirement should be considered a floor, as voluminous evidence ameliorates many potential harmful effects. Lack of evidence can, for instance, undermine FERC's longstanding efforts to increase and protect market competition by adopting rules that unduly discriminate against or give preference to certain types of resources. This has the effect of stifling access and development of a diverse set of resources that are needed to increase competitiveness and lower costs to ratepayers.[61] Likewise, it can prevent interested parties from holding FERC accountable when it has failed to fulfill its statutory obligations to prevent undue discrimination and preference in the market. If FERC fails to provide a detailed explanation of its decision based on the factual record to support its finding on undue discrimination, outside parties are unable to adequately assess the underlying rationale of FERC's decision. Without such analysis, stakeholder opportunity for full analysis and assessment before FERC becomes impossible. Interested parties instead are given incentive (as the only recourse available) to seek court review.

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59. When the energy/ancillary services market does not yet price a particular service or product and therefore cannot be directly integrated into the market, administrative procurement by an ISO may be required for that product to ensure grid stability. However, that kind of administrative procurement should be temporary and discontinued when the energy/ancillary services market can value that product and cost-effectively incorporate it into its scheme. When the demand for the product is established and a revenue stream is available for it in the market, then that product should be procured competitively in order to leverage the market forces to provide the service more efficiently and minimize costs for consumers. Additionally, not all resources are equally capable of providing a particular energy service such as frequency regulation. Bundling several services into a single product (or requiring resources to provide some services, which effectively bundles them) may compromise efficiency of the markets by creating obstacles for participation for certain resources. When unbundled, a service may be procured at a lower cost in the market. *See generally* Cal. Indep. Sys. Operator Corp., 156 FERC ¶ 61,226 at PP 1, 3 (2016) (approving CAISO's proposed market design that would replace the "flexible ramping constraint" it imposed "to address issues arising from the lack of flexible ramping capability while it developed a new, market-based flexible ramping product").

60. For an example of where FERC required this substantial evidence and determined there was undue discrimination, *see* Joel B. Eisen, *FERC's Expansive Authority to Transform the Electric Grid*, 49 U.C. DAVIS L. REV. 1783, 1841 (2016) ("*As the Court noted, FERC compiled a lengthy record that existing conditions resulted in inadequate demand response participation.* Order 719 was designed to 'eliminate barriers to the participation of demand response in the organized power markets by ensuring comparable treatment of resources.' In turn, Order 719 was based on the policy established in the Energy Policy Act of 2005 that, 'unnecessary barriers to demand response participation in energy, capacity and ancillary service markets shall be eliminated.' This Congressional policy statement is itself not a jurisdictional limit, but does provide further support for FERC's action. Then, Order 745 found that policy inadequate, and fixed the level of compensation to remove the barriers to demand response participation." (emphasis added) (internal citations omitted)).

61. *See* Reg'l Transmission Orgs., 65 Fed. Reg. 810, 810 (Jan. 6, 2000) (to be codified at 18 C.F.R. pt. 35).

B. *The Commission Has Recognized the Connection Between Preventing Undue Discrimination and Ensuring Just and Reasonable Rates*

FERC is required by law to ensure "just and reasonable" and not "unduly discriminatory or preferential" rates, terms, and conditions for reliable electricity.[62] The Commission generally favors solutions that ensure reliability in a manner that is both not unduly discriminatory/preferential and at a just and reasonable rate.[63] The Commission also favors market-based solutions to this same end, be it in the context of reliability compensation or in determining wholesale prices, stating:

> In a competitive market, prices do not differ for new and old plants or for efficient and inefficient plants; commodity markets clear at prices based on location and timing of delivery, not the vintage of the production plants used to produce the commodity. Such competitive market mechanisms provide important economic advantages to electricity customers in comparison with cost of service regulation. For examples, a competitive market with a single, market-clearing price creates incentives for sellers to minimize their costs, competition among them keeps prices as low as possible. While an efficient seller may, at times, receive revenues that are above its average total costs, the revenues to an inefficient seller may be below its average total costs and it may be driven out of business. This market result benefits customers, because over time it results in an industry with more efficient sellers and lower prices.[64]

The Commission likewise favors technology-neutral designs, both to enforce its legal mandate of not unduly discriminatory or preferential rates and to further its just and reasonableness mandate.[65] While these two obligations are independent of each other, FERC has noted an explicit connection between discrimination/preference and just and reasonableness, stating,

> we continue to believe that perceptions of discrimination are significant impediments to competitive markets. Efficient and competitive markets will develop only if market participants have confidence that the system

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62. 16 U.S.C. § 824d(a) (2012); 16 U.S.C. § 824e(a) (2012).

63. *Id.*

64. PJM Interconnection, L.L.C., 117 FERC 61,331, at P 141 (2006).

65. *E.g.*, Preventing Undue Discrimination and Preference in Transmission Service, 121 FERC ¶ 61,297, at P 215 (2007) ("The Commission made clear in Order No. 890 that advanced technologies and demand-side resources must be treated comparably where appropriate in the transmission planning process and, thus, the transmission provider's consideration of solutions should be technology neutral."); PJM Interconnection, L.L.C., 167 FERC ¶ 61,058, at P 59 (2019) (FERC agreeing "with commenters that a technology-neutral approach ensures that no resource that can perform the same service is unnecessarily excluded from fast-start pricing treatment").

> is administered fairly. Lack of market confidence resulting from the perception of discrimination is not mere rhetoric. It has real-world consequences for market participants and consumers.[66]

FERC should guard against undue discrimination, both in perception and effect, particularly when it manifests through inadequate access for particular resources to compete in market structures. For example, in finding PJM's existing market rules unjust and unreasonable in a 2006 Order, the Commission stated that the existing construct "does not enable market participants to see the reliability problems in particular locations, does not provide price signals that would elicit solutions to reliability problems in enough time before the problems occur, and *does not allow transmission and demand response to compete*."[67] In a later ruling evaluating PJM's proposal in response to FERC's 2006 Order, the Commission noted that "the rules for demand response participation in RPM are an integral part of the new capacity construct."[68]

C. *Reducing Barriers to New Entrants and Preventing Undue Discrimination Furthers FERC's Mandate of Ensuring Just and Reasonable Rates*

FERC has encouraged and facilitated the development of organized electricity markets under the theory that "[c]ompetition in wholesale electricity markets is the best way to protect the public interest and ensure that electricity ratepayers pay the lowest price possible for reliable service."[69] One of FERC's foundational tenets to ensure a competitive market is that the market must be free of undue discrimination or preference.[70] Unduly discriminatory or preferential actions, such as arbitrarily preventing participation of certain resources, strike at the heart of the competitive market.[71] Such actions are anticompetitive by their very nature and can

66. Reg'l Transmission Orgs., 65 Fed. Reg. 810, 810 (Jan. 6, 2000) (to be codified at 18 C.F.R. pt. 35).

67. PJM Interconnection, L.L.C., 115 FERC ¶ 61,079, at P 29 (2006) (emphasis added).

68. PJM Interconnection, L.L.C., 117 FERC ¶ 61,331, at P 134 (2006).

69. Reg'l Transmission Orgs., 65 Fed. Reg. 810, 811 (Jan. 6, 2000) (to be codified at 18 C.F.R. pt. 35); *see also id.* ("Thus, we believe that appropriate RTOs could successfully address the existing impediments to efficient grid operation and competition and could consequently benefit consumers through lower electricity rates resulting from a wider choice of services and service providers. In addition, substantial cost savings are likely to result from the formation of RTOs.").

70. The undue discrimination or preference doctrine has developed and been adapted over decades in the face of the fundamental changes that occurred in the power sector. It began with a focus on actions by individual market participants (i.e., whether an individual market participant's actions were unduly discriminatory) and has evolved to a broader analysis of whether specific design components of wholesale markets have a discriminatory or preferential impact. *See generally* Eisen, *supra* note 60 (discussing the origins and modern application of the undue discrimination mandate).

71. Reg'l Transmission Orgs., 65 Fed. Reg. 810, 811 (Jan. 6, 2000) (to be codified at 18 C.F.R. pt. 35).

lead to rates that are unjust or unreasonable.[72] FERC seeks to reduce barriers to new entrants and prevent undue discrimination, which minimizes unnecessary costs to consumers.[73]

Unstifled participation by new technologies and business models is critical to ensure a more efficient, and therefore competitive, marketplace for ratepayers.[74] This in turn helps ensure just and reasonable rates to consumers. When all resources capable of providing a particular energy service are allowed to compete fairly on a resource- and technology-neutral basis, the consumer can acquire the service at the lowest cost. *Thus, all resources that have the ability to provide an identified needed service should be allowed to compete to do so in order to minimize costs to consumers (Subprinciple 2B)*.[75] Any attempt to favor a particular resource over others can hinder competition and result in higher costs for consumers.

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72. *See* Promoting Wholesale Competition, 75 FERC ¶ 61,080, at 119 (1996); Eisen, *supra* note 60, at 1817 ("In FERC's major contemporary rulemakings, the focus is on whether the market system has systemic shortcomings, creating discrimination. This interpretive evolution is not surprising. FERC's authority to oversee markets for discrimination is directly comparable to the original goal of regulation: remedying anti-competitive behavior. It continues the agency focus, dating to the [Interstate Commerce Act (ICA)], on protecting consumers by fostering awareness of matters that can directly influence rates, and curbing or checking those actions that cause undue discrimination among classes of market participants and as a result cause rates to be unjust or unreasonable.").

73. Over the past decade, the Commission has undertaken several actions to promote competition by removing barriers to entry that come from existing tariff rules that do not account for their "operational character" and therefore limit their ability to participate by "preclud[ing] them from providing certain services that they are technically capable of providing." Electric Storage Participation, 162 FERC ¶ 61,127, at P 11 (2018). These rules emphasize the "just and reasonable" mandate as their rationale (and indeed the Supreme Court has focused on that mandate, *see* Fed. Energy Reg. Comm'n v. Elec. Power Supply Ass'n, 136 U.S. 760, 771 (2015)), but are also premised on the need to ensure not unduly discriminatory or preferential rates. Both the Notice of Proposed Rulemaking for Order No. 841, regarding Electricity Storage Resources, and Orders No. 719 and 745, pertaining to demand response resources, note implicitly that reducing barriers also ensures that this latter mandate is met. Electric Storage Participation, Notice of Proposed Rulemaking, 157 FERC ¶ 61, 121, at P 14 (proposed November 17, 2016) (to be codified at 18 C.F.R pt. 35); Demand Response Compensation in Organized Wholesale Energy Markets, 134 FERC ¶ 61,187, at PP 8-9 (2011); Wholesale Competition in Regions with Organized Electric Markets, 125 FERC 61,071, at P 13 (2008). Notably, sitting Commissioner Glick has endorsed the view that "elimination of barriers" to market entry is "required not only by [FERC's] statutory mandate to ensure just and reasonable rates, but also by the [FPA's] prohibition against undue discrimination or preference." Richard Glick, Commissioner, Statement on Electric Storage Participation in Markets Operated by RTOs and ISOs (Feb. 15, 2018), https://www.ferc.gov/media/statements-speeches/glick/2018/02-15-18-glick-E-1.pdf. In his opinion, where resources are technically able to provide a market service, "maintenance of barriers to these resources' participation in the wholesale market is, on its face, discriminatory and preferential." *Id.*

74. *See* Gimon & Orvis, *supra* note 14.

75. *See id.*; *See, e.g.*, FED. ENERGY REG. COMM'N, WORKING PAPER ON STANDARDIZED TRANSMISSION SERVICE AND WHOLESALE ELECTRIC MARKET DESIGN 6 (Mar. 14, 2002), http://nedri.raabassociates.org/Articles/FERCSMDwkgPprMarch15.pdf ("The lessons learned in existing markets lead us to establish a set of principles to guide the development of standard market design . . . . Market rules must be technology- and fuel-neutral. They must not unduly bias the choice between demand or supply sources nor provide competitive advantages or disadvantages to large or

Barriers to entry and/or preferential treatment may be facilitated by the existence of regulatory capture in the ISO stakeholder process.[76] Regulatory capture is a process by which the regulated industry directs regulation away from the public interest and toward the interests of the regulated industry itself.[77] Critics further describe regulatory capture as the ability of one regulated entity to effectively wield regulatory power to block the entry or success of other regulated entities.[78] Regulatory capture in the ISO stakeholder processes could manifest itself as an incumbency bias because incumbent stakeholders have much greater influence over market rule changes. And they have incentives to spur rule changes that will benefit themselves at the expense of new entry or other resources with less influence in the stakeholder process.[79] ISOs allow stakeholders to vote to set the agenda for proposals.[80] Given that incumbent stakeholders are generally large companies with many affiliates, they can collaborate to pool votes and "prevent rule changes that promote competition from other resources."[81] Additionally, because incumbent stakeholders are often large companies, they are in a better position to expend the resources necessary for successful participation in the stakeholder process, including time, money, and technical expertise.[82] To the extent that such a bias exists or could exist in the future, FERC's role in reviewing for unduly discriminatory or preferential impacts of a rule change becomes even more important.[83] While differences in treatment are not outright prohibited,[84] any such treatment must be justified with specific facts that support why the treatment is not unduly discriminatory or preferential.

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small demand or supply sources. Demand resources and intermittent supply resources should be able to participate fully in energy, ancillary services and capacity markets.").

76. *See generally* CHRISTINA SIMEONE, PJM GOVERNANCE: CAN REFORMS IMPROVE OUTCOMES? 37 (2017), https://kleinmanenergy.upenn.edu/sites/default/files/PJM%20Governance%20Reforms.pdf (detailing how affiliate voting in the ISO process allows industry incumbents to set the proposal agenda).

77. THE TOBIN PROJECT, PREVENTING REGULATORY CAPTURE 13 (Daniel Carpenter & David A. Moss eds., 2014).

78. *Id.* at 1.

79. *See* Simeone, *supra* note 76, at 37 ("It is rational for incumbent generation interests to support rules that increase capacity prices in an effort to maximize profits. Policies that reduce supply or increase demand can lead to higher capacity prices.").

80. *Id*.

81. *Id.*

82. *Id.* at 39.

83. *Id.* at 37 ("[A] wide range of interests note the theoretical potential for incumbent interests to dominate RTO/ISO stakeholder processes, to the detriment of competition and efficient outcomes."). FERC can combat this by reviewing rules for their potential unduly discriminatory or preferential impacts.

84. *See* Eisen, *supra* note 60, at 1808-09 ("As under the ICA, 'undue' or 'unreasonable' discrimination was prohibited, but not all rate differences. If 'the record exhibit[ed] factual differences to justify . . . differences among the rates charged,' courts would not upset FERC's findings that utilities' rate differences were justified.").

FERC and ISOs should remain especially vigilant in preventing specious attempts to unjustifiably increase revenues for a particular class of stakeholders or resources. This becomes more difficult for FERC and ISOs when a proposal is founded upon a legitimate market concern but advances a suboptimal solution that predominantly benefits specific (and particularly, incumbent) interests.[85] When a solution for a legitimate market concern is proposed, it is critical to precisely identify and define that concern. *Proposed market design changes should explicitly identify the precise issue targeted by the proposed change and rigorously analyze that issue to identify whether a more narrowly tailored approach is capable of solving the specified issue (Subprinciple 2C)*. This in turn should enable decision-makers to identify and adopt narrowly tailored solutions to the specific issue. For this same reason, compensation should be provided for "exactly and only the services needed to maintain a nimble and reliable grid."[86] A resource-neutral, narrowly tailored solution minimizes the impact of market intervention (or more preferably utilizes only in-market solutions or changes) and decreases the likelihood that it may have an unforeseen discriminatory or preferential impact.

As wholesale markets continue to evolve with new technologies and business models, FERC must continually focus on ensuring that the existing market design and rules do not unduly discriminate against new entry or provide preferential treatment to existing resources. *If a market rule change is likely to have a discriminatory or preferential impact, rigorous effort should be made to identify non-discriminatory alternative solutions (Subprinciple 2D)*. FERC can more ably meet this goal by inviting and closely considering significant evidence.

However, differential treatment alone is insufficient evidence that a particular action should be prohibited. There are instances where resource access to markets may require different rules, respective of that resource's particular attributes, to allow it the ability to fairly compete. For example, FERC exhibited skepticism that a preexisting PJM six hour minimum run time rule should be applied to demand response, stating that "it is not clear that the prior six hour requirement should be simply transferred to the capacity market, since such a requirement may not be necessary to achieve the goals of the capacity market and may unnecessarily preclude demand resources from participating in the capacity market."[87] *Emerging technologies and business models should receive commensurate access to markets to enable a more economic and efficient marketplace for ratepayers (Subprinciple 2E).* As they did in the case above, FERC should closely scrutinize any ISO rule that appears to undu-

85. *See, e.g.*, Public Interest Organizations, Protest Letter on Open Access Transmission Tariff and Reliability Assurance Agreement Changes (the "205 Filing") (Jan. 20, 2015), http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13745945). PJM proposed a series of changes to its capacity market in 2016 to reduce the gap between "capacity commitments and actual performance." *Id.* at 3, 6.

86. *See* Gimon & Orvis, *supra* note 14.

87. PJM Interconnection, L.L.C., 117 FERC ¶ 61,331, at P 132 (2006).

ly discriminate against new technologies to ensure that the rule is an adequately justified departure from market principles.

III. MARKET PRINCIPLE 3: MINIMIZE INTERVENTIONS THAT DISTORT TRANSPARENT AND ACCURATE PRICING

FERC and ISOs should minimize interventions and rule changes that distort transparent and accurate pricing. To do so, these entities should implement in-market solutions, which do not mask price signals in the way out-market solutions can. Where intervention is needed, in order to prevent price distortion, FERC and ISOs should consider the frequency and unintended consequences such intervention could spur in the future. FERC should also emphasize targeted, market-based solutions in any intervention.

A. *The Commission is Generally Disinclined to Rely Upon Out-of-Market Interventions*

Out-of-market interventions, such as RMR contracts,[88] have the potential to distort price signals and undermine competition. Experts Eric Gimon and Robbie Orvis explain that "[b]y providing signals for entry and exit, markets efficiently calibrate the careful relationship between short-term and long-term energy market roles, *but these signals can take some time to have their full effect*."[89] FERC and ISOs should be particularly cautious when considering non-market interventions. When interventions or changes are necessary, in-market solutions are preferable since they rely on markets to produce the most efficient outcomes.[90] *Out-of-market intervention is generally disfavored relative to in-market intervention (Subprinciple 3A)*. These types of interventions are less preferable since they lack transparency, can mask price signals, and lead to inefficient market outcomes. For instance, ISOs have consistently tweaked (and at times outright overhauled) their capacity markets through administrative interventions rather than allowing the market to work.[91] Such interventions can cause markets to "struggle to operate efficiently"

88. *See* Gilroy Energy Ctr., *supra* note 28.

89. Gimon & Orvis, *supra* note 14 (emphasis added).

90. Reg'l Transmission Orgs., 65 Fed. Reg. 810, 810 (Jan. 6, 2000) (to be codified at 18 C.F.R. pt. 35), at 3 ("Competition in wholesale electricity markets is the best way to protect the public interest and ensure that electricity consumers pay the lowest price possible for reliable service.").

91. *See, e.g.*, Wilson Comments, *supra* note 25, at 5-6 ("For instance, in PJM, there have been multiple changes to the capacity construct's rules in recent years that result in upward pressure on prices: a strengthened MOPR; stricter rules on demand response participation and hard limits on seasonal resources; stricter rules and hard limits on capacity imports; redesign of the capacity demand curve, increasing capacity purchases; changes to the Net CONE calculation, sharply increasing its value; changes to the capacity product with more stringent eligibility requirements and higher penalties; and relaxation of offer caps for supplier market power mitigation.").

even as they are capable of "adjust[ing] over time to shifts in costs and state policies."[92] As described in Market Principle 1, masked price signals can lead to an oversupply of capacity, which then leads to lower prices in both the capacity and energy markets, creating a vicious cycle of intervention begetting distorted prices, which begets further intervention.[93]

When intervention is implemented, it should be narrowly tailored and rely upon market principles and mechanisms (Subprinciple 3B). Any changes should be resource neutral and narrowly tailored to address the identified market issue, without creating unintended consequences or the need for future interventions. Reliance upon or mimicking of market mechanisms to the extent possible can help to reduce undesirable secondary effects,[94] as opposed to incorporating additional administrative mechanisms.[95] Locational pricing to help improve price signals offers a useful example. PJM's early capacity market design lacked a locational price component that could account for the inability of some capacity to be delivered everywhere in PJM due to transmission constraints.[96] This lack of locational pricing meant a lack of price signals to illustrate where new investment was most needed.[97] To solve this issue, FERC relied on an intervention that incorporated a more granular, locational pricing component consistent with the market principles already underlying the capacity market design.[98] Thus, this market design change was not a drastic overhaul of the existing design, but rather a narrowly tailored solution that relied on market mechanisms to improve the efficiency and competitiveness of the market.

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92. *Id.* at 6.

93. *See* Roques, Newberry & Nuttall, *supra* note 34, at 100 ("Any regulatory intervention requires caution, since it may introduce secondary side-effects or perverse bidding incentives making further regulatory intervention self-perpetuating.").

94. *See* JOHANNES PFEIFENBERGER, KATHLEEN SPEES & ADAM SCHUMACHER, A COMPARISON OF PJM'S RPM WITH ALTERNATIVE ENERGY AND CAPACITY MARKET DESIGN 73 (2009) ("A concern associated with implementing forward capacity markets is their complexity, which imposes considerable implementation costs and risk of unintended design flaws on both system operators and market participants.").

95. *See* WILLIAM HOGAN, RESOURCE ADEQUACY MANDATES AND SCARCITY PRICING ("BELTS AND SUSPENDERS") 3 (Feb. 23, 2006), https://sites.hks.harvard.edu/fs/whogan/Hogan_PJM_Energy_Market_022306.pdf ("Improvements in pricing for energy and ancillary services markets would reinforce the objectives of RPM. In the current market design, locational marginal pricing (LMP) is recognized as simplifying the task of transmission congestion management. For similar reasons, improved energy scarcity pricing would provide better real-time incentives for reliability given whatever investment the RPM supports. Without adequate scarcity pricing, the system operator will be compelled to invoke inadequate substitutes for scarcity pricing through administrative penalties and continued reliance on special arrangements like reliability must run (RMR) contracts and 'Maximum Emergency' out-of-market purchases.").

96. *See* PJM Interconnection L.L.C., 115 FERC ¶ 61,079, at P 22 (2006).

97. *See id.*

98. *See id.*

Bifurcated market design proposals[99] are emblematic of actions that can depart from these tenets. ISO-NE and PJM bifurcated market design proposals, which are premised on the assertion that state public policies are suppressing prices in capacity markets, serve as one example. The proposals assert that artificially low prices negatively impact the profitability of non-public-policy-supported resources, obscuring price formation.[100]

Necessary to the bifurcated market design proposals, then, is identification of what constitutes a state-public-policy-supported or -subsidized resource.[101] That is, a definition of what constitutes a subsidy must first be determined in order to implement a bifurcated market design. However, formation of a consensus as to what constitutes a subsidy has proven difficult and subject to arbitrary determinations.[102] In recent bifurcated market proposals, the definition of subsidy has been at issue. First, in ISO-NE's "Competitive Auctions with Sponsored Policy Resources" (CASPR) proposal, parties argued that CASPR's "definition of Sponsored Policy Resources [was] unduly discriminatory" and questioned why "the definition of Sponsored Policy Resource reflect[ed] some government policy preferences, such as state renewable and clean energy policies, but not others, such as the preference

99. A bifurcated market design refers to a tranched market, treating resources or resource-owners differently depending upon certain (and necessarily subjective) regulatory determinations. For example, ISO-NE created a bifurcated market in which capacity commitments were obtained by existing resources in the primary auction, and then those existing generators who obtained those obligations could sell them to new resources seeking to enter the capacity markets without being impacted by the MOPR in place in a secondary, or "substitution," auction. ISO New England Inc., 162 FERC ¶ 61,205, at P 7 (2018). Likewise, PJM's capacity repricing proposal, which FERC rejected, sought to bifurcate the capacity market so that quantity of supply was determined in one auction, and the price determined in a second. Calpine Corp., 163 FERC ¶ 61,236, at P 64 (2018).

100. *See, e.g.*, Calpine Corp., 163 FERC ¶ 61,236, at P 150 (2018) ("[PJM's existing tariff] fails to protect the integrity of competition in the wholesale capacity market against unreasonable price distortions and cost shifts caused by out-of-market support to keep existing uneconomic resources in operation, or to support the uneconomic entry of new resources, regardless of the generation type or quantity of the resources supported by such out-of-market support. The resulting price distortions compromise the capacity market's integrity. In addition, these price distortions create significant uncertainty, which may further compromise the market, because investors cannot predict whether their capital will be competing against resources that are offering into the market based on actual costs or on state subsidies."); ISO New England Inc., 162 FERC ¶ 61,205, at P 5 (2018) ("[Out-of-market actions] negatively impact the market's ability to compensate needed existing resources.").

101. *See, e.g.*, Calpine Corp., 163 FERC ¶ 61,236, at 6-7 (2018) (Glick, Comm'r, dissenting) (commenting on majority's "picking and choosing which policies to frustrate and which to willfully ignore" in applying the MOPR).

102. *See, e.g.*, ANGELA PACHON & CHRISTINA SIMEONE, RECONCILING SUBSIDIZED RESOURCES IN PJM'S COMPETITIVE ELECTRICITY MARKETS: PROCEEDINGS REPORT 3 (2017), https://kleinmanenergy.upenn.edu/sites/default/files/proceedingsreports/Reconciling%20Subsidized%20Resources.pdf ("How Should Subsidies Be Defined? What subsidies materially impact market outcomes? While all subsidies may be inconsistent with efficient market outcomes, there may be a dividing line between the subsidies that are materially important and those that are immaterial. Does an inventory of all potentially applicable subsidies need to be developed? Is a materiality test for the subsidies, as well as their impacts on the market, needed when assessing market design options?").

of public power entities."[103] Likewise, in the case of PJM's "Capacity Repricing" proposal, the market was bifurcated between resources receiving a "Material Subsidy" and those that were not.[104] However, some questioned whether this term had been given the proper definition and scope,[105] with some chiding PJM for limiting relevant subsidies to only those provided by states, rather than including federal subsidies as well.[106] The dissent also challenged the Commission's alternative proposal for its exclusion of non-environmentally-related state subsidies for coal and natural gas on its list of "actionable state policies."[107]

Thus, any market intervention proposals that rely upon repricing contain a crucial element (i.e., the definition of subsidy that is needed to know when to trigger repricing) that is administratively determined and difficult to solve given the ambiguous and arbitrary nature of the term. Such proposals, which treat resources and their value arbitrarily, subject markets to arbitrary, rather than economic, determinations, creating the potential for price distortion. *Interventions should therefore be feasible to implement and not contain elements that rely on abstract concepts or arbitrary distinctions that hinder implementation (Subprinciple 3C)*. This illustrates another significant issue: market interventions tend to lead to further market interventions,[108] and continuous and frequent intervention distorts prices. Bifurcated market design proposals, which necessarily require an imprecise definition of subsidy, may thus require further interventions to modify the definition.[109] *Interventions should resolve the identified market failure without creating symptomatic incentives or the need for future market interventions (Subprinciple 3D)*. For these reasons, bifurcated market designs—to the extent they contravene these subprinciples—should generally be disfavored.

In sum, non-market intervention can lead to price distortion and should be avoided. "Past experience suggests that rather than retire during times of low revenue, [units that would otherwise retire] push for further capacity market tweaks to

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103. ISO New England Inc., 162 FERC ¶ 61,205, at P 31 (2018).

104. Calpine Corp., 163 FERC ¶ 61,236, at P 35 (2018)

105. *Id.* at P 50 ("Intervenors also question the appropriateness of PJM's proposed definition of a Material Subsidy. [Two Intervenors] state that the definition gives PJM too much discretion. [Others] argue the proposed definition is too broad.").

106. *Id.* at P 19.

107. *Id.* at 8 (Glick, Comm'r, dissenting).

108. *See* Gimon & Orvis, *supra* note 14 (noting the "vicious cycle of market 'fixes'").

109. *See* Clean Energy Advocates, Request for Rehearing of PJM Capacity Market Order (July 30, 2018), at 20-21 (describing how undefined definitions of subsidy and out-of-market action will ultimately lead to further market interventions down the road); ISO New England Inc., 162 FERC ¶ 61,205, at P 30 (2018) ("ISO-NE represents, however, that if state policies change in the future, it will work with stakeholders to determine if the new laws can and should be accommodated by CASPR."); CASPR is a bifurcated market in which "ISO-NE . . . will conduct the annual [Forward Capacity Auction] in two stages." *Id.* at P 7.

increase revenue."[110] The increased revenue caused by such market tweaks allow these resources to remain in the market longer than economically justified.[111] This leads to suppressed prices in both the capacity and energy markets, and prevents the market from equilibrating at an efficient level.[112] It also leads to an overall increase in costs to ratepayers.[113]

B. *FERC and ISOs Should Proceed with Caution in Evaluating Any Market Intervention, and Consider Both the Frequency and Unintended Consequences of Intervention*

In assessing any potential market intervention, both the frequency and possibility of unintended consequences should be considered.[114] It is important to spark

110. Gimon & Orvis, *supra* note 14.

111. *See* Statement of American Public Power Association, Quadrennial Energy Review, Second Installment, Electricity: Generation to End-Use, Boston Regional Meeting, at 4 (Apr. 15, 2016), https://energy.gov/sites/prod/files/2016/04/f30/Panel%203%20Remarks%20by%20Edward%20Tatum%2C%20Jr.%2C%20Vice%20President%20Transmission%2C%20American%20Municipal%20Power_0.pdf ("The RTOs have continually tweaked the rules in an attempt to address increasing reliability concerns . . . . Often these rule changes have not improved the markets, but instead have simply increased the revenue paid to owners of existing generation resources, who have a strong interest in maintaining a regime that limits competition from new entrants and props up capacity prices . . . .").

112. *See id.*

113. *See* HIBBARD ET AL., *supra* note 27, at 63 ("The retirement of aging resources is a natural element of efficient and competitive market forces, and where markets are performing well, these retirements mainly represent the efficient exit of uncompetitive assets, and will lead to lower electricity prices for consumers over time.").

Bifurcated market design proposals, premised on the idea that out-of-market interventions are artificially suppressing capacity market prices, *see supra* notes 99-100 and accompanying text, also illustrate a need to ensure that the correct concern is identified early and explicitly. The symptoms of concern, low wholesale market prices, could be attributed to a number of causes, including that retirement signals are an intended outcome of a well-functioning and currently oversupplied market. *Id.* ("Fundamental market forces – flat demand for electricity, low natural gas prices and the addition of highly efficient new gas-fired resources – are primarily responsible for altering the profitability of many older, merchant generating assets in the parts of the country with wholesale competitive markets administered by RTOs."). In fact, the retirement of uncompetitive power plants should be expected in a well-functioning power market; if higher cost, inefficient power plants are not retiring, it is a sign that competition might be an issue in the market leading to unjustifiably higher rates for ratepayers. *Id.*; *see also* Joseph Bowring, Independent Market Monitor, Statement on PJM Interconnection L.L.C., at 2 (May 1, 2017) [hereinafter Bowring Statement] ("As a result of competition from low cost gas and the associated entry of new, efficient gas-fired combined cycle units, energy market prices have fallen to historic lows and capacity market prices have been moderate. Competition has made some formerly baseload units uneconomic. Many uneconomic units have retired . . . .").

114. *See* PFEIFENBERGER ET AL., *supra* note 94, at 73 ("A concern associated with implementing forward capacity markets is their complexity, which imposes considerable implementation costs and risk of unintended design flaws on both system operators and market participants.").

investment in needed resources, and market interventions may hinder this goal.[115] Every intervention creates risk for investors.[116] The more frequently interventions occur, the more difficult it is for investors to make an informed decision on whether and where to invest in the power sector.[117] Frequent interventions create a risk that, by the time the investment is realized, the plant will be operating under a different set of rules than when the investment decision was made.[118] This uncertainty leads to higher financing costs for power plant development, which is either passed on to consumers as higher energy costs or deters new entry entirely that would otherwise be economical.[119] Thus, efforts to reduce the frequency of market interventions should lead to more just and reasonable rates for ratepayers because these efforts should lead to more certainty for investors. When a market design flaw that affects the efficiency and competitiveness of the market is identified, the proposed solution should resolve the issue without causing other unintended (and potentially bigger) inefficiencies. Otherwise, the proposed solution will necessitate further intervention, which could compromise the efficiency of the market, create uncertainty and risks, and lead to needlessly higher prices for consumers.[120]

It is of further importance to consider the frequency and unintended consequences of intervention when implementing out-of-market interventions, which often lack transparency and do not rely on market principles and mechanisms, and therefore are at greater risk of leading to economically inefficient outcomes. Such administrative interventions can undermine the efficiency and competitiveness of the market, discouraging competitive entry by masking price signals and deterring

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115. *See* Roques, Newberry & Nuttall, *supra* note 34, at 120 ("There is a delicate trade-off to be found between governance adaptability and flexibility in a relatively new electricity markets and investors' need for predictability. As the market matures, adaptability and reactivity of the regulatory framework is critical for maintaining security of supply.").

116. *Id.* ("Regulatory uncertainty is one of the major sources of risk for investors in a fast transforming regulatory framework. One straightforward way to improve investment incentives is for the government to adopt sustainable market rules, and carefully review the necessity of any change." (internal citations omitted)).

117. *See id.*

118. *See* ISO New England Inc., 162 FERC ¶ 61,205, at 5 n.13 (2018) (Glick, Comm'r, dissenting) ("It is not without irony that today's order espouses the need to promote investor confidence even as it fundamentally revises the purpose that the Commission's regulation of capacity markets is designed to serve. Indeed, change has been the only consistent feature of capacity markets in recent years. These repeated changes to the basic principles and components of capacity markets can only serve to undermine investors' confidence in their assessment of the current capacity markets."); Calpine Corp., 163 FERC ¶ 61,236, at 11-12 (2018) (Glick, Comm'r, dissenting) ("[I]t is ironic to bemoan policy uncertainty when Commission's and PJM's constant tinkering with the capacity market is one of, if not the, single biggest sources of uncertainty facing capacity market participants.").

119. *See* Bowring Statement, *supra* note 113, at 3 (noting that subsidies for uneconomic resources suppress investment in new, efficient generation technologies. This would ensure those uneconomic resources remain in business and prices for consumers remain high.).

120. *Id.*

investors, or limiting efficient exit by effectively favoring uneconomic incumbent resources.[121]

Because of their exacerbated pricing problems and the unintended consequences associated with frequent intervention, out-of-market actions by FERC and ISOs, such as RMR agreements, should only be taken when the benefits of meeting reliability standards through an agreement exceed the costs.[122] ISOs should favor cost-effective, market-based alternatives to RMR agreements when such alternatives will adequately meet potential reliability needs.[123] Otherwise, these out-of-market actions can result in a more costly, less innovative, less competitive, and less dynamic power system than would otherwise emerge over time.

C. *FERC Has Provided a Set of Benchmarks in Considering Whether Intervention is Warranted*

Any proposed change should be based upon a thorough examination to ensure that interventions allow for accurate price signaling. FERC articulated its preferred approach for such an examination in the context of identifying reliability compensation issues.[124] In such instances, the Commission noted that the first question should be: "does this organized market exhibit material short-term or long-term Reliability Compensation Issues?"[125] Should an actual need be identified, the Commission then required that "there should be a demonstration that the solution proposed is feasible, implementible [sic] and expected (with a high degree of probability) to solve the problem."[126] That identified solution should then, if possible, be market-based. FERC "believe[s] that the use of market design improved features is the preferred choice for solving material Reliability Compensation Issues. However, [the Agency] recognize[s] that market design changes may not be effective in every situation where such issues are present."[127]

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121. *See* ISO New England Inc., 162 FERC ¶ 61,205, at 5 n.13 (2018) (Glick, Comm'r, dissenting).

122. This assessment does not necessarily require a specific or actual cost-benefit analysis, and the Commission has authority to consider non-cost factors in this assessment. PJM Interconnection, L.L.C., 155 FERC ¶ 61,157, at P 30 & n.39 (2016). This cost-benefit analysis should be a "'common-sense assessment' that the costs that will be incurred are consistent with the ratepayers' overall needs and interests" and need not be a "quantitative cost-benefit analysis." *Id.* (quoting Process Gas Consumers Grp. v. FERC, 866 F.2d 470, 476-77 (D.C. Cir. 1989)).

123. *See* MICHAEL GIBERSON, INTEGRATING RELIABILITY-MUST-RUN PRACTICES INTO WHOLESALE ELECTRICITY MARKETS (2017), https://2o9ub0417chl2lg6m43em6psi2i-wpengine.netdna-ssl.com/wp-content/uploads/2018/04/114-1.pdf.

124. PJM Interconnection, L.L.C., 107 FERC ¶ 61,112 (2004).

125. *Id.* at P 16.

126. *Id.* at P 18.

127. *Id.* at P 20.

This approach is emblematic of FERC's preference for targeted, market-based solutions founded upon strong evidence and identification of a specific issue, which are less likely to distort price signals. FERC's general disinclination for RMR contracts similarly illustrates this preference:

> Extensive use of RMR contracts undermines effective market performance. In addition, suppressed market clearing prices further erode the ability of other generators to earn competitive revenues in the market and increase the likelihood that additional units will also require RMR agreements to remain profitable. Therefore, we believe that ISO-NE, rather than focusing on and using stand-alone RMR agreements, should incorporate the effect of those agreements into a market-type mechanism.[128]

FERC has similarly required ISOs to "exercise vigilance to ensure that only those units that are needed to ensure reliability receive RMR contracts, and that those contracts will not be in effect indefinitely but will be limited to the periods during which the units are needed for reliability."[129]

Even in cases where administrative actions are found to be required, FERC has shown its preference for market-based solutions by favoring designs that mimic market mechanisms. For instance, in approving PJM's sloped demand curve for its capacity market, FERC stated that "[t]he sloping demand curve is designed to replicate a true market in which incremental amounts of capacity will have gradually declining, but positive, reliability benefits."[130]

IV. MARKET PRINCIPLE 4: THE JUST AND REASONABLE STANDARD STRONGLY FAVORS RATE DECREASING OUTCOMES

The just and reasonable standard favors actions that decrease rates for consumers. This preference is driven by both FERC's goal to bring more efficient and lower cost power to consumers and its obligation to protect consumer interests.[131] Given these features, in FERC's view the just and reasonable standard means that market designs and interventions should, as possible, decrease rates.[132] FERC's understanding of reliability, and how it should be valued, in the context of the just and reasonable standard illustrates this conception.

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128. Devon Power L.L.C., 103 FERC ¶ 61,082, at P 29 (2003).

129. *Id.* at P 3.

130. PJM Interconnection, L.L.C., 119 FERC ¶ 61,318, at P 99 (2007).

131. Reg'l Transmission Orgs., 65 Fed. Reg. 810, 811 (Jan. 6, 2000) (to be codified at 18 C.F.R. pt. 35); *see* Rich Glick & Matthew Christiansen, *FERC and Climate Change*, 40 ENERGY L. J. 1, 4-5 (2019), https://www.eba-net.org/assets/1/6/[Glick_and_Christiansen][Final].pdf.

132. Reg'l Transmission Orgs., 65 Fed. Reg. 810, 811 (Jan. 6, 2000) (to be codified at 18 C.F.R. pt. 35).

A. *FERC's Preference for Wholesale Power Markets is Premised on the Goal of Bringing More Efficient, Lower Cost Power to Consumers*

In order to effectuate its mandate to ensure reliable energy at just and reasonable rates, FERC has zealously encouraged the development of wholesale competition.[133] FERC fundamentally supports competition that results from organized electricity markets as the best way "to bring more efficient, lower cost power to the Nation's electricity consumers."[134] Effective competition in the wholesale market encourages entry and exit and promotes innovation, incentivizes the efficient operation of resources, and allocates risk appropriately between ratepayers and generators. Enhancing competition and removing regulatory and economic barriers that hinder a free market are essential to ensuring just and reasonable wholesale rates.[135] Conversely, market interventions that impede competition or shift risks from generators to ratepayers will yield unjust and unreasonable rates to ratepayers.

Where intervention is needed, the just and reasonable standard—given FERC's goal of bringing more efficient, lower cost power to consumers—favors evaluating alternative solutions for an identified problem from the perspective of the ratepayer interest. This approach favors actions that maximize net benefits compared to other available options. Correspondingly, if a market rule change proposed by an ISO is projected to result in higher rates, the ISO should demonstrate that the estimated benefits exceed the additional cost to ratepayers. An intervention or rule is likely to raise rates if it has certain characteristics. *An intervention or market rule that: (a) increases costs; (b) decreases economic efficiency; (c) supports existing uneconomic generation unneeded for reliability services; or (d) does not further a state public policy, should be viewed with care (Subprinciple 4A).* Where these characteristics are apparent, FERC and ISOs should analyze whether the benefits will justify any potential for higher rates.

B. *FERC is Obligated to Protect Consumer Interest*

Wholesale electricity markets should properly compensate generation in order to ensure that consumers are shielded from unjust and unreasonable rates. Given its obligation to protect consumers, in balancing agency responsibilities, FERC has exhibited clear preference for increased rates only upon the basis of a strong showing of necessity. *Interventions and market rules that increase rates should be accompanied by rigorous evidence showing how ratepayers benefit from incurred higher costs (Subprinciple 4B).* For example, in determining whether to compensate for particular

133. *Id.* at 3 ("The comments on the NOPR overwhelmingly support the conclusion that independent regionally operated transmissions grids will enhance the benefits of competitive electricity markets. Competition in wholesale electricity markets is the best way to protect the public interest and ensure that electricity consumers pay the lowest price possible for reliable service.").

134. Promoting Wholesale Competition, Order No. 888, 75 FERC ¶ 61,080, at 1 (1996).

135. *See supra* note 73 and accompanying text.

reliability, FERC has stated that the first question is not whether the proposed ISO solution produces just and reasonable rates, but rather whether at the outset the "organized market exhibit[s] material short-term or long-term Reliability Compensation Issues."[136] Should an issue be identified, the solution "must include a showing that the revenue produced by the proposed solution is adequate to actually solve the problem at hand and that the proposed solution includes safeguards to prevent the unwarranted exercise of market power beyond the recovery of such necessary revenue."[137]

This same preference for protecting consumers permeates FERC's decisions adopting capacity markets. In approving PJM's sloped demand curve, the Commission placed importance on PJM's finding that:

> [w]hile customers may buy more capacity under the Settlement Curve than under the status quo, the price of the capacity will be lower because of lower financing costs. And, because more generation capacity will be in place, prices in the energy markets will be lower, resulting in lower energy bills to customers.[138]

FERC may thus have reason to reevaluate a sloped demand curve (or any other design decision) to the extent that this predicted result has not occurred in practice. Indeed, a principal consideration in approving PJM's and New York ISO's (NYISO) sloped demand curves was that:

> the sloped demand curves also allow for procuring less capacity than their respective capacity targets. These markets are designed such that the average amount of capacity procured over time is close to the capacity target, but the actual amount procured in any one period may be higher or lower than the target. Allowing the procurement in excess of the capacity target in some periods is reasonable in these markets to offset the potential for procuring less than the capacity target in other periods.[139]

Perfect information may not always exist such as to ensure with complete certainty that FERC's action will result in lower prices. However, because of the just and reasonable mandate, lower prices should generally be the guiding principle by which FERC and courts evaluate such action. FERC's foundational rationale for adopting capacity markets, for example, was that the "RPM is based on the premise that competition in properly designated geographic markets will produce just

136. PJM Interconnection, L.L.C., 107 FERC ¶ 61,112, at P 16 (2004). Although capacity market constructs appear to have supplanted FERC's reliance upon the Reliability Compensation Issues Order, the foundational inquiries contained in this Order remain relevant and are cited in PJM Interconnection, L.L.C., 117 FERC ¶ 61,331, at P 78 (2006).

137. PJM Interconnection, L.L.C., 107 FERC ¶ 61,112, at P 18 (2004).

138. PJM Interconnection, L.L.C., 117 FERC ¶ 61,331, at P 78 (2006).

139. ISO New England, Inc., 135 FERC ¶ 61,029, at P 19 n.24 (2011).

and reasonable rates."[140] In this context, FERC interpreted just and reasonable rates as those oriented to providing consumers lower rates, relying on the D.C. Circuit's finding that "empirical data may not exist for every proposition and agencies may rely on predictions that competition will result in lower prices."[141] That is, although lower prices may not be predictable with absolute certainty, FERC may generally assume that competition will lower prices. FERC therefore has latitude when actions improve competition because there is an assumption that lowering prices is the goal underpinning FERC's action.

C. *The Value of Reliability Should be Explicitly Considered*

The principle that the just and reasonable standard favors rate decreasing outcomes can be seen in FERC's understanding of reliability and how that understanding is molded by FERC's mandate to provide just and reasonable rates. The bulk power system (or its subcomponents) should meet the applicable reliability standards as prescribed by the North American Electric Reliability Corporation.[142] ISO "wholesale electric markets are designed to obtain services to reliably and efficiently meet customer needs without regard to preferred fuels or technologies."[143] When reliability services are procured in-market, markets should automatically adjust as reliability standards are updated or changed. Although a changed standard may justifiably increase rates, to ensure efficient and low-cost compliance the manner in which markets operate should not be altered in response to those changed standards.

When changes are necessary beyond updated reliability standards (including but not limited to reliability based market changes rather than standards changes), that intervention or market rule should generally not lead to higher rates absent a benefit to ratepayers that substantially justifies the additional expense.[144] Should a potential action by FERC or ISOs be predicted to lead to higher rates for ratepayers, FERC and ISOs should provide fulsome rationale supporting the higher rates.

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140. PJM Interconnection, L.L.C., 119 FERC ¶ 61,318, at P 191 (2007).

141. *Id.* at P 74 & n.143 (citing Associated Gas Distribs. v. Fed. Energy Reg. Comm'n, 824 F.2d 981, 1009 (D.C. Cir. 1987)).

142. *See* Frank A. Felder, *Watching the ISO Watchman*, ELECTRICITY J., Dec. 2012, at 24, 26 ("Starting with the reliability objective, there is a point at which the cost of reliability exceeds the cost of unreliability . . . . Embedded in reliability rules is an implicit cost of unreliability that should not be exceeded . . . . Given that reliability requirements are thresholds, [reliability improvements] result in meeting those threshold requirements at a lower cost rather than achieving a higher level of reliability at the same cost."). NERC was certified by FERC under the Energy Policy Act of 2005 as the electric reliability organization for the U.S., and its reliability standards are mandatory and enforceable. FERC, ENERGY PRIMER: A HANDBOOK OF ENERGY MARKET BASICS 37 (2015).

143. *See* HIBBARD ET AL., *supra* note 27, at 12.

144. *See* Demand Response Compensation in Organized Wholesale Energy Markets, 76 Fed. Reg. 16,658, 16,659-60 (Mar. 24, 2011) (to be codified at 18 C.F.R. pt. 35) (explaining the importance of protecting customers and keeping rates just and reasonable).

The evidence should detail exactly why the rate increase is necessary and how ratepayers will benefit from it.[145] Only where FERC and ISOs use such an analytical framework can stakeholders and other interested parties effectively analyze proposals and hold decision-makers accountable if they stray from core missions and statutory duties.

Given FERC's desire to bring about efficient, low-cost power and its obligation to protect consumer interest, reliability standards should be based on economic efficiency and the reliability of service should reflect customers' willingness to pay for it. Accordingly, reserve margins should be supported by well justified reasons, such as the Value of Lost Load (VoLL)—i.e., the "cost of an outage to customers or the price that an average customer would be willing to pay to avoid an involuntary interruption of their electricity supply."[146] Having target reserve margins above VoLL obligates customers to pay more than what the incremental increase in reliability is worth to them. Furthermore, when all customers are required to pay for higher levels of reliability than they may want, it masks the price signals that enable customers to choose between paying for a higher level of reliability and participating in demand-side solutions like price-responsive demand, emergency response services, load management, and distributed generation.[147]

V. MARKET PRINCIPLE 5: FERC AND ISOS SHOULD FACILITATE AND NOT UNDERMINE STATE PUBLIC POLICY PREFERENCES

FERC and ISOs should pursue actions that further and respect state public policy preferences related to the electricity sector rather than those that will undermine such preferences. The FPA is a cooperative federalism statute, which is designed to allow state and federal regulatory entities to work together toward a common goal.[148] As such, FERC and ISOs should regulate the wholesale markets in coordination with state regulation of retail sales and generation preferences, rather than in tension with those choices. Additionally, ISOs in particular are not structured for policymaking because they lack political accountability.[149] State leg-

145. *See id.*

146. JOHANNES PFEIFENBERGER ET AL., RESOURCE ADEQUACY REQUIREMENTS: RELIABILITY AND ECONOMIC IMPLICATIONS 4 (2013), https://www.ferc.gov/legal/staff-reports/2014/02-07-14-consultant-report.pdf.

147. *See generally* FED. ENERGY REG. COMM'N, 2018 ASSESSMENT OF DEMAND RESPONSE AND ADVANCED METERING (2018), https://www.ferc.gov/legal/staff-reports/2018/DR-AM-Report2018.pdf.

148. *See* 16 U.S.C. § 824(a) (2012) ("[E]xtend only to those matters which are not subject to regulation by the States."). *See generally* Jim Rossi, *The Brave New Path of Energy Federalism*, 95 TEXAS L. REV. 399 (2016) (describing how courts have historically interpreted the FPA's cooperative federalism mandate).

149. *See generally* SIMEONE, supra note 76, at 2.

islatures, which are accountable to their electorate, are the proper forum for pursuing public policy changes.

A. *Cooperative Federalism Underpins the Energy Sector*

FERC has encouraged the development of organized electricity markets to facilitate the efficient and reliable functioning of the transmission grid.[150] ISOs further FERC's statutory mandate to ensure just and reasonable rates by increasing the competitiveness of wholesale electricity markets.[151] States also play an important role in regulating the electricity sector because the FPA established a regulatory system based on the principle of cooperative federalism. States have authority over retail electricity sales and "facilities used for the generation of electric energy,"[152] as well as general authority even where policy actions may have some impact upon the bulk power system.[153] Occasionally, wholesale markets, through rule changes or other actions, risk inhibiting or obstructing valid state policy preferences.[154] However, because the FPA's design intended for federal and state regulators to work cooperatively, a "policy of 'mitigating,' rather than facilitating, state public policy preferences places the Commission in a role that Congress never intended it to play"[155] and should be disfavored.[156]

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150. HIBBARD ET AL., *supra* note 27, at 12 ("[O]rganized wholesale electric markets are designed to obtain services to reliably and efficiently meet customer needs without regard to preferred fuels or technologies."); Reg'l Transmission Orgs., 65 Fed. Reg. 810, 810 (Jan. 6, 2000) (to be codified at 18 C.F.R. pt. 35) ("The Commission also codifies minimum characteristics and functions that a transmission entity must satisfy in order to be considered an RTO. The Commission's goal is to promote efficiency in wholesale electricity markets and to ensure that electricity consumers pay the lowest price possible for reliable service."); *see also* Promoting Wholesale Competition, 75 FERC ¶ 61,080, at 1 (1996) ("Today the Commission issues three final, interrelated rules designed to remove impediments to competition in the wholesale bulk power marketplace and to bring more efficient, lower cost power to the Nation's electricity consumers.").

151. Promoting Wholesale Competition, 75 FERC ¶ 61,080, at 1 (1996); *see also* Allco Fin. Ltd. v. Klee, 861 F.3d 82, 88-89 (2d Cir. 2017) ("RTOs and ISOs administer a number of competitive wholesale auctions. FERC extensively regulates the structure and rules of such auctions, in order to ensure that they produce just and reasonable results.").

152. *See* 16 U.S.C. § 824(a)-(b)(1) ("[E]xtend only to those matters which are not subject to regulation by the States.").

153. Rich Glick & Matthew Christiansen, *FERC and Climate Change*, 40 ENERGY L. J. 1, 28-29 (2019).

154. *See, e.g.*, N.J. Bd. of Pub. Utils. v. Fed. Energy Reg. Comm'n, 744 F.3d 74, 106 (3d Cir. 2014) (discussing arguments that application of a MOPR to new natural gas resources would frustrate New Jersey's goals to use such resources to abate its energy crisis); *id.* at 95 (states arguing FERC was "usurp[ing] the state's right to rely on integrated resource planning."); New England Power Generation Ass'n v. Fed. Energy Reg. Comm'n, 757 F.3d 283, 290 (D.C. Cir. 2014) (arguing that application of the MOPR to state supported resources "impermissibly determine[d] the makeup of a state's resource portfolio").

155. ISO New England, Inc., 162 FERC ¶ 61,205, at 2 (2018) (Glick, Comm'r, dissenting in part and concurring in part).

Recently proposed bifurcated market designs and FERC orders are representative of this tension.[157] Proponents of these recent designs argue that state public policies, particularly climate policies, are suppressing prices in capacity markets.[158] The proponents further argue that these artificially low prices negatively impact the profitability of non-public-policy-supported, or "competitive," resources, obscuring price formation.[159] These interventions have mostly advocated for a redesign of the capacity market construct that will reprice subsidized offers to determine a market clearing price as if the subsidy did not exist.[160] However, these proposed interventions mistake valid exercise of state authority for market interference.

At their core, proposed bifurcated market interventions and FERC orders in response assume that state policies illegitimately affect market prices.[161] Yet state policies, like fuel prices or property costs, are inputs beyond FERC and ISO authority. The FPA explicitly reserved an important role for states in the electricity sector, and states have broad authority to craft public policy in support of their citizens' welfare.[162] *Market designs should ensure state public policy preferences are given full effect, but not allow manipulative behavior from any market participant (Subprinciple 5A)*. As part of their traditional police powers and duties to develop and imple-

156. FERC has a great deal of flexibility in crafting solutions to actually give effect to the state policy preference and justifying them in ways that may not lead to the most textbook economic result, instead "account[ing] for the practical realities of how [these] markets operate" (i.e., operating in conjunction with policy inputs from the states). Demand Response Compensation in Organized Wholesale Energy Mkts., 134 FERC ¶ 61,187, at P 46 (2011). *See id.* ("In the face of these diverging opinions, the Commission observes that, as the courts have recognized, 'issues of rate design are fairly technical and, insofar as they are not technical, involve policy judgments that lie at the core of the regulatory mission.' We also observe that, in making such judgments, the Commission 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.") (quoting Elec. Consumers Res. Council v. Fed. Energy Reg. Comm'n, 4017 F.3d 1232, 1236 (D.C. Cir. 2005)).

157. *See supra* notes 99-107 and accompanying text.

158. ISO New England, Inc., 162 FERC ¶ 61,205, at P 4-5 (2018) (ISO-NE arguing that state clean energy programs are suppressing prices); Calpine Corp., 163 FERC ¶ 61,236, at P 1-2 (2018) (FERC explaining that state out-of-market payments are suppressing price of capacity procured).

159. *See* Gavin Bade, *The Great Capacity Market Debate: Which model can best handle the energy transition?*, UTILITY DIVE (Apr. 18, 2017), https://www.utilitydive.com/news/the-great-capacity-market-debate-which-model-can-best-handle-the-energy-tr/440657/.

160. *E.g.*, Calpine Corp., 163 FERC ¶ 61,236, at P 34 (2018) (explaining PJM's Capacity Repricing proposal). *See also* N.J. Bd. of Pub. Utils. v. Fed. Energy Reg. Comm'n, 744 F.3d at 86-87 (3d Cir. 2014) (explaining application of PJM's original MOPR from 2006, which mitigated bids found to be below-cost to 80-90% of the estimated CONE).

161. ISO New England, Inc., 162 FERC ¶ 61,205, at P 24 (2018) ("This out-of-market state support raises a potential conflict with the Commission's interest in maintaining efficient and competitive wholesale markets . . . . Absent market mechanisms to limit the impact on FCM prices, which serve as both a revenue stream and a price signal for investors, these state actions can erode the investor confidence on which the FCM relies to meet its objectives.").

162. *See* 16 U.S.C. § 824(a)-(b)(1) (2012).

ment policy desired by their constituency, states may enact laws or policies that impact wholesale markets. This alone does not conflict with FERC's jurisdiction.[163] FERC and ISOs should be wary of actions that could have "the potential to erect a significant impediment to states' efforts to shape the generation mix within their borders."[164] Such efforts also run afoul of the basic principles of cooperative federalism that underlie the FPA.[165] Assuming that these state actions do not "surprise the market relatively last-minute with large subsidized resources," they do not artificially lower or suppress prices in capacity markets.[166] State policies are simply another input that the wholesale market internalizes through its efficient clearing of bids to provide capacity; they are no different than inputs such as the numerous costs and constraints that are already internalized by the market.[167] Wholesale markets are not an end unto themselves; they were created for the purpose of effectuating FERC's statutory mandate. When state actions are crafted outside this purpose and FERC authority, ISOs lack authority to act in contravention of state choices.[168]

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163. *See* Fed. Energy Reg. Comm'n v. Elec. Power Supply Ass'n, 136 S. Ct. 760, 780 (2016).

164. *See, e.g.*, ISO New England, Inc., 162 FERC ¶ 61,205, at 3 (2018) (Glick, Comm'r, dissenting in part and concurring in part).

165. *See Elec. Power Supply Ass'n*, 136 S. Ct. at 780; William Boyd & Ann E. Carlson, *Accidents of Federalism: Ratemaking and Policy Innovation in Public Utility Law*, 63 UCLA L. REV. 810, 883-84 (2016) ("If ever a sector should be regulated top-to-bottom by the federal government, one might argue, it is electricity. Congress clearly recognized this possibility when it enacted Part II of the FPA in 1935. It could have gone much further than it did in extending its authority under the commerce power to regulate electricity. But it chose not to do so precisely because of the value it placed on state regulation. And although Congress has adjusted the structure and practice of electricity regulation since 1935, it has refrained from disturbing the basic jurisdictional scheme despite passing four major pieces of omnibus energy legislation since 1978." (internal citations omitted)).

166. *See* Wilson Comments, *supra* note 25, at 5 ("[S]tate actions that surprise the market relatively last-minute with large subsidized resources may inappropriately affect capacity prices. But state actions that result in resources entering the market in relatively small quantities that are foreseen years in advance do not.").

167. *See id.* ("Market participants have plenty of time to take [public policy resources announced far in advance] into account in planning the timing of retirements, other new entry, and other actions that affect the balance of supply and demand. In addition, various short lead time resources that can efficiently enter and exit on a year-by-year basis depending upon need (such as some imports, demand response, and resources that are economic on an energy-only basis) also tend to buffer the impact on price of entry in any year. Consequently, it is reasonable to assume that in this example, the public policy capacity is fully anticipated and absorbed by market participants' adjustments, and has minimal, if any, impact on capacity prices. While the entry of the public policy resources will likely correspond to some delay of other new entry, acceleration of retirements, or adjustments by resources able to enter and exit on a year-by-year basis, this displacement is of course what the public policy was intended to accomplish.").

168. FERC may not approve tariff provisions that cover non-jurisdictional activity, including market mechanisms that fall outside FERC's jurisdiction. *See* Detroit Edison Co. v. Fed. Energy Reg. Comm'n, 334 F.3d 48 (D.C. Cir. 2003) (overturning FERC's approval of a tariff allowing unbundled retail customers to take distribution service under the tariff because FERC did not have jurisdiction

While states have the authority to act on their policy preferences, FERC and ISOs retain a duty to determine whether market power abuse or other forms of manipulation are a concern. State public policy preferences should be carefully analyzed with this concern in mind. This is a difficult exercise to undertake, but law and policy demands nothing less.[169] State actions and policies are different from the type of buyer-side market power abuses the MOPR was initially crafted to address.[170] However, manipulative intent, and thus improper state action, may still be found where the target of the public policy preference is specifically within FERC's authority.[171] The narrow holding in *Hughes*, that state policies may not simply "disregard an interstate wholesale rate required by FERC," serves as the relevant limiting principle.[172] If the aim of the state's policy preference is outside that specific FERC authority, FERC and the ISOs should give effect to those preferences to the greatest extent possible.[173]

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over unbundled retail distribution service). *See also* Ari Peskoe, *Easing Jurisdictional Tensions by Integrating Public Policy in Wholesale Electricity Markets*, 38 ENERGY L. J. 1, 5 (2017).

169. *See* John Moore, Sustainable FERC Project, Statement on 2013 Technical Conference (Sept. 9, 2013), at 8-9, https://www.ferc.gov/CalendarFiles/20130911144750-Moore%20Comments.pdf ("Application of a [MOPR] to state-incented clean energy resources unfairly reduces their capacity value and costs consumers money. The primary purpose of a MOPR is to prevent buyers of capacity from suppressing capacity prices by subsidizing higher-cost new capacity to replace lower cost existing capacity . . . . Many of these wind and solar resources are built to meet RPS standards; these resources will be constructed and will provide capacity benefits whether or not they are able to clear and take on a capacity supply obligation. The RTO also will be required to purchase through the annual capacity market auction additional, unnecessary resources. These purchases will impose unnecessary costs on consumers and produce unjust and unreasonable rates.").

170. PJM Interconnection, L.L.C., 143 FERC ¶ 61,090, at P 20 (2013) ("PJM's MOPR is a mechanism that seeks to prevent the exercise of buyer-side market power in the forward capacity market, which occurs when a large net-buyer—that is, an entity that buys more capacity from the market than it sells into the market—invests in capacity and then offers that capacity into the auction at a reduced price. Given the uniform clearing prices in PJM's markets, such behavior would benefit the net-buyer so long as the reduction in the net-buyer's purchasing costs exceeds its losses from selling the underpriced capacity.").

171. Hughes v. Talen Energy Mktg., 136 S. Ct. 1288, 1299 (2016).

172. *Id.* The Supreme Court recently affirmed the narrowness of its holding by denying certiorari in two cases in which the petitioners sought to expand *Hughes*, arguing that Zero Emissions Credit (ZEC) policies, designed to compensate a non-energy value of generation (the carbon free attribute of the resource) and which did not condition compensation on clearing in a wholesale market, were materially similar to the Maryland program in effect, and therefore intruded on FERC's authority. Coal. for Competitive Energy v. Zibelman, 906 F.3d 41 (2d Cir. 2018), *cert. denied*, 139 S. Ct. 1547 (Apr. 15, 2019); Elec. Power Supply Ass'n v. Star, 904 F.3d 518 (7th Cir. 2018), *cert. denied*, 139 S. Ct. 1547 (2019) (Apr. 15, 2019).

173. Wilson Comments, *supra* note 25, at 7 ("[The] intentions, and the objectives a state may be pursuing, matter. A MOPR policy that is blind to such differences is likely to have false positives and false negatives for mitigation that will lead to litigation that FERC should ultimately lose."); *see* SIMEONE, *supra* note 76, at 2 ("[S]tates have the right and the ability to enact legally acceptable policy that impacts electricity markets.").

B. *ISOs Are Ill-Equipped to Act as Policymaking Entities*

One way for FERC to ensure that proper effect is given to state public policies is to ensure that ISOs do not stray into the policymaking realm themselves when market rules are changed. An ISO is not the proper venue to pursue public policy changes.[174] As quasi-governmental entities, there is little political accountability for these organizations and no mandate to reflect the will and welfare of those the ISO serves.[175] If an ISO were to pursue a disfavored policy preference, the public would have limited ability to shape the policy or to prevent it from going into effect.[176] *ISOs are not policymaking entities under state or federal law; they should not pursue rule changes that are fundamentally policy preferences (Subprinciple 5B).* State legislatures, on the other hand, are accountable to their electorate, and therefore are the proper forum for policy changes that impact the electricity markets. FERC and the ISOs must ask whether a proposed rule change is in fact just a means to a preferred policy end for stakeholders or the ISO itself, possibly in reaction to and at the expense of a legitimate state public policy. Whereas ISO market actions in pursuit of just and reasonable rates can work well with state actions in pursuit of policy objectives, two separate sets of broad policy actions may be difficult to synchronize. Proposed market rule changes at the ISO level should thus be focused on improving outcomes related to reliability at just and reasonable rates through non-unduly discriminatory and preferential means. Generally, this would suggest that ISO actions should focus upon the efficiency and competitiveness of the wholesale electricity market and should not favor the policy preferences of any particular stakeholder.

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174. *See* MARK JAMES ET AL., HOW THE RTO STAKEHOLDER PROCESS AFFECTS MARKET EFFICIENCY 17 (2017), https://www.rstreet.org/wp-content/uploads/2017/10/112.pdf ("Encouraging FERC to treat RTOs as institutions that are capable of self-interest may create a better environment to analyze the effects of market-rule design proposals. Furthermore, it could shift the weight and deference given to RTO proposals to those advanced by stakeholders and the market monitor. In this way, a well-informed group of market participants who have a well-defined role in governance can act as an appropriate check on the principal-agent problem").

175. Michael H. Dworkin & Rachel Aslin Goldwasser, *Ensuring Consideration of the Public Interest in the Governance Accountability of Regional Transmission Organizations*, 28 ENERGY L. J. 543, 548 (2007) ("Neither the states nor the federal government have demonstrated the ability to hold these organizations accountable to the public. Even though RTOs have corporate boards, structural issues make it hard for those boards, alone, to protect the public interest."). *See, e.g.*, *id.* at 578-87; SIMEONE, *supra* note 76 at 25-26.

176. *See* Kenneth Rose, *Trouble in Market Paradise: Development of the Regional Transmission Operator*, 50 J. ECON. ISSUES 535, 536 (2016) ("These RTOs did not evolve by design or from government fiat. Rather, they have developed and grown over time, taking on an increasing responsibility and importance. The result has been institutions that were not prescribed by legislation or regulation, but now exert a powerful influence with little public input. These RTOs are overseen by the [FERC], and they are governed by 'independent' boards and committees of 'stakeholders' that include market participants with strong economic interest in RTO rules and procedures. However, public input is peripheral, at best.").

FERC should ensure that any of its own actions or decisions, and any market design changes or other actions recommended by the ISOs it regulates, do not violate either of the tenets propounded in subprinciple 5A and 5B. Abiding by these cooperative federalism principles will ensure continued success for competitive electricity markets and the efficient electricity those markets bring to ratepayers.[177] Decisions contrary to these tenets can undermine competition and economic efficiency in the electricity markets. As discussed in Market Principle 2, all resources' contributions to resource adequacy should be recognized. Attempts by ISOs to mute states' policy preferences, which could effectively prevent certain state-supported resources from fully participating in the market, introduce inefficiencies and contain the risk of making the consumers pay twice for the same energy service.[178] Rather, "harmonizing state goals and the operation of wholesale electricity markets could leverage market forces to more efficiently meet both state goals and traditional electric system goals of providing affordable, reliable supply."[179]

C. *Courts Have Consistently Upheld State Policymaking Authority*

Courts have consistently upheld states' authority to craft public policy in furtherance of their citizens' interest.[180] FERC likewise has generally recognized this state authority.[181] Tension persists, however, in instances where state policy decisions and wholesale markets intersect.[182] With respect to wholesale markets, FERC has stated that:

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177. *See* SIMEONE, *supra* note 76, at 2 ("Failure to effectively incorporate and manage state-based political values with market design may lead to compromises that threaten the legitimacy of the RTO/ISO organization and its markets.").

178. ISO New England, Inc., 162 FERC ¶ 61,205, at P 5 (2018) (recognizing the concern that MOPR application to state subsidized resources "may cause consumers to 'pay twice' for the same capacity—i.e., pay once for capacity procured in the FCM to serve their demand, and pay a second time for the additional capacity obtained through out-of-market contracts with state-supported resources.").

179. SAMUEL A. NEWELL ET AL., PRICING CARBON INTO NYISO'S WHOLESALE ENERGY MARKET TO SUPPORT NEW YORK'S DECARBONIZATION GOALS 9 (2017), https://www.nyiso.com/documents/20142/2244202/2017-Pricing_Carbon_into_NYISOs_Wholesale_Energy_Market-Brattle-Report.pdf/ec266c79-d819-9466-77c8-66c6db8e3b53.

180. *See, e.g.*, Coal. for Competitive Energy v. Zibelman, 906 F.3d 41 (2d Cir. 2018) (upholding New York's ZEC Program), *cert. denied*, 139 S. Ct. 1547 (2019); Elec. Power Supply Ass'n v. Star, 904 F.3d 518 (7th Cir. 2018) (upholding Illinois' ZEC Program), *cert. denied*, 139 S. Ct. 1547 (2019); Allco Fin. Ltd. v. Klee, 861 F.3d 82 (2d Cir. 2017) (upholding Connecticut's renewable energy solicitations and Renewable Portfolio Standard).

181. *See, e.g.*, WSPP, Inc., 139 FERC ¶ 61,061 (2012).

182. *See, e.g.*, Fed. Energy Reg. Comm'n v. Elec. Power Supply Ass'n, 136 S. Ct. 760 (2016) (finding that FERC's demand response rules do not interfere with state regulatory authority over retail sales); Hughes v. Talen Energy Mktg., 136 S. Ct. 1288 (2016). (holding that Maryland's actions interfered with FERC's authority over wholesale energy markets); *Zibelman*, 906 F.3d at 46 (concluding that NY's ZEC program does not interfere with FERC's authority over wholesale market); *Star*, 904 F.3d at

> The Commission acknowledges the rights of states to pursue policy interests within their jurisdiction. Our concern, however, is where pursuit of these policy interests allows uneconomic entry of [out-of-market (OOM)] capacity into the capacity market that is subject to our jurisdiction, with the effect of suppressing capacity prices in those markets. We note that our primary concern stems not from the state policies themselves, but from the accompanying price constructs that result in offers into the capacity market from these resources that are not reflective of their actual costs. We agree with arguments contending that OOM capacity suppresses prices regardless of intent and that the Commission has exclusive jurisdiction on assessing whether wholesale rates are just and reasonable. In fact, the Commission has previously found that uneconomic entry can produce unjust and unreasonable prices by artificially depressing capacity prices, and therefore, the deterrence of uneconomic entry falls within the Commission's jurisdiction. It is these unjust and unreasonable outcomes in a Commission-jurisdiction market that is the focus of our actions here.[183]

The Commission thus recognizes dual aims: it must both ensure that wholesale markets achieve just and reasonable outcomes, and also not intrude upon state jurisdiction. Decisions and designs not able to achieve both aims should be disfavored. While neither sphere of jurisdiction is "hermetically sealed" from the other, this does not provide license for market mechanisms to undermine state public policy. Whether current mechanisms respect this balance should be a key consideration for FERC, consistent with foundational market principles.[184]

CONCLUSION

FERC has encouraged wholesale electricity markets, and has done so with vigorous emphasis on market-based solutions. The five market principles identified here are those the Commission has implicitly relied upon as those markets have developed. These market principles are supported by policy and legal foundations that run through a myriad of historic and current FERC orders and court decisions. They are elemental to how FERC understands its own statutory authority, and thus regardless of Commission makeup, they should consistently pervade and guide decision-making to support durable competitive wholesale electricity markets.

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525 (explaining that Illinois' ZEC program does not interfere with FERC's authority over wholesale market).

183. ISO New England, Inc., 135 FERC 61,029, at P 170 (2011) (internal footnotes omitted).

184. *See, e.g.*, PJM Interconnection L.L.C., 119 FERC ¶ 61,318, at P 163 (2007) (providing an example of FERC consciously respecting the balance of power between itself and states); ISO New England, Inc., 162 FERC ¶ 61,205 (2018) (Glick, Comm'r, dissenting in part and concurring in part).

The Commission's goal requires the protection of competition, not individual competitors.[185] The Commission's goal is to foster efficient, competitive markets because those are the markets that ensure just and reasonable and not unduly discriminatory or preferential rates. In following these principles, FERC and ISOs can meet these goals and evaluate proposed market interventions and rule changes to ensure that solutions will create the best outcomes. When used in concert, these principles empower FERC to effectuate its statutory mandate and ensure lowest-cost electricity for consumers.

185. ISO New England, Inc., 162 FERC ¶ 61,205, at 4 (2018) (Glick, Comm'r, dissenting in part and concurring in part).

APPENDIX 1: PRINCIPLES SUMMARY

MARKET PRINCIPLE 1: WHOLESALE MARKET REVENUES SHOULD PREDOMINATELY FLOW FROM WELL-DESIGNED ENERGY AND ANCILLARY SERVICES MARKETS

- SUBPRINCIPLE 1A: Market design changes that shift revenue from energy and ancillary services markets to capacity markets should be minimized.
- SUBPRINCIPLE 1B: Markets should focus compensation on delivered services over idle capacity.

MARKET PRINCIPLE 2: WHEN ALTERING MARKET DESIGN, FERC AND ISOS SHOULD FOCUS ON ONLY THOSE SERVICES THAT ARE CLEARLY NEEDED AND ENSURE THAT ANY MARKET DESIGN CHANGE DOES NOT UNDULY DISCRIMINATE BETWEEN RESOURCES

- SUBPRINCIPLE 2A: Rigorous quantitative and qualitative analysis that demonstrates how the intervention is responsive to the market design issue identified should accompany and underlie any proposal.
- SUBPRINCIPLE 2B: All resources that have the ability to provide an identified needed service should be allowed to compete to do so in order to minimize costs to consumers.
- SUBPRINCIPLE 2C: Proposed market design changes should explicitly identify the precise issue targeted by the proposed change and rigorously analyze that issue to ensure that a more narrowly tailored approach is not capable of solving the specified issue.
- SUBPRINCIPLE 2D: Where a market rule change is likely to have a discriminatory or preferential impact, rigorous effort should be made to identify non-discriminatory alternative solutions.
- SUBPRINCIPLE 2E: Emerging technologies and business models should receive commensurate access to markets to enable a more economic and efficient marketplace for ratepayers.

MARKET PRINCIPLE 3: MINIMIZE INTERVENTIONS THAT DISTORT TRANSPARENT AND ACCURATE PRICING

- SUBPRINCIPLE 3A: Out-of-market intervention is generally disfavored relative to in-market intervention.
- SUBPRINCIPLE 3B: When intervention is implemented, it should be narrowly tailored and rely upon market principles and mechanisms.
- SUBPRINCIPLE 3C: Interventions should be feasible to implement and not contain elements that rely on abstract concepts or arbitrary distinctions that hinder implementation.
- SUBPRINCIPLE 3D: Interventions should resolve the identified market failure without creating symptomatic incentives or the need for future market interventions.

MARKET PRINCIPLE 4: THE JUST AND REASONABLE STANDARD STRONGLY FAVORS RATE DECREASING OUTCOMES

- SUBPRINCIPLE 4A: An intervention or market rule that (a) increases costs, (b) decreases economic efficiency, (c) supports existing uneconomic generation unneeded for reliability services, or (d) does not further a state public policy should be viewed with care.
- SUBPRINCIPLE 4B: Interventions and market rules that increase rates should be accompanied by rigorous evidence showing how ratepayers benefit from incurred higher costs.

MARKET PRINCIPLE 5: FERC AND ISOS SHOULD FACILITATE AND NOT UNDERMINE STATE PUBLIC POLICY PREFERENCES

- SUBPRINCIPLE 5A: Market design should ensure state public policy preferences are given full effect, but not allow manipulative behavior from any market participant.
- SUBPRINCIPLE 5B: ISOs are not policymaking entities under state or federal law; they should not pursue rule changes that are fundamentally policy preferences.