UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

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Panda Stonewall LLC	)	ER17-1821-002
	)	

To: The Honorable Suzanne Krolikowski
       Presiding Administrative Law Judge

INITIAL BRIEF OF THE
INDEPENDENT MARKET MONITOR FOR PJM

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Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor for PJM Interconnection, L.L.C. ("PJM") ("Market Monitor"), submits this initial brief. This brief addresses two issues: (i) Should the level of Panda Stonewall's cost of service rate be limited to the recovery of costs unaccounted for in the parameters of the PJM Market Design? and (ii) What power factor should Panda Stonewall use to calculate its reactive supply rate?[1]

This case raises important issues concerning the just and reasonable coordination of PJM's rules for compensating reactive capability with PJM's market rules for compensating other products sold by electric power suppliers. Reactive compensation must be integrated into PJM's design of competitive markets. The Market Monitor has argued elsewhere for better rules related to reactive compensation, which would allow for recovery of all unit capability costs, including reactive capability, in the PJM capacity market.[2]

PJM's hybrid approach of compensating part of the same investment in the same unit at market based rates and part at cost of service rates, is inconsistent with competitive markets, is unnecessary, unduly complicated, and imposes wasteful administrative burdens and costs on generation owners, customers,[3] the Commission, the Market Monitor and the public. Reliance on markets for reactive compensation would be consistent with the Commission's policies for regulation through competition. There is no reason not to rely exclusively on markets. The PJM market design for reactive, for

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[1]   *See* Joint Statement of Issues (Oct. 24, 2018), items JSI 7 and JSI 8.

[2]   *See* Comment of the Independent Market Monitor for PJM, *Reactive Supply Compensation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, AD16-17-000 (July 29, 2016).

[3]   The costs of participating generally prohibit the representation of customers as a class in these proceedings even though almost all of them involve negotiated settlement rates. For example, the customers in this case are also owners of generating units and sell reactive power at Commission filed rates themselves.

reasons never explained, does not rely on markets for reactive capability. The reason is certainly not the need to ensure sufficient reactive capability for reliability. In order to receive interconnection service from PJM or another RTO, all generating units must meet reactive capability requirements specified in Commission and RTO rules.

But this proceeding does not concern whether to adopt the optimal approach to reactive compensation. This proceeding instead concerns whether even minimally satisfactory rules can be established that could make the existing hybrid approach to setting reactive rates consistent with the PJM market construct. At issue is whether the hybrid approach can be modified to satisfy basic and common sense ratemaking principles, and avoid creating duplicative rates.

The numerous settlements establishing rates for reactive capability, struck with no consideration of how they integrate with the PJM market rules and design, and based on rules developed in a completely different, nonmarket paradigm, should be wholly disregarded. This case is one of first impression. The continued rote misapplication of rules designed for other conceptual frameworks should be replaced with an approach which is consistent with PJM market rules for competitive markets. Any other result would fail to serve the public interest and would contradict the purpose of regulation under the Federal Power Act.

Panda Stonewall requests $5,470,679 per year in compensation, which equals $6,737.29 per MW-year using a unit size of 812 MW.[4] Panda Stonewall calculates its rate based on a 0.85 power factor.[5] The Market Monitor does not object here to the use of the *AEP* method to calculate Panda Stonewall's rate for reactive capability. But a rate cannot be found just and reasonable if such rate would result in the double recovery of costs. A rate calculated in accordance with fundamental ratemaking principles and following the *AEP* method should not exceed $2,199 per MW-year.

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[4]   *See* Joint Statement of Stipulated Facts (Oct. 24, 2018) ("Jt. Stip."), Stipulation No. 8.

[5]   *See* Exhibit PS-043 at 53:1–3; Jt. Stip., Stipulation No. 2.

The PJM capacity market explicitly accounts for nonmarket reactive revenue up to $2,199 per MW-year. The nonmarket revenue is revenue from the cost of service approach. The PJM capacity market does not explicitly account for nonmarket reactive revenue above that level. The PJM capacity market does permit the opportunity to recover all additional reactive capability costs. Therefore, additional reactive capability costs should be ineligible for inclusion in cost of service rates for reactive capability.

The proposed rate is also not just and reasonable if it is based on reactive capability greater than the level that PJM has determined is necessary to procure from generating units. PJM has determined under Schedule 2 of the OATT that it is necessary that generating units test at a 0.90 power factor. The record shows that no power factor greater than 0.90 was required for Panda Stonewall. Panda Stonewall witnesses testify that Panda Stonewall made a decision to develop a plant with a 0.85 power factor rather than a 0.90 power factor at a significant increase in cost. Panda Stonewall should not be permitted to impose the costs of its decisions on customers when there is no requirement to add any costs. Any such costs were not prudently incurred. The required power factor is defined by PJM under Schedule 2, the basis in the OATT for Panda Stonewall's filing. Panda Stonewall should not receive compensation for costs based on a power factor greater than the level required by PJM and needed to operate the system reliably.

I. BACKGROUND

A. The *AEP* Method Concerns the Allocation of the Same Fixed Costs Incurred to Build a Generator Between Two Cost of Service Rates.

1. The *AEP* Method Was Developed under Cost of Service Ratemaking.

Order No. 888, issued April 24, 1996, sought to remove impediments to competition in the wholesale bulk power marketplace, and to bring the benefits of

efficient markets in the form of lower cost power to electricity consumers.[6] Order No. 888 required transmission owning public utilities to file open access nondiscriminatory transmission tariffs that contain minimum terms and conditions of non-discriminatory service.[7]

PJM competitive wholesale power markets with competitive offers were implemented on April 1, 1999. The current form of the PJM capacity market began with the implementation of PJM Reliability Pricing Model (RPM) capacity market June 1, 1997.

Order No. 888 included a Pro Forma Open Access Transmission Tariff that specified six ancillary services.[8] One such service is "Reactive Supply and Voltage Control from Generation Sources Service." The Commission explained that reactive supply must be "offered as a discrete service, and to the extent feasible, charged for on the basis of the amount required."[9] The Commission also stated that including reactive supply as a separate ancillary service "may contribute to the development of a competitive market for such service if technology or industry changes result in improved ability to measure the reactive power needs of individual transmission customers or the ability to supply reactive supply from more distant sources."[10]

On April 2, 1993, American Electric Power Service Corp. ("*AEP*") filed an open access transmission tariff that included a rate for reactive supply and voltage control.[11]

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[6]   Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, Order No. 888, FERC Stats. & Regs. ¶ 31,036, 61 Fed. Reg. 21,540, 21,541 (May 10, 1996) ("Order No. 888").

[7]   *Id*.

[8]   *Id*. at 21,597–617 & Appendix D ("Pro Forma Tariff").

[9]   *Id*. at 21,722.

[10] *Id*. at 21,581–82 & n.359.

[11] *See* Docket No. ER93-540.

The Commission accepted AEP's explanation that "since generator/exciters and an allocated portion of accessory and electric equipment produce active and reactive power, 'it was necessary to arrive at an allocation factor to segregate the reactive (VAr) production function from the active power (Watt) production function.'"[12] The allocation approach developed by AEP and its sponsoring witness Bernard M. Pasternak has become known as the *AEP* method. In that case, both the allocated costs of real power and the allocated costs of reactive power were recovered from customers under cost of service rates.

The *AEP* method recognizes that the same equipment used to produce real power (Watt) supporting energy, ancillary services and capacity sales is used to produce reactive power (VAr) supporting reliable transmission system operations. Panda Stonewall witnesses have confirmed in the record in this proceeding that Panda Stonewall produces real power and reactive power using the same equipment.[13]

There is no evidence in this proceeding that any original equipment manufacturer (OEM) manufactures generating equipment without reactive power capability, or would manufacture such equipment if asked.

Panda Stonewall witnesses testify that Panda Stonewall deliberately designed and constructed a generating unit with a 0.85 power factor, and that by doing so, it incurred increased costs compared to what it would have incurred if it had instead opted for a 0.90 power factor.[14]

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[12] *See American Electric Power Service Corporation*, Opinion No. 440, 88 FERC ¶ 61,1411 (1999) (*AEP*) *mimeo* at 29, citing AEP Initial Brief at 37.

[13] Tr. 1511:12—14.

[14] Exh. PS-034 at 21 n.1; Exh. IMM-004 at 50:7–11.

2. In PJM Markets, the *AEP* Method Allocates Costs between Cost of Service Rates and Market Based Rates.

In 2007, the Commission promulgated a rule setting forth how such proposals would be evaluated.[15] Market based rates are rates regulated in a different way.[16] Under a market based rate, competitive markets determine just and reasonable prices which in return result in revenues and a rate of return.[17] The achieved rate of return in the market can be greater than, equal to or less than the rate of return under a cost of service rate.

Generators in PJM, including Panda Stonewall, operate under market based rate schedules.[18] As a result, the costs of power production equipment not allocated to reactive capability rates are recoverable under market based rates for energy, capacity and ancillary services. Market based rates neither guarantee recovery of costs nor limit recovery to costs. Costs do, however, play an important part in determination of key market design parameters and the rules for mitigating the potential exercise of market power.

The *AEP* method was introduced in order to allocate costs between two cost of service based rates, one for generation and one for reactive. The *AEP* method used standard cost of service allocation methods to achieve this objective. Such cost of service allocations are performed because 100 percent of the total defined costs are allocated to customers, although the allocation of each type of costs differs. The *AEP* method was not designed or intended to allocate costs between a cost of service rate and market recovery.

Nevertheless, the cost of service approach used in Schedule 2 of the Pro Forma Tariff has been included in the PJM market rules. The precedent developed in *AEP* for

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[15]   *Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, Order No. 697, FERC Stats. & Regs. ¶ 31,252 at P 7 (2007).

[16]   *Id.*

[17]   *Id.* at P 963 & n.1108.

[18]   *See, e.g.*, Panda Stonewall LLC, Docket No. ER16-2643-000 (Nov. 28, 2018) (delegated order).

allocating reactive costs among different cost of service rates has been applied in PJM, mostly in nonbinding settlements, even though PJM relies on market based rates and not cost of service rates for energy, capacity and other ancillary services. No sound rationale has ever been provided for including cost of service reactive rates and applying the *AEP* allocation method to the development of such rates. There is no reason to presume that any rationale exists.

Application of the *AEP* method in PJM necessarily poses the challenge of how to allocate the investment in a single, integrated power plant between the reactive cost of service rate and market rates.

B. The PJM Markets Ensure Resource Adequacy and Opportunity for Competitive Investment.

PJM Interconnection, L.L.C., became an ISO in 1997 and a Regional Transmission Organization ("RTO").[19]

PJM operates a competitive wholesale power market in which prices result from competition rather than cost of service rates and in which prices are, almost with exception, the sole source of revenue. Competitive investors in generation compare expected revenues with the costs of constructing and operating a generating unit. PJM revenues cannot be considered in isolation. All opportunities to earn revenues factor into competitive investment decisions. The capacity market plays a critical role in ensuring that generation resources are compensated at competitive levels.

Even though capacity market pricing is based on the capacity for real power output (MW), the capacity market design also provides for the procurement of reactive output capability.

PJM adopts the Commission required minimum required reactive capability (MVAr) and the Commission required policy that meeting this minimum is a prerequisite

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[19] *See Pennsylvania-New Jersey-Maryland Interconnection, et al.,* 81 FERC ¶ 61,257 (1997); *PJM Interconnection, L.L.C., et al.,* 96 FERC ¶ 61,061 (2001).

for receiving interconnection service from an RTO. Interconnection service is a necessary prerequisite for selling any of the resources' output. PJM has long required minimum 0.90 lagging capacity factor. The 0.90 requirement has been more recently set by Commission rules. The rationale for the approach is that if every resource has the minimum reactive capability, and planners take that assumption into account when they plan a reliable transmission system, the system will have sufficient reactive capability. The industry, the Commission or PJM, could, of course, adjust the required capacity factor if needed. By ensuring a uniform standard requirement for reactive capability for all interconnected generation resources, PJM ensures sufficient reactive capability through the capacity market, even though the capacity market does not directly price MVAr.

The initial 1999 PJM capacity market design was inadequate because it did not result in compensatory revenues for capacity resources.[20] By order issued April 20, 2006, the Commission determined that the PJM capacity market design was unjust and unreasonable, and ordered it to be replaced.[21] In 2007, the Reliability Pricing Model ("RPM") was implemented.[22] The RPM successfully increase compensation of capacity

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[20]   *See*, *e.g.*, 2006 State of the Market Report for PJM, Vol. II (March 8, 2007) at 103 ("Although it can be expected that in the long run, in a competitive market, net revenue from all sources will cover the fixed costs of investing in new generating resources, including a competitive return on investment, actual results are expected to vary from year to year. ... Analysis of 2006 net revenue, including both the Day-Ahead and Real-Time Energy Market, indicates that the fixed costs of new peaking, midmerit and coal-fired baseload were not fully covered. During the eight-year period 1999 to 2006, the data lead to the conclusion that net revenues were less than the fixed costs of generation and that this shortfall resulted both from lower, less volatile energy market prices and lower capacity credit market prices in the last several years."), which can be accessed at: *<http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2006.shtml>*.

[21]   *See PJM Interconnection, L.L.C.*, 115 FERC ¶ 61,079.

[22]   *See PJM Interconnection, L.L.C.*, 115 FERC ¶ 61,079 (2006).

and analysis shows generation units have, since 2007, received sustainable net revenues.[23]

Under the RPM capacity market design, owners of generating capacity resources in PJM have an opportunity to recover the costs of investment in generating units and for returns in excess of cost. The opportunity exists without reliance on cost of service rates set by regulators.

C. The PJM Capacity Market Rules Include a $2,199 Offset Designed to Avoid Double Recovery.

The PJM market design include explicit provisions that address the challenge posed by overlapping cost based rates for reactive capability and market based rates rate for capacity. The problem is to avoid double recovery in the capacity market of costs recovered in costs of service reactive rates. The rules for the PJM capacity market recognize the potential for double recovery of costs already recovered in reactive capability rates. Panda Stonewall Witness Wofford acknowledged that the offset serves exactly this purpose.[24] The calculation of net revenues includes a $2,199 offset for anticipated reactive revenues, reducing the net CONE.[25] PJM confirms that the $2,199 represents reactive capability revenues.[26]

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[23] *See*, *e.g.*, 2017 State of the Market Report for PJM, Vol. II (March 8, 2018) at 309 ("In 2017, most units did not achieve full recovery of avoidable costs through net revenue from energy markets alone, illustrating the critical role of the PJM Capacity Market in providing incentives for continued operation and investment. In 2017, capacity revenues were sufficient to cover the shortfall between energy revenues and avoidable costs for the majority of units and technology types in PJM, with the exception of some coal units and some nuclear units."), which can be accessed at: *<http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2017.shtml>*.

[24] Tr. 1511:20 –1513:2.

[25] OATT Attachment DD § 5.10(a)(v)(A).

[26] *See* IMM-005. (If any other revenues were included, then the cap on cost of service revenues would need to be reduced, dollar for dollar.)

There needs to be a corresponding recognition in the cost of service rate setting process for reactive that there is overlap and that therefore the $2,199 offset recognized in the PJM capacity market should be the cap on reactive cost of service rates.

PJM market rules provide for the opportunity to recover the costs of reactive power capability in two ways: through the definition of the demand curve for capacity and through the default market seller offer cap. This is exactly the same way that PJM market rules provide for the opportunity to recover all the costs of capacity resources.

One of the key parameters of the demand curve for capacity, the Variable Resource Requirement (VRR) curve, is the net cost of new entry or net CONE.[27] Net CONE affects the location and shape of the demand curve for capacity and thus the clearing price for capacity. Net CONE equals the gross cost of new entry for the reference unit technology less the revenues from energy and ancillary services revenues that offset that cost. Panda Stonewall Witness Sotkiewicz explains, the Net CONE of the reference unit "is used to anchor the demand curve for capacity."[28] The energy market revenues are calculated based on the dispatch of the reference unit against historical locational marginal price (LMPs) for the last three years and the revenues for ancillary services (reactive only) are included in the tariff as a fixed number, $2,199 per MW-year.[29]

Elimination of the ancillary services revenue offset of $2,199 per MW-year would mean that the prices on the VRR curve for each MW level would be higher and the clearing prices for capacity that result from the interaction of the supply curve and the VRR curve, would be higher. The result would be the recovery of additional reactive capacity revenues in the price of capacity for all resources.

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[27]   OATT Attachment DD § 5.10(a).

[28]   IMM-002 at 97:13–17.

[29]   *See* Exhibit IMM-001 at 3:22–24 & n.7.

For example, the RTO VRR curve in the 2021/2022 Base Residual Auction (BRA) had a maximum price of $482.36 per MW-day, which was 1.5 times net CONE. If the reactive offset of $2,199 per MW-day had been eliminated, net CONE would have increased to $327.97 per MW-day and the maximum price on the RTO VRR curve would have been $491.96 per MW-day.

The demand curve is relevant. If there were no nonmarket recovery of reactive revenue, there would be no reactive revenue offset to net CONE and the demand curve would result in higher capacity market prices, all else held constant. If there were no nonmarket recovery of reactive revenue, the shape and location of the demand curve would give unit owners the opportunity to recover all reactive capability costs in the capacity market.

This is how the capacity market works for all the other costs of a generating plant other than short run marginal costs.

The default market seller offer cap under the capacity performance rules in the PJM Capacity Market is defined as net CONE times B, where B is the balancing ratio. The balancing ratios used in the PJM market have ranged from 0.785 to 0.850.

The result of using a $2,199 per MW-year offset is that energy and ancillary service revenues are higher and therefore the offer cap is lower. If the $2,199 per MW-year offset were eliminated, net revenues would be lower, net CONE would be higher and the offer cap would be higher. The offer cap would be higher by $2,199 per MW-year times the balancing ratio. Using the balancing ratio from the 2021/2022 BRA of 0.785, the offer cap would be higher by $4.73 per MW-day, or 1.86 to 2.99 percent, depending on the market seller offer caps by zone for the 2021/2022 delivery year.

D. PJM Has the Responsibility to Procure Reactive Supply for Its Customers.

The OATT includes a modified form of Schedule 2 of the Pro Forma Tariff, which provides for the procurement of reactive capability. Schedule 2 to the OATT defines PJM's responsibilities as transmission provider responsible for procuring reactive supply, including determining the "amount of Reactive Supply … that must be supplied with respect to the Transmission Customer's transaction … based on the reactive power

support necessary to maintain transmission voltages within limits that are generally accepted in the region and consistently adhered to by the Transmission Provider." Schedule 2 further provides that PJM "administer the purchases and sales of Reactive Supply."

As the Transmission Provider, PJM must ensure that it has sufficient reactive supply (MVAr) to reliably operate the system. Some reactive capability is provided by transmission assets, such as capacitors. Procurement of capacitors and similar transmission system equipment is performed through the PJM regional transmission expansion planning process.

Reactive capability is also provided by generating units. Generating units produce and absorb MVArs as needed to maintain voltage at the appropriate level.

PJM is required to procure reactive supply from generating resources on a nondiscriminatory basis. Rather than attempt to determine unit by unit how much reactive supply is necessary, PJM has established a requirement that all generating units have sufficient capability, measured by a power factor, in order to receive interconnection service.[30]

The requirement is set at 0.95 leading to 0.90 lagging for synchronous units and at least 0.95 leading to 0.95 lagging for non-synchronous units.[31] The requirement is consistent with Commission's Rules that specify a minimum power factor range of 0.95 leading and 0.95 lagging power factor unless the market operators' rules specify otherwise.[32] The Commission has recently extended the interconnection service reactive

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[30]   *See* OATT Part IV and VI & Attachment O § 4.7.1.1; *see also* PJM Manual 14-D § 5.2.1.

[31]   *Id.*; OATT Attachment O § 4.7.1.1.

[32]   See 18 CFR § 35.28(f)(1); see, e.g., Standardization of Generator Interconnection Agreements and Procedures, Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 542 (2003), pro forma Large Generator Interconnection Agreement (LGIA) § 9.6 & Appendix G, pro forma Small Generator Interconnection Agreement (SGIA) § 1.8 & Appendix G, which can be accessed at: *<https://www.ferc.gov/industries/electric/indus-act/gi/stnd-gen.asp>*.

capability standard to wind and solar units, which previously had been exempt.[33] PJM confirms that the reactive capability interconnection requirement constitutes PJM's determination of the requirement for reactive supply pursuant to Schedule 2 of the OATT.[34]

The lagging power factor at maximum output is widely accepted as the measure of a unit's reactive capability.[35] As a result, this power factor is incorporated in the allocation factors for reactive and thus the revenue requirement for reactive capability.

PJM must test units to obtain an accurate measurement of the reactive power that can be delivered by a generating unit.[36] PJM relies upon tests, conducted under normal system operating conditions, to populate its database on the reactive capability of units made available to system operators.[37]

II. ARGUMENT

A. Panda Stonewall Has the Burden of Proof to Show that Its Proposed New Rate Is Just and Reasonable.

Section 205 of the Federal Power Act provides, "At any hearing involving a rate or charge sought to be increased, the burden of proof to show that the increased rate or charge is just and reasonable shall be upon the public utility."[38] In this proceeding, Panda Stonewall's has filed a new rate pursuant to Schedule 2 of the OATT, which necessarily

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[33] *See Reactive Power Requirements for Non-Synchronous Generation*, Order No. 827, 155 FERC ¶ 61,277 (2016).

[34] *See* IMM-006.

[35] PJM Manual 14D (Generator Operational Requirements) Attachment D at 114 ("MW value at point 7 should be equal to the typical maximum economic output of the unit.").

[36] *See* PJM Manual 14D (Generator Operational Requirements) § 7.3.4 & Attachments D & E, Rev 44 (June 1, 2018).

[37] *See id.*

[38] 16 U.S.C. § 824d(e).

increases PJM's rates to customers for reactive supply. Accordingly, the burden of proof is exclusively Panda Stonewall's.

1. Panda Stonewall Must Show No Double Recovery.

To be just and reasonable, Panda Stonewall must demonstrate that that its proposed new rate is consistent with requirements of Schedule 2, and, further, that they are consistent with the market design and framework of which Schedule 2 is but one component.[39] Customers' bills include charges for all of the products and services received through PJM. Recovery of costs through cost of service reactive rates costs that are recoverable under other market rules constitutes double recovery and is not just and reasonable. Panda Stonewall cannot properly file rates pursuant to the OATT that are inconsistent with rates for capacity charged under the OATT. Panda Stonewall has the burden to show that the costs it seeks to recover through reactive rates are not already recoverable under PJM's market rules for other markets, including the capacity market.[40]

The Courts have held that the Commission must demonstrate there is no double recovery when finding a rate just and reasonable, and, in particular, where, as in this case, the parties "agree on the essential facts."[41] It follows that Panda Stonewall bears the

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[39]   *See Cal. Indep. Sys. v. Cal. Indep. Sys.*, 113 FERC ¶ 63,017 at P 33 (2005) ("In determining whether Amendment No. 60 is just, reasonable and not unduly discriminatory as filed, however, ISO's threshold burden is not strictly confined to the *changes* the amendment proposes to the previously-approved tariff; it extends as well to the amendment's operational impact on previously-approved tariff provisions that the amendment does not propose to alter."), citing, e.g., *ISO New England, Inc.*, 95 FERC ¶ 61,384 at 62,440–41 (2001).

[40]   *See Midwest Independent Transmission System Operator, Inc., PJM Interconnection, LLC, et al.*, 116 FERC ¶ 63,030 (2006) ('The burden of proof should be on the proponents of the compliance filing to demonstrate that inter-affiliate transactions resulted in revenues that should be included as lost revenues in the calculation of the SECA charges.*"); Xcel Energy Southwest Transmission Co., LLC*, 156 FERC ¶ 61,069 at P 6 (2016) ("from the equation in note 10 for the Commitment, Ratings and Fees column, it is not clear how XEST will keep from double recovering the Revolving Credit Commitment Fee").

[41]   *See* United Airlines, Inc. v. FERC, 827 F.3d 122, 136 (2016) ("As to the merits, we hold that FERC has not provided sufficient justification for its conclusion that there is no double recovery of taxes for

burden to prove its case to the Commission. Panda Stonewall does not dispute the facts showing a double recovery. Instead, Panda Stonewall has sought to ignore or deflect the issue.

2. Panda Stonewall Must Show PJM Needed Capability at a 0.85 Power Factor.

To be just and reasonable, Panda Stonewall must show that the costs it incurred to provide reactive supply are consistent with the costs that must be incurred to meet the requirements for the amount reactive supply that PJM determines is needed from generating units under Schedule 2. Panda Stonewall has no independent authority to determine the level of reactive supply needed under Schedule 2. Panda Stonewall has no franchise customers that it is obligated to serve. Panda Stonewall's customer for reactive supply is PJM. Panda Stonewall does not have the discretion to exercise "prudence." Panda must show that it incurred costs only as justly and reasonably necessary to provide the reactive supply that PJM is authorized under Schedule 2 of the OATT to procure.

Even if this proceeding were a situation where Panda Stonewall have the discretion to make a decision requiring the exercise of prudence, Panda Stonewall would still have the burden of proof as the record of this proceedings stands. The Commission explains:

> Prudence—or rather the lack thereof—is one of the reasons why a cost may be excluded from recovery to prevent a rate from being unjust and unreasonable. A prudence challenge is limited to addressing the specific issue of whether an expense was prudently incurred, and so the shifting burden in prudence challenges is unique to that type of challenge. Under long-standing precedent, to make rate cases manageable, at the outset, the utility has no burden to prove the prudence of its expenditures when it seeks to recover those expenditures through a proposed rate increase. Rather, management will be presumed to have acted prudently.

partnership pipelines receiving a tax allowance in addition to the discounted cash flow return on equity.").

The presumption of prudence, however, can be rebutted if any party produces evidence that creates 'a serious doubt as to the prudence of the expenditure.' Once such doubt is raised, the presumption dissolves, and the burden shifts to the utility to produce specific evidence to justify the prudence of the expense. [footnote omitted][42]

In this case, the Market Monitor has challenged the increase in costs resulting from Panda's decision to develop a facility with a 0.85 power factor instead of the 0.90 power factor that PJM required. Any presumption of Panda Stonewall's decision to incur costs to obtain a 0.85 power factor has dissolved. Panda Stonewall's witnesses provide unrebutted record evidence that Panda Stonewall exercised discretion that unnecessarily and significantly raised its costs. If the Market Monitor's argument was characterized as prudence challenge instead of or in addition to a claim that Panda Stonewall did not comply with the specifications in Schedule 2 of the OATT, Panda Stonewall is still not entitled to compensation for capability above what PJM requested. Panda Stonewall would have the burden to explain how its decision to develop a plant with greater capability than PJM required was prudent.

B. Panda Stonewall Fails to Demonstrate That Its Proposed Rates Avoid Prohibited Double Recovery of Its Costs.

Under the existing rules, Panda Stonewall has the ability to recover a substantial portion of what Panda Stonewall characterizes as its cost of reactive capability through its market based rates and the PJM competitive wholesale power markets. Panda Stonewall's

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[42]   *Entergy Servs.*, 156 FERC ¶ 61,196 at P 27 (2016), citing *Min. Power & Light Co.*, 11 FERC ¶ 61,312, at 61,644 (1980); Anaheim v. FERC, 669 F.2d 799, 809 (D.C. Cir.1981); *PJM Interconnection, L.L.C.*, 140 FERC ¶ 61,197 at P 29 & n.21 (2012) ("While PSE&G is correct that it does not have to establish the prudence of an expenditure in its case-in-chief, this presumption of prudence can be rebutted at hearing whenever another party 'creates serious doubts as to the prudence of an expenditure.'" internal quotations omitted); *see also Potomac-Appalachian Transmission Highline, LLC*, 158 FERC ¶ 61,050 at P 100(2017) ("Serious doubt must be more than a 'bare allegation of imprudence,' but this threshold may not be so demanding that it effectively reverses the statutory burden of proof.").

compensation in this case should be limited to a maximum of $2,199 per MW-year as a result.

The PJM market rules explicitly account for recovery of reactive revenues of $2,199 per MW-year. Reactive capability rates up to that level do not result in double recovery. Reactive capability rates above that level do result in double recovery because costs that would support a rate exceeding $2,199 per MW-year continue to be recoverable in the PJM Capacity Market.

Market Seller Offer Caps are directly affected by the treatment of reactive revenue. If there were no nonmarket recovery of reactive revenue, there would be no reactive revenue offset to net CONE and the default market seller offer cap would be higher. Unit owners could increase their offers to recover reactive capability costs if they believed that the offer would be competitive. If there were no nonmarket recovery of reactive revenue, the resultant higher offer cap would give unit owners the opportunity to recover all reactive capability costs in the capacity market.

This is how the capacity market works for all the other costs of a generating plant other than short run marginal costs.

If there were no ancillary services revenue offset, reactive costs would be entirely addressed in the PJM Capacity Market. Unit owners would have the ability to offer capacity at prices up to and including the offer cap and to make a competitive offer including all the relevant costs of generation.

If there were no ancillary services revenue offset, the shape and location of the VRR curve would give unit owners the opportunity to recover all reactive capability costs in the capacity market.

Panda Stonewall argues, "[W]hether, or how, PJM's markets provide generators compensation for reactive power in addition to the monthly cost-of-service payment generators receive from a transmission provider pursuant to Schedule 2 is irrelevant."[43]

That Panda Stonewall already recovers in other rates the costs it seeks to recover in the rate proposed here is plainly relevant to whether the proposal is just and reasonable. If Panda Stonewall sought to recover the same costs in a cost of service rate for capacity and a cost of service rate for reactive, it would be clear that the proposed rate would double recover costs and therefore be unjust and unreasonable. The fact that there are two different regulatory approaches in the PJM Market Rules for recovery of the same costs does not change the result that this is double recovery.

The Commission has recognized the relevance of the issue associated with a "resource receiving cost-based rate recovery while concurrently receiving compensation for market-based rate services involves potential double recovery of costs borne by the relevant cost-based ratepayers."[44] The Commission plainly states: "the potential for combined cost-based and market-based rate recovery to result in double recovery of costs" is an issue that "should be addressed."[45] The Commission has evaluated solutions, including but not limited to, "crediting any market revenues back to the cost-based

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[43]   *See* Notice Regarding Panda Stonewall's Motion for Partial Summary Disposition, Docket No. ER17-1821-002 (Aug. 29, 2018) at 1–2, 4.

[44]   *Utilization of Electric Storage Resources for Multiple Services When Receiving Cost-Based Rate Recovery*, 158 FERC ¶ 61,051 at P 15 (2017) ("Cost-Based Recovery Policy Statement"); ; *see also, Transwestern Pipeline Company*, 52 FERC ¶ 61,100 (1990) ("held that Transwestern could not file to recover costs incurred after market-based GIC rates were in effect").

[45]   *Id*. at P 13.

ratepayers."[46] The Commission stated its general policy: "Any solution would need to comport with cost-of-service precedent."[47]

The Commission further identified the need to tailor a solution to cases where there is a full or partial double recovery:

> [T]his market-revenue offset can be used to reduce the amount of the revenue requirement to be used in the development of the cost-based rate. This up-front rate reduction would also help ensure that the cost-based rate remains just and reasonable and provide the electric storage resource owner or operator with an incentive to estimate market revenues as accurately as possible. In this scenario, the need for crediting of market revenues could be proportionally reduced as well. In other words, full cost recovery through cost-based rates may require full crediting of projected market revenues; no cost recovery through cost-based rates would require no crediting of projected or actual market revenues; and partial cost recovery through cost-based rates could require partial crediting of market revenues. For example, if the cost-based rate is based on 25 percent of the asset's full cost-of-service, then perhaps only 25 percent of market revenues would need to be credited to cost-based ratepayers.[48]

In this case, Panda Stonewall makes no attempt to reconcile its proposed cost of service rates with the concurrent recovery of costs in PJM markets. Panda Stonewall refuses to recognize that there is even an issue, as though its cost of service rate were filed in a vacuum. The double recovery issue cannot be ignored, and the provision of PJM market rules that addresses double recovery, the $2,199 offset, must factor into the determination of whether Panda Stonewall's proposed rate is just and reasonable.

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[46]   *Id*. at P 15.

[47]   *Id*. P 19, citing *The Nev. Hydro Co. Inc.*, 122 FERC ¶ 61,272 (2008) (at P 83: "allowing LEAPS to receive a guaranteed revenue stream through CAISO's [Transmission Access Charge] would create an undue preference for LEAPS compared to these other similarly situated pumped hydro generators"); *Western Grid Dev., LLC*, 130 FERC ¶ 61,056, *reh'g denied*, 133 FERC ¶ 61,029 (2010).

[48]   *Id*. at P 18.

In PJM, the allocation that results from the *AEP* Method is between cost of service rates for reactive power and market based rates for generators and all their costs. The PJM market rules explicitly account for the recovery of a defined amount of reactive costs under a cost of service rate. It is essential that the reactive costs recovered under the cost of service rates not exceed that defined amount. The balance of reactive costs is assigned to the markets. In the PJM market rules, successful application of the *AEP* method continues to depend upon a proper and nonduplicative allocation of costs between two rates.

In this case, no rate should be approved under one part of the PJM market design (OATT Schedule 2) that is inconsistent with the rest of the existing PJM market design. The Cost-Based Recovery Policy Statement recognizes (at P 19) that multiple options to address double recovery are possible. PJM has filed and the Commission has approved an approach including an offset that is not at issue here. This case takes that prevailing hybrid regulatory regime as it exists, but the need for a proper reconciliation of different regulatory approaches remains to ensure just and reasonable rates. Ignoring the problem will not produce a just and reasonable result.

The PJM Market Rules provide for reconciliation between cost of service reactive rates and market rates by including a $2,199 per MW-year offset in market rates to account for the recovery of reactive costs through cost of service rates. Under Schedule 2, Panda Stonewall cannot show that its proposed rate is just and reasonable without also showing that its proposal is consistent with the existing PJM market rules. Panda Stonewall cannot make such showing if its proposal conflicts with fundamental ratemaking principles prohibiting double recovery.[49]

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[49]   *See, e.g.,* United Airlines, F.3d 122, 134 ("because FERC failed to demonstrate that there is no double-recovery of taxes for partnership, as opposed to corporate, pipelines, we hold that FERC acted arbitrarily or capriciously"); Cal. ex rel. Harris v. FERC, 784 F.3d 1267, 1276 (2015) ("Obviously, parties are not entitled to double recovery"); *see also Wabash Valley Power Association, Inc.,* 154 FERC ¶ 61,246 at P 24 (2016) ("Allowing recovery of fixed costs related to heating losses as part of the variable heating loss component would amount to double recovery of fixed costs for

At hearing the Presiding Judge explained to Market Monitor witness Dr. Bowring, "if there's a double recovery, then I'd want to see the double recovery… if there's a theoretical possibility of a double recovery, it's different than there has definitely been a double recovery."[50] Dr. Bowring replied, "It's not a theoretical question versus a practical question. I'm simply saying [whether they've actually recovered some specific level of costs is] not relevant when you think about the market because there's no guarantee of the recovery."[51]

Double recovery is a ratemaking concept that has traditionally been applied to a situation where there are two or more rates, both of which are calculated under the cost of service approach. That situation does not exist in PJM because most rates in PJM are a result of competitive prices determined in PJM markets.

With a cost of service rate, the cost number is defined precisely and the method of cost recovery is defined in accounting terms. With market based rates, unit owners have the opportunity to recover costs from the markets but there is no defined revenue or cost number that must be recovered, or a defined accounting method for recovery. Double recovery exists when specific costs are included in a cost of service rate and the opportunity to collect the same costs exists under market based rates. The opportunity is explicitly built into the PJM capacity market design through the VRR curve and the net CONE offer cap.

Under market based rates, unit owners receive revenues but the revenues are not uniquely associated with specific costs. For example, if a unit receives $300 per MW-day in revenues over a year, it cannot be stated whether this covers the reactive fixed costs or

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heating losses because those fixed costs are already included in the reactive power portion of the production plant investment."); *SFPP, L.P.,* 162 FERC ¶ 61, 228 (2018); *Inquiry Regarding the Commission's Policy for Recovery of Income Tax Costs*, 162 FERC ¶ 61,227 (2018).

[50]   Tr. at 1757:2–7.

[51]   Tr. at 1758:1–7.

all the other fixed costs. If the unit's total costs are $400 per MW-day, it cannot be stated whether the shortfall is for reactive fixed costs or all other fixed costs.

When markets replaced cost of service regulation, the opportunity to recover costs replaced the accounting recovery of specifically identified costs. That fact makes actually demonstrating double recovery in an accounting sense impossible. But that does not mean that double recovery does not result when the same costs are in cost of service rates and recoverable in market based rates. Double recovery results by definition when the same costs are in cost of service rates and recoverable in market based rates.

The courts have not required mathematical analyses, but have instead addressed the theory and concepts.[52] The Commission has not rejected arguments about double recovery because they could not be quantified, but because the Commission did not agree that the conflict existed in the rules.[53]

PJM market rules provide for the opportunity to recover the costs of reactive power capability in two ways: through the definition of the demand curve for capacity

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[52] *See* United Airlines, 827 F.3d 122, 136 ("Despite their attempts to inundate the record with competing mathematical analyses of whether a double recovery of taxes for partnership pipelines exists, the parties do not disagree on the essential facts. First, unlike a corporate pipeline, a partnership pipeline incurs no taxes, except those imputed from its partners, at the entity level. [citation omitted] Second, the discounted cash flow return on equity determines the pre-tax investor return required to attract investment, irrespective of whether the regulated entity is a partnership or a corporate pipeline. [citation omitted]. Third, with a tax allowance, a partner in a partnership pipeline will receive a higher after-tax return than a shareholder in a corporate pipeline, at least in the short term before adjustments can occur in the investment market."). Consistent with *United Airlines*, the Commission has identified a double recovery between two components of a cost of service rate, where one component (DCF analysis) served as a substitute for estimated market revenues. *See SFPP, L.P.*, 162 FERC ¶ 61,228 at P 22 (2018) ("[T]he Commission finds that a double recovery results from granting an MLP such as SFPP an income tax allowance and a DCF ROE. This finding is based upon the following: MLPs and similar pass-through entities do not incur income taxes at the entity level. Instead, the partners are individually responsible for paying taxes on their allocated share of the partnership's taxable income.")

[53] *PJM Interconnection, L.L.C.*, 158 FERC ¶ 61,133 at P 125 (2017) ("We also note that Additional Labor Costs are not allowed to be recovered through the ACR; therefore, we reject the IMM's argument that including these components in cost-based offers could raise market power concerns or create an unreasonable double recovery between the two markets.").

and through the default market seller offer cap. This is exactly the same way that PJM market rules provide for the opportunity to recover all the costs of capacity resources.

One of the key parameters of the demand curve for capacity, the Variable Resource Requirement (VRR) curve, is the net cost of new entry or net CONE. Net CONE affects the location and shape of the demand curve for capacity and thus the clearing price for capacity. Net CONE equals the gross cost of new entry for the reference unit technology less the revenues from energy and ancillary services revenues that offset that cost. The energy market revenues are calculated based on the dispatch of the reference unit against historical locational marginal price (LMPs) for the last three years and the revenues for ancillary services (reactive only) are included in the tariff as a fixed number, $2,199 per MW-year.

The $2,199 offset is a simple rule that established a just and reasonable reconciliation of different regulatory approaches in the same market design. The offset assumes a defined level of revenues are received under cost of service rates and nets them from the parameters used in the capacity market. Those parameters define the operation of the market so that just and reasonable capacity prices are established. Reactive rates cannot be just and reasonable if they do not account for the market design in which PJM units operate.

The current PJM market rules provide for concurrent cost of service and market based regulation. The best approach would be to eliminate cost of service rates and rely on markets, but that is not an option in this proceeding. The Market Monitor instead advocates the only approach within the framework of the current rules that allows the hybrid regulatory approach to operate in a just and reasonable manner.

C. Panda Stonewall Fails to Show That PJM Needs Reactive Capability from Generating Units in Excess of a 0.90 Power Factor.

Panda Stonewall includes a measure of reactive capability, a lagging power factor of 0.85.[54] Panda Stonewall witnesses testify that Panda Stonewall took deliberately designed and constructed a generating unit with a 0.85 power factor, and that by doing so, it incurred increased costs compared to what it would have incurred if it had instead opted for a 0.90 power factor.[55] Panda Stonewall never alleges, much less shows, that PJM determined it needed the Panda Stonewall facility to obtain a 0.85 power factor.[56] Panda Stonewall never claims to have raised the issue with PJM.[57] Panda Stonewall does not allege that any discussions occurred with PJM concerning a need for 0.85 power factor or any special power factor rating.[58]

PJM requires that all generating units have a 0.90 power factor in order to obtain interconnection service.[59] PJM confirms that the 0.90 power factor interconnection service requirement constitutes the required determination under schedule 2 of the OATT.[60]

Panda Stonewall should not calculate its rate under the *AEP* method based on a power factor exceeding the 0.90 power factor that PJM has determined is necessary.

To allow Panda Stonewall to determine the level of reactive capability it wants to provide contradicts basic ratemaking principles, which may include consideration of

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[54]   Exh. PS-043 at 53:1–3.

[55]   Exh. PS-034 at 21 n.1; Exh. IMM-004 at 50:7–11.

[56]   *See* Tr. at 642:1–16; 1216:21–1217:11.

[57]   *Id.*

[58]   *Id.*

[59]   *See supra* footnote 27.

[60]   *Id.*

whether an investment is prudent.[61] There is an obvious moral hazard in permitting a seller to recover costs incurred at its sole discretion under a regulated cost based rate.

When asked whether "Panda would operate differently if there were no cost-of-service rate," Panda Stonewall Witness Sotkiewicz explains: "The incentives would change in so far as the decisions on how much—on generator investment and the power factor, beyond anything, at minimum, that they're required to install, per the interconnection service agreement."[62] The cost of service ratemaking approach incents owners to invest in greater capacity than needed. The tariffs protects customers by assigning the decision on the level of capacity required to PJM, the independent RTO, who receives no direct benefit from expenditures for unneeded capability.

Panda Stonewall Witness Wofford testified that the decision on the power factor at a plant affects the cost of plant:

> It is important to compare plants with the same power factor because the power factor rating affects the design and construction, and thus the cost of the generator/exciter. A unit with a power factor rating of .85 vs .90 will cost more due to material within the generator/exciter and cooling needs for the components.[63]

Panda Stonewall Witness O'Connell testifies that Panda Stonewall responded to the incentive to investment in greater reactive capability than needed. Witness O'Connell was asked: "what about the technologies of those two facilities, in comparison to Panda Stonewall, leads Panda Stonewall to have a revenue requirement that is roughly three times that of the two other plants?"[64] Witness O'Connell explained: "There are a couple of major differences. One is that Panda Stonewall is a .85 power factor generator, three

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[61]   *See supra* Section 1.A.2.

[62]   Exh. IMM-003 at 129:11–15.

[63]   Exh. PS-034 at 21 n.1.

[64]   Exh. IMM-004 at 49:6–10.

generators. Panda Liberty and Panda Patriot are .9 factor generators. That materially changes one of the allocation factors."[65] PJM has determined that a 0.90 power factor meets its needs. Panda Stonewall should not usurp PJM's role and make a decision that has an impact on its reactive capability revenue requirement, whether it contributes to a 300 percent increase, as Witness O'Connell testifies, or some lesser increase.[66] Such a decision would never weather a prudence review. There is no prudence review in this case, because the level of reactive capability is not Panda Stonewall's decision in the first place. Any such prudence review would apply to PJM's determination that it needs 0.90.

It is unjust and unreasonable to permit Panda Stonewall to calculate a reactive capability rate based on a level of capability that exceeds what PJM has determined it needs. In this case, uncontradicted record evidence shows that Panda Stonewall could have acquired the capability that PJM needs, but instead made a conscious decision to acquire more than PJM needs, and that such decision had a "major" impact on and "materially changes" the revenue requirement.[67] It is unjust and unreasonable, particularly based on the record of this proceeding, for Panda Stonewall to apply a capacity factor greater than 0.90.

III. CONCLUSION

The Market Monitor respectfully requests that the Commission afford due consideration to these comments on brief as the Commission resolves the issues in this proceeding.

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[65]   Exh. IMM-004 at 50:7–11.

[66]   *Id.*

[67]   *See id.*

Respectfully submitted,

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Dated: December 6, 2018

CERTIFICATE OF SERVICE

      I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Eagleville, Pennsylvania,
this 6th day of December, 2018.

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