UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.	)	Docket No. ER21-1591-000

PROTEST OF THE INDEPENDENT MARKET MONITOR FOR PJM

Pursuant to Rule 211 of the Commission's Rules and Regulations,[1] Monitoring Analytics, LLC, acting in its capacity as the Independent Market Monitor ("Market Monitor") for PJM Interconnection, L.L.C. ("PJM"),[2] submits this protest to the filing submitted by PJM Interconnection, L.L.C. ("PJM") on April 1, 2021, that proposes market rules relating to the use of Real-Time Values ("April 1st Filing"). Using the current Real-Time Values (RTVs) functionality in the PJM systems, generators submit long notification times to avoid real-time unit commitment based on the parameter limits required of them as Capacity Performance resources, violating Operating Agreement, Schedule 1, Section 6.6. Instead of preventing this behavior, the April 1st Filing creates new rules that allow the behavior to persist without consequences. The April 1st Filing would modify the tariff to allow this exercise of market power through the use of inflexible parameters.

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1 18 CFR § 385.211 (2019).

2 Capitalized terms used herein and not otherwise defined have the meaning used in the PJM Open Access Transmission Tariff ("OATT"), the PJM Operating Agreement ("OA") or the PJM Reliability Assurance Agreement ("RAA").

I. BACKGROUND

A. Unstaffed Units

When PJM implemented the Capacity Performance ("CP") capacity market design, a number of market sellers chose to upgrade their resources, firm up their fuel supply, and increase their staffing to meet the heightened expectations of, and increased incentives for, flexibility and availability. Others chose to bear the risk of financial penalties rather than investing in their resources. One of the expectations of a CP resource is availability to start based on physical operating capability. Many owners of quick starting peaking units such as combustion turbines (CTs) or Reciprocating Internal Combustion Engines (RICE), chose to invest in remote start capability to meet this expectation. Those that did not can only meet the required physical operating parameters by staffing their units. But a number of generators have chosen to neither invest in remote start capability nor to staff their units much of the time.

Unstaffed units can submit long enough notification times in price-based offers that the real-time unit commitment process will not call on them. Some units have submitted cost-based offers and price-based parameter limited offers with the required six minute notification time even when they cannot meet it, thereby submitting false or misleading information to PJM.[3] Others have used RTVs to regularly override the parameter limits in the cost-based and price-based parameter limited offers. With RTVs, PJM has the correct information on the notification time, but the unit violates its obligation as a capacity resource, defined in the Operating Agreement.[4] Both cases involve a market violation.

After the Market Monitor raised issues with the failure to accurately report notification times for unstaffed units, PJM began directing unstaffed units to use RTVs. PJM

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[3] The Commission's market behavior rules prohibit submitting false or misleading information to the RTO. 18 CFR § 35.41 (b).

[4] OA Schedule 1, Section 6.6.

then initiated a stakeholder process in late 2019 to address this issue.[5] PJM noted early in the stakeholder process that lack of staffing was not an intended use for Real-Time Values.[6] The April 1st Filing states (at 5) that RTVs are "not intended to be a mechanism for Market Sellers to consistently override resources' unit-specific parameters." Yet, the April 1st Filing does not prohibit or define consequences for the specific behavior of concern, the routine use of RTVs to override the notification times for unstaffed CTs. Instead, the April 1st Filing defines and ratifies the inappropriate behavior.

B. Parameter Limited Schedules

In PJM, the intent of having schedules with parameter limits is to prevent the exercise of market power through the use of inflexible generator offer parameters. Inflexible offer parameters can be used to exercise market power in at least two ways. Inflexible parameters can be used to increase uplift payments. Inflexible parameters can be used to withhold in the energy market, forcing PJM to commit more expensive generation, and increasing LMPs. For example, units may use longer start time, longer minimum run time, and longer minimum down time parameters to prevent dispatch compared to the dispatch that would occur with more flexible parameters.

1. Capacity Performance and Unit Specific Parameter Limits

Under the energy market reforms that were accepted by the Commission in parallel to the Capacity Performance ("CP") reforms, units are subject to parameter limits based on the physical capability of resources, with the expectation that resource owners invest in enhancements to improve resource flexibility.[7] [8] [9] In PJM, a schedule is an offer. In the

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5 *See* "Real Time Values Problem Statement," <https://www.pjm.com/-/media/committees-groups/committees/mrc/20191205/20191205-item-06-real-time-values-problem-statement.ashx>.

6 *See* "Real Time Value Overview," PJM presentation to the Market Implementation Committee (January 31, 2020), at 10, <https://www.pjm.com/-/media/committees-groups/committees/mic/2020/20200131-special/20200131-item-03a-rtv-overview.ashx>.

7 151 FERC ¶ 61,208 at P. 433.

energy market, all operating parameters in cost-based schedules and price-based PLS schedules must be at least as flexible as the limits approved by PJM. Price-based PLS schedules are used by PJM when there are expected high demand days or expected emergency actions as signaled by declaring a hot weather alert, a cold weather alert, a maximum generation emergency alert, or a more severe alert.[10] Both types of parameter limited schedules use unit specific parameters that are either proxy parameters by technology type, or based on a unit specific review and approval by PJM.[11]

PJM dispatches, commits, and provides uplift to units according to the parameter values in the schedule offered by units and selected by PJM in the unit commitment process. For example, if PJM commits a unit that has a two hour minimum run time, PJM will operate the unit for a period of at least two hours and pay uplift if needed to ensure that revenues from market prices plus uplift cover the unit's costs calculated for the commitment period of at least two hours.

2. Exceptions to Unit Specific Parameter Limits

The April 1st Filing explains (at 3), that the PJM tariff allows resources that have physical equipment issues or constraints due to gas pipeline restrictions or certain environmental permit limits, to submit exceptions to the approved parameter limited schedules. This ensures that for defined issues, verified by documentation from the market

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8 OA Schedule 1, Section 6.6 (c).

9 *See* PJM, "Capacity Performance Unit Specific Parameter Adjustment FAQs," at FAQ #15, which can be accessed at <*https://pjm.com/-/media/committees-groups/committees/elc/postings/20150715-cp-unit-specific-adjustment-request-faqs.ashx*>.

10 *See* PJM Manual 11 (Energy & Ancillary Services Market Operations) § 2.3.4.5, Rev. 113 (Mar. 29, 2021).

11 *See* PJM, "Unit-Specific Minimum Operating Parameters for Generation Capacity Resources," which can be accessed at <*http://www.pjm.com/~/media/committees-groups/committees/elc/postings/20150612-june-2015-capacity-performance-parameter-limitations-informational-posting.ashx*>.

seller, units are made whole when committed based on the temporary inflexible parameters.

The PJM tariff defines three types of parameter limit exceptions: temporary, period, and persistent.[12] Temporary exceptions are submitted for up to 30 days for short term equipment, gas pipeline, and other physical issues. Period exceptions are for issues that last longer than 30 days but less than one year. Persistent exceptions are for issues that last longer than one year. Temporary exceptions are submitted in Markets Gateway, the generation bidding tool in PJM, and are accepted without prior approval, but must submit supporting documentation within three business days.

3. Real-Time Values

Real-Time Values (RTV) were implemented in PJM's Markets Gateway, the generator bidding tool, in June 2016. Real-Time Values allow generators to communicate operational restrictions to PJM via their energy offer operating parameters.[13] RTVs were introduced in order to require generators to keep PJM operators informed of generator restrictions when those restrictions violate the rules for temporary exceptions. RTVs were not introduced to provide a mechanism to avoid the rules for temporary exceptions, which is what the April 1st Filing proposes. The temporary exception process already meets the need identified by PJM.

Unlike temporary exceptions, Real-Time Values are not defined in the tariff but only in Manual 11. Market sellers are not required to submit supporting documentation to explain the reason for submitting inflexible parameters on their parameter schedules using Real-Time Values or to justify that reason as a physical or actual constraint.

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12 OA Schedule 1 § 6.6(i).

13 *See* PJM, "Real Time Values Problem Statement," <*https://www.pjm.com/-/media/committees-groups/committees/mrc/20191205/20191205-item-06-real-time-values-problem-statement.ashx*>.

To avoid excessive uplift payments that would result from the submitted inflexible parameters, resources using Real-Time Values are not paid uplift based on the RTV parameters unless the market seller can justify, after the fact, that their operation was a result of an actual and valid constraint.[14]

RTVs were originally intended to be used to reflect changes to the turn down ratio for equipment and emissions testing. [15] Using RTVs for these purposes allowed generators to communicate the capability of the unit to PJM during testing without requiring the payment of associated uplift from running the units for routine testing. However, Real-Time Values have been misused to reflect ongoing operational preferences that are deliberate, and completely under the control of the market seller.[16]

II. PROTEST

A. PJM's Proposed Rules Do Not Protect Against Exercise of Market Power.

PJM's filing on Real-Time Values would create a significant and inappropriate loophole in the current rules governing offer parameters and the exercise of market power.

The tariff requires the use of flexible parameters in cost-based offers and price-based PLS offers. Currently, Real-Time Values allow market sellers to avoid offering generation with flexible parameters when market sellers fail the TPS test for local market power or during high load conditions when price-based PLS offers are used. But this practice is not allowed under the Operating Agreement. For example, Real-Time Values are frequently used to extend the notification time of combustion turbines (CTs) that are not staffed and

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14 *See* OA Schedule 1, Section 3.2.3 (e).

15 *See* PJM, "Real Time Values Problem Statement," <*https://www.pjm.com/-/media/committees-groups/committees/mrc/20191205/20191205-item-06-real-time-values-problem-statement.ashx*>.

16 *See* "Real Time Value," PJM presentation to the Markets Implementation Committee Special Session. (January 31, 2020) <https://pjm.com/-/media/committees-groups/committees/mic/2020/20200131-special/20200131-item-03a-rtv-overview.ashx>.

cannot start remotely. This condition is not unforeseen, does not result from an event in real time and is under the control of market sellers. These extended notification times result in removing these quick start units from available supply in the energy market, forcing PJM to commit other units.[17] As a result, units that offer their true physical capability are committed more frequently and the market has less flexibility to meet short term increases in demand at the lowest cost.

The April 1st filing includes a proposed rationale for Real-Time Values, but asserts a false equivalency between the standards applicable to temporary exceptions and Real-Time values, stating (at 8) that "Real Time Values simply provides another vehicle for Generation Owners to provide the most up-to-date parameter information to PJM should deviations be necessary."

The April 1st Filing's argument suggests that Real-Time Values are simply an extension of temporary parameter exceptions to real-time submissions. They are not. The PJM tariff requires that every temporary exception be justified after the fact, but within a defined time frame, based on the physical conditions at a unit that led to the exception. For example, a resource owner's economic choices to not cycle a unit to avoid wear and tear, or to not staff a unit to cut costs, are not valid physical reasons. The temporary exception process balances the need to require flexible parameters with the ability to reflect changes to the capability of a unit due to unforeseen issues. The April 1st Filing's proposes a weaker form of temporary exceptions. There is no reason to weaken the temporary exception rules. The filing should have proposed to tighten the rules related to the use of RTVs. There is no reason to expand on the existing limited purpose of RTVs or to ratify their misapplication. The rules for Real-Time Values proposed in the April 1st Filing only require certification and

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[17] PJM's Intermediate Term Security Constrained Economic Dispatch (IT SCED) tool is used to commit units to meet load subject to constraints in the near time look ahead window. IT SCED can only commit units that have a time to start of less than two hours and minimum run time of less than two hours.

supporting documentation of a physical operational limit on a handful of days with weather alerts and maximum emergency generation alerts.[18]

The April 1st Filing does not offer any protections from market sellers that choose to withhold their resource on days without weather alerts or maximum emergency generation alerts. The April 1st Filing ignores the fact that RTVs can be used to override parameters in the cost-based offers that market power mitigation rules rely on to prevent the exercise of market power. The April 1st Filing relies on an unsupported assumption that market power cannot be exercised when PJM does not declare emergency alerts, but PJM routinely calls on CTs to operate for local congestion and for load increases that occur on days without emergencies or alerts. The April 1st Filing would add rules defining and ratifying behavior that is currently exploiting RTVs.

PJM (at 2) agrees that the tariff requires market sellers to offer, in their parameter limited schedules, operating parameters at least as flexible as the operating parameter limits approved by PJM. If implemented correctly, this requirement would not allow market sellers to exercise market power through physical withholding by using inflexible operating parameters in their cost-based offers. On days when weather alerts or maximum emergency generation alerts are declared, PJM would have the ability to commit units on their price-based parameter limited schedules to limit market sellers' ability to exercise market power using inflexible parameters. When market sellers fail the market power test or PJM commits a unit for reliability on any operating day, PJM would have the ability to commit them on their cost-based offer, which is also parameter limited. The market rules ensure that these parameter limited schedules reflect the unit specific parameter limits. The market rules also provide for modifying these parameters when there is an unforeseen physical issue that affects a unit and that is defined and documented through the temporary exception process.

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[18] April 1st Filing at 10–11.

If the only shortcoming of the current temporary exception process is that there is a requirement to submit them at least one business day before the operating day, the simple solution is to remove that requirement, and permit real-time submissions for temporary exceptions. This would let resources communicate to PJM their changed operational capability without delay, while maintaining the tariff requirements and standard for review that protect against withholding. Instead, the April 1st filing creates a new avenue to circumvent the market power protections in the PJM energy market.

Instead, the April 1st filing attempts to include in the PJM tariff, the current functionality that allows market sellers to avoid their operating parameter limits using RTVs. The April 1st filing argues, without supporting proposed tariff language, that it is implementing safeguards against its misuse. The April 1st filing fails to define what would be considered a misuse of Real-Time Values and it does not propose any safeguards to prevent its abuse. It should be rejected as unjust and unreasonable because it is unnecessary and undermines market power protections in the PJM energy market.

1. Evidence Shows Real-Time Values Are Consistently Used for Physical Withholding.

The April 1st Filing states (at 5) that Real-Time Values are "not intended to be a mechanism for Market Sellers to consistently override resources' unit-specific parameters" and that it proposes (at 9) rules to prevent "overuse" of Real-Time Values. To the contrary, the April 1st Filing ignores the evidence on the actual use of real-time values to evade the parameter rules, and the rules it proposes do not prevent market sellers from consistently and routinely overriding resources' unit specific parameters.

The Market Monitor analyzed the use of Real-Time Values in the PJM energy market in 2020. The analysis calculated, for all the CTs that submitted RTVs in 2020, the number of hours when the resources extended their notification times in the real-time energy market using lack of staffing as the justification. Table 1 shows the data for CTs that consistently

overrode their notification time parameter using Real-Time Values in 2020 for not staffing the units.[19] This group of units extended their notification time for 29 percent of the on peak hours and 57 percent of the off peak hours they were offered in the real-time energy market in 2020. The choice to not staff a unit and have it ready to start and then offering the extended time to start to avoid potential commitment is physical withholding.

Table 1 Real-Time Values used to extend time to start: 2020

Technology Type	Peak	Unit Hours with Extended Notification Time	Unit Hours Available	Percentage Available Unit Hours With Extended Notification
CT	Off Peak	77,893	136,306	57%
CT	Peak	29,672	102,839	29%
CT	Total	107,565	239,145	45%

The data show that extending notification times for unstaffed units is a primary use of RTVs. The April 1st Filing would define and ratify this common and inappropriate use of RTVs.

2. The Rules Proposed in the April 1st Filing Do Not Deter Physical Withholding.

The April 1st Filing proposes a number of rules to limit the "unintended overuse" of RTVs, but none of them will achieve the stated purpose. It is not clear what PJM considers "overuse" of RTVs. PJM misdefines the issue. Given the data on existing misuse of RTVs, none of the proposed rules would prevent the misuse from continuing to occur. Any such use is overuse. Unit owners engage in this behavior explicitly and consciously.

PJM limits the use of Real-Time Values to turn down ratio, minimum down time, minimum run time, maximum run time, start up time and notification time while not allowing other parameters like maximum daily starts and maximum weekly starts to have Real-Time Values. But this is not a limit or a safeguard. PJM Manual 11 currently makes

[19] The data is aggregated by technology type for confidentiality reasons.

these six parameters eligible for RTV submissions. The April 1st Filing adds this existing provision in Manual 11 to the tariff.[20]

The maximum daily starts and maximum weekly starts are calculated parameters that are derived from the other parameters such as start time, minimum run time and minimum down time. Therefore these parameters are not limited in any way by the PJM proposal. Allowing a unit to submit Real-Time Values to extend the start time, notification time, minimum run time, and minimum down time explicitly reduces the number of daily and weekly starts it can complete. The longer the start time, the fewer starts a unit can complete within a week. For example, if a unit increases its start time to 24 hours, it can only start six times a week. The same logic applies to minimum down time, minimum run time and notification time.

The April 1st Filing also proposes to limit the use of Real-Time Values so that each submission would only be effective for one day. This is also not a safeguard or limiting in any way. Market sellers can and do easily submit Real-Time Values daily. Most market sellers use automated tools to submit offer data for each of their resources into the PJM interface (Markets Gateway) multiple times a day. The Real-Time Value submission will simply be an additional set of fields that is submitted once per day.

The April 1st Filing claims (at 10) to propose new rules to limit the use of Real-Time Values to affect eligibility for uplift payments. However, this is not a new rule. The April 1st Filing is simply restating in a different section of the Operating Agreement, that market sellers that submit Real-Time Values are not eligible for uplift payments unless they can demonstrate after the fact that the reason for such operation was due to an actual constraint. Section 3.2.3 (e) of Schedule 1 of the PJM Operating Agreement already states:

> A Generation Capacity Resource that operates outside of its unit-specific parameters will not receive Operating Reserve Credits nor

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[20] April 1st Filing, Proposed OATT, Definitions, at 'Real Time Value'.

> be made whole for such operation when not dispatched by the Office of the Interconnection, unless the Market Seller of the Generation Capacity Resource can justify to the Office of the Interconnection that operation outside of such unit-specific parameters was the result of an actual constraint.

This rule will only deter the use of Real-Time Values if the units are committed using the inflexible parameters and ask to be made whole to the resulting costs. But that does not happen. This rule has no impact on the actual problem, which is the use of RTVs for physical withholding. If using Real Time Values prevents a unit from being committed, uplift is not an issue. Offering notification time, start time, minimum run time, and minimum down time parameters that are longer and less flexible than a unit's physical capability reduces the likelihood of unit commitment. Table 1 shows that this rule does not prevent or limit physical withholding using Real Time Values.

3. Potential Referrals to the Commission Are Not a Substitute for Proper Rules to Prevent Exercise of Market Power.

The April 1st Filing proposes (at 11) that on days with weather alerts and maximum emergency generation alerts, PJM may refer a generation owner to the Commission's Office of Enforcement (OE) or to the Market Monitor if PJM determines that the Real-Time Values are not based on actual and physical operating limitations. This provision implicitly explicitly permits the use of Real-Time Values that are not based on actual and physical operating limitations on every day except for the handful of days with these alerts. PJM declared such alerts on only 22 days in 2020, and 27 days in 2019.[21]

Referrals do not substitute for clear rules defining acceptable and unacceptable behavior. Adding language to the tariff warning of potential referral creates the appearance of a consequence where no consequence exists. Only well defined rules that explicitly state generation resources' obligation regarding their parameter limits create consequences. The

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[21] See Monitoring Analytics, LLC, "*2020 Annual State of the Market Report for PJM,*" at Table 3 – 68.

current PLS rules detail the market rules, market sellers' obligations, and the process for operating parameter exceptions. Deviations from these rules, including the use of RTVs, constitute market violations. The April 1st Filing creates ambiguity rather than clarity, and facilitates rather than prevents the use of Real-Time Values to physically withhold capacity.

B. The April 1st Filing Undermines Incentives for Flexibility and Capacity Performance Goals.

The rules proposed in the April 1st Filing contradict PJM's public statements to stakeholders and filed testimony at the Commission on the need for flexible generation and enhanced performance requirements from capacity resources.[22] [23] In their Technical Conference Comments, PJM states (at 11):

> Given the ongoing evolution of the markets, we believe that we and our stakeholders should evaluate the need for procurement of additional reliability attributes, such as ramping, flexibility and inertia that may be required for a system with increased intermittent and distributed energy resources. Resource adequacy in the future should no longer be measured based solely on the characteristics of the peak day; it must evolve to include the ability to serve load in all hours of the year.

PJM goes on to explain in their Technical Conference Comments (at 12) that certain market areas need comprehensive reform including whether to require "greater rigor on start-up time and minimum run times for capacity resources based upon their resource class."

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[22] *See* PJM, "Capacity Market Workshop #4 – Next Steps," presented at the Capacity Market Workshop, (March 26, 2021), which can be accessed at <https://www.pjm.com/-/media/committees-groups/committees/mic/2021/20210326-workshop-4/20210326-item-03-capacity-market-workshop-4-next-steps.ashx> at 23.

[23] *See* PJM's comments filed for the FERC Technical Conference on Resource Adequacy in the Evolving Electricity Sector, (March 23, 2021), which can be accessed at <https://cms.ferc.gov/sites/default/files/2021-03/Panel1-Asthana.pdf> ("Technical Conference Comments").

The April 1st Filing contradicts PJM's stated goal to have flexible resources in the energy market, by enabling generators to withhold flexible capacity. The April 1st Filing works against PJM's design goal of measuring reliability "to include the ability to serve load in all hours of the year" by requiring that RTVs be based on physical capability only during certain weather and emergency alerts. PJM's current Capacity Performance design, combined with the energy market rules, should incent flexible resources whenever PJM needs them. If the market rules were implemented and enforced properly, such that all resources were actually required to operate on parameter limited schedules when they have market power and during weather alerts and emergencies, the flexibility of the PJM fleet would reveal itself. PJM should clarify and enforce the existing rules that require flexibility. PJM cannot determine if it needs flexibility products if it does not even require the offer of or make use of the flexibility it already has. The April 1st Filing should be rejected, and the Commission should instead order PJM to enforce the requirement to offer flexibly based on resources' physical capability.

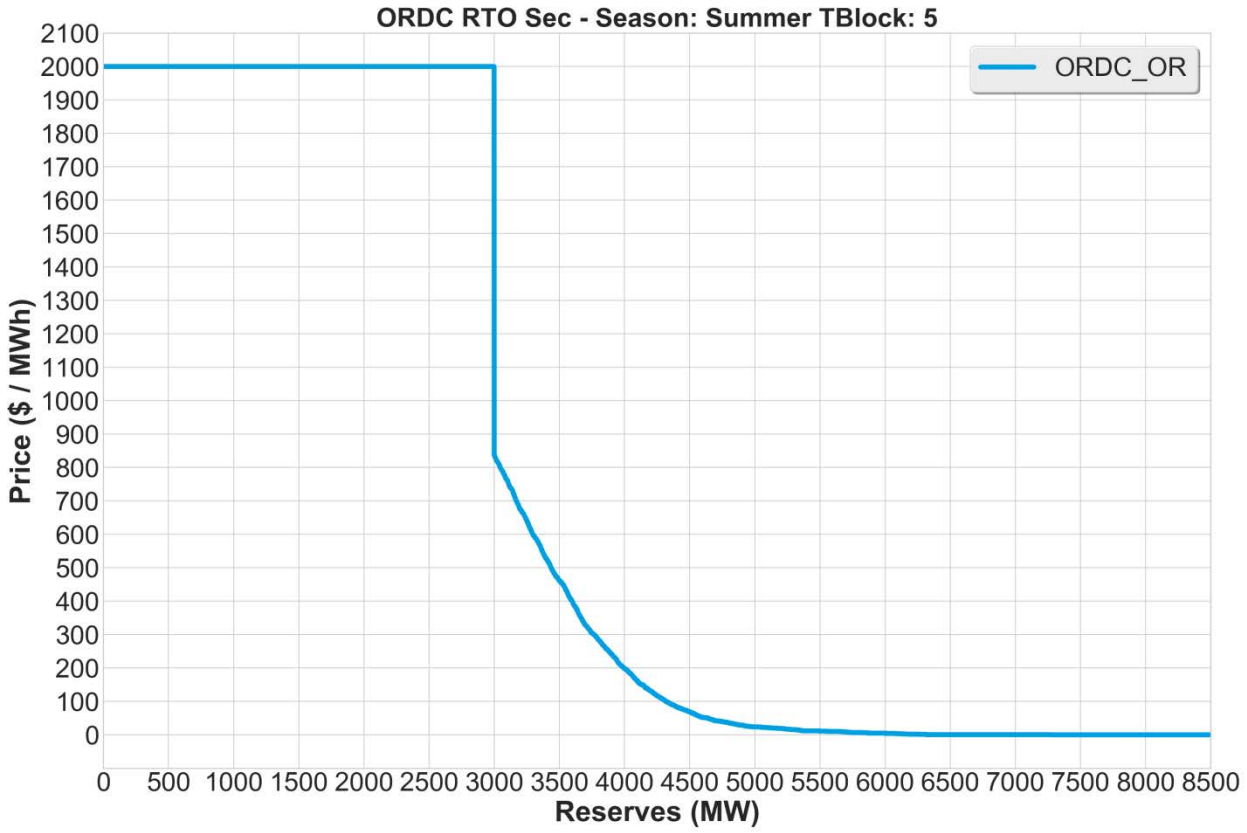
C. Under PJM's Reserve Market Changes, Real-Time Values Would Result in Price Increases Due to Physical Withholding.

Starting May 1, 2022, PJM will procure synchronized reserves, primary reserves and secondary reserves, a new product, in quantities determined using the approved downward sloping Operating Reserve Demand Curves (ORDC). The new secondary reserve product is defined as the available energy output achievable within 30 minutes.[24] Under the downward sloping ORDCs, the demand curve extends beyond the minimum

[24] OA Schedule 1, 1.10.1A(m).

reserve requirement.[25] Figure 1 shows the ORDC that applies during the summer months (June through August) for time block 5 (1500 – 1800 EPT).[26]

Figure 1 PJM ORDC for RTO zone secondary reserves for summer season, time block 5



Under the new ORDCs, unlike status quo, all offline units that have the capability of starting in 30 minutes or less but use Real-Time Values to increase their notification or start times will have a direct impact on prices in every interval that they are offered. For example, if 10 CTs of 50 MW each (total 500 MW) use RTVs to increase their time to start to a value longer than 30 minutes, secondary reserve prices will increase because the supply of secondary reserves is reduced by 500 MW, and the market will clear at a higher price on the

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25 See PJM's preliminary ORDCs, which can be accessed at <*https://www.pjm.com/markets-and-operations/ancillary-services*>.

26 PJM, RTO 30 minute reserve demand curves, which can be accessed at <*https://www.pjm.com/-/media/markets-ops/ancillary/ordc-sec-rto.ashx*>.

secondary reserve demand curve, even when the minimum reserve requirement is met. Using the sample ORDC in Figure 1 shows that having 5,000 MW of secondary reserves will result in a reserve clearing price of $23.80 per MWh. Without the 500 MW of CTs with artificially longer notification times, the supply is reduced to 4,500 MW and the secondary reserve price increases to $68.70 per MWh. As PJM jointly optimizes the procurement of energy and reserves, changes to the supply of secondary reserves will also affect energy prices. Use of RTVs to artificially increase the time to start from less than 30 minutes to a value greater than 30 minutes because a resource owner chooses not to staff the unit or not to install remote start capability will increase energy and reserve prices for the system. The April 1st Filing offers no protections against resources that choose to do so. The filing should be rejected and PJM should be directed to make explicit that RTVs are to be used only for unit testing and the associated changes in turn down ratios.

III. CONCLUSION

The Market Monitor respectfully requests that the Commission afford due consideration to this protest as it resolves the issues raised in this proceeding.

Respectfully submitted,

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Dated: April 22, 2021

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 22nd day of April, 2021.

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