

RCP PAPER NO. : **EMC/RCP/XXX/2026/CP106**

SUBJECT : **ENHANCING PUBLICATION FREQUENCY OF THE PRE-DISPATCH SCHEDULES (PDS) FROM EVERY 120 MINUTES TO 60 MINUTES**

FOR : **CONSULTATION**

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DATE OF MEETING : **TBC**

Executive Summary

EMC received a proposal to increase the publication frequency of the Pre-Dispatch Schedule (PDS) from bi-hourly to hourly. The proposal seeks to facilitate price discovery, giving Market Participants (MPs) more timely information ahead of the 6PM Standing Direction cutoff, and address unnecessary out-of-market intervention.

EMC assessed the proposal primarily from the perspective of market efficiency. This paper studied the historical materiality of changes in the underlying market inputs (system, demand and supply) between PDS publications to assess the usefulness of more frequent PDS publications.

With the existing findings, EMC was not able to establish a compelling case to increase PDS publication frequency. This is given expectation of non-trivial cost associated with system changes that would be required. To better inform and complete the analysis, this consultation paper seeks MPs' inputs and views on the subject.

1. Introduction

This paper assesses the proposal to increase the publication frequency of the Pre-Dispatch Schedule (PDS) from bi-hourly to hourly.

2. Background

2.1 Dispatch Schedules Available

The Market Outlook Schedule (MOS), Pre-Dispatch Schedule (PDS), Short-Term Schedule (STS) and Real-Time Dispatch Schedule (RTS) are essential components of the Singapore Wholesale Electricity Market (SWEM), designed to ensure economic efficiency and system security through forward-looking optimisation.

Market Outlook Scenario (MOS) is the long-term projection, that extends up to 6 days ahead and it is produced once a day. It serves as a high-level advisory for Market Participants (MPs) in scheduling planned outages and procurement of gas.

Pre-Dispatch Schedule (PDS) provides a medium-term outlook of market conditions covering a 12 to 36-hour horizon. Currently, this is updated bi-hourly. It is primarily used to facilitate decision-making for Market Participants by providing:

- Visibility into projected dispatch levels and market prices, allowing them to manage their portfolios and facilities.
- Regular checkpoints for Market Participants to refine their offers or bids.

Short-Term Schedule (STS) acts as a bridge between the PDS and the Real-Time Dispatch Schedule (RTS). It is updated every 30 minutes and covers a 6-hour horizon. STS incorporates the most recent load and solar forecasts from the Power System Operator (PSO). It is used primarily for operational tuning, allowing the MCE to account for short-term deviations in demand or unforeseen generation constraints that were not captured in the bi-hourly PDS window.

Real-Time Dispatch Schedule (RTS) provides the binding dispatch instructions that all registered facilities have to follow, and it produces the Uniform Singapore Energy Price (USEP) for settlement.

Beyond their utility for MPs, these dispatch schedules are essential tools for the Market Surveillance and Compliance Panel (MSCP) and the Energy Market Authority (EMA). These bodies may use the published data for market surveillance and to ensure stability of the power system.

Table 1: Schedules Published by EMC

Type of Schedule	Real Time Schedule (RTS)	Short Term Schedule (STS)	Pre-Dispatch Schedule (PDS)	Market Outlook Scenario (MOS)
Also known as (layman)	Dispatch Run (DPR)	Look Ahead Run (LAR)	Day Ahead Run (DAR)	Week Ahead Run (WAR)
Frequency of publication	Every Period	Every Period	Every 2 hours / Bi-hourly	Every Day
Coverage	Upcoming period T	Upcoming periods from T+1 to T+12 excluding upcoming period T which is covered under RTS	Covers at least 24 periods and not more than 72 periods	All periods from the start of the next day for 6 consecutive days.
Comments	Binding dispatch schedule	Forecast Schedule	Forecast Schedule	Forecast Schedule

2.2 Proposal Received

EMC received a proposal to increase the publication frequency of the Pre-Dispatch Schedule (PDS), to be produced hourly from the current bi-hourly interval.

The proponent believes that this would facilitate price discovery by providing MPs with greater visibility, allowing them to respond promptly to changes in the market and supporting the optimal dispatch of generation units, especially given a rising share of intermittent generation.

In accordance with EMA's Standing Direction¹, MPs must submit their day-ahead offers by 6PM. PDS publications with a day-ahead view start from the 10AM PDS run, resulting in MPs getting only four runs before this cutoff (10AM, 12PM, 2PM and 4PM) to prepare their offers. EMC recognises that increasing PDS publication frequency would give MPs additional opportunities to check and revise their offers against updated information as they work toward this cutoff.

The proposal also seeks to address unnecessary out-of-market intervention arising from activation of Directed Supply Scheme (DSS), especially in instances where MPs can only confirm their offers after 6PM. It posits that increasing the PDS publication frequency after 6PM would provide the PSO greater visibility before determining whether out-of-market intervention is required.

EMC understands that the PSO uses the PDS (and STS) published from 6PM onwards to assess if any DSS instruction would be required for the following day. If the PDS shows a forecasted shortfall for the following day, the PSO may issue DSS instructions to address it. EMC notes this gap between the 4PM PDS run and the 6PM cutoff, during which MPs receive

¹ Modifications to electricity market rules in relation to pre-emptive direction to ensure secure and reliable electricity supply – Final Determination Paper

no updated information on day ahead conditions. Any change in market conditions within this window cannot be acted on by MPs.

Both situations possibly leave the PSO with an incomplete picture of available supply at the point of its 6PM determination, potentially resulting in DSS activation that MPs' subsequent offer variations would have made unnecessary.

3. Analysis

This section sets out EMC's assessment of the case for increasing PDS publication frequency.

3.1 Market Efficiency

To operate in an economically rational manner, Market Participants (MPs) need timely information about price formation now and in the future. Increasing the PDS publication frequency would enhance market efficiency by ensuring MPs have access to more timely and updated information.

A key benefit of higher publication frequency is the reduction of information asymmetry. MPs with a greater share of supply enjoy natural information advantage over smaller participants, simply by virtue of having visibility of their own assets. A shorter publication interval would help to level the playing field, enabling better-informed bidding and hedging strategies and lowering barriers to entry for a broader range of MPs.

Beyond information asymmetry, increasing publication frequency gives MPs more opportunities to revise and resubmit bids/offers in response to updated price signals. This iterative feedback loop allows MPs to test, observe and refine their strategies across more data points. Resulting in more competitive bids and, in aggregate, improved price discovery for the market.

3.2 Materiality of Variance in Input Data

Section 3.1 outlines the theoretical benefits of more frequent publication. However, implementation would require system changes that entail cost. EMC therefore assessed where concrete benefits may exist to justify the cost.

The ability to respond nearer to the 6PM cut-off is where EMC considers benefit to be most tangible. 6PM is the time MPs must submit their day-ahead offers under EMA's Standing Direction, and these offers inform PSO's assessment of whether any DSS instruction is required.

EMC therefore examined whether the underlying supply and demand conditions change sufficiently between successive PDS publications to provide MPs with useful new information to act on before the cut-off time.

3.2.1 Demand-Side

EMC first compared how much the net system demand forecast changes between successive PDS publications (e.g. 10AM PDS vs 12PM PDS, 12PM PDS vs 2PM PDS etc.). For the purpose of this section, net system demand is gross system demand less solar generation.

We observed that the greatest net system demand forecast variation is concentrated between the 12PM and 2PM runs and between the 2PM and 4PM runs (see Chart 1 and Appendix A for breakdown). Apart from that, most of the intraday variation observed after 4PM occurs for solar hours, period 14 (6:30AM) to period 39 (7PM). This appears largely driven by changes in solar generation rather than gross system demand.

Additionally, EMC compared each PDS publication's net system demand forecast against the 6PM PDS run as a benchmark (e.g. 10AM PDS vs 6PM PDS, 12PM PDS vs 6PM PDS etc), given its significance as the basis for PSO's DSS assessment. This similarly shows that net system demand largely stabilises after the 4PM PDS run (see Chart 2), with the remaining variation concentrated in forecasts for solar hours (see Chart 2, and Appendix B for breakdown).

Day-ahead solar forecasts typically change from run to run (see Chart 3) and continue to differ from the final solar forecast used for RTS (see Chart 4). This means that the variation is inherent in solar forecasting and is not something a higher PDS frequency can resolve.

From the demand perspective, the PSO's assessment at 6PM is based on the same forecasted net system demand already available two hours earlier, and any solar forecast variation cannot be mitigated by a higher frequency of PDS publication. This implies that publishing additional PDS after 4PM would not meaningfully improve the accuracy of the demand picture available to the market or for the PSO's assessment.

Chart 1. Intra-Forecast Average Net Demand Differences for Day Ahead

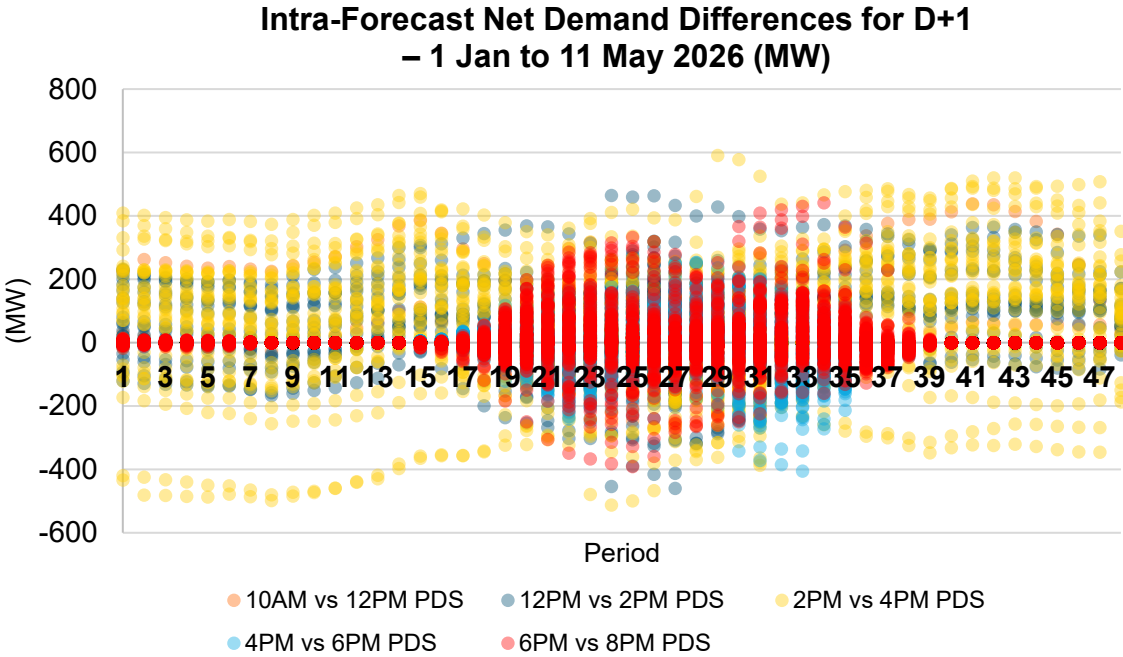


Chart 2. Average Net Demand Variance vs 6PM PDS for Day Ahead

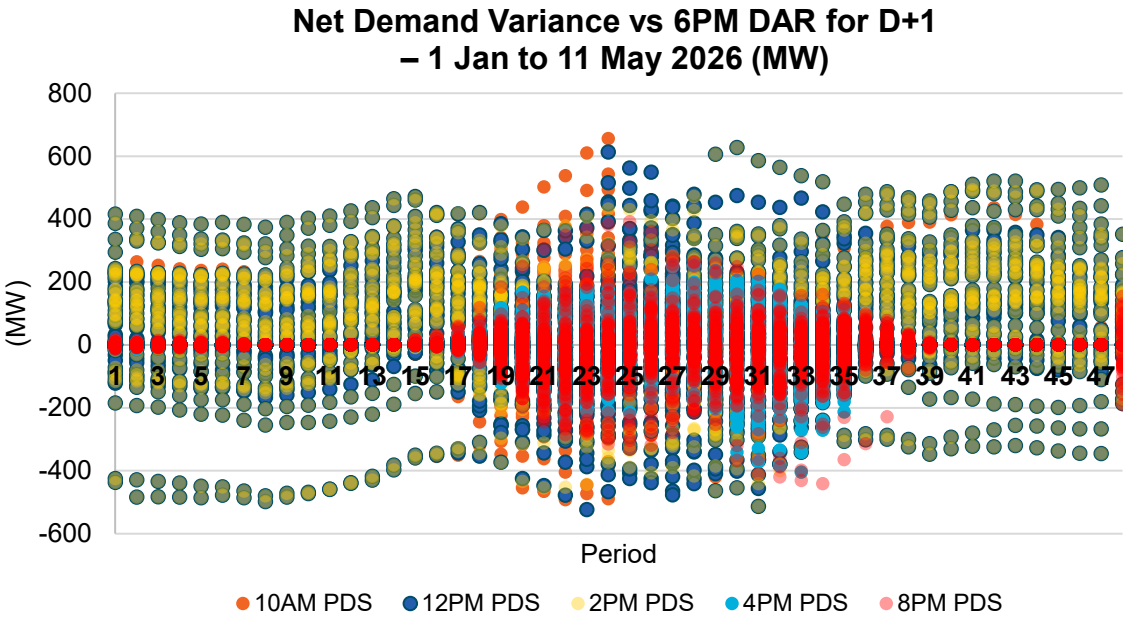


Chart 3. Intra-Solar Forecast across Periods for Day Ahead

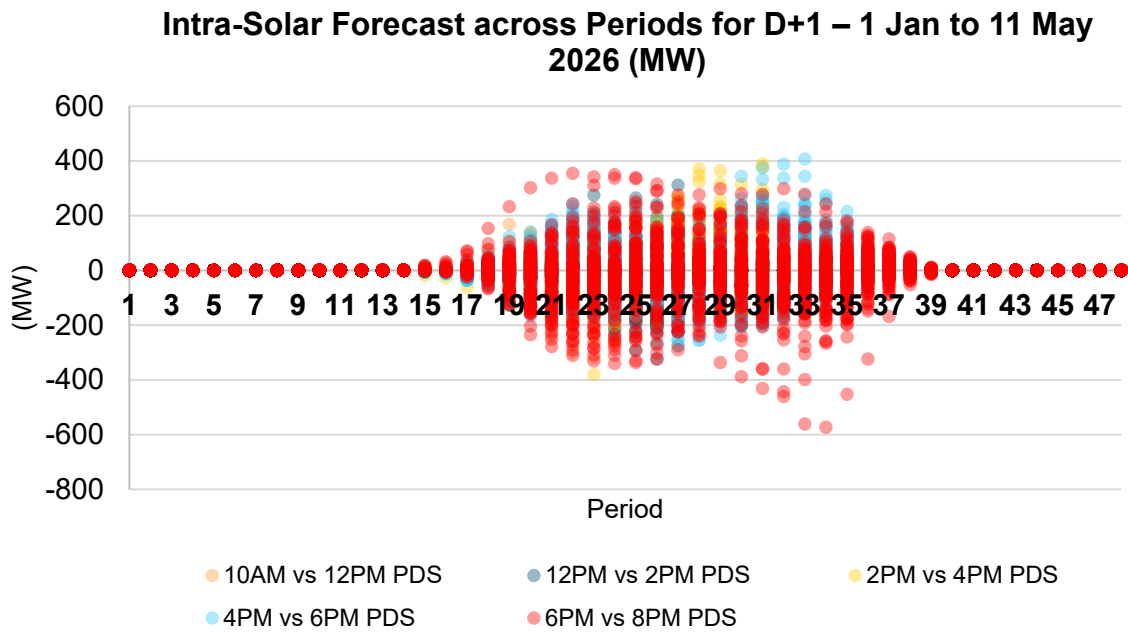
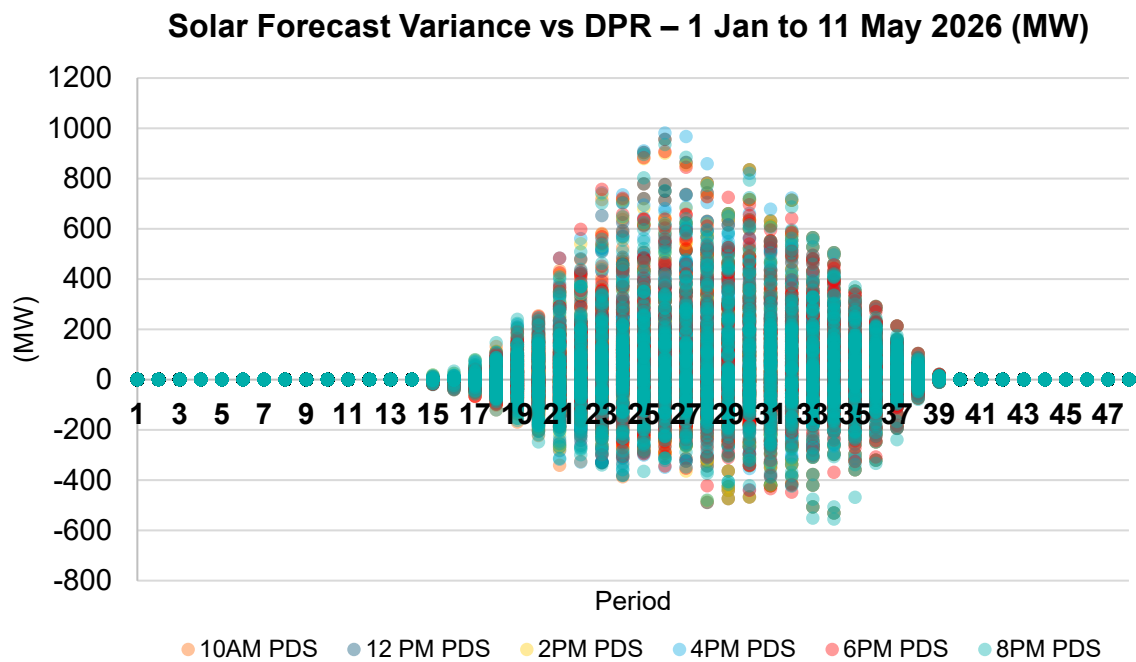


Chart 4. Solar Forecast Variance vs Real-Time Schedule across periods



3.2.2 Supply-Side

EMC considers that MPs can benefit from additional PDS runs by using the added visibility to fine-tune their offers/bids before the 6PM cut-off.

EMC observed that MPs generally will refresh their offers in preparation for the day ahead. However, EMC is unable to assess with confidence whether, and how, a higher publication frequency would yield concrete benefits. We consider that MPs' decision-making will also depend on internal considerations, such as fuel and maintenance constraints, portfolio strategy and risk appetite, which are not directly observable from offer/bid patterns.

It would therefore be important for EMC to understand directly from MPs, whether and how additional PDS runs would concretely help them respond to changes in system conditions.

3.3 Practice in other Jurisdictions

To assess whether the National Electricity Market of Singapore's (NEMS) current bi-hourly PDS publication interval is consistent with other electricity markets, EMC reviewed the day-ahead publication practices in other jurisdictions (see Table 2).

Publishing a day-ahead schedule on an hourly basis is a common practice among most jurisdictions. However, several of the markets that generate hourly day-ahead/pre-dispatch schedules operate binding day-ahead markets, where hourly publication is warranted to support generators in submitting offers for the next day.

Of the markets reviewed, only the Philippines has increased its publication frequency, moving from every 4 hours to hourly. The remaining jurisdictions have not altered theirs.

Table 2: Overview of Pre-Dispatch/Day-Ahead Schedule's Publication Frequencies across Markets

Markets	Pre-dispatch/Day-Ahead schedule's publication frequency and coverage
Canada (Alberta)	Forecast pool price is generated hourly for the current and next two hours.
Canada (IESO)*	Pre-Dispatch Price Forecast is generated on an hourly basis for the next 24 hours.
Australia (NEM/WEM)	Pre-Dispatch Schedule is generated every 30 minutes and looks ahead up to 48 hours.
Great Britain (NESO)*	Day Ahead Demand Forecast is generated two times daily
Philippines	Day Ahead Projections (DAP) generated hourly for up to 24 hours ahead.

America	• CAISO* generates an hourly day-ahead load forecast extending out 9 days into the future. • PJM* generates an hourly day-ahead load forecast covering a rolling 7 days ahead. • NYISO* generates hourly day-ahead load forecast extending out 6 days ahead. • ERCOT generates hourly seven-day load forecast, forecast that covers a rolling 7 days ahead. • ISO New England* generates demand forecast for the current day and the next two days, updated twice daily.
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**Day-ahead markets*

4. Conclusion and Recommendation

In theory, increasing the PDS publication frequency can allow MPs to respond more promptly to changes in the market, improving efficiency and price discovery.

However, with existing evidence, EMC was not able to establish a compelling case to increase the frequency of PDS publication. We therefore issue this paper for industry consultation to solicit MPs' views and inputs to better inform the analysis.

5. Consultation

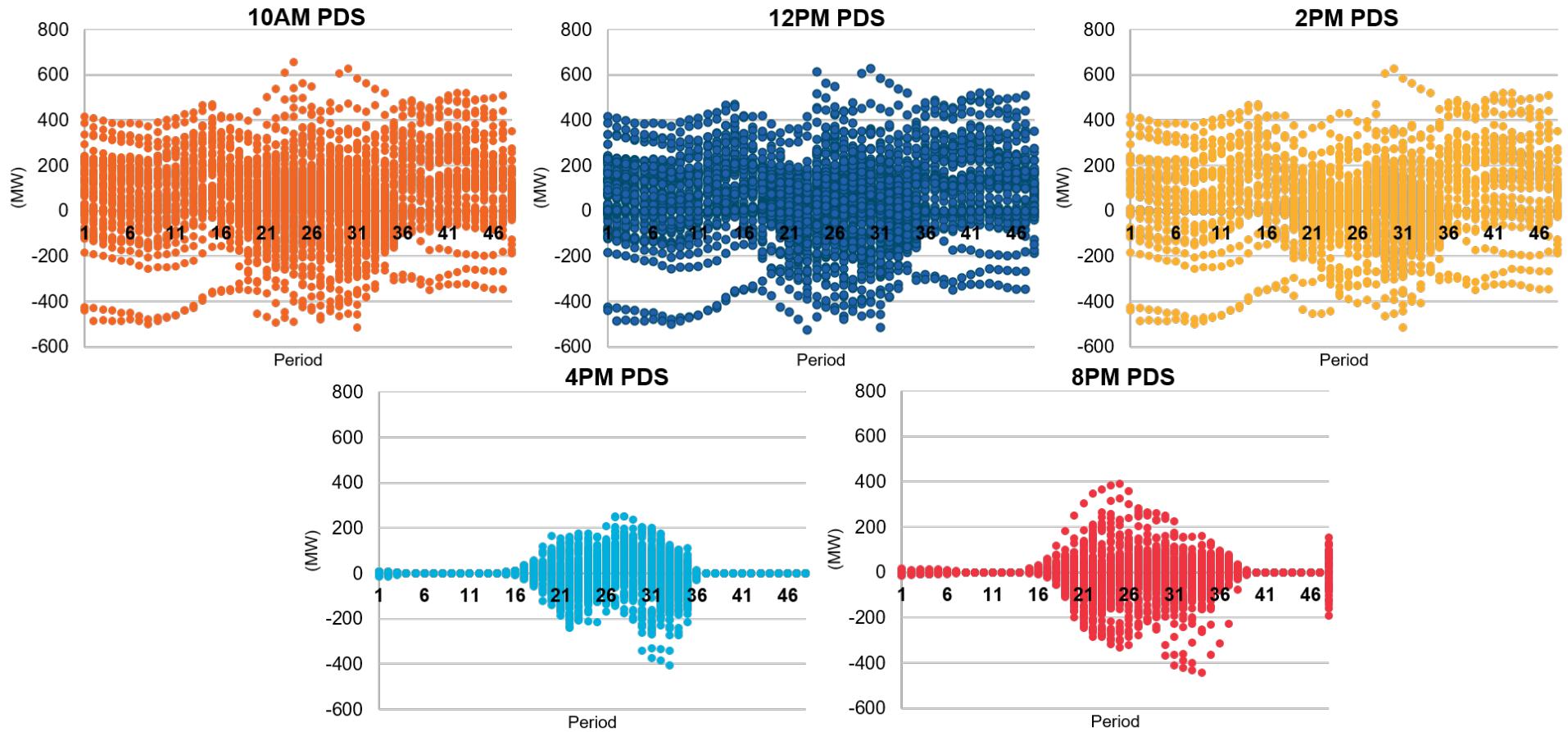
EMC invites industry stakeholders to comment on this paper and provide views on:

- Whether, and how, additional PDS runs would meaningfully contribute to MPs' ability to change offer/bid to benefit the system/market.
- What typically drives revisions to your day-ahead offers/bids as the PDS runs progress.
- How additional PDS runs can help reduce out-of-market interventions.
- Whether there are instances where a MP is only able to submit offers after the 6PM cutoff, and if so, what internal processes or constraints drive this.
- Whether there are any consequences or disadvantages to submitting offers after the 6PM cut-off.

We would appreciate receiving comments by **23 October 2026**.

Appendix A

**Net Demand Variance vs 6PM PDS for D+1 Breakdown across PDS runs
– 1 Jan to 11 May 2026 (MW)**



Appendix B

Intra-Forecast Net Demand Differences for D+1 Breakdown across PDS runs – 1 Jan to 11 May 2026 (MW)

