*Required fields are shown with yellow backgrounds and asterisks.*

Page 1 of * 31

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
Form 19b-4

File No. * SR 2025 - * 25
Amendment No. (req. for Amendments *)

Filing by Nasdaq GEMX, LLC

Pursuant to Rule 19b-4 under the Securities Exchange Act of 1934

Initial * ☑ Amendment * ☐ Withdrawal ☐

Section 19(b)(2) * ☐ Section 19(b)(3)(A) * ☑ Section 19(b)(3)(B) * ☐

Pilot ☐

Extension of Time Period for Commission Action * ☐

Date Expires *

Rule

☐ 19b-4(f)(1) ☐ 19b-4(f)(4)
☑ 19b-4(f)(2) ☐ 19b-4(f)(5)
☐ 19b-4(f)(3) ☐ 19b-4(f)(6)

Notice of proposed change pursuant to the Payment, Clearing, and Settlement Act of 2010

Section 806(e)(1) * ☐ Section 806(e)(2) * ☐

Security-Based Swap Submission pursuant to the Securities Exchange Act of 1934
Section 3C(b)(2) * ☐

Exhibit 2 Sent As Paper Document ☐

Exhibit 3 Sent As Paper Document ☐

## Description

Provide a brief description of the action (limit 250 characters, required when Initial is checked *).

a proposal to establish a fee schedule for the purchase of field-programmable gate array technology

## Contact Information

Provide the name, telephone number, and e-mail address of the person on the staff of the self-regulatory organization prepared to respond to questions and comments on the action.

First Name * [redacted] Last Name * [redacted]

Title * [redacted]

E-mail * [redacted]

Telephone * [redacted] Fax

## Signature

Pursuant to the requirements of the Securities Exchange of 1934, Nasdaq GEMX, LLC has duly caused this filing to be signed on its behalf by the undersigned thereunto duly authorized.

Date 09/22/2025

By John Zecca
(Name *)

(Title *) EVP and Chief Legal Officer

NOTE: Clicking the signature block at right will initiate digitally signing the form. A digital signature is as legally binding as a physical signature, and once signed, this form cannot be changed.

John A. Zecca Date: 2025.09.22 15:20:27 -04'00'

*Required fields are shown with yellow backgrounds and astericks.*

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

For complete Form 19b-4 instructions please refer to the EFFS website.

**Form 19b-4 Information ***

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SR-GEMX-2025-25 19b-4.docx

The self-regulatory organization must provide all required information, presented in a clear and comprehensible manner, to enable the public to provide meaningful comment on the proposal and for the Commission to determine whether the proposal is consistent with the Act and applicable rules and regulations under the Act.

**Exhibit 1 - Notice of Proposed Rule Change ***

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SR-GEMX-2025-25 Exhibit 1.docx

The Notice section of this Form 19b-4 must comply with the guidelines for publication in the Federal Register as well as any requirements for electronic filing as published by the Commission (if applicable). The Office of the Federal Register (OFR) offers guidance on Federal Register publication requirements in the Federal Register Document Drafting Handbook, October 1998 Revision. For example, all references to the federal securities laws must include the corresponding cite to the United States Code in a footnote. All references to SEC rules must include the corresponding cite to the Code of Federal Regulations in a footnote. All references to Securities Exchange Act Releases must include the release number, release date, Federal Register cite, Federal Register date, and corresponding file number (e.g., SR-[SRO]-xx-xx). A material failure to comply with these guidelines will result in the proposed rule change being deemed not properly filed. See also Rule 0-3 under the Act (17 CFR 240.0-3)

**Exhibit 1A - Notice of Proposed Rule Change, Security-Based Swap Submission, or Advanced Notice by Clearing Agencies ***

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The Notice section of this Form 19b-4 must comply with the guidelines for publication in the Federal Register as well as any requirements for electronic filing as published by the Commission (if applicable). The Office of the Federal Register (OFR) offers guidance on Federal Register publication requirements in the Federal Register Document Drafting Handbook, October 1998 Revision. For example, all references to the federal securities laws must include the corresponding cite to the United States Code in a footnote. All references to SEC rules must include the corresponding cite to the Code of Federal Regulations in a footnote. All references to Securities Exchange Act Releases must include the release number, release date, Federal Register cite, Federal Register date, and corresponding file number (e.g., SR-[SRO]-xx-xx). A material failure to comply with these guidelines will result in the proposed rule change being deemed not properly filed. See also Rule 0-3 under the Act (17 CFR 240.0-3)

**Exhibit 2- Notices, Written Comments, Transcripts, Other Communications**

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Copies of notices, written comments, transcripts, other communications. If such documents cannot be filed electronically in accordance with Instruction F, they shall be filed in accordance with Instruction G.

☐ Exhibit Sent As Paper Document

**Exhibit 3 - Form, Report, or Questionnaire**

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Copies of any form, report, or questionnaire that the self-regulatory organization proposes to use to help implement or operate the proposed rule change, or that is referred to by the proposed rule change.

☐ Exhibit Sent As Paper Document

**Exhibit 4 - Marked Copies**

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The full text shall be marked, in any convenient manner, to indicate additions to and deletions from the immediately preceding filing. The purpose of Exhibit 4 is to permit the staff to identify immediately the changes made from the text of the rule with which it has been working.

**Exhibit 5 - Proposed Rule Text**

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SR-GEMX-2025-25 Exhibit 5.docx

The self-regulatory organization may choose to attach as Exhibit 5 proposed changes to rule text in place of providing it in Item I and which may otherwise be more easily readable if provided separately from Form 19b-4. Exhibit 5 shall be considered part of the proposed rule change

**Partial Amendment**

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If the self-regulatory organization is amending only part of the text of a lengthy proposed rule change, it may, with the Commission's permission, file only those portions of the text of the proposed rule change in which changes are being made if the filing (i.e. partial amendment) is clearly understandable on its face. Such partial amendment shall be clearly identified and marked to show deletions and additions.

1. Text of the Proposed Rule Change

(a) Nasdaq GEMX, LLC ("GEMX" or "Exchange"), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act")[1] and Rule 19b-4 thereunder,[2] is filing with the Securities and Exchange Commission ("SEC" or "Commission") a proposal to set fees for the purchase of field-programmable gate array ("FPGA") technology as an optional delivery mechanism for the Nasdaq GEMX Depth of Market Data Feed.

While these amendments are effective upon filing, the Exchange has designated the proposed amendments to be operative on October 1, 2025.

A notice of the proposed rule change for publication in the Federal Register is attached as Exhibit 1.

The text of the proposed rule change is attached as Exhibit 5.

(b) Not applicable.

(c) Not applicable.

2. Procedures of the Self-Regulatory Organization

The proposed rule change was approved by senior management of the Exchange pursuant to authority delegated by the Board of Directors (the "Board"). Exchange staff will advise the Board of any action taken pursuant to delegated authority. No other action is necessary for the filing of the rule change.

Questions and comments on the proposed rule change may be directed to:

[1] 15 U.S.C. 78s(b)(1).

[2] 17 CFR 240.19b-4.

[redacted]

3. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

a. Purpose

The purpose of the proposed rule change is to establish a fee schedule for the purchase of field-programmable gate array ("FPGA") technology as an optional delivery mechanism for the Nasdaq GEMX Depth of Market Data Feed ("Depth of Market Feed").[3] The same FPGA technology has been offered on the Nasdaq Options Market for over a decade,[4] and is well-established in equity markets.[5] Nasdaq is expanding the availability of this optional delivery mechanism for depth of market information among its options exchanges, and is submitting proposals for Nasdaq MRX, LLC ("MRX") and Nasdaq ISE, LLC ("ISE"), along with GEMX.[6]

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3 See Securities Exchange Act Release No. 103037 (May 13, 2025), 90 FR 21353 (May 19, 2025 (SR-GEMX-2025-10) (proposing to offer FPGA technology as an optional delivery mechanism for the Nasdaq GEMX Depth of Market Data Feed).

4 See Securities Exchange Act Release Nol 67539 (July 30, 2012), 77 FR 46535 (August 3. 2012) (SR-Nasdaq-2012-088) (establishing a fee for the use of field-programmable gate array ("FPGA") technology for the Nasdaq Options Market); Securities Exchange Act release No 74745 (April 16, 2015), 80 FR 22588 (April 22, 2015) (SR-Nasdaq-2015-035) (amending fees for FPGA technology on the Nasdaq Options Market).

5 See, e.g., Securities Exchange Act Release No. 67297 (June 28, 2012), 77 FR 39752 (July 5, 2012) (SR-Nasdaq-2012-063) (introducing FPGA technology); Securities Exchange Act Release No. 97541 (May 22, 2023), 88 FR 34201 (May 26, 2023) (SR-BX-2023-012) (introducing FPGA technology for BX TotalView); Securities Exchange Act Release No. 98158 (August 17, 2023), 88 FR 57505 (August 23, 2023) (SR-BX-2023-020) (establishing FPGA fees for BX TotalView); Securities Exchange Act Release No. 97542 (May 22, 2023), 88 FR 34199 (May 26, 2023) (SR-Phlx-2023-18) (introducing FPGA technology for PSX TotalView); Securities Exchange Act Release No. 98185 (August 21, 2023), 88 FR 58324 (August 25, 2023) (SR-Phlx-2023-37) (SR-PHLX-2023-37) (establishing FPGA fees for PSX TotalView).

6 See SR-MRX-2025-09 (April 30, 2025) (proposing to offer FPGA technology as an optional delivery mechanism for the Nasdaq MRX Depth of Market Data Feed."), available at https://listingcenter.nasdaq.com/assets/rulebook/mrx/filings/SR-MRX-2025-09.pdf; SR-ISE-2025-14 (April 30, 2025 (Proposing to offer FPGA technology as an optional delivery mechanism for the Nasdaq ISE Depth of Market Data Feed), available at https://listingcenter.nasdaq.com/assets/rulebook/ise/filings/SR-ISE-2025-14.pdf.

**FPGA**

FPGA is a hardware-based delivery mechanism that utilizes an integrated circuit that is programmed to reduce "jitter"—a technical term of art referring to the deviation in amplitude, phase timing or width of a signal pulse in a digital signal—that will allow data to be processed in a more predictable, or "deterministic," fashion. Reducing jitter can be useful for certain customers due to the variability in the timing of market data packets transmitted by an exchange over the course of the trading day. Orders, and therefore market data packets, typically accumulate in larger numbers at the beginning and end of the trading day, as well as during the peaks of activity that occur at random intervals during the day. These bursts of activity may alter the time interval between the delivery of data packets because software processes information at variable rates depending on load to the system. Processing times may increase at higher loads, and decrease during periods of lesser activity. FPGA technology processes data packets at a constant time interval, without regard to the number of packets processed. Higher levels of determinism means less variable queuing, which improves the predictability of data transfer, particularly during times of peak market activity.

The benefits of determinism depend on the use case of the customer, as well as the customer's specific system architecture.

Higher determinism does not necessarily mean lower latency. The concepts of determinism and latency are related, but distinct. Determinism refers to predictability in the rate of data transmission; latency refers to the time required to process data or transport it from one location to another. Low latency is not necessarily deterministic,

and higher determinism does not necessarily mean low latency. As such, use of FPGA technology will increase determinism, but does not guarantee lower latency.[7]

Among customers that seek a higher degree of determinism, the benefits of FPGA technology vary, as FPGA technology is one possible solution, among a catalog of possible solutions, for increasing the consistency and predictability of message throughput over the course of the trading day. Some customers are able to adequately control jitter without using FPGA technology; other customers address jitter using specialized software, coding or other design solutions in conjunction with FPGA; still others use FPGA alone. The specific choice depends on a complex analysis of the customer's information technology systems in the context of their particular use cases.

FPGA is a broadly available, commonly used type of programmable circuit that can be modified to suit different use cases. It is used in a wide spectrum of industries, including consumer electronics, automotive, and aerospace, as well as in a variety of industrial applications. It is not unique to the financial services industry,[8] or to the Exchange.

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[7] Because software can be impacted by workload, FPGA technology in general can provide lower latency during periods of peak activity. The same FPGA technology that will support the GEMX FPGA service is also broadly commercially available for purchase from third-party sellers unrelated to the Exchange.

[8] See, e.g., Contrive Datum Insights, "Field-Programmable Gate Array (FPGA) Market is expected to reach around USD 22.10 Billion by 2030, Grow at a CAGR of 15.12% during Forecast Period 2023 to 2030," (February 21, 2023), available at https://www.globenewswire.com/en/news-release/2023/02/21/2612772/0/en/Field-Programmable-Gate-Array-FPGA-Market-Is-Expected-To-Reach-around-USD-22-10-Billion-by-2030-Grow-at-a-CAGR-Of-15-12-during-Forecast-Period-2023-To-2030-Data-By-Contrive-Datum-I.html (describing the general size and state of the FPGA market in 2023).

FPGA technology has been offered by both the Nasdaq Stock Exchange and the Nasdaq Options Market for over a decade,[9] and has been cited by the SEC as an example of a technology useful in the distribution of market data products.[10]

The Exchange proposes to offer the GEMX FPGA service in conjunction with the Exchange's Depth of Market Feed.[11] The Depth of Market Feed is a data feed that provides full order and quote depth information for individual orders and quotes on the Exchange book and last sale information for trades executed on the Exchange. The data provided for each option series includes the symbols (series and underlying security), put or call indicator, expiration date, the strike price of the series, and whether the option series is available for trading on the Exchange and identifies if the series is available for closing transactions only. The feed also provides order imbalances on opening/reopening (size of matched contracts and size of the imbalance).

Customers that choose to purchase the Depth of Market Feed without the GEMX service will receive the same data as customers that elect to purchase the Depth of Market Feed with the GEMX FPGA service.

The proposal to offer optional FPGA technology to customers of the GEMX Depth of Market Feed is in response to customer demand.

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9 See Securities Exchange Act Release No. 67297 (June 28, 2012), 77 FR 39752 (July 5, 2012) (SR-Nasdaq-2012-063) (introducing FPGA technology); see also Nasdaq Data News 2012-13, available at http://www.nasdaqtrader.com/TraderNews.aspx?id=dn2012-13 (introducing TotalView FPGA service as of August 1, 2012); Securities Exchange Act Release No. 74745 (April 16, 2015), 80 FR 22588 (April 22, 2015) (SR-Nasdaq-2015-035) (establishing FPGA for the Nasdaq Options Market); The Nasdaq Stock Market LLC Rules, Equity 7, Section 126(c) (Hardware-Based Delivery of Nasdaq Depth data).

10 See Securities Exchange Act Release No. 90610, 86 FR 18596, 18647 (April 9, 2021) (File No. S7-03-20) (listing field programmable gate array services as an example of a technological innovation that could be employed by competing consolidators as part of the Market Data Infrastructure rule).

11 See Options 3, Section 23(a)(1).

**Proposed Fees**

GEMX proposes separate fees for internal and external distribution for Hardware-Based Delivery of its Depth of Market Feed. The term "Hardware-Based Delivery" means that a distributor is processing data sourced from a hardware-coded market data format such as FPGA technology. Proposed fees are $8,000 per month per distributor for internal only distribution, $1,000 per month per distributor for external only distribution, and the sum of those two fees, $9,000 per month, for both internal and external distribution.[12] These fees would be in addition to any other fees that would apply to the Depth of Market Feed.[13]

Customers that elect to receive the Depth of Market Feed without the FPGA service will pay no fee in addition to the underlying fees listed above.

b. Statutory Basis

The Exchange believes that its proposal is consistent with Section 6(b) of the Act,[14] in general, and furthers the objectives of Sections 6(b)(4) and 6(b)(5) of the Act,[15] in particular, in that it provides for the equitable allocation of reasonable dues, fees, and other charges among members and issuers and other persons using any facility, and is not designed to permit unfair discrimination between customers, issuers, brokers, or dealers.

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12 The difference in amount for external and external distribution reflects Nasdaq's experience that the Exchange's FPGA hardware is best employed at the point of ingestion, as the utility of FPGA technology falls as the data moves farther from the source.

13 See Rules, Options 7, Section 7(C) (Nasdaq GEMX Real-time Depth of Market Raw Data Feed).

14 15 U.S.C. 78f(b).

15 15 U.S.C. 78f(b)(4) and (5).

**Equitable Allocation Of Reasonable Dues, Fees, and Other Charges**

The proposal provides for the equitable allocation of reasonable dues, fees, and other charges because: (i) FPGA technology will facilitate the ingestion of information for some customers; (ii) the proposed service is entirely optional and any customer can choose to purchase or not for any reason, including the fees charged; and (iii) the proposed fees are comparable to those charged by similarly situated options exchanges.

Enhanced Service

As explained above, FPGA is a hardware-based delivery mechanism that utilizes an integrated circuit that is programmed to reduce jitter, allowing data to be processed in a more deterministic fashion. This can be useful for certain customers, depending on the use case of the customer and the customer's system architecture. This service is not available today on the GEMX exchange, and the proposal will therefore enhance the service offerings for certain customers, as described above. The Exchange is aware of a number of customers have expressed interest in purchasing the FPGA service from this Exchange.

Optionality

The FPGA Service is optional for all categories of customers. No customer and no category of customers (such as, for example, proprietary trading firms, banks, or market makers) are required to purchase the FPGA Service for either legal or technological reasons—even a customer that seeks to reduce jitter.[16]

In the experience of the Nasdaq Options Market, the FPGA Service is purchased by market makers, wholesalers, proprietary trading firms, banks, and others. The Nasdaq

[16] As explained below, customers have other options not involving purchase of the GEMX FPGA service to reduce jitter.

exchange is aware of no systematic differences within any of these categories among market participants that choose to use or not to use the Nasdaq FPGA Service.

Customers may choose not to use FPGA technology at all. As noted above, FPGA technology processes data at a consistently predictable rate relative to software. This predictability in the rate of processing may not be advantageous or optimal for all systems receiving the exchange data feed.

The design of data processing architecture is complex. The ingestion of data from an exchange is just one step in the lifecycle of trading. Customers must generate and submit orders, evaluate trades, and then generate new orders while interacting with multiple exchanges. All of these steps are part of a single trading system. Changing any one step in the process—by, for example, purchasing the Exchange's FPGA Service when other exchanges may not offer FPGA—often results in the need for changes to other aspects of the process. As such, the decision to buy the Exchange's FPGA Service will be based on whether the service is compatible with the customer's trading system as a whole, not just on whether it may facilitate the processing of data from a single exchange. The appropriateness of any particular solution will depend on the customer's system architecture, and the specific use cases for the market data consumed.

Even if a customer chooses to use FPGA technology, purchase from the Exchange is only one of several options available, as such technology is not unique to the Exchange or even the financial services industry. Third-party data vendors offer FPGA technology services, or a customer may purchase and deploy its own FPGA hardware, without purchasing the proposed FPGA technology service from the Exchange, *after* receiving

data from the Exchange. All of these are viable options; the benefits of any particular option will depend on the particular customer's systems and use cases.

Over ten years of experience in selling the FPGA Service for the Nasdaq Options Market ("NOM") has shown that the majority of depth of book customers—over 80 percent—do not use Nasdaq's FPGA Service.

The NOM experience also shows that customer demand changes over time, even for customers that continue to purchase depth of book information. Of the firms that purchased but later cancelled the FPGA service at NOM, approximately 66% continued to purchase depth of market data even after they cancelled FPGA, demonstrating that customers can discontinue the use of the FPGA Service at any time, for any reason.

Customers that choose to purchase the Depth of Market Feed without the GEMX FPGA service will receive the same data as customers that elect to purchase the Depth of Market Feed with the GEMX FPGA service.

Comparability

The proposed fees for the GEMX FPGA service are comparable to those currently charged for the use of FPGA technology in the Nasdaq Options Market based on market share. No other options exchange currently offers FPGA technology as a separate service.

The Exchange has assessed the market share[17] for the options markets utilizing total options contracts traded between May 2024 and April 2025, as set forth in the following graph:

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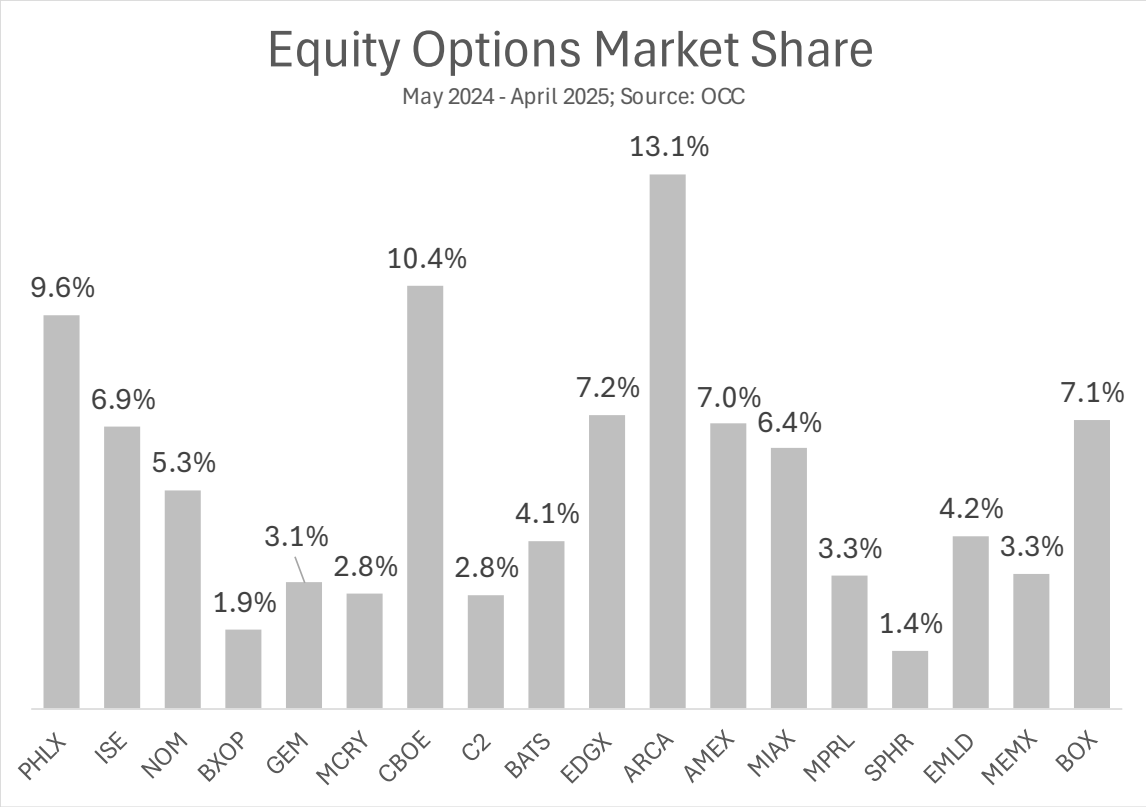
[17] Market share is the percentage of volume on a particular exchange relative to the total volume across all exchanges, and indicates the amount of order flow directed to that exchange. High levels of market share enhance the value of trading and ports. Total contracts include both multi-




FPGA fees for the Nasdaq Options Market are currently $10,530 for internal only distribution, $1,000 for use in external only distribution, and the sum of those two fees, $11,530, for both internal and external distribution.[18] As explained above, the proposed fees for GEMX are $8,000 per month per distributor for internal only distribution, $1,000 per month per distributor for external only distribution, and the sum of those two fees, $9,000 per month, for both internal and external distribution.[19]

The difference in internal distribution fees reflects the underlying difference in market share. GEMX is proposing fees of $8,000 per month for internal distribution as

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list options and proprietary options products. Proprietary options products are products with intellectual property rights that are not multi-listed.

18 See Rules of the Nasdaq Stock Market LLC, Options 7, Section 4 (Hardware-Based Delivery of NOM Depth data).

19 The difference in amount for external and external distribution reflects Nasdaq's experience that the Exchange's FPGA hardware is best employed at the point of ingestion, as the utility of FPGA technology falls as the data moves farther from the source.

compared to $10,530 for the Nasdaq Options Market. The lower fee reflects GEMX's market share of 3.1% as compared to NOM's market share of 5.3%. Because NOM has more liquidity than GEMX, NOM charges more than GEMX for FPGA hardware to account for the greater amount of information being processed. Because the differences between the GEMX and NOM fees are reasonably related to market share, the fees are comparable.

With respect to external only distribution, the proposed GEMX fees of $1,000 are the same as those charged for the Nasdaq Options Market and Nasdaq proposes that they remain consistent across all options exchanges. This is because the external FPGA service is primarily used to provide two or more firms with the option of sharing the benefits of that technology. The external distribution fee allows them to do so, providing more options for configuring this service. As such, it is reasonable to charge a flat fee for this service without regard to market share, and the proposed ISE fees are therefore comparable to the fees currently charged by NOM.

The combined fees for both are the sum of the fees for internal and external distribution, respectively. As both component fees are comparable, the sum is also comparable.

**No Unfair Discrimination**

The Proposal is not unfairly discriminatory. The FPGA Service will be available to all customers on a non-discriminatory basis, and therefore the proposed fees are not designed to permit unfair discrimination between customers, issuers, brokers, or dealers.

4. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change will impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Act.

Nothing in the Proposal burdens inter-market competition (the competition among self-regulatory organizations) because approval of the Proposal does not impose any burden on the ability of other exchanges to compete. As noted above, FPGA technology is generally available and any exchange has the ability to offer such technology if it chooses.

Nothing in the Proposal burdens intra-market competition (the competition among consumers of exchange data) because the FPGA Service will be available to any customer under the same fee schedule as any other customer, and any market participant that wishes to purchase the FPGA Service can do so on a non-discriminatory basis.

5. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

No written comments were either solicited or received.

6. Extension of Time Period for Commission Action

The Exchange does not consent to an extension of the time period for Commission action.

7. Basis for Summary Effectiveness Pursuant to Section 19(b)(3) or for Accelerated Effectiveness Pursuant to Section 19(b)(2)

Pursuant to Section 19(b)(3)(A)(ii) of the Act,[20] the Exchange has designated this proposal as establishing or changing a due, fee, or other charge imposed by the self-

[20] 15 U.S.C. 78s(b)(3)(A)(ii).

regulatory organization on any person, whether or not the person is a member of the self-regulatory organization, which renders the proposed rule change effective upon filing.

At any time within 60 days of the filing of the proposed rule change, the Commission summarily may temporarily suspend such rule change if it appears to the Commission that such action is: (i) necessary or appropriate in the public interest; (ii) for the protection of investors; or (iii) otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission shall institute proceedings to determine whether the proposed rule should be approved or disapproved.

8. Proposed Rule Change Based on Rules of Another Self-Regulatory Organization or of the Commission

Not applicable.

9. Security-Based Swap Submissions Filed Pursuant to Section 3C of the Act

Not applicable.

10. Advance Notices Filed Pursuant to Section 806(e) of the Payment, Clearing and Settlement Supervision Act

Not applicable.

11. Exhibits

1. Notice of Proposed Rule Change for publication in the Federal Register.

5. Text of the proposed rule change.

**EXHIBIT 1**

**SECURITIES AND EXCHANGE COMMISSION**

**[Release No. 34 ; File No. SR-GEMX-2025-25]**

**Self-Regulatory Organizations; Nasdaq GEMX, LLC; Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Set Fees for the Purchase of Field-Programmable Gate Array Technology**

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act")[1], and Rule 19b-4 thereunder,[2] notice is hereby given that on September 22, 2025, Nasdaq GEMX, LLC ("GEMX" or "Exchange") filed with the Securities and Exchange Commission ("SEC" or "Commission") the proposed rule change as described in Items I, II, and III, below, which Items have been prepared by the Exchange. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The Exchange proposes to set fees for the purchase of field-programmable gate array ("FPGA") technology as an optional delivery mechanism for the Nasdaq GEMX Depth of Market Data Feed.

The text of the proposed rule change is available on the Exchange's Website at https://listingcenter.nasdaq.com/rulebook/gemx/rulefilings, and at the principal office of the Exchange.

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1 15 U.S.C. 78s(b)(1).

2 17 CFR 240.19b-4.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the Exchange included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant aspects of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

1. Purpose

The purpose of the proposed rule change is to establish a fee schedule for the purchase of field-programmable gate array ("FPGA") technology as an optional delivery mechanism for the Nasdaq GEMX Depth of Market Data Feed ("Depth of Market Feed").[3] The same FPGA technology has been offered on the Nasdaq Options Market for over a decade,[4] and is well-established in equity markets.[5] Nasdaq is expanding the availability of this optional delivery

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3 See Securities Exchange Act Release No. 103037 (May 13, 2025), 90 FR 21353 (May 19, 2025 (SR-GEMX-2025-10) (proposing to offer FPGA technology as an optional delivery mechanism for the Nasdaq GEMX Depth of Market Data Feed).

4 See Securities Exchange Act Release Nol 67539 (July 30, 2012), 77 FR 46535 (August 3. 2012) (SR-Nasdaq-2012-088) (establishing a fee for the use of field-programmable gate array ("FPGA") technology for the Nasdaq Options Market); Securities Exchange Act release No 74745 (April 16, 2015), 80 FR 22588 (April 22, 2015) (SR-Nasdaq-2015-035) (amending fees for FPGA technology on the Nasdaq Options Market).

5 See, e.g., Securities Exchange Act Release No. 67297 (June 28, 2012), 77 FR 39752 (July 5, 2012) (SR-Nasdaq-2012-063) (introducing FPGA technology); Securities Exchange Act Release No. 97541 (May 22, 2023), 88 FR 34201 (May 26, 2023) (SR-BX-2023-012) (introducing FPGA technology for BX TotalView); Securities Exchange Act Release No. 98158 (August 17, 2023), 88 FR 57505 (August 23, 2023) (SR-BX-2023-020) (establishing FPGA fees for BX TotalView); Securities Exchange Act Release No. 97542 (May 22, 2023), 88 FR 34199 (May 26, 2023) (SR-Phlx-2023-18) (introducing FPGA technology for PSX TotalView); Securities Exchange Act Release No. 98185 (August 21, 2023), 88 FR 58324 (August 25, 2023) (SR-Phlx-2023-37) (SR-PHLX-2023-37) (establishing FPGA fees for PSX TotalView).

mechanism for depth of market information among its options exchanges, and is submitting proposals for Nasdaq MRX, LLC ("MRX") and Nasdaq ISE, LLC ("ISE"), along with GEMX.[6]

**FPGA**

FPGA is a hardware-based delivery mechanism that utilizes an integrated circuit that is programmed to reduce "jitter"—a technical term of art referring to the deviation in amplitude, phase timing or width of a signal pulse in a digital signal—that will allow data to be processed in a more predictable, or "deterministic," fashion. Reducing jitter can be useful for certain customers due to the variability in the timing of market data packets transmitted by an exchange over the course of the trading day. Orders, and therefore market data packets, typically accumulate in larger numbers at the beginning and end of the trading day, as well as during the peaks of activity that occur at random intervals during the day. These bursts of activity may alter the time interval between the delivery of data packets because software processes information at variable rates depending on load to the system. Processing times may increase at higher loads, and decrease during periods of lesser activity. FPGA technology processes data packets at a constant time interval, without regard to the number of packets processed. Higher levels of determinism means less variable queuing, which improves the predictability of data transfer, particularly during times of peak market activity.

The benefits of determinism depend on the use case of the customer, as well as the customer's specific system architecture.

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6 See SR-MRX-2025-09 (April 30, 2025) (proposing to offer FPGA technology as an optional delivery mechanism for the Nasdaq MRX Depth of Market Data Feed."), available at https://listingcenter.nasdaq.com/assets/rulebook/mrx/filings/SR-MRX-2025-09.pdf; SR-ISE-2025-14 (April 30, 2025 (Proposing to offer FPGA technology as an optional delivery mechanism for the Nasdaq ISE Depth of Market Data Feed), available at https://listingcenter.nasdaq.com/assets/rulebook/ise/filings/SR-ISE-2025-14.pdf.

Higher determinism does not necessarily mean lower latency. The concepts of determinism and latency are related, but distinct. Determinism refers to predictability in the rate of data transmission; latency refers to the time required to process data or transport it from one location to another. Low latency is not necessarily deterministic, and higher determinism does not necessarily mean low latency. As such, use of FPGA technology will increase determinism, but does not guarantee lower latency.[7]

Among customers that seek a higher degree of determinism, the benefits of FPGA technology vary, as FPGA technology is one possible solution, among a catalog of possible solutions, for increasing the consistency and predictability of message throughput over the course of the trading day. Some customers are able to adequately control jitter without using FPGA technology; other customers address jitter using specialized software, coding or other design solutions in conjunction with FPGA; still others use FPGA alone. The specific choice depends on a complex analysis of the customer's information technology systems in the context of their particular use cases.

FPGA is a broadly available, commonly used type of programmable circuit that can be modified to suit different use cases. It is used in a wide spectrum of industries, including consumer electronics, automotive, and aerospace, as well as in a variety of industrial applications. It is not unique to the financial services industry,[8] or to the Exchange.

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7 Because software can be impacted by workload, FPGA technology in general can provide lower latency during periods of peak activity. The same FPGA technology that will support the GEMX FPGA service is also broadly commercially available for purchase from third-party sellers unrelated to the Exchange.

8 See, e.g., Contrive Datum Insights, "Field-Programmable Gate Array (FPGA) Market is expected to reach around USD 22.10 Billion by 2030, Grow at a CAGR of 15.12% during Forecast Period 2023 to 2030," (February 21, 2023), available at https://www.globenewswire.com/en/news-release/2023/02/21/2612772/0/en/Field-Programmable-Gate-Array-FPGA-Market-Is-Expected-To-Reach-around-USD-22-10-Billion-by-2030-Grow-at-a-CAGR-Of-15-12-during-Forecast-Period-2023-To-2030-Data-By-Contrive-Datum-I.html (describing the general size and state of the FPGA market in 2023).

FPGA technology has been offered by both the Nasdaq Stock Exchange and the Nasdaq Options Market for over a decade,[9] and has been cited by the SEC as an example of a technology useful in the distribution of market data products.[10]

The Exchange proposes to offer the GEMX FPGA service in conjunction with the Exchange's Depth of Market Feed.[11] The Depth of Market Feed is a data feed that provides full order and quote depth information for individual orders and quotes on the Exchange book and last sale information for trades executed on the Exchange. The data provided for each option series includes the symbols (series and underlying security), put or call indicator, expiration date, the strike price of the series, and whether the option series is available for trading on the Exchange and identifies if the series is available for closing transactions only. The feed also provides order imbalances on opening/reopening (size of matched contracts and size of the imbalance).

Customers that choose to purchase the Depth of Market Feed without the GEMX service will receive the same data as customers that elect to purchase the Depth of Market Feed with the GEMX FPGA service.

The proposal to offer optional FPGA technology to customers of the GEMX Depth of Market Feed is in response to customer demand.

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9 See Securities Exchange Act Release No. 67297 (June 28, 2012), 77 FR 39752 (July 5, 2012) (SR-Nasdaq-2012-063) (introducing FPGA technology); see also Nasdaq Data News 2012-13, available at http://www.nasdaqtrader.com/TraderNews.aspx?id=dn2012-13 (introducing TotalView FPGA service as of August 1, 2012); Securities Exchange Act Release No. 74745 (April 16, 2015), 80 FR 22588 (April 22, 2015) (SR-Nasdaq-2015-035) (establishing FPGA for the Nasdaq Options Market); The Nasdaq Stock Market LLC Rules, Equity 7, Section 126(c) (Hardware-Based Delivery of Nasdaq Depth data).

10 See Securities Exchange Act Release No. 90610, 86 FR 18596, 18647 (April 9, 2021) (File No. S7-03-20) (listing field programmable gate array services as an example of a technological innovation that could be employed by competing consolidators as part of the Market Data Infrastructure rule).

11 See Options 3, Section 23(a)(1).

**Proposed Fees**

GEMX proposes separate fees for internal and external distribution for Hardware-Based Delivery of its Depth of Market Feed. The term "Hardware-Based Delivery" means that a distributor is processing data sourced from a hardware-coded market data format such as FPGA technology. Proposed fees are $8,000 per month per distributor for internal only distribution, $1,000 per month per distributor for external only distribution, and the sum of those two fees, $9,000 per month, for both internal and external distribution.[12] These fees would be in addition to any other fees that would apply to the Depth of Market Feed.[13]

Customers that elect to receive the Depth of Market Feed without the FPGA service will pay no fee in addition to the underlying fees listed above.

2. Statutory Basis

The Exchange believes that its proposal is consistent with Section 6(b) of the Act,[14] in general, and furthers the objectives of Sections 6(b)(4) and 6(b)(5) of the Act,[15] in particular, in that it provides for the equitable allocation of reasonable dues, fees, and other charges among members and issuers and other persons using any facility, and is not designed to permit unfair discrimination between customers, issuers, brokers, or dealers.

**Equitable Allocation Of Reasonable Dues, Fees, and Other Charges**

The proposal provides for the equitable allocation of reasonable dues, fees, and other charges because: (i) FPGA technology will facilitate the ingestion of information for some

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12 The difference in amount for external and external distribution reflects Nasdaq's experience that the Exchange's FPGA hardware is best employed at the point of ingestion, as the utility of FPGA technology falls as the data moves farther from the source.

13 See Rules, Options 7, Section 7(C) (Nasdaq GEMX Real-time Depth of Market Raw Data Feed).

14 15 U.S.C. 78f(b).

15 15 U.S.C. 78f(b)(4) and (5).

customers; (ii) the proposed service is entirely optional and any customer can choose to purchase or not for any reason, including the fees charged; and (iii) the proposed fees are comparable to those charged by similarly situated options exchanges.

Enhanced Service

As explained above, FPGA is a hardware-based delivery mechanism that utilizes an integrated circuit that is programmed to reduce jitter, allowing data to be processed in a more deterministic fashion. This can be useful for certain customers, depending on the use case of the customer and the customer's system architecture. This service is not available today on the GEMX exchange, and the proposal will therefore enhance the service offerings for certain customers, as described above. The Exchange is aware of a number of customers have expressed interest in purchasing the FPGA service from this Exchange.

Optionality

The FPGA Service is optional for all categories of customers. No customer and no category of customers (such as, for example, proprietary trading firms, banks, or market makers) are required to purchase the FPGA Service for either legal or technological reasons—even a customer that seeks to reduce jitter.[16]

In the experience of the Nasdaq Options Market, the FPGA Service is purchased by market makers, wholesalers, proprietary trading firms, banks, and others. The Nasdaq exchange is aware of no systematic differences within any of these categories among market participants that choose to use or not to use the Nasdaq FPGA Service.

Customers may choose not to use FPGA technology at all. As noted above, FPGA technology processes data at a consistently predictable rate relative to software. This

[16] As explained below, customers have other options not involving purchase of the GEMX FPGA service to reduce jitter.

predictability in the rate of processing may not be advantageous or optimal for all systems receiving the exchange data feed.

The design of data processing architecture is complex. The ingestion of data from an exchange is just one step in the lifecycle of trading. Customers must generate and submit orders, evaluate trades, and then generate new orders while interacting with multiple exchanges. All of these steps are part of a single trading system. Changing any one step in the process—by, for example, purchasing the Exchange's FPGA Service when other exchanges may not offer FPGA—often results in the need for changes to other aspects of the process. As such, the decision to buy the Exchange's FPGA Service will be based on whether the service is compatible with the customer's trading system as a whole, not just on whether it may facilitate the processing of data from a single exchange. The appropriateness of any particular solution will depend on the customer's system architecture, and the specific use cases for the market data consumed.

Even if a customer chooses to use FPGA technology, purchase from the Exchange is only one of several options available, as such technology is not unique to the Exchange or even the financial services industry. Third-party data vendors offer FPGA technology services, or a customer may purchase and deploy its own FPGA hardware, without purchasing the proposed FPGA technology service from the Exchange, *after* receiving data from the Exchange. All of these are viable options; the benefits of any particular option will depend on the particular customer's systems and use cases.

Over ten years of experience in selling the FPGA Service for the Nasdaq Options Market ("NOM") has shown that the majority of depth of book customers—over 80 percent—do not use Nasdaq's FPGA Service.

The NOM experience also shows that customer demand changes over time, even for customers that continue to purchase depth of book information. Of the firms that purchased but later cancelled the FPGA service at NOM, approximately 66% continued to purchase depth of market data even after they cancelled FPGA, demonstrating that customers can discontinue the use of the FPGA Service at any time, for any reason.

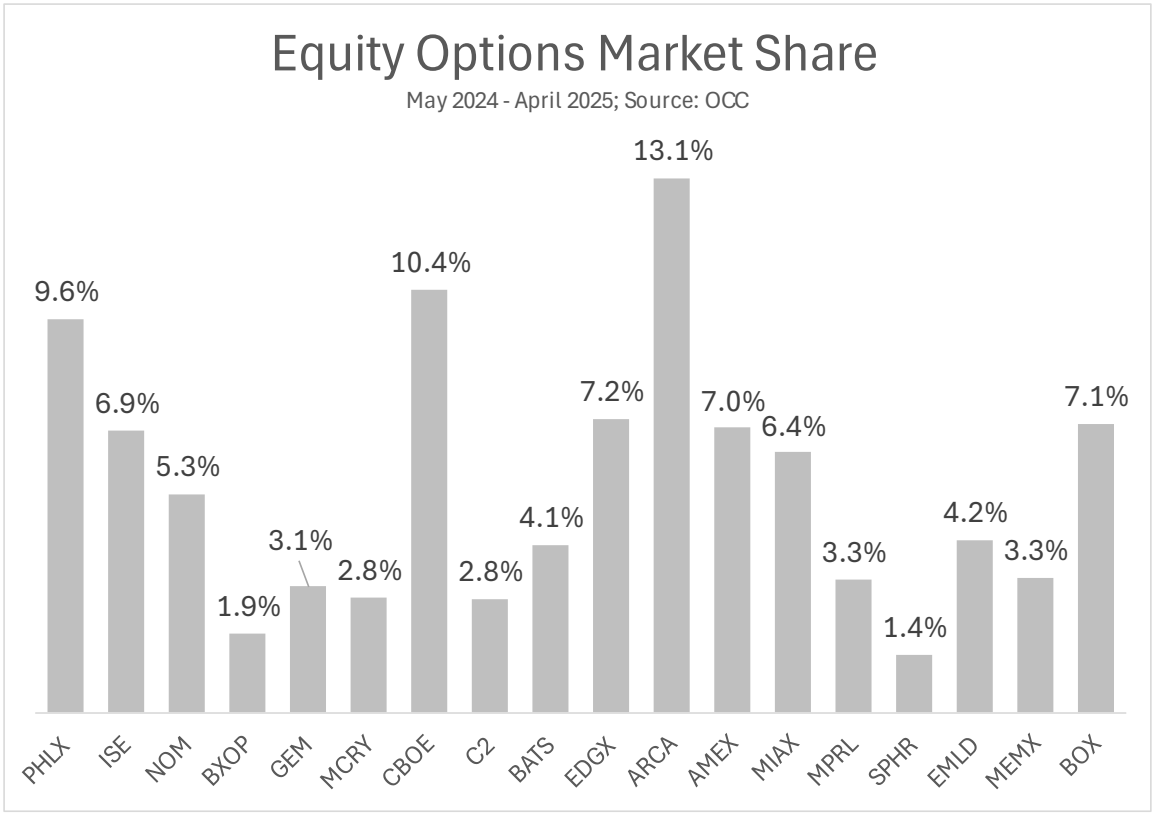
Customers that choose to purchase the Depth of Market Feed without the GEMX FPGA service will receive the same data as customers that elect to purchase the Depth of Market Feed with the GEMX FPGA service.

Comparability

The proposed fees for the GEMX FPGA service are comparable to those currently charged for the use of FPGA technology in the Nasdaq Options Market based on market share. No other options exchange currently offers FPGA technology as a separate service.

The Exchange has assessed the market share[17] for the options markets utilizing total options contracts traded between May 2024 and April 2025, as set forth in the following graph:

[17] Market share is the percentage of volume on a particular exchange relative to the total volume across all exchanges, and indicates the amount of order flow directed to that exchange. High levels of market share enhance the value of trading and ports. Total contracts include both multi-list options and proprietary options products. Proprietary options products are products with intellectual property rights that are not multi-listed.




FPGA fees for the Nasdaq Options Market are currently $10,530 for internal only distribution, $1,000 for use in external only distribution, and the sum of those two fees, $11,530, for both internal and external distribution.[18] As explained above, the proposed fees for GEMX are $8,000 per month per distributor for internal only distribution, $1,000 per month per distributor for external only distribution, and the sum of those two fees, $9,000 per month, for both internal and external distribution.[19]

The difference in internal distribution fees reflects the underlying difference in market share. GEMX is proposing fees of $8,000 per month for internal distribution as compared to $10,530 for the Nasdaq Options Market. The lower fee reflects GEMX's market share of 3.1%

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18 See Rules of the Nasdaq Stock Market LLC, Options 7, Section 4 (Hardware-Based Delivery of NOM Depth data).

19 The difference in amount for external and external distribution reflects Nasdaq's experience that the Exchange's FPGA hardware is best employed at the point of ingestion, as the utility of FPGA technology falls as the data moves farther from the source.

as compared to NOM's market share of 5.3%. Because NOM has more liquidity than GEMX, NOM charges more than GEMX for FPGA hardware to account for the greater amount of information being processed. Because the differences between the GEMX and NOM fees are reasonably related to market share, the fees are comparable.

With respect to external only distribution, the proposed GEMX fees of $1,000 are the same as those charged for the Nasdaq Options Market and Nasdaq proposes that they remain consistent across all options exchanges. This is because the external FPGA service is primarily used to provide two or more firms with the option of sharing the benefits of that technology. The external distribution fee allows them to do so, providing more options for configuring this service. As such, it is reasonable to charge a flat fee for this service without regard to market share, and the proposed ISE fees are therefore comparable to the fees currently charged by NOM.

The combined fees for both are the sum of the fees for internal and external distribution, respectively. As both component fees are comparable, the sum is also comparable.

**No Unfair Discrimination**

The Proposal is not unfairly discriminatory. The FPGA Service will be available to all customers on a non-discriminatory basis, and therefore the proposed fees are not designed to permit unfair discrimination between customers, issuers, brokers, or dealers.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change will impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Act.

Nothing in the Proposal burdens inter-market competition (the competition among self-regulatory organizations) because approval of the Proposal does not impose any burden on the

ability of other exchanges to compete. As noted above, FPGA technology is generally available and any exchange has the ability to offer such technology if it chooses.

Nothing in the Proposal burdens intra-market competition (the competition among consumers of exchange data) because the FPGA Service will be available to any customer under the same fee schedule as any other customer, and any market participant that wishes to purchase the FPGA Service can do so on a non-discriminatory basis.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

No written comments were either solicited or received.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

The foregoing rule change has become effective pursuant to Section 19(b)(3)(A)(ii) of the Act.[20] At any time within 60 days of the filing of the proposed rule change, the Commission summarily may temporarily suspend such rule change if it appears to the Commission that such action is: (i) necessary or appropriate in the public interest; (ii) for the protection of investors; or (iii) otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission shall institute proceedings to determine whether the proposed rule should be approved or disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. Comments may be submitted by any of the following methods:

[20] 15 U.S.C. 78s(b)(3)(A)(ii).

Electronic Comments:

- Use the Commission's internet comment form (https://www.sec.gov/rules/sro.shtml); or
- Send an email to rule-comments@sec.gov. Please include file number SR-GEMX-2025-25 on the subject line.

Paper Comments:

- Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549-1090.

All submissions should refer to file number SR-GEMX-2025-25. This file number should be included on the subject line if email is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's internet website (https://www.sec.gov/rules/sro.shtml). Copies of the filing will be available for inspection and copying at the principal office of the Exchange. Do not include personal identifiable information in submissions; you should submit only information that you wish to make available publicly. We may redact in part or withhold entirely from publication submitted material that is obscene or subject to copyright protection. All submissions should refer to file number SR-GEMX-2025-25 and should be submitted on or before [INSERT DATE 21 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*].

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.[21]

**Sherry R. Haywood,**

[21] 17 CFR 200.30-3(a)(12).

*Assistant Secretary*.

**EXHIBIT 5**

Deleted text is [bracketed]. New text is underlined.

**NASDAQ GEMX, LLC RULES**

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**Options Rules**

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**Options 7: Pricing Schedule**

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**Section 7. Market Data**

**A – B No change**

**C. Nasdaq GEMX Real-time Depth of Market Raw Data Feed**

Professionals (internal use only).

> $1,580 (op. 1/1/25); $1,640 (op. 1/1/26); $1,680 (op. 1/1/27) per month per distributor.* $10 per month per controlled device.** Each distributor's combined maximum fee is capped at $2,100 (op. 1/1/25); $2,190 (op. 1/1/26); $2,240 (op. 1/1/27) per month.

Professionals (external redistribution by distributor through a controlled device).

> $1,580 (op. 1/1/25); $1,640 (op. 1/1/26); $1,680 (op. 1/1/27) per month per distributor. $10 per month per controlled device. Each distributor's combined maximum fee is capped at $2,630 (op. 1/1/25); $2,740 (op. 1/1/26); $2,800 (op. 1/1/27) per month.

Non-Professional (external redistribution by distributor through a controlled device).

> $1,500 per month per distributor. $1 per month per controlled device. Each distributor's combined maximum fee is capped at $2,500 per month.

* A distributor is any firm that receives the Nasdaq GEMX Real-time Depth of Market Raw Data Feed directly from Nasdaq GEMX or indirectly through a redistributor and then distributes it either internally or externally. A redistributor includes market data vendors and connectivity providers such as extranets and private network providers.

** A controlled device is any device that a distributor of the Nasdaq GEMX Real-time Depth of Market Raw Data Feed permits to access the information in the Nasdaq GEMX Real-time Depth of Market Raw Data Feed.

Hardware-Based Delivery of Real-time Depth of Market Raw Data Feed.

The charges to be paid by Distributors for processing the Real-time Depth of Market Raw Data Feed using hardware-based delivery technology, in addition to other applicable fees in this section, shall be:

| **Hardware-Based Delivery** | **Monthly Fee** |
|---|---|
| Internal Only Distributor | $8,000 Per Distributor |
| External Only Distributor | $1,000 Per Distributor |
| Internal and External Distributor | $9,000 Per Distributor |

The term "Hardware-Based Delivery" means that a distributor is processing data sourced from a hardware-coded market data format such as field-programmable gate array ("FPGA") technology.

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