

Required fields are shown with yellow backgrounds and asterisks.

Page 1 of * <input type="text" value="30"/>	SECURITIES AND EXCHANGE COMMISSION WASHINGTON, D.C. 20549 Form 19b-4	File No.* SR - <input type="text" value="2018"/> - * <input type="text" value="095"/>
		Amendment No. (req. for Amendments *) <input type="text"/>

Filing by Cboe BZX Exchange, Inc.  
Pursuant to Rule 19b-4 under the Securities Exchange Act of 1934

Initial * <input checked="" type="checkbox"/>	Amendment * <input type="checkbox"/>	Withdrawal <input type="checkbox"/>	Section 19(b)(2) * <input type="checkbox"/>	Section 19(b)(3)(A) * <input checked="" type="checkbox"/>	Section 19(b)(3)(B) * <input type="checkbox"/>
			Rule		
Pilot <input type="checkbox"/>	Extension of Time Period for Commission Action * <input type="checkbox"/>	Date Expires * <input type="text"/>	<input type="checkbox"/> 19b-4(f)(1)	<input type="checkbox"/> 19b-4(f)(4)	
			<input checked="" type="checkbox"/> 19b-4(f)(2)	<input type="checkbox"/> 19b-4(f)(5)	
			<input type="checkbox"/> 19b-4(f)(3)	<input type="checkbox"/> 19b-4(f)(6)	

Notice of proposed change pursuant to the Payment, Clearing, and Settlement Act of 2010	Security-Based Swap Submission pursuant to the Securities Exchange Act of 1934
Section 806(e)(1) * <input type="checkbox"/>	Section 806(e)(2) * <input type="checkbox"/>
Section 3C(b)(2) * <input type="checkbox"/>	

Exhibit 2 Sent As Paper Document <input type="checkbox"/>	Exhibit 3 Sent As Paper Document <input type="checkbox"/>
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**Description**

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

The Exchange is proposing to amend the BZX Equities Fee Schedule.

**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 \*  Last Name \*

Title \*

E-mail \*

Telephone \*  Fax

**Signature**

Pursuant to the requirements of the Securities Exchange Act of 1934,

has duly caused this filing to be signed on its behalf by the undersigned thereunto duly authorized.

(Title \*)

Date  Assistant General Counsel

By

(Name \*)

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

SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

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

**Form 19b-4 Information \***

Add Remove View

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 \***

Add Remove View

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 Advance 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, security-based swap submission, or advance notice 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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Exhibit Sent As Paper Document

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 3 - Form, Report, or Questionnaire**

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Exhibit Sent As Paper Document

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 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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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) Pursuant to the provisions of Section 19(b)(1) of the Securities Exchange Act of 1934 (“Act”)<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> Cboe BZX Exchange, Inc. (“BZX” or the “Exchange”) is filing with the Securities and Exchange Commission (the “Commission”) a proposed rule change to amend the Exchange’s fee schedule applicable to its equities trading platform (“BZX Equities”) to change the nomenclature associated with the current logical port fees charged for order entry ports to reflect a new match capacity fee that better captures the service offering of these products.

While the changes proposed herein are effective upon filing, the Exchange has designated the amendments to become operative on January 2, 2019. The text of the proposed changes to the fee schedule are attached as Exhibit 5. The text of the proposed rule change is available on the Exchange’s website at <http://markets.cboe.com/>, at the Exchange’s principal office and at the Public Reference Room of the Commission.

(b) Not applicable.

(c) Not applicable.

2. Procedures of the Self-Regulatory Organization

(a) The Exchange’s President (or designee) pursuant to delegated authority approved the proposed rule change on December 17, 2018.

(b) Please refer questions and comments on the proposed rule change to Patrick Sexton, Executive Vice President, General Counsel, and Corporate Secretary, (312) 786-7462, or Adrian Griffiths, Assistant General Counsel, (646) 856-8723.

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<sup>1</sup> 15 U.S.C. 78s(b)(1).

<sup>2</sup> 17 CFR 240.19b-4.

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

(a) Purpose

The Exchange offers two types of logical ports that permit members to enter orders into its trading system – i.e., Financial Information eXchange (“FIX”) and Binary Order Entry (“BOE”). The purpose of the proposed rule change is to amend the BZX Equities fee schedule to change the nomenclature associated with the current logical port fees charged for these offerings to reflect a new match capacity fee that better captures the service offering of these products. As communicated to members, although the Exchange is changing its nomenclature to better reflect the services provided to market participants, the proposed capacity allocations described in this proposed rule change would continue to operate in the same manner as logical ports currently used to connect to the Exchange. The Exchange believes, however, that properly characterizing these fees as “capacity fees,” and specifying the actual levels of message traffic supported by these products, will increase transparency and clarity around its charges and reduce confusion about the value of the services being provided to market participants that choose to access these services.

Today, the Exchange charges all logical connectivity fees on a “per port” basis. A logical port represents a technical port established by the Exchange within the Exchange’s trading system for the delivery and/or receipt of trading messages – i.e., orders, accepts, cancels, transactions, etc.<sup>3</sup> Market participants that wish to connect directly to the Exchange can request a number of different types of ports, including ports that support order entry, customizable purge

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<sup>3</sup> The Exchange separately offers physical ports that grant access to the Exchange’s physical connectivity infrastructure.

functionality, or the receipt of market data. Firms can also choose to connect indirectly through a number of different third party providers, such as another broker-dealer or service bureau that the Exchange permits through specialized access to the Exchange's trading system and that may provide additional services or operate at a lower mutualized cost by providing access to multiple members.<sup>4</sup> Each logical port that supports order entry entitles a firm to submit message traffic of up to 5,000 messages per second, an amount equivalent to 117 million messages daily, and is currently charged at a rate of \$550 per month.<sup>5</sup>

An obvious driver for a member's decision to purchase multiple ports is their desire to send or receive additional levels of message traffic in some manner, either by increasing the member's total amount of message capacity available, or by segregating order flow for different trading desks and clients to avoid latency sensitive applications from competing for a single thread of resources. For example, a member may purchase one or more ports for its market making business based on the amount of message traffic needed to support that business, and then purchase separate ports for proprietary trading or customer facing businesses so that those businesses have their own distinct connection, allowing the firm to send multiple messages into the Exchange's trading system in parallel rather than sequentially. Some members that provide direct market access to their customers also purchase separate ports for different clients as a service for latency sensitive customers that desire the lowest possible latency to improve trading

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<sup>4</sup> 24% of members that traded equities on BZX in November determined that their business does not require direct order entry access, and instead connect indirectly to the Exchange today through a service bureau or other service provider.

<sup>5</sup> Logical port fees are limited to logical ports within the primary data center. No logical port fees are assessed for redundant secondary data center ports. See BZX Equities Fee Schedule, Logical Port Fees. New requests are prorated for the first month of service. Cancellation requests are billed in full month increments as firms are required to pay for the service for the remainder of the month, unless the session is terminated within the first month of service. Id.

performance. Thus, while a smaller firm with a simple business model may be able to transact on the Exchange using one or two FIX or BOE ports that are billed at a modest rate of \$550 per month each,<sup>6</sup> a larger market participant with a substantial and diversified U.S. equities business may purchase additional order entry ports to support both the volume and types of activity that they conduct on the Exchange.

Based on data analyzed by the Exchange, the top ten BZX members, which account as a group for nearly two-thirds of BZX equities volume, have chosen to purchase 47% of order entry ports. More simply put, the top ten BZX members have purchased the ability to use 47% of the capacity of the BZX trading system. In addition to the Exchange's commercial obligations to maintain resilient systems capable of efficiently processing the message traffic that originates from those firms, the Exchange is now also under regulatory obligations to maintain resilient systems while receiving messages at the peak capacity of those ports. While the Exchange does not know the trading results of its members, it is clear that the members with larger businesses, based on volume executed, have larger demands for the capacity of the Exchange's systems. It should also be noted that half of those top ten members are *net positive* in terms of total revenue flows as the trading rebates provided to these firms for liquidity and order flow *exceed* the sum of all non-transaction and transaction fees collected from them.

In addition to volume, the types of trading strategies employed by a particular member may also impact the amount of message traffic delivered to Exchange systems, and hence the number of ports purchased to support their equities trading business. As a national securities exchange, the Exchange is tasked with cultivating a vibrant and competitive market that facilitates fair and orderly trading between a wide range of market participants that employ a

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<sup>6</sup> 18% of members that traded equities on BZX in November purchased only one or two order entry ports.

wide range of trading strategies. These market participants together help cultivate the equities trading ecosystem, and both support that ecosystem in different ways and use different amounts of resources (i.e., capacity) in doing so. Some simple trading strategies such as those employed by investors seeking to source available liquidity at the national best bid or offer may require a modest amount of capacity. Other trading strategies used by professional market makers or algorithmic traders that involve the frequent entry, modification, and cancellation of orders, may require additional capacity, including potentially higher peak capacity when multiple trading strategies or algorithms across multiple logical ports attempt to access the Exchange at similar and granular time intervals due to anticipated changes in the market. The Exchange believes that charging for capacity ensures that firms that demand the most resources are charged appropriately, while firms that demand relatively less capacity can connect and trade on the Exchange at a low cost.

Charging fees based on allocated capacity thus ensures that the cost of access is equitably apportioned between market participants based on their business needs. Nevertheless, the Exchange believes that there is some confusion in the industry surrounding how the Exchange and other national securities exchanges charge for connectivity, including the burden on smaller firms that actually benefit from the current structure where market participants are charged based on the number of ports (i.e., capacity) that they request. In the interest of transparency, the Exchange is therefore proposing to replace its “per port” fees with capacity fees that more accurately capture the intent this fee. While the Exchange’s logical connectivity offerings will continue to operate in the same manner as they do today, the Exchange believes that the proposed changes in terminology, which connect the fees charged for logical connectivity to the capacity requested by market participants, would shed additional light on this service offering.

As proposed, fees would be explicitly assessed based on the capacity allocation (i.e., messages per second) requested for order entry in the Exchange's primary data center.<sup>7</sup> Specifically, the match capacity fee would be \$550 per month for an allocation of 5,000 messages per second.<sup>8</sup> Members that require more capacity due to the size of their U.S. equities business, the trading strategies that they employ, the desire to reduce latency by maintaining multiple separate logical connections, or any other reason, would be able to continue purchasing additional capacity allocations in the primary data center at the same monthly rate. As is the case today, no fee would be assessed for redundant capacity in the secondary data center thus providing members with free, identical capacity allocations in the secondary data center based on their capacity requests in the primary.

(b) Statutory Basis

The Exchange believes that the proposed rule change is consistent with Section 6 of the Act,<sup>9</sup> in general, and furthers the requirements of Section 6(b)(4),<sup>10</sup> in particular, as it is designed to provide for the equitable allocation of reasonable dues, fees and other charges among its members and other persons using its facilities. In light of recent debate and calls for transparency around exchange charges for market access, the Exchange believes that the proposed changes to how fees for logical connectivity are reflected on the fee schedule would shed additional light on how market participants are charged for connectivity. The Exchange believes that its fees for logical connectivity, which would now be reflected as a match capacity fee, continue to be

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<sup>7</sup> Firms that already connect through logical ports would have uninterrupted service across the established connections and would not need to re-request capacity allocations.

<sup>8</sup> New requests would continue to be prorated for the first month of service, and cancellation requests would be billed in full month increments. See note 5 supra.

<sup>9</sup> 15 U.S.C. 78f.

<sup>10</sup> 15 U.S.C. 78f(b)(4).

reasonable, equitable, and not unfairly discriminatory as they are designed to ensure that firms that use the most capacity pay for that capacity, rather than placing that burden on market participants that have more modest needs.

Today, the Exchange charges a “per port” fee for logical connectivity. This fee is in effect a capacity fee as each FIX or BOE port used for order entry supports a specified capacity (i.e., messages per second) in the matching engine, and firms purchase additional logical ports when they require more capacity due to their business needs. Smaller members that demand more limited message traffic may connect through a service bureau or other service provider, as chosen by 24% of members,<sup>11</sup> or may choose to purchase one or two order entry ports, as chosen by 18% of members.<sup>12</sup> At the same time, firms with more order flow, or that employ unique trading strategies that result in increased message traffic throughout the trading day or at times of higher peak traffic, may choose to purchase additional ports to support their business. The Exchange believes that the proposed match capacity fees are appropriate as these fees would ensure that market participants continue to pay for the amount of capacity that they request. The Exchange therefore believes that its logical connectivity fees are aligned with the goals of the Commission in facilitating a competitive market for all firms that trade on the Exchange.

The proposed match capacity fee would not change the services provided to market participants, and would be billed at the same monthly rate as currently charged today on a per port basis, but would ensure that the way the Exchange’s fees are described is more closely aligned with the goal of those fees. Specifically, each match capacity fee paid by a member

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<sup>11</sup> See supra note 4.

<sup>12</sup> See supra note 6. Altogether, a significant percentage of members (42%) that trade equities on BZX purchase two or fewer order entry ports – i.e., including members that purchase no ports and connect indirectly instead.

would allow that firm to continue to submit up to 5,000 messages per second to the Exchange for processing in accordance with the Exchange's trading rules.<sup>13</sup> For only \$550 per month a member would therefore be able submit as many as 117 million messages daily into the Exchange's trading system. In addition, market participants that desire more total capacity due to their business needs, or that wish to segregate order flow by purchasing separate capacity allocations to reduce latency or for other operational reasons, would be permitted to choose to purchase such additional capacity at the same marginal cost. The Exchange believes that it is reasonable, equitable, and not unfairly discriminatory to charge for connectivity in this manner as this structure ensures that the firms can choose based on their needs, and the firms that pay the most are the ones that demand the most resources from the Exchange.

To illustrate the large variance in message traffic used by BZX members, the Exchange compiled statistics on the average message traffic generated during November 2018 by each firm across three periods: (1) the open (9:30 a.m. – 9:35 a.m.), (2) regular trading (9:35 a.m. – 3:55 p.m.), and (3) the close (3:55 p.m. – 4:00 p.m.).<sup>14</sup> The summary table below shows the average order rate / second for firms,<sup>15</sup> bucketed in groups based on their rank in the distribution. Significantly higher message traffic is generated by firms at the top of the distribution, which represents the firms with the largest U.S. equities businesses, with firms at the bottom of the distribution accounting for a small percentage of traffic generated.

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<sup>13</sup> The Exchange has invested considerable time and resources in designing and maintaining a resilient trading system that is capable of handling the message traffic produced by members in a manner that complies with its obligations as a national securities exchange.

<sup>14</sup> The dataset includes all firms that have purchased order entry ports, including BZX members or non-members that provide indirect access to the Exchange.

<sup>15</sup> The order rate includes, for each firm, all new orders, modifies, and cancel messages submitted into the trading system. The average order rate is calculated by dividing the number of messages by the number of seconds for the period.

**Summary Table: Average Order Rate / Second**

<b>Rank</b>	<b>Open</b>	<b>Regular Trading</b>	<b>Close</b>
1-5	4,693	2,059	3,904
6-10	1,743	739	1,173
11-20	666	296	437
21-30	176	99	207
31-40	123	42	68
41-50	68	12	28
51+	2	1	2

While message traffic for individual market participants typically peaks at higher levels during certain periods of greater market activity, not a single firm had an average order rate that exceeded the 5,000 messages per second permitted over a single port for the period of regular trading that accounts for the substantial majority of the trading day. In fact, only five firms exceeded an average of greater than 1,000 messages per second, and these firms collectively generated more message traffic than every other firm combined.<sup>16</sup> In the first and last five minutes of the trading day around the open and close of trading, where volatility and therefore message traffic is typically higher, only three firms had an average order rate that exceeded 5,000 messages per second, with the top five again accounting for more message traffic than all other market participants combined in both of these periods. A number of sophisticated market participants may also have higher peak traffic intraday if their business involves the frequent

<sup>16</sup> Individually, all but one of the firms in the top five generated more message traffic than the total message traffic generated by all firms outside of the top 20 combined, and the firm with the highest order rate alone generated almost twice as much as such firms.

modification or cancellation of a large number of orders at very granular millisecond or microsecond time intervals, particularly when multiple trading strategies or algorithms that come through different logical connections attempt to access the market simultaneously. The Exchange must build resilient trading systems that are able support significant bursts in message traffic from such firms, including most recently on October 18, 2018 when the Exchange successfully processed a historical high burst in message traffic of 1,140,183 messages per second.

Thus, although certain broker-dealers with large and profitable U.S. equities businesses may purchase multiple order entry ports, the Exchange believes that this is appropriately driven by the amount of message traffic that they generate throughout the day and at periods where more message traffic is generated. Furthermore, the data shows that market participants with modest capacity needs can access the Exchange at a very low cost. While the Exchange believes that encouraging order flow and liquidity from a diverse set of market participants facilitates price discovery and improves the quality of our markets, the Exchange also believes that firms that desire additional capacity to support trading strategies with higher peak traffic should continue to be charged for the capacity that they request rather than have this cost mutualized across firms with a much smaller footprint.

With the proposed fees, firms with modest capacity needs could continue to pay for and operate their business with the baseline capacity of 5,000 messages per second, which represents the equivalent of one logical port today. Furthermore, large and sophisticated market participants that require significantly more capacity than their smaller counterparts would be able to purchase that capacity from the Exchange at a reasonable marginal cost and thereby satisfy their business needs, including the need for higher peak traffic. The Exchange therefore believes that the proposed match capacity fee both appropriately reflects the benefits to different firms of being

able to send messages into the Exchange's trading system, and facilitates the Commission's goal of ensuring that critical market infrastructure has "levels of capacity, integrity, resiliency, availability, and security adequate to maintain their operational capability and promote the maintenance of fair and orderly markets."<sup>17</sup>

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

The Exchange does not believe that the proposed rule change would result in any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act. As explained herein, the proposed rule change is designed to increase transparency around the Exchange's fees by changing the nomenclature associated with "per port" fees for order entry logical ports to reflect a capacity fee. The Exchange believes that charging logical connectivity fees based on the capacity used by a market participant is pro-competitive because it ensures that firms with the largest U.S. equities market share, or that employ trading strategies that result in increased message traffic, continue to pay for the capacity that they request, while smaller firms can connect and trade at a low cost.

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

Not applicable.

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<sup>18</sup> and Rule 19b-4(f)(2) thereunder,<sup>19</sup> the

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<sup>17</sup> See Securities Exchange Act Release No. 73639 (November 19, 2014), 79 FR 72251 (December 5, 2014) (File No. S7-01-13) (Regulation SCI Adopting Release).

<sup>18</sup> 15 U.S.C. 78s(b)(3)(A)(ii).

Exchange has designated this proposal as establishing or changing a due, fee, or other charge imposed by the self-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 necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Act.

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

Not applicable.

11. Exhibits

Exhibit 1 – Form of Notice of Proposed Rule Change for Federal Register

Exhibit 5 – Text of Proposed Rule Change

EXHIBIT 1**SECURITIES AND EXCHANGE COMMISSION**

[Release No. 34- ; File No. SR-CboeBZX-2018-095]

[Insert date]

Self-Regulatory Organizations; Cboe BZX Exchange, Inc.; Notice of Filing and Immediate Effectiveness of a Proposed Rule Change to Amend the BZX Equities Fee Schedule

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (the “Act”),<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> notice is hereby given that on [insert date], Cboe BZX Exchange, Inc. (the “Exchange” or “BZX”) filed with the Securities and Exchange Commission (the “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**

Cboe BZX Exchange, Inc. is proposing a rule change to change the nomenclature associated with the current logical port fees charged for order entry ports to reflect a new match capacity fee that better captures the service offering of these products.. The text of the proposed rule change is provided in Exhibit 5.

The text of the proposed rule change is also available on the Exchange’s website (<http://www.cboe.com/AboutCBOE/CBOELegalRegulatoryHome.aspx>), at the Exchange’s Office of the Secretary, and at the Commission’s Public Reference Room.

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<sup>1</sup> 15 U.S.C. 78s(b)(1).

<sup>2</sup> 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 Exchange offers two types of logical ports that permit members to enter orders into its trading system – i.e., Financial Information eXchange (“FIX”) and Binary Order Entry (“BOE”). The purpose of the proposed rule change is to amend the BZX Equities fee schedule to change the nomenclature associated with the current logical port fees charged for these offerings to reflect a new match capacity fee that better captures the service offering of these products. As communicated to members, although the Exchange is changing its nomenclature to better reflect the services provided to market participants, the proposed capacity allocations described in this proposed rule change would continue to operate in the same manner as logical ports currently used to connect to the Exchange. The Exchange believes, however, that properly characterizing these fees as “capacity fees,” and specifying the actual levels of message traffic supported by these products, will increase transparency and clarity around its charges and reduce confusion about the value of the services being provided to market participants that choose to access these services.

Today, the Exchange charges all logical connectivity fees on a “per port” basis. A logical port represents a technical port established by the Exchange within the Exchange’s trading system for the delivery and/or receipt of trading messages – i.e., orders, accepts, cancels, transactions, etc.<sup>3</sup> Market participants that wish to connect directly to the Exchange can request a number of different types of ports, including ports that support order entry, customizable purge functionality, or the receipt of market data. Firms can also choose to connect indirectly through a number of different third party providers, such as another broker-dealer or service bureau that the Exchange permits through specialized access to the Exchange’s trading system and that may provide additional services or operate at a lower mutualized cost by providing access to multiple members.<sup>4</sup> Each logical port that supports order entry entitles a firm to submit message traffic of up to 5,000 messages per second, an amount equivalent to 117 million messages daily, and is currently charged at a rate of \$550 per month.<sup>5</sup>

An obvious driver for a member’s decision to purchase multiple ports is their desire to send or receive additional levels of message traffic in some manner, either by increasing the member’s total amount of message capacity available, or by segregating order flow for different trading desks and clients to avoid latency sensitive applications

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<sup>3</sup> The Exchange separately offers physical ports that grant access to the Exchange’s physical connectivity infrastructure.

<sup>4</sup> 24% of members that traded equities on BZX in November determined that their business does not require direct order entry access, and instead connect indirectly to the Exchange today through a service bureau or other service provider.

<sup>5</sup> Logical port fees are limited to logical ports within the primary data center. No logical port fees are assessed for redundant secondary data center ports. See BZX Equities Fee Schedule, Logical Port Fees. New requests are prorated for the first month of service. Cancellation requests are billed in full month increments as firms are required to pay for the service for the remainder of the month, unless the session is terminated within the first month of service. Id.

from competing for a single thread of resources. For example, a member may purchase one or more ports for its market making business based on the amount of message traffic needed to support that business, and then purchase separate ports for proprietary trading or customer facing businesses so that those businesses have their own distinct connection, allowing the firm to send multiple messages into the Exchange's trading system in parallel rather than sequentially. Some members that provide direct market access to their customers also purchase separate ports for different clients as a service for latency sensitive customers that desire the lowest possible latency to improve trading performance. Thus, while a smaller firm with a simple business model may be able to transact on the Exchange using one or two FIX or BOE ports that are billed at a modest rate of \$550 per month each,<sup>6</sup> a larger market participant with a substantial and diversified U.S. equities business may purchase additional order entry ports to support both the volume and types of activity that they conduct on the Exchange.

Based on data analyzed by the Exchange, the top ten BZX members, which account as a group for nearly two-thirds of BZX equities volume, have chosen to purchase 47% of order entry ports. More simply put, the top ten BZX members have purchased the ability to use 47% of the capacity of the BZX trading system. In addition to the Exchange's commercial obligations to maintain resilient systems capable of efficiently processing the message traffic that originates from those firms, the Exchange is now also under regulatory obligations to maintain resilient systems while receiving messages at the peak capacity of those ports. While the Exchange does not know the trading results of its members, it is clear that the members with larger businesses, based

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<sup>6</sup> 18% of members that traded equities on BZX in November purchased only one or two order entry ports.

on volume executed, have larger demands for the capacity of the Exchange's systems. It should also be noted that half of those top ten members are *net positive* in terms of total revenue flows as the trading rebates provided to these firms for liquidity and order flow *exceed* the sum of all non-transaction and transaction fees collected from them.

In addition to volume, the types of trading strategies employed by a particular member may also impact the amount of message traffic delivered to Exchange systems, and hence the number of ports purchased to support their equities trading business. As a national securities exchange, the Exchange is tasked with cultivating a vibrant and competitive market that facilitates fair and orderly trading between a wide range of market participants that employ a wide range of trading strategies. These market participants together help cultivate the equities trading ecosystem, and both support that ecosystem in different ways and use different amounts of resources (i.e., capacity) in doing so. Some simple trading strategies such as those employed by investors seeking to source available liquidity at the national best bid or offer may require a modest amount of capacity. Other trading strategies used by professional market makers or algorithmic traders that involve the frequent entry, modification, and cancellation of orders, may require additional capacity, including potentially higher peak capacity when multiple trading strategies or algorithms across multiple logical ports attempt to access the Exchange at similar and granular time intervals due to anticipated changes in the market. The Exchange believes that charging for capacity ensures that firms that demand the most resources are charged appropriately, while firms that demand relatively less capacity can connect and trade on the Exchange at a low cost.

Charging fees based on allocated capacity thus ensures that the cost of access is equitably apportioned between market participants based on their business needs. Nevertheless, the Exchange believes that there is some confusion in the industry surrounding how the Exchange and other national securities exchanges charge for connectivity, including the burden on smaller firms that actually benefit from the current structure where market participants are charged based on the number of ports (i.e., capacity) that they request. In the interest of transparency, the Exchange is therefore proposing to replace its “per port” fees with capacity fees that more accurately capture the intent this fee. While the Exchange’s logical connectivity offerings will continue to operate in the same manner as they do today, the Exchange believes that the proposed changes in terminology, which connect the fees charged for logical connectivity to the capacity requested by market participants, would shed additional light on this service offering. As proposed, fees would be explicitly assessed based on the capacity allocation (i.e., messages per second) requested for order entry in the Exchange’s primary data center.<sup>7</sup> Specifically, the match capacity fee would be \$550 per month for an allocation of 5,000 messages per second.<sup>8</sup> Members that require more capacity due to the size of their U.S. equities business, the trading strategies that they employ, the desire to reduce latency by maintaining multiple separate logical connections, or any other reason, would be able to continue purchasing additional capacity allocations in the primary data center at the same monthly rate. As is the case today, no fee would be assessed for redundant

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<sup>7</sup> Firms that already connect through logical ports would have uninterrupted service across the established connections and would not need to re-request capacity allocations.

<sup>8</sup> New requests would continue to be prorated for the first month of service, and cancellation requests would be billed in full month increments. See note 5 *supra*.

capacity in the secondary data center thus providing members with free, identical capacity allocations in the secondary data center based on their capacity requests in the primary.

## 2. Statutory Basis

The Exchange believes that the proposed rule change is consistent with Section 6 of the Act,<sup>9</sup> in general, and furthers the requirements of Section 6(b)(4),<sup>10</sup> in particular, as it is designed to provide for the equitable allocation of reasonable dues, fees and other charges among its members and other persons using its facilities. In light of recent debate and calls for transparency around exchange charges for market access, the Exchange believes that the proposed changes to how fees for logical connectivity are reflected on the fee schedule would shed additional light on how market participants are charged for connectivity. The Exchange believes that its fees for logical connectivity, which would now be reflected as a match capacity fee, continue to be reasonable, equitable, and not unfairly discriminatory as they are designed to ensure that firms that use the most capacity pay for that capacity, rather than placing that burden on market participants that have more modest needs.

Today, the Exchange charges a “per port” fee for logical connectivity. This fee is in effect a capacity fee as each FIX or BOE port used for order entry supports a specified capacity (i.e., messages per second) in the matching engine, and firms purchase additional logical ports when they require more capacity due to their business needs. Smaller members that demand more limited message traffic may connect through a

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<sup>9</sup> 15 U.S.C. 78f.

<sup>10</sup> 15 U.S.C. 78f(b)(4).

service bureau or other service provider, as chosen by 24% of members,<sup>11</sup> or may choose to purchase one or two order entry ports, as chosen by 18% of members.<sup>12</sup> At the same time, firms with more order flow, or that employ unique trading strategies that result in increased message traffic throughout the trading day or at times of higher peak traffic, may choose to purchase additional ports to support their business. The Exchange believes that the proposed match capacity fees are appropriate as these fees would ensure that market participants continue to pay for the amount of capacity that they request. The Exchange therefore believes that its logical connectivity fees are aligned with the goals of the Commission in facilitating a competitive market for all firms that trade on the Exchange.

The proposed match capacity fee would not change the services provided to market participants, and would be billed at the same monthly rate as currently charged today on a per port basis, but would ensure that the way the Exchange's fees are described is more closely aligned with the goal of those fees. Specifically, each match capacity fee paid by a member would allow that firm to continue to submit up to 5,000 messages per second to the Exchange for processing in accordance with the Exchange's trading rules.<sup>13</sup> For only \$550 per month a member would therefore be able submit as many as 117 million messages daily into the Exchange's trading system. In addition,

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<sup>11</sup> See supra note 4.

<sup>12</sup> See supra note 6. Altogether, a significant percentage of members (42%) that trade equities on BZX purchase two or fewer order entry ports – i.e., including members that purchase no ports and connect indirectly instead.

<sup>13</sup> The Exchange has invested considerable time and resources in designing and maintaining a resilient trading system that is capable of handling the message traffic produced by members in a manner that complies with its obligations as a national securities exchange.

market participants that desire more total capacity due to their business needs, or that wish to segregate order flow by purchasing separate capacity allocations to reduce latency or for other operational reasons, would be permitted to choose to purchase such additional capacity at the same marginal cost. The Exchange believes that it is reasonable, equitable, and not unfairly discriminatory to charge for connectivity in this manner as this structure ensures that the firms can choose based on their needs, and the firms that pay the most are the ones that demand the most resources from the Exchange.

To illustrate the large variance in message traffic used by BZX members, the Exchange compiled statistics on the average message traffic generated during November 2018 by each firm across three periods: (1) the open (9:30 a.m. – 9:35 a.m.), (2) regular trading (9:35 a.m. – 3:55 p.m.), and (3) the close (3:55 p.m. – 4:00 p.m.).<sup>14</sup> The summary table below shows the average order rate / second for firms,<sup>15</sup> bucketed in groups based on their rank in the distribution. Significantly higher message traffic is generated by firms at the top of the distribution, which represents the firms with the largest U.S. equities businesses, with firms at the bottom of the distribution accounting for a small percentage of traffic generated.

**Summary Table: Average Order Rate / Second**

<b>Rank</b>	<b>Open</b>	<b>Regular Trading</b>	<b>Close</b>
1-5	4,693	2,059	3,904

<sup>14</sup> The dataset includes all firms that have purchased order entry ports, including BZX members or non-members that provide indirect access to the Exchange.

<sup>15</sup> The order rate includes, for each firm, all new orders, modifies, and cancel messages submitted into the trading system. The average order rate is calculated by dividing the number of messages by the number of seconds for the period.

6-10	1,743	739	1,173
11-20	666	296	437
21-30	176	99	207
31-40	123	42	68
41-50	68	12	28
51+	2	1	2

While message traffic for individual market participants typically peaks at higher levels during certain periods of greater market activity, not a single firm had an average order rate that exceeded the 5,000 messages per second permitted over a single port for the period of regular trading that accounts for the substantial majority of the trading day. In fact, only five firms exceeded an average of greater than 1,000 messages per second, and these firms collectively generated more message traffic than every other firm combined.<sup>16</sup> In the first and last five minutes of the trading day around the open and close of trading, where volatility and therefore message traffic is typically higher, only three firms had an average order rate that exceeded 5,000 messages per second, with the top five again accounting for more message traffic than all other market participants combined in both of these periods. A number of sophisticated market participants may also have higher peak traffic intraday if their business involves the frequent modification or cancellation of a large number of orders at very granular millisecond or microsecond time intervals, particularly when multiple trading strategies or algorithms that come

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<sup>16</sup> Individually, all but one of the firms in the top five generated more message traffic than the total message traffic generated by all firms outside of the top 20 combined, and the firm with the highest order rate alone generated almost twice as much as such firms.

through different logical connections attempt to access the market simultaneously. The Exchange must build resilient trading systems that are able support significant bursts in message traffic from such firms, including most recently on October 18, 2018 when the Exchange successfully processed a historical high burst in message traffic of 1,140,183 messages per second.

Thus, although certain broker-dealers with large and profitable U.S. equities businesses may purchase multiple order entry ports, the Exchange believes that this is appropriately driven by the amount of message traffic that they generate throughout the day and at periods where more message traffic is generated. Furthermore, the data shows that market participants with modest capacity needs can access the Exchange at a very low cost. While the Exchange believes that encouraging order flow and liquidity from a diverse set of market participants facilitates price discovery and improves the quality of our markets, the Exchange also believes that firms that desire additional capacity to support trading strategies with higher peak traffic should continue to be charged for the capacity that they request rather than have this cost mutualized across firms with a much smaller footprint.

With the proposed fees, firms with modest capacity needs could continue to pay for and operate their business with the baseline capacity of 5,000 messages per second, which represents the equivalent of one logical port today. Furthermore, large and sophisticated market participants that require significantly more capacity than their smaller counterparts would be able to purchase that capacity from the Exchange at a reasonable marginal cost and thereby satisfy their business needs, including the need for higher peak traffic. The Exchange therefore believes that the proposed match capacity fee

both appropriately reflects the benefits to different firms of being able to send messages into the Exchange's trading system, and facilitates the Commission's goal of ensuring that critical market infrastructure has "levels of capacity, integrity, resiliency, availability, and security adequate to maintain their operational capability and promote the maintenance of fair and orderly markets."<sup>17</sup>

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

The Exchange does not believe that the proposed rule change would result in any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act. As explained herein, the proposed rule change is designed to increase transparency around the Exchange's fees by changing the nomenclature associated with "per port" fees for order entry logical ports to reflect a capacity fee. The Exchange believes that charging logical connectivity fees based on the capacity used by a market participant is pro-competitive because it ensures that firms with the largest U.S. equities market share, or that employ trading strategies that result in increased message traffic, continue to pay for the capacity that they request, while smaller firms can connect and trade at a low cost.

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.

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<sup>17</sup> See Securities Exchange Act Release No. 73639 (November 19, 2014), 79 FR 72251 (December 5, 2014) (File No. S7-01-13) (Regulation SCI Adopting Release).

### **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) of the Act<sup>18</sup> and paragraph (f) of Rule 19b-4<sup>19</sup> thereunder. 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 necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission will institute proceedings to determine whether the proposed rule change 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:

#### Electronic comments:

- Use the Commission's Internet comment form (<http://www.sec.gov/rules/sro.shtml>); or
- Send an e-mail to [rule-comments@sec.gov](mailto:rule-comments@sec.gov). Please include File Number SR-CboeBZX-2018-095 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.

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<sup>18</sup> 15 U.S.C. 78s(b)(3)(A).

<sup>19</sup> 17 CFR 240.19b-4(f).

All submissions should refer to File Number SR-CboeBZX-2018-095. This file number should be included on the subject line if e-mail 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 (<http://www.sec.gov/rules/sro.shtml>). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street, NE, Washington, D.C. 20549 on official business days between the hours of 10:00 a.m. and 3:00 p.m. Copies of the filing also will be available for inspection and copying at the principal office of the Exchange. All comments received will be posted without change; the Commission does not edit personal identifying information from submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR-CboeBZX-2018-095 and should be submitted on or before [insert date 21 days from publication in the Federal Register].

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.<sup>20</sup>

Secretary

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<sup>20</sup> 17 CFR 200.30-3(a)(12).

EXHIBIT 5

Proposed new language is underlined; proposed deletions are in [brackets].

*Cboe BZX U.S. Equities Exchange Fee Schedule*

\* \* \*

**Match Capacity Fees:**

Allocation of 5,000 messages per second: \$550 per month per allocation

- Match capacity fees are assessed based on capacity (i.e., messages per second) requested for order entry in the primary data center. No fee will be assessed for redundant capacity in the secondary data center.
- New requests will be prorated for the first month of service. Cancellation requests are billed in full month increments as firms are required to pay for the service for the remainder of the month, unless the session is terminated within the first month of service.

**Purge and Market Data Logical Port Fees:**

Service	Fee
[Logical Ports (excluding Purge Port, Multicast PITCH Spin Server Port or GRP Port)]	[\$550/port/month]
Purge Ports	\$650/port/month
Multicast PITCH Spin Server	\$550/set of primary (A or C feed)
Multicast PITCH GRP Ports	\$550/primary (A or C feed)

- Purge and market data [L]logical port fees are limited to logical ports within the primary data center. No [logical port] fee[s] will be assessed for redundant secondary data center ports.
- Multicast PITCH is available through one of two primary feeds, either the A or C feed. All secondary feed Multicast PITCH Spin Server and GRP Ports are provided for redundancy at no additional cost.
- New requests will be prorated for the first month of service. Cancellation requests are billed in full month increments as firms are required to pay for the service for the remainder of the month, unless the session is terminated within the first month of service.

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