Exchange User Manual

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Introduction

This document provides information about Green Impact Exchange, LLC ("GIX" or the "Exchange"). The Exchange is a wholly-owned subsidiary of Green Exchange, PBC.

The GIX User Manual summarizes various operations and rules of the Exchange. GIX's complete and official Rulebook is available at http://www.tradegix.com. In the event of a conflict between the User Manual and the information set forth in the official Rulebook, the Rulebook shall prevail. Information contained in this document is subject to change at any time.

Trading System

The Exchange is a fully automated electronic limit order book for orders to buy and sell National Market System ("NMS") securities with a continuous matching function. The Exchange also offers routing functionality through a non-affiliated routing broker-dealer with connectivity to all venues displaying Protected Quotations, as defined by Regulation NMS. Members of the Exchange and their Sponsored Participants (collectively, "Users") connect to the System via FIX and/or binary order entry protocols in order to electronically send orders to buy and sell securities traded on the Exchange. Users may also send orders through a Service Bureau.

The Exchange utilizes trading technology and systems (collectively the "System") that were developed by MEMX Technologies LLC ("MEMX"), a subsidiary of MEMX Holdings LLC, and provided to the Exchange pursuant to Delivery, Licenses and Services Agreement (the "Agreement") between MEMX and the Exchange. Although components of the System are operated by MEMX on the Exchange's behalf, the System is operated independently of MEMX and is a facility of GIX.

The System was built with a focus on performance, reliability and security. It is distributed across a network of servers to maximize throughput and determinism, minimize latency and bottlenecks, provide high availability and fault tolerance, and allow for simplified scalability. Additional servers can be added to easily expand system functionality and capacity as required in accordance with the Agreement between GIX and MEMX. Further, security has been architected and designed into the System as a primary concern to effectively manage access, authorization and authentication to Exchange services.

At the core of the System is the matching engine complex, which compares the limit price of an incoming order with the price of resting (i.e., booked) Limit or Pegged orders on the GIX Book and the price of other markets' displayed quotes. If the order is immediately marketable against the GIX Book, and there is interest available on the GIX Book at a price equal to or better than the consolidated quote, an immediate match is made and communicated back to Users. If another market is displaying a better quote,

the order will be handled depending on the User's instructions (e.g., forwarded to the other market to attempt to fill the order, posted to the GIX Book, or canceled). The priority of how orders are ranked on the GIX Book is discussed in more detail below and described in Rule 11.220 of the Exchange Rulebook.

Users or their clearing firms have the ability to create and provision FIX Drop Copy sessions on the GIX User Portal. Sessions can be configured to filter information by MPID(s) and/or Account(s) and provisioned to include order information in addition to trade information.

Data Centers and Co-Location

GIX's primary trading platform is located in a third-party data center facility in New Jersey. It is accessible to Members, Sponsored Participants, Service Bureaus, Data Recipients (collectively "Participants") and Extranet Providers.

GIX's secondary data center is located in a third-party data center facility in Chicago, IL. Connectivity to the GIX secondary data center, while not a mandatory requirement for all Participants, is recommended to minimize service disruption in the event of an issue at the primary trading platform data center.

GIX offers co-location services in both the primary and secondary data centers. This provides participants with the fairest and fastest access to Exchange services, reduced network complexity, and flexible power and connectivity options. Connectivity to the Exchange in the primary data center for both order entry and market data dissemination is equalized for all co-located participants in the New Jersey location. Participants will be able to connect to order entry systems and receive market data in both the primary and secondary data centers.

GIX provides redundant physical network connectivity in both the primary and secondary data centers. This diverse set of network connections, the "A" and "B" feeds, provide high availability and fault tolerance to all co-located participants. To achieve this resiliency, GIX requires participants to connect to both the "A" and "B" feeds.

All data centers the Exchange uses are, at a minimum, Tier 3 compliant and provide a high level of security and availability through redundant and reliable environmental control systems (redundant power supplies, on-site backup generators, cooling systems, etc.). Data center personnel are available 24/7 to maintain and service the System.

Connectivity and Access

GIX supports the following connectivity methods in both its primary and secondary data centers:

- Co-Location Cross-Connect: Participants may request a cross-connect from the Participant's point-of-presence to GIX.
- Extranet Providers: Participants may connect to GIX via an approved Extranet Provider. A list of available providers can be found on the GIX User Portal.
- Private-Line Ethernet: Participants may connect via telecommunications carriers providing a circuit extension from a location outside the Exchange's primary or secondary data center.

Participants are responsible for choosing and implementing connectivity to the primary and secondary data center.

For more detailed information and instructions on how to connect to GIX, please refer to [TBD].

Users are permitted to electronically access the order entry facility of the Exchange, GEODE (Green Exchange Order Details and Executions system), using the Classic ASCII FIX protocol and/or the native binary protocol. A common data schema is used for both protocols to allow for easier transition between the two. Message framing and encoding is also standardized and unified across protocols. GEODE SBE, the native binary protocol for order entry, is an application layer message standard used to facilitate the electronic communication of information between the Exchange and its participants. GEODE allows participants to submit, modify, and cancel orders, receive acknowledgements and execution reports, and be notified of exchange trading status. Refer to the GEODE SBE Protocol Specification for more details. The Exchange also supports order entry via the FIX (tag/value) protocol. Please refer to the GEODE FIX Protocol Specification for more details.

Risk Controls

Both the GEODE FIX and GEODE SBE order entry protocols contain an integrated pre-trade risk management service that processes all incoming order information against a mandatory set of risk controls designed to help prevent erroneous orders from passing through to the matching engine for execution. These controls are dynamically configurable by Exchange participants and can be assigned to an individual session, i.e., a single FIX or GEODE session, or an aggregated set of sessions through the use of user defined risk control identifiers. As part of its client onboarding process, GIX will publish a Risk Management Technical Specification that contains a list of risk controls and detailed information on how to configure and apply these controls.

GIX Members or their clearing firms may optionally elect to implement GIX's risk controls based on gross notional exposure. GIX risk controls can be configured to accumulate and specify a limit on the gross notional exposure for a Member or clearing firm's broker correspondent across MPIDs, by MPID, by session, or in combination, per clearing firm relationship or Member, as applicable. Risk controls accumulate the gross notional value of trades for a Member or clearing firm's broker correspondent, and will automatically reject new orders and cancel all open orders when the gross notional

exposure has exceeded a predetermined limit. Risk controls may be increased or decreased on an intra-day basis by a Member or the clearing firm of a Member, as applicable.

GIX supports self-trade protection modifiers that prevent an order marked "STP" from executing against a resting opposite side order also designated with an STP modifier and originating from the same market participant identifier ("MPID"), Exchange Member identifier or STP Group identifier (any such identifier, a "Unique Identifier"). The STP modifier on the incoming order controls the interaction between two orders marked with STP modifiers. The STP modifiers include:

- "Cancel Newest", which will cancel the incoming order and leave the order marked with an STP modifier on the book;
- "Cancel Oldest", which will cause the resting order with an STP modified to be canceled and the incoming STP order to remain on the book;
- "Decrement and Cancel", which will evaluate the resting and incoming STP orders for size, and will either cancel both orders if they are for the same size, or if the orders are not equivalent in size, the smaller order will be cancelled back to the originating User(s) and the larger order will be decremented by the size of the smaller order, with the balance remaining on the book;
- "Cancel Both", in which the entire size of both orders will be cancelled back to the originating User(s); and
- "Cancel Smallest", which will evaluate the resting and incoming STP orders for size, and will either cancel both orders if they are for the same size, or if the orders are not equivalent in size, will cancel the smaller of the two orders and leave the larger order on the book.

GEODE SBE supports the canceling of an order via any active Participant session regardless of the session that the original order was transmitted on. Additionally, this flexibility allows the Exchange to offer a batch cancel function, via any active session, which can be used by a Participant to cancel all or a subset of its orders in one or more symbols with a single command to the Exchange. Participants can use this facility as a "purge port" or for other mass cancel type functions.

Hours of Trading and Market Sessions

Orders may be entered into the System during Exchange operating hours (from 7:00 a.m. until 5:00 p.m. Eastern Time). The Exchange will not accept orders prior to the start of the Pre-Market Session at 7:00 a.m. Eastern Time.

Session	Start and End Time (all times are Eastern Time)
Pre-Market Session	7:00 a.m. to 9:30 a.m.
Market Session	9:30 a.m. to 4:00 p.m.
Post-Market Session	4:00 p.m. to 5:00 p.m.

Order Types and Modifiers

As summarized in the table below, GIX accepts the following order types: Market orders, Limit orders, and Pegged orders (including Midpoint Peg and Primary Peg). Midpoint Peg orders may be submitted with or without a limit price. Primary Peg orders may be submitted with or without an offset or a limit price. All orders, irrespective of type, may be submitted in round lots, mixed lots, or odd lots. By design, orders are limited to a maximum of 1,000,000 shares or a value of $30,000,000.00 by default.

Several Time-in-Force (TIF) instructions are available that determine the period(s) of time during which an order is available for potential execution:

- Immediate-Or-Cancel (IOC): An order with this Time-In-Force instruction will be executed in whole or in part upon entry, otherwise the order will be canceled.
- Day: An order with this Time-In-Force instruction is eligible for execution during the Pre- Market Session and the Market Session. DAY orders remaining on the GIX Book at the end of the Market Session will be canceled.
- Good-Til-Time (GTT): An order with this Time-In-Force instruction will expire at the earlier of a specified expiration time or end of the Post-Market Session. GTT orders remaining on the GIX Book at the end of the Post-Market Session will be canceled.
- Regular Hours Only (RHO): An order with this Time-In-Force instruction is only executable between the hours of 9:30am and 4:00pm ET (Regular Trading Hours). RHO orders remaining on the GIX Book at the end of the Market Session will be canceled.

Order types may be designated with a variety of modifiers such as Intermarket Sweep Orders (ISOs), Reserve Quantity (with Fixed or Random Replenishment), Display/Non-Display, Minimum Execution Quantity (only executes against a single order), Post Only, Book Only, Re- Pricing (Price Sliding to comply with Rule 610(d) of Reg NMS, Rule 201 of Reg SHO, and – applicable Limit Up-Limit Down (“LULD”) price bands). Additional details on these modifiers are set forth below and in the Exchange Rulebook.

- Intermarket Sweep Orders (ISO): An order that allows GIX to execute at its BBO regardless of prices at other market centers without violating the Reg NMS order protection rule. It is the responsibility of the User entering the order to comply with the requirements of Reg NMS relating to ISOs.
- Reserve Quantity: An order with a portion of the size that is displayed and a reserve portion of the size that is not displayed. Both Fixed Replenishment and Random Replenishment are supported.
- Display/Non-Display: Designates whether an order shall be displayed or not displayed on the GIX Book.
- Minimum Quantity (MQTY): Designates a minimum share amount required for each execution that must match against a single order to execute (on entry or while resting on the GIX Book).

- Post Only: Designates that the order is to be posted on the GIX Book to add liquidity only and cannot be routed to another trading venue.
- Book Only: Designates that the order is to be executed only on the GIX Book and cannot be routed to another trading venue.
- Re-Price: Designates that an order that would otherwise violate the Rule 611 Reg NMS order protection rule where orders would lock or cross the NBBO, Reg SHO Rule 201 when an order marked short is priced at the NBB during a SSCB ("Short Sale Circuit Breaker"), or LULD where buy (sell) interest would be above (below) the upper (lower) price band be re-priced to a compliant price.

Order Type	Trading Hours	Time-in-Force	Size	Routing/ Posting	Display	Reserve	ISO	Re-Price
Market	9:30 a.m. through 4:00 p.m. ET	IOC, Day, RHO	Odd/Round/ Mixed Lot/ Min Qty	Route, Book Only	N/A	N/A	N/A	N/A
Limit	7:00 a.m. through 5:00 p.m.	IOC, Day, GTT, RHO	Odd/Round/ Mixed Lot/ Min Qty	Route, Book Only, Post Only	Display, Non-Display	Random and Fixed Replenish	ISO	Price-Sliding
Pegged	7:00 a.m. through 5:00 p.m.	IOC, Day, GTT, RHO	Odd/Round/ Mixed Lot/ Min Qty	Book Only, Post Only	Non-Display	N/A	N/A	N/A

Refer to Chapter 11 of the Exchange Rulebook for detailed information regarding order types, modifiers and TIF instructions.

GIX allows exchange members approved as Retail Member Organizations to mark orders originating from a retail customer as Retail Orders on an order-by-order basis using an indicator provided by the GEODE order entry facility. A Retail Order received from an approved Retail Member Organization is indicated as such in the order acknowledgement message returned to the client upon acceptance of the order. Orders marked as Retail Orders arriving from clients that are not approved Retail Members are canceled.

Refer to GIX Rules 1.160(at) and 2.170 for detailed information regarding Retail Member Qualifications, Responsibilities, Application information and Retail Order requirements.

Order Handling

During operating hours, GIX will accept incoming Market and Pegged orders when a valid NBBO is available and cancel such orders otherwise. Limit orders will be accepted with or without a valid NBBO. The following sections describe the order handling behavior for the different order types, instructions, and modifiers for each of the three trading sessions.

√	Supported
X	Illegal
O	Conditional

[Continued on next page]

Market Orders

TIF	Modifiers	Pre-Market	Market	Post-Market
IOC	ISO	X	X	X
	Reserve	X	X	X
	Display	X	√[1]	X
	MQTY	X	√	X
	PostOnly	X	X	X
	BookOnly	X	√	X
	Reprice	X	X	X
DAY	ISO	X	X	X
	Reserve	X	X	X
	Display	X	√[1]	X
	MQTY	X	x	X
	PostOnly	X	X	X
	BookOnly	X	√	X
	Reprice	X	X	X
RHO	ISO	X	X	X
	Reserve	X	X	X
	Display	X	√[1]	X
	MQTY	X	X	X
	PostOnly	X	X	X
	BookOnly	X	√	X
	Reprice	X	X	X
GTT	ISO	X	X	X
	Reserve	X	X	X
	Display	X	X	X
	MQTY	X	X	X
	PostOnly	X	X	X
	BookOnly	X	X	X
	Reprice	X	X	X

[1] This modifier is accepted and ignored.

IOC	ISO	Reserve	Display	MinQty	Post Only	Book Only	Reprice
ISO	X	X	X	X	X	X	X
Reserve	X	X	X	X	X	X	X
Display	X	X	√	√	X	√	X
MQTY	X	X	√	√	X	√	X
Post Only	X	X	X	X	X	X	X
Book Only	X	X	√	√	X	√	X
Reprice	X	X	X	X	X	X	X

DAY, RHO	ISO	Reserve	Display	MinQty	Post Only	Book Only	Reprice
ISO	X	X	X	X	X	X	X
Reserve	X	X	X	X	X	X	X
Display	X	X	√	√	X	√	X
MQTY	X	X	X	X	X	X	X
Post Only	X	X	X	X	X	X	X
Book Only	X	X	√	√	X	√	X
Reprice	X	X	X	X	X	X	X

Limit Orders

TIF	Modifiers	Pre-Market	Market	Post-Market
IOC	ISO	√	√	√
	Reserve	X	X	X
	Display	√[1]	√[1]	√[1]
	MQTY	√[1]	√[1]	√[1]
	PostOnly	X	X	X
	BookOnly	√	√	√
	Reprice	X	X	X
DAY	ISO	√	√	X
	Reserve	√[3]	√[3]	X
	Display	√[1]	√[1]	X
	MQTY	√[1,3]	√[1,3]	X
	PostOnly	√	√	X
	BookOnly	√	√	X
	Reprice	√[2]	√[2]	X
RHO	ISO	X	X	X
	Reserve	X	√[3]	X
	Display	X	√[1]	X
	MQTY	X	√[1,3]	X
	PostOnly	X	√	X
	BookOnly	X	√	X
	Reprice	X	√[2]	X
GTT	ISO	√	√	√
	Reserve	√[3]	√[3]	√[3]
	Display	√[1]	√[1]	√[1]
	MQTY	√[1,3]	√[1,3]	√[1,3]
	PostOnly	√	√	√
	BookOnly	√	√	√
	Reprice	√[2]	√[2]	√[2]

[1] Limit Orders can be displayed or non-displayed. If set to displayed, the MQTY modifier is illegal and the order will be rejected.

[2] Orders with this modifier must be displayed to enable Display Price Sliding for Reg NMS. This modifier is also used to enable Repricing for Reg SHO and LULD whether displayed or not.

[3] The MQTY and Reserve modifiers are mutually exclusive. If both are set, the order will be rejected.

IOC	ISO	Reserve	Display	MinQty	Post Only	Book Only	Reprice
ISO	√	X	√	√	X	√	X
Reserve	X	X	X	X	X	X	X
Display	√	X	√	O	X	√	X
MQTY	√	X	O	√	X	√	X
Post Only	X	X	X	X	X	X	X
Book Only	√	X	√	√	X	√	X
Reprice	X	X	X	X	X	X	X

RHO	ISO	Reserve	Display	MinQty	Post Only	Book Only	Reprice
ISO	X	X	X	X	X	X	X
Reserve	X	√	√	X	√	√	√
Display	X	√	√	O	√	√	X
MQTY	X	X	O	√	√	√	X
Post Only	X	√	√	√	√	√	√
Book Only	X	√	√	√	√	√	√
Reprice	X	√	√	X	√	√	√

DAY, GTT	ISO	Reserve	Display	MinQty	Post Only	Book Only	Reprice
ISO	√	√	√	X	√	√	X
Reserve	√	√	√	X	√	√	√
Display	√	√	√	O	√	√	√
MQTY	X	X	O	√	√	√	X
Post Only	√	√	√	√	√	√	√
Book Only	√	√	√	√	√	√	√
Reprice	X	√	√	X	√	√	√

Pegged Orders

TIF	Modifiers	Pre-Market	Market	Post-Market
IOC	ISO	X	X	X
	Reserve	X	X	X
	Display	√[1]	√[1]	√[1]
	MQTY	√	√	√
	PostOnly	X	X	X
	BookOnly	√[2]	√[2]	√[2]
	Reprice	X	X	X
DAY	ISO	X	X	X
	Reserve	√[3]	X	X
	Display	√[1]	√[1]	X
	MQTY	√	√	X
	PostOnly	√	√	X
	BookOnly	√[2]	√[2]	X
	Reprice	X	X	X
RHO	ISO	X	X	X
	Reserve	X	X	X
	Display	X	√[1]	X
	MQTY	X	√	X
	PostOnly	X	√	X
	BookOnly	X	√[2]	X
	Reprice	X	X	X
GTT	ISO	X	X	X
	Reserve	X	X	X
	Display	√[1]	√[1]	√[1]
	MQTY	√	√	√
	PostOnly	√	√	√
	BookOnly	√[2]	√[2]	√[2]
	Reprice	X	X	X

[1] Pegged Orders are non-displayed and are rejected for invalid modifier if submitted as displayed.
[2] Pegged Orders are not routable. This modifier is accepted but is not necessary for this behavior.

IOC	ISO	Reserve	Display	MinQty	Post Only	Book Only	Reprice
ISO	X	X	X	X	X	X	X
Reserve	X	X	X	X	X	X	X
Display	X	X	O	O	X	O	X
MQTY	X	X	O	√	X	√	X
Post Only	X	X	X	X	X	X	X
Book Only	X	X	O	√	X	√	X
Reprice	X	X	X	X	X	X	X

DAY, RHO, GTT	ISO	Reserve	Display	MinQty	Post Only	Book Only	Reprice
ISO	X	X	X	X	X	X	X
Reserve	X	X	X	X	X	X	X
Display	X	X	O	O	O	O	X
MQTY	X	X	O	√	√	√	X
Post Only	X	X	O	√	√	√	X
Book Only	X	X	O	√	√	√	X
Reprice	X	X	X	X	X	X	X

Priority of Orders

Orders are ranked and maintained in the GIX Book based on the Price/Time priority as follows:

- Price. The highest-priced order to buy (lowest-priced order to sell) has priority over all other orders to buy (sell) in all cases.
- Time. The following priority rules apply:
    A. Except as provided in (B) and (C) below, the System ranks equally priced trading interest within the System in time priority in the following order:
        1. The portion of a Limit Order with a Display instruction;
        2. Limit Orders with a Non-Display instruction;
        3. Primary Pegged Orders;
        4. Midpoint Pegged Orders; and
        5. Reserve Quantity of Limit Orders.
    B. At the Midpoint of the NBBO. The System ranks trading interest priced at the midpoint of the NBBO within the System in time priority in the following order:
        1. Limit Orders to which the Display-Price Sliding instruction has been applied;
        2. Limit Orders with a Non-Display instruction;
        3. Primary Pegged Orders;
        4. Midpoint Pegged Orders; and
        5. Reserve Quantity of Limit Orders.
    C. Where buy (sell) orders are using instructions that cause them to be re-ranked by the System upon clearance of a Locking Quotation, the System re-ranks and displays such orders at the Locking Price in time priority in the following order:
        1. Limit Orders to which the ISO instruction has been applied that also contain a TIF instruction of Day when such orders establish a new NBBO at the Locked Price; and
        2. Limit Orders with the Display-Price Sliding instruction.
    D. For purposes of (A) and (B) above, orders re-ranked subject to the Re-Pricing instruction to comply with Rule 201 of Regulation SHO maintain the same priority as Limit Orders at that price.

Routing to Away Markets

Users have the option to use the Exchange's third-party routing broker-dealer, [TBD ROUTER], to route orders to markets other than the Exchange. ISO, Book Only and Post Only orders, as well as any order that includes a Non-Display instruction (e.g., orders including the Minimum Quantity or Reserve Quantity modifiers), are not routed to other markets.

A proprietary process is used to determine the System routing table, which determines the order in which the System routes orders to specific trading venues. [TBD Third Party Routing Broker] performs a variety of automated risk checks, including erroneous and duplicate orders checks, before routing to other markets, in compliance with Rule 15c3-5. A combination of direct exchange feeds and CQS/UQDF data feeds from the Securities Information Processors are used for the handling, execution, and routing of orders.

Data Products

As described in the GIX Rules, GIX offers several GEODE Data (Green Exchange Order Data Extract) products:

- GEODE Depth (Depth of Book)
- GEODE Top (Top of Book Quote)
- GEODE Last Sale (Last Sale Feed)
- GEODE Historical (Prior day versions of GEODE Depth, Top, and Last Sale)

The Exchange's real-time market data is electronically available directly from GIX through the use of APIs defined in the Exchange's specifications or via a range of market data vendors. Additional information about data products, agreements and specifications are available on the Exchange's website, www.tradegix.com

Contact GIX

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Revision History

1.0	[TBD]	Initial Document