8011-01p
SECURITIES AND EXCHANGE COMMISSION
(Release No. 34-74853; File No. SR-OCC-2015-006)

April 30, 2015

Self-Regulatory Organizations; The Options Clearing Corporation; Order Approving Proposed Rule Change Concerning the Provision of Clearance and Settlement Services for Energy Futures and Options on Energy Futures

On March 2, 2015, The Options Clearing Corporation ("OCC") filed with the Securities and Exchange Commission ("Commission") the proposed rule change OCC-2015-006 pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act")[1] and Rule 19b-4 thereunder.[2] The proposed rule change was published for comment in the Federal Register on March 20, 2015.[3] The Commission received no comments on the proposed rule change. This order approves the rule change as proposed.

I. Description

OCC is amending its rules to provide clearance and settlement services to NASDAQ Futures, Inc. ("NFX") for certain enumerated Energy Futures contracts and options on Energy Futures. OCC further proposed to add new risk models to its System for Theoretical Analysis and Numerical Simulations ("STANS") methodology[4] to risk

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

2 17 CFR 240.19b-4.

3 Securities Exchange Release No. 74511 (March 16, 2015), 80 FR 15042 (March 20, 2015).

4 OCC's STANS methodology is used to measure the exposure of portfolios of options, futures and cash instruments cleared and carried by OCC on behalf of its clearing member firms. STANS allows clearing institutions to measure, monitor and manage the level of risk exposure of their members' portfolios. For more information, see www.optionsclearing.com/risk-management/margins.

manage Energy Futures contracts. OCC's STANS methodology already accommodates the margining of futures and futures options, and after adopting the models described more fully in the proposed rule change, Energy Futures contracts will be risk managed using the same methodology as futures products currently cleared and settled by OCC.[5]

Because these Energy Futures contracts and options on Energy Futures do not fall within the scope of contracts for which OCC has previously agreed to provide clearance and settlement services to NFX,[6] OCC also added a new "Schedule C" to its Agreement for Clearing and Settlement Services ("Clearing Agreement") with NFX. The Schedule C to the Clearing Agreement has been approved by the Commission.[7]

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5 OCC will compute initial margin requirements for segregated futures accounts Through the Standard Portfolio Analysis of Risk ("SPAN"®) margin calculation system without further modification, subject to OCC's collection of enhanced margin to be deposited in the segregated futures account in the event that the margin requirement as calculated under STANS would exceed the requirement calculated under SPAN. *See* Securities Exchange Act Release No. 72331 (June 5, 2014), 79 FR 33607 (June 11, 2014) (SR-OCC-2014-13). *See also* Securities Exchange Act Release No. 74268 (February 12, 2015), 80 FR 8917 (February 19, 2015) (SR-OCC-2014-24). This rule change has been approved by the Commission.

6 NFX previously operated as a designated contract market ("DCM") regulated by the Commodity Futures Trading Commission ("CFTC"), and OCC provided clearing and settlement services pursuant to a January 13, 2012 agreement ("Previous Agreement"). NFX became a dormant contract market and ceased operations as a DCM as of January 31, 2014, thus terminating the Previous Agreement. The CFTC later approved NFX as a DCM and the Clearing Agreement permits OCC to once again provide clearing services to NFX.

7 *See* Securities Exchange Act Release No. 74432 (March 4, 2015), 80 FR 12652 (March 10, 2015) (SR-OCC-2015-03)(notice of filing of proposed rule change concerning execution of a clearing and settlement agreement between OCC and NFX); *See also* Securities Exchange Act Release No. 74747(April 16, 2015), 80 FR 22591 (April 22, 2015)(order approving the proposed clearing and settlement agreement between OCC and NFX).

Background

As proposed in its rule change OCC will clear and settle Energy Futures contracts and options on Energy Futures that are to be traded on NFX.[8] They include nine futures contracts on petrol and natural gas products, three of which will have related options contracts, along with 16 electricity futures contracts. The Energy Futures contracts are all cash-settled, and the options contracts will settle into the underlying futures contract. All of the Energy Futures contracts are "look-alike" products to futures products already traded on U.S. futures exchanges and cleared by other Derivatives Clearing Organizations ("DCOs").[9]

Petrol and Natural Gas Futures Products

NFX will list petrol and natural gas Energy Futures contracts and options on petrol Energy Futures. These Energy Futures contracts are based on a variety of refined oil fuels and natural gasses that are commonly used for hedging market participants' portfolios. Specifically, NFX will list the following cash-settled petrol and natural gas Energy Futures contracts: NFX Brent Crude Financial Futures (BFQ), NFX Gasoil Financial Futures (GOQ), NFX Heating Oil Financial Futures (HOQ), NFX WTI Crude Oil Financial Futures (CLQ), NFX RBOB Gasoline Financial Futures (RBQ), NFX

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8 In addition to trading in the regular session, Energy Futures and options on Energy Futures will also trade during overnight trading sessions. *See* Securities Exchange Act Release No. 74241 (February 10, 2015), 80 FR 8383 (February 17, 2015) SR-OCC-2014-812.

9 More specifically, Energy Futures contracts are look-alike products to futures products that are currently traded on the New York Mercantile Exchange, Inc. and ICE Futures, U.S., and cleared by the Chicago Mercantile Exchange Inc. and ICE Clear U.S., Inc., respectively.

Henry Hub Natural Gas Financial Futures – 10,000 (HHQ), NFX Henry Hub Natural Gas Financial Futures – 2,500 (NNQ), NFX Henry Hub Natural Gas Penultimate Financial Futures – 2,500 (NPQ) and NFX Henry Hub Natural Gas Penultimate Financial Futures – 10,000 (HUQ). Further, NFX will list options on NFX WTI Crude Financial Futures (LOQ), NFX Brent Crude Financial Futures (BCQ) and the NFX Henry Hub Penultimate Financial Futures (LNQ) that settle directly into the referenced futures contract.

Electricity Futures Products

NFX will also list electricity Energy Futures contracts, which are based on electricity prices at different hubs and smaller nodes from across the United States reflecting different power distribution grids and circuits and are look-alike products to products traded on ICE Futures, U.S. and cleared by ICE Clear U.S., Inc. For each of these nodes, there is a "peak" and "off-peak" future representing prices at time periods in the day when electricity usage is high compared to when the demand on the grid is lower. The electricity Energy Futures contracts NFX selected for listing are the most popular nodes and hubs within the electricity futures market. More specifically, NFX will list the following electricity contracts, to be settled on final settlement prices based on an average regional transmission organization, independent system operator ("ISO") published real-time or day-ahead locational marginal prices ("LMPs")[10] for a pre-determined set of peak or off-peak hours for a contract month:

- NFX ISO-NE Massachusetts Hub Day-Ahead Off-Peak Financial Future (NOPQ), settling on final settlement prices based on average

[10] Locational marginal pricing reflects the value of the energy at the specific location and time it is delivered.

day-ahead hourly off-peak LMPs for the contract month for the Massachusetts Hub.

- NFX ISO-NE Massachusetts Hub Day-Ahead Peak Financial Futures (NEPQ), settling on final settlement prices based on average day-ahead hourly peak LMPs for the contract month for the Massachusetts Hub.
- NFX MISO Indiana Hub Real-Time Peak Financial Futures (CINQ), settling on final settlement prices based on average real-time hourly peak LMPs for the contract month for the Indiana Hub as published by the Midcontinent Independent System Operator, Inc. ("MISO").
- NFX MISO Indiana Hub Real-Time Off-Peak Financial Futures (CPOQ), settling on final settlement prices based on average real-time hourly off-peak LMPs for the contract month for the Indiana Hub as published by MISO.
- NFX PJM AEP Dayton Hub Real-Time Peak Financial Futures (MSOQ), settling on final settlement prices based on average real-time hourly peak LMPs for the contract month for the AEP Dayton Hub.
- NFX PJM AEP Dayton Hub Real-Time Off-Peak Financial Futures (AODQ), settling on final settlement prices based on average real-time hourly off-peak LMPs for the contract month for the AEP Dayton Hub.
- NFX PJM Northern Illinois Hub Real-Time Peak Financial Futures (PNLQ), settling on final settlement prices based on average real-time hourly peak LMPs for the contract month for the Northern Illinois Hub.

- NFX PJM Northern Illinois Hub Real-Time Off-Peak Financial Futures (NIOQ), settling on final settlement prices based on average real-time hourly off-peak LMPs for the contract month for the Northern Illinois Hub.
- NFX PJM Western Hub Day-Ahead Off-Peak Financial Futures (PJDQ), settling on final settlement prices based on average day-ahead hourly off-peak LMPs for the contract month for the Western Hub.
- NFX PJM Western Hub Day-Ahead Peak Financial Futures (PJCQ), settling on final settlement prices based on average day-ahead hourly peak LMPs for the contract month for the Western Hub.
- NFX PJM Western Hub Real-Time Off- Peak Financial Futures (OPJQ), settling on final settlement prices based on average real-time hourly off-peak LMPs for the contract month for the Western Hub.
- NFX PJM Western Hub Real-Time Peak Financial Future (PJMQ), settling on final settlement prices based on average real-time hourly peak LMPs for the contract month for the Western Hub.
- NFX CAISO NP-15 Hub Day-Ahead Off-Peak Financial Futures (ONPQ), settling on final settlement prices based on average day-ahead hourly off-peak LMPs for the contract month for the NP-15 Hub.
- NFX CAISO NP-15 Hub Day-Ahead Peak Financial Futures (NPMQ), settling on final settlement prices based on average day-ahead hourly peak LMPs for the contract month for the NP-15 Hub.

- NFX CAISO SP-15 Hub Day-Ahead Off-Peak Financial Futures (OFPQ), settling on final settlement prices based on average day-ahead hourly off-peak LMPs for the contract month for the SP-15 Hub.
- NFX CAISO SP-15 Hub Day-Ahead Peak Financial Futures (SPMQ), settling on final settlement prices based on average day-ahead hourly peak LMPs for the contract month for the SP-15 Hub.

Risk Model Changes

As noted above, the Energy Futures contracts that OCC will clear are look-alike products to energy futures traded on other futures exchanges and cleared by other DCOs. According to OCC, there is a significant amount of historical data and academic literature concerning risk models for energy futures, and OCC has used such data and literature in the development of its risk models for Energy Futures contracts. Based on its analysis of that information, OCC stated that it has identified two characteristics specific to Energy Futures contracts (compared to futures contracts already cleared, settled and risk managed by OCC) for which new risk models needed to be added to the STANS methodology:[11]

- Energy Futures prices are known to be more volatile as contracts approach delivery because of the convergence with cash-market prices and the

[11] In developing its risk models for Energy Futures, OCC stated in its proposed rule change that it had also considered a third characteristic, namely that electricity markets are known to be geographically segmented, which can cause abrupt and unanticipated changes in spot prices. However, after reviewing relevant academic literature and performing internal testing, OCC determined that adjusting its futures risk models to account for changes in the spot price of electricity was not appropriate. Securities Exchange Release No. 74511 (March 16, 2015), 80 FR 15042 (March 20, 2015). *See* Kholopova, M. (2006) "Estimating a two-factor model for the forward curve of electricity," PhD dissertation.

potential for real-life trading and delivery complications of the underlying commodity. This phenomenon is known as the "Samuelson effect,"[12] and

- The price volatility of certain energy futures display a seasonal pattern (a/k/a "seasonality").

To address these characteristics, OCC designed multi-factor risk modeling capabilities that can risk model based on up to three factors: a short-run factor, a seasonal factor and a long-run factor. The short-run factor is designed to account for the Samuelson effect, which becomes more pronounced the closer the contract is to maturity (i.e., delivery). The seasonal factor accounts for Energy Futures contracts that display volatility in a seasonal pattern, and the long-run factor accounts for the risk of a given Energy Future contract not addressed by either the short-run factor or the seasonal factor. Pursuant to its rule change as proposed, OCC's multi-factor models can be further categorized as either a two-factor model or three-factor model, with the two factor model consisting of a short-run and long-run factor, while the three-factor model consists of a short-run factor, a long-run factor, and a seasonality factor.

Two-Factor Model

OCC will use a two-factor risk model to compute theoretical prices for NFX Brent Crude Financial Futures contracts and NFX WTI Crude Oil Financial Futures contracts because such futures do not exhibit seasonality.[13] The two-factor risk model

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12 *See* Samuelson, Paul A., "Proof that Properly Anticipated Prices Fluctuate Randomly," Industrial Management Review, Vol. 6 (1965). OCC stated that no other futures contracts for which it provides clearance and settlement services exhibit the Samuelson effect.

13 *See* Schwartz, E. and J. Smith (2000) "Short-term variations and long-term dynamics in commodity prices," *Management Science*, vol. 46, pp. 893-911. OCC provided that the supply of Brent Crude Oil and WTI Crude Oil is not

will derive a given Energy Future contract's price based on a long-run factor and a short-run factor. The long-run factor component captures changes to the equilibrium price (i.e., the prevailing market price at a point in time) of a given Energy Future contract based on factors such as expectations of the exhaustion of existing supply, improving technology for production, the discovery of additional supply of the commodity, inflation and political and regulatory effects. Using historical data, OCC assumed that such long-run factors cause the equilibrium price for a given Energy Future contract to evolve according to a stochastic process that accounts for asymmetric skewness and excess kurtosis.[14] The short-run component captures short-run changes in demand or supply due to real-life factors such as variation in the weather or intermittent supply disruptions as well as increased volatility (i.e., the Samuelson effect).[15] The short-run component of the model is mean reverting; therefore, in the absence of such short-term changes in demand or supply the long-run factor should determine the price for a given Energy Future contract. Additionally, the short-run factor is less noticeable as the tenor of the Energy Futures contract increases.

Three-Factor Model

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affected by seasonal variation in demand because there are low-cost transportation methods for Brent Crude Oil and WTI Crude Oil as well as the ability to store Brent Crude Oil and WTI Crude Oil.

[14] The model assumes that past price information is already incorporated into the current price and the next price movement is conditionally independent of past price movements. Additionally, the long-run factor accounts for "fat tail" events.

[15] This is often observed as shorter dated futures contracts exhibit greater volatility than longer dated futures contracts.

OCC will use a three-factor risk model in order to compute theoretical prices for the remainder of the Energy Futures contracts.[16] The three-factor model uses the same long-run and short-fun factor components as the two-factor model and adds a seasonality factor. Using historical data, OCC asserts that Energy Futures contracts, except for Energy Futures contracts on Brent Crude Oil and WTI Crude Oil, experience seasonality.[17] To address seasonality, OCC will employ a trigonometric function,[18] which it states will capture price dynamics in different seasons.

OCC stated its belief that the proposed enhancements to STANS are appropriately designed to support the clearance and settlement of Energy Futures contracts, based on model back testing results. Moreover, OCC asserts that the Energy Futures contracts are not new or novel contracts, and that the clearance and settlement of Energy Futures contracts will not present material risk to OCC.[19]

Schedule C to the Clearing Agreement

Pursuant to approved rule change 2015-OCC-03, OCC added a Schedule C to the Clearing Agreement to support the clearance and settlement of Energy Futures contracts

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16 OCC's proposed model is based upon recent academic literature on energy futures. *See* Mirantes, A., J. Poblacion and G. Serna (2012) "The stochastic seasonal behavior of natural gas prices," *European Financial Management*, vol. 18, pp. 410-443.

17 OCC provides that this is due to the lack of low-cost transportation and limited, or no ability to store the commodity.

18 *See* note 14 supra.

19 OCC provides that cleared futures contracts account for less than two percent of its total overall volume and, in 2011, OCC cleared 1,388 contracts traded on NFX. In 2012, OCC cleared 518,360 contracts traded on NFX (NFX did not have any cleared futures contract volume in 2013 and 2014). By way of reference, OCC's average daily cleared contract volume in through February 19, 2015, is 17 million contracts.

and options on Energy Futures. Pursuant to the Clearing Agreement between OCC and NFX, OCC has agreed to clear the specifically enumerated contracts and may agree to clear and settle additional types of contracts should both parties execute a new Schedule C to the Clearing Agreement. This was necessary because Energy Futures contracts and options on Energy Futures were not enumerated in either the Previous Agreement, or in any existing Schedule C to the Previous Agreement. The approved rule change adds this new Schedule C to allow OCC to provide for the clearance and settlement of Energy Futures contracts and options on Energy Futures.

II. Discussion and Commission Findings

Section 19(b)(2)(C) of the Act[20] directs the Commission to approve a proposed rule change of a self-regulatory organization if it finds that the proposed rule change is consistent with the requirements of the Act and the rules and regulations thereunder applicable to such organization. The Commission finds that the proposed rule change is consistent with Section 17A(b)(3)(F) of the Act[21] because it assures the safeguarding of securities and funds in the custody and control of OCC and permits OCC to risk manage Energy Futures contracts and options on Energy Futures through appropriate risk models as described above. Such risk models should reduce the risk that clearing members' margin assets will be insufficient in the event that OCC needs such assets to close-out the positions of a defaulted clearing member and, in turn also help protect investors and the public interest. Furthermore, the proposed rule change is also consistent with Rule 17Ad-

[20] 15 U.S.C. 78s(b)(2)(C).

[21] 15 U.S.C. 78q-1(b)(3)(F).

22(b)(2) under the Act,[22] because it will allow OCC to implement risk-based models and parameters to set margin requirements for clearing members who trade Energy Futures contracts and Energy Futures Options.

III. Conclusion

On the basis of the foregoing, the Commission finds that the proposal is consistent with the requirements of the Act and in particular with the requirements of Section 17A of the Act[23] and the rules and regulations thereunder.

IT IS THEREFORE ORDERED, pursuant to Section 19(b)(2) of the Act,[24] that the proposed rule change (SR-OCC-2015-006) be, and it hereby is, approved.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.[25]

Brent J. Fields
Secretary

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22 17 CFR 240.17Ad-22(b)(2).

23 In approving this proposed rule change, the Commission has considered the proposed rule's impact on efficiency, competition, and capital formation. *See* 15 U.S.C. 78c(f).

24 15 U.S.C. 78s(b)(2).

25 17 CFR 200.30-3(a)(12).