

CME Group

CME Unit of Measure and Trade Sub-Type Enhancements

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| **Revision** | **Date** | **Author** | **Revision Comments** |
| --- | --- | --- | --- |
| 0.1 | April 3, 2018 | Brook Path Partners, Inc. for CME Group | Initial draft |
| 0.2 | April 11, 2018 | Brook Path Partners, Inc. for CME Group | Added a second enumeration splitting BTU/Kwh and MMBTU/Mwh. |
| 0.3 | April 12, 2018 | Brook Path Partners, Inc. for CME Group | Added terminology definitions, references and glossary entries. |
| 0.4 | April 26, 2018 | Brook Path Partners, Inc. for CME Group | Added TACO as TrdSubType(829) enumeration. |
| 0.5 | May 2, 2018 | Brook Path Partners, Inc. for CME Group | Revised elaboration for TACO to be a bit more generic. |

The above document history section, including date, author, and comments, is required to track editing changes to the document. List revisions in **ascending order**. Please insert additional rows in the table as needed.

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r3.1: 2013-01-04 Revised Copyright year, changed template to Office 2013 .docx version, updated font to Calibri for cleaner look. Added additional template usage clarification.

R3.2 2016-05-23 – revised the copyright date, corrected document references and replaced the FIX logo with the most current graphic.

2016-09-14 – Removed blue highlighting from hidden text content, removed ICR column from 5.1 and 6.1 tables and added “FIX Spec” to the Comments column header of table 6.1 and revised notation of optional elaboration for fields and enums in the data dictionary.

# Introduction

This proposal adds two additional values to the FIX standard list of units of measure. It also adds a new enumeration to TrdSubType(829).

## Summary of Proposed Changes

The summary of proposed changes to support the business requirements described in Section 2 are:

* Add two enumerations to the FIX standard list of units of measure for "Heat Rate" and "Mega Heat Rate" – 1) the number of BTUs required to produce one kilowatt hour of electricity and 2) the number of million BTUs required to produce one megawatt hour of electricity respectively. The parent field is UnitOfMeasure(996).
* Add an enumeration to the FIX standard values for TrdSubType(829) for Trade At Cash Open "TACO". The corresponding TrdType(828) value is either 0 (Regular trade) or 1 (Block trade).

# Business Requirements

## Heat Rate as a Unit of Measure

A new unit of measure for energy commodity trades has been identified – the number of million British Thermal Units (BTUs) required to produce one megawatt hour of electricity. The only current use case for CME is in the fixed stream of a commodity swap, specifically the field PaymentStreamFixedAmountUnitOfMeasure(41187). After internal debate it was determined that this should be a "Fixed Magnitude" enumeration, not "Variable Magnitude" in that it is a pre-defined ratio in the energy sector.

Applicable industry terminology includes the following:

**Heat Rate:** Heat Rate is the amount of energy used to produce 1 kWh, used as part of an expression of the conversion efficiency of electrical power generating engines or power plants to convert fuel into heat or electricity. The typical unit for this is 3,412 Btu/kWh, or British Thermal Units per kilowatt hour, for a fully efficient plant. For example, if the plant's heat rate is 8,000 Btu/kWh this means that the plant is 43% efficient - taking 3,412 Btu divided by 8,000 Btu of heat energy to produce 1 kWh of electricity (source <https://www.eia.gov/tools/faqs/faq.php?id=107&t=3>).

* **BTUs per Kilowatt Hour of Electricity:** This is the ratio used most often in the energy industry sector – Btu/kWh or 1:1000 with a fixed standard value of 3412.14163312794 BTUs (<https://www.rapidtables.com/convert/energy/kWh_to_BTU.html>).
* **Million BTUs per Megawatt Hour of Electricity:** In commodities trade contracts this ratio is most often used – MMBtu/MWh 1:1 with a fixed standard value of 3.41214163312794 million BTUs.

For the purpose of this proposal we have proposed the acronyms kHR (Heat Rate) and MHR (Mega Heat Rate) to the two new enumerations respectively.

## Trade At Cash Open (TACO) Trades

Trade At Cash Open (TACO) trading on E-Mini S&P 500 futures is similar to Basis Trade Index Close (BTIC) for equity index futures but trades at the cash open price rather than at the closing price. For both contracts, execution is at a differential price, plus or minus. The final absolute price in the E-Mini S&P 500 future is equal to the marker price, plus or minus the executed differential price. For TACO, the marker price is the special opening quote (SOQ) of the S&P 500 index on the following business day.

Pending CFTC regulatory review CME will launch TACO trading on May 13, 2018.

# Issues and Discussion Points

|  | **Issue** | **Date** | **Status** | **Discussion** |
| --- | --- | --- | --- | --- |
| 1 |  |  |  |  |
| **2** |  |  |  |  |

# Proposed Message Flow

*There are no proposed changes to message flow.*

# FIX Message Tables

*There are no proposed changes to messages.*

# FIX Component Blocks

*There are no proposed changes to component blocks.*

# Category Changes

*There are no category changes.*

# Appendix A - Data Dictionary

| **Tag** | **FieldName** | **Action** | **Datatype** | **Description** | **FIXML Abbreviation** | **Add to / Deprecate from Message type or Component block** |
| --- | --- | --- | --- | --- | --- | --- |
| 829 | TrdSubType | CHANGE | int | Further qualification to the trade type  0 = CMTA  1 = Internal transfer or adjustment  2 = External transfer or transfer of account  3 = Reject for submitting side  4 = Advisory for contra side  . . .  *Add enumeration:*  <tbd> = Trade At Cash Open (TACO)  *[Elaboration: The marketplace name given to trading futures based on an opening quote of the underlying cash market.]* |  |  |
| 996 | UnitOfMeasure | CHANGE | String | Specifies the fixed payment amount unit of measure (UOM).  **- Fixed Magnitude UOM -**  Bcf = Billion cubic feet  CBM = Cubic Meters  GJ = gigajoules  *Add enumeration:*  kHR - Heat rate  [Elaboration: The number of BTUs required to produce one kilowatt hour of electricity, typically 3,412.14 BTUs per 1 kWh.]  kWh = Kilowatt hours  *Add enumeration:*  MHR - Mega heat rate  [Elaboration: The number of million BTUs required to produce one megawatt hour of electricity, typically 3.41214 million BTUs per 1 MWh.]  MMBtu = One Million BTU  MWh = Megawatt hours  thm = therms  MMbbl = Million Barrels  **- Variable Quantity UOM -**  *no change* |  |  |

# Appendix B - Glossary Entries

|  |  |  |
| --- | --- | --- |
| **Term** | **Definition** | **Field where used** |
| Heat Rate | Heat Rate is an expression of the conversion efficiency of power generating engines. The typical unit for this is Btu/kWh, or British Thermal Units per kilowatt hour. For example, 8,000 Btu/kWh means that 8,000 Btu of heat energy which is input into the engine will result in conversion to 1 kWh of electricity. | UnitOfMeasure(996) |
| Mega Heat Rate | Mega Heat Rate is an extension of Heat Rate used in commodity trades whereby the unit is MMBtu/MWh, or millions of British Thermal Units per megawatt hour. | UnitOfMeasure(996) |
|  |  |  |
|  |  |  |

# Appendix C - Abbreviations

|  |  |  |
| --- | --- | --- |
| **Term** | **Proposed Abbreviation** | **Proposed Messages, Components, Fields where used** |
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|  |  |  |
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# Appendix D - Usage Examples