CME Group

CME Unit of Measure and Trade Sub-Type Enhancements

May 2, 2018

Revision 0.5

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Document History

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.
	May 2, 3018	GTC Technical Support	Assigned IDs and generated ASBUILT.

1 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).

1.1 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).

2 Business Requirements

2.1 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).

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- **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.

2.2 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.

3 Issues and Discussion Points

	Issue	Date	Status	Discussion
1				
2				

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4 Proposed Message Flow

There are no proposed changes to message flow.

5 FIX Message Tables

There are no proposed changes to messages.

6 FIX Component Blocks

There are no proposed changes to component blocks.

7 Category Changes

There are no category changes.

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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>52 = 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.]		

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Tag	FieldName	Action	Datatype	Description	FIXML Abbreviation	Add to / Deprecate from Message type or Component block
				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*		

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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

Appendix D - Usage Examples