

# Decay Variable Quantity Energy Products

Decay Variable Quantity Energy Products are instruments for which the size and cleared quantity decrease, day by day, during the month of expiration.

Prior to the start of the month corresponding to the contract expiration month, decay products behave like standard [variable quantity energy products](#). During delivery month, instrument size and cleared quantity decay, or decrease, at the interval defined in the market data [Security Definition message \(tag 35-MsgType=d\)](#) for the instrument.

For Decay Variable Quantity Energy Products, client systems must be able to process the tags 5818-DecayQty and 5819-DecayStartDate present in the market data Security Definition (tag 35-MsgType=d) message. These tags are present only for decay products as indicated by repeating group tags 871-InstAttrbType=24 (eligible) and 872-InstAttrbValue=15 (decay).

## Terminology

This list provides the key terms used in trading decay quantity products and the associated order entry and market data message tags in which the values are defined.

Term	Definition
Lot	<p>The standard CME Globex trading unit. All <a href="#">iLink</a> and <a href="#">market data</a> quantity values are defined in lot terms, i.e. buy 10 = buy 10 lots.</p> <p>Following is a sample list of tags which refer to lot size:</p> <ul style="list-style-type: none"> <li>• <b>iLink</b> - tag 38-OrderQty, tag 110-MinQty, tag 14-CumQty, tag 151-LeavesQty, tag 32-LastShares</li> <li>• <b>MDP</b> - tag 271-MDEntrySize, tag 562-MinTradeVol, tag 1140-MaxTradeVol</li> </ul>
Unit	<p>Tradable energy unit e.g. MWh or (megawatt hour).</p> <p>Defined in tag 1231-MinLotSize and tag 996-UnitofMeasure in the market data Security Definition (tag 35-MsgType=d) message.</p>
Decay Quantity	<p>The quantity that a contract will decay on a daily basis, once the decay start date (or contract expiration month) is reached.</p> <p>Defined in tag 5818-DecayQty in the market data Security Definition (tag 35-MsgType=d) message.</p>
Decay Start Date	<p>The date at which a decay contract will begin to decay (typically, the contract expiration month).</p> <p>Defined in tag 5819- DecayStartDate in the market data Security Definition (tag 35-MsgType=d) message.</p>
Original Contract Size	<p>Original instrument quantity prior to decay date and contract multiplier being applied.</p> <p>Defined in tag 5849-OriginalContractSize of the market data Security Definition (tag 35-MsgType=d) message.</p>
Contract Multiplier	<p>Number of deliverable units per instrument, e.g., number of peak days or calendar days in maturity month.</p> <p>Defined in tag 231-ContractMultiplier and tag 1435-ContractMultiplierUnit in the market data Security Definition (tag 35-MsgType=d) message.</p>
Minimum Lot Size	<p>The minimum quantity accepted for order entry.</p> <p>Defined in tag 1231-MinLotSize in the market data Security Definition (tag 35-MsgType=d) message where:</p> <p>tag 1093-LotType=4 (variable quantity lot), the quantity in tag 1231-MinLotSize is understood in the unit of measure defined in tag 996-UnitOfMeasure, (e.g., megawatts).</p>

## Cleared Quantity Formula

Cleared Quantity for a decay product is calculated with the following formula:

$\langle \text{lot} \rangle * \langle \text{OriginalContractSize} \rangle * \langle \text{ContractMultiplier} \rangle - [\langle \text{DecayQty} \rangle * \langle \# \text{ of applicable decay days since the DecayStartDate} \rangle]$  for decay instruments in the spot month

## Example: Decay Electricity Futures

For October 2012 expiration

All months prior to expiration month (October):

Lot	2
DecayQty	40

DecayStartDate	<b>10012012</b>
OriginalContractSize	<b>920</b> (2.5 MWh * 16 peak hours * 23 peak days)
UnitofMeasure	MWh
ContractMultiplier	1
Cleared Quantity	<b>1840</b> MWh (2* 920 * 1)
MinLotSize	2.5

**Expiration month (October 2):**

Lot	2
DecayQty	40
DecayStartDate	<b>10012012</b>
OriginalContractSize	<b>880</b> (2.5 MWh * 16 peak hours * 22 peak days)
UnitofMeasure	MWh
ContractMultiplier	1
Cleared Quantity	<b>1760</b> MWh (2 * 920 * 1 - (40*2))
MinLotSize	2.5

**Decay Calendar Example**

The following calendar illustrates the degradation of a product where the contract size “decays” or “erodes” by 40 MWh each peak day within the expiration month and the Cleared Quantity decays by 80 MWh each peak day within the expiration month.

October 2012						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
23	24 <i>Before contract month, trades at fixed size.</i>	25 Orig Contract Size = <b>920 MWh</b> Cleared Qty = <b>1840 MWh</b>	26 Orig Contract Size = <b>920 MWh</b> Cleared Qty = <b>1840 MWh</b>	27 Orig Contract Size = <b>920 MWh</b> Cleared Qty = <b>1840 MWh</b>	28 Orig Contract Size = <b>920 MWh</b> Cleared Qty = <b>1840 MWh</b>	29
30	1 Orig Contract Size = <b>920 MWh</b> Cleared Qty = <b>1840 MWh</b>	2 <b>880 MWh</b> <b>1760 MWh</b>	3 <b>840 MWh</b> <b>1680 MWh</b>	4 <b>800 MWh</b> <b>1600 MWh</b>	5 <b>760 MWh</b> <b>1520 MWh</b>	6
7	8 <b>720 MWh</b> <b>1440 MWh</b>	9 <b>680 MWh</b> <b>1360 MWh</b>	10 <b>640 MWh</b> <b>1280 MWh</b>	11 <b>600 MWh</b> <b>1200 MWh</b>	12 <b>560 MWh</b> <b>1120 MWh</b>	13
14	15 <b>520 MWh</b> <b>1040 MWh</b>	16 <b>480 MWh</b> <b>960 MWh</b>	17 <b>440 MWh</b> <b>880 MWh</b>	18 <b>400 MWh</b> <b>800 MWh</b>	19 <b>360 MWh</b> <b>720 MWh</b>	20
21	22 <b>320 MWh</b> <b>640 MWh</b>	23 <b>280 MWh</b> <b>560 MWh</b>	24 <b>240 MWh</b> <b>480 MWh</b>	25 <b>200 MWh</b> <b>400 MWh</b>	26 <b>160 MWh</b> <b>340 MWh</b>	27

28	29 <b>120 MWh</b> <b>260 MWh</b>	30 <b>80 MWh</b> <b>180 MWh</b> <i>Last Trade Date</i>	31			
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