

*Power Futures Market Reference File  
(FMRF) Interface Specification*

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*EEX Information Services*

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# 1 Objective of this Document

The present document contains a specification of the power futures market results export file (*FMRF* file) generated in csv format from the derivatives market trading system Eurex.

The FMRF file is generated every exchange trading day and made available on the EEX FTP server by 6.00 p.m. of the current day. Customers of the EEX Info-Vendor and Info-User packages may access this file and download it to their own system via the FTP protocol.

## 2 What is Exported?

### 2.1 Overview

EEX creates a single file called Futures Market Results File **FMRF** from the EUREX Trading System. It is in CSV-Format, that means semicolon separated values, ASCII character set.

For each product and delivery period traded on a specific trading day the prices and the trading volume will be written to the FMRF.

## 3 The Export File Format

### 3.1 General Format and Conventions

All the futures trading results data for one trading day in EUREX is gathered together in one file. This file is available some minutes after the future market has been closed.

#### 3.1.1 Type and Basic Structure

The format, in general, is structured as follows:

- The *FMRF* is a **CSV** (semicolon separated values) text file containing ASCII characters only.
- It contains, at the top level, **lines**, that are terminated by <CR><LF> (line break). So the *FMRF* is viewable by any simple text editor.
- The lines are consisting of a number of **fields**. Fields are separated by a semicolon. The fields have different meanings in the context of a line as described in the following sections of this document. The different fields also have different formats. Field formats are explained in the section 3.3. Empty fields are allowed.
- All lines start with a **line identifier** that specifies the type of data that follows and by this implicitly the fields following the line identifier.

In summary a line is assembled like

```
[line identifier];[field 1];[field 2]; ... ;[field n]<CR><LF>
```

#### 3.1.2 File Name

The **file name** of the *FMRF* contains the information about the corresponding trading date, so files of different trading dates can coexist in the same directory. The structure of the file name is defined by

```
fmr f_[YYYYMMDD].csv
```

where [YYYYMMDD] represents the trading date in American date format, i.e.

```
fmr f_20000115.csv
```

for January 15<sup>th</sup>, 2000.



### 3.3 Data Formats of Fields

Data fields may have one of the formats defined in the table below:

Format	Description	Example
<DD>	Day of month, 2 digits, fixed length, leading zero	05
<MM>	Month of year, 2 digits, fixed length, leading zero	02
<YYYY>	Year, 4 digits, fixed length	2000
<DD.MM.YYYY>	Total description of a date, separator is '.'	05.02.2000
<Delivery Period>	Beginning of the delivery period (month and year).	APR04
<Currency>	Currency, max. 3 digits, variable length	EUR
<Hours>	Number of hours within the specified delivery period, 0 decimal, variable length	2184
<hh>	Hour of day, 2 digits, fixed length, leading zero, 24h system	16
<mm>	Minute of hour, 2 digits, fixed length, leading zero	28
<ss>	Second of minute, 2 digits, fixed length, leading zero	24
<hh:mm:ss>	Total description of time, separator is ':'	16:28:24
<Product>	Name of the product within the EUREX system. The length is 4 characters where the 3 <sup>rd</sup> character defines Base or Peak and the 4 <sup>th</sup> character defines the type of delivery period (Y=Year, Q=Quater and M=Month).	F1BQ
<Price>	Price per MWh in the given currency, 2 decimals, comma is decimal separator, variable length	20,43
<#>	Amount of exchange contracts.	25
<Volume>	Volume in contracts or contract units, 0 decimal, variable length	4049
<#Trades>	Number of trades for the given product.	27
<Line Identifier>	Line identifier, see description in section 3.4	ST
<Numlines>	Number of lines in the SMRF, variable length	40

Table 3-1 Data formats of fields

### 3.4 Line Types and their Line Identifiers

The *FMRF* contains 4 different line types with different line identifiers and different field structure following the line identifier. The table below shows the identifier to line type relation.

Line Identifier	Line Type Description
#	Comment line. The characters immediately following this identifier without any separator are comments only, the rest of the line up to <CR><LF> has no valid data content.
ST	Status line, contains general information.
PR	Product information line containing the product, delivery date, number of delivery hours, price index information and volume.
OT	OTC volume information containing the product name, delivery period, number of delivery hours and volume information.
AL	Termination line of the <i>SMRF</i> containing the number of total lines in the file for internal checking of the file to be complete.

Table 3-2 Line types and their line identifiers.

## 3.5 Line Layouts

### 3.5.1 Comment (#)

A comment line is written into the *FMRF* in the following layout:

```
# [Comment Text]
```

The fields content is explained in the table below.

Field	Data Format	Description
[Comment Text]	-	Any string containing ASCII characters.

Table 3-3 Description of comment line (#)

### 3.5.2 Status Line (ST)

The status line is written into the *FMRF* in the following layout:

```
ST; [Trading Date]; [Currency]; [Time Created]; [Date Created] <CR> <LF>
```

The fields content is explained in the table below.

Field	Data Format	Description
[Trading Date]	<DD.MM.YYYY>	The date the future contract is traded.
[Currency]	<Currency>	Currency the prices are given in the whole <i>FMRF</i> .
[Time Created]	<hh:mm>	Creation time of the <i>FMRF</i> .
[Date Created]	<DD.MM.YYYY>	Creation date of the <i>FMRF</i> .

Table 3-4 Description of status line (ST)

### 3.5.3 Product Information Line (PR)

The product information line is written into the *FMRF* in the layout defined below.

```
PR:[Contract];[Delivery Period];[Contract Volume];[Open Interest];
[OI Contract Volume];[Settlement Price];[Open Price];[High Price];
[Low Price];[Last Price];[Traded Contracts];[Volume]<CR><LF>
```

The fields content is explained in the table below.

Field	Data Format	Description
[Product Name]	<Product>	Name of the product traded within the EUREX system
[Delivery Period]	<Delivery Period>	Date of the first delivery Month for this product. The delivery period for every product will begin on the 1 <sup>st</sup> of a month.
[Contract Volume]	<hours>	Number of delivery hours for this contract.
[Open Interest]	<#>	Total number of contracts that remain open as of end of the previous day.
[OI Contract Volume]	<Volume>	The open interest multiplied with the contract volume.
[Settlement Price]	<Price>	Price established by the energy exchange at the end of a trading session as the daily settlement price for this contract.
[Open price]	<Price>	Price of the first trade for this product and delivery period at this day.
[High price]	<Price>	Maximum price for the given product and delivery period at this day.
[Low price]	<Price>	Minimum price for the given product and delivery period at this day.
[Last price]	<Price>	Price of the last trade for this product and delivery period Price of the last trade for this product and delivery period for this day this day.
[Traded Contracts]	<#>	Number of contracts traded for the given product and the given delivery period.
[Volume]	<Volume>	Total volume traded for the given product and delivery period. It is calculated by multiplying the traded contracts with the contract volume.

Table 3-5 Description of product line (PR)

### 3.5.4 OTC Volume Line (OT)

The OTC volume line is written into the FMRF in the following layout:

```
OT;[Contract];[Delivery Period];[Contract Volume];[Traded Contracts];
    [Traded Volume];[No of Trades]
```

The fields content is explained in the table below.

Field	Data Format	Description
[Product Name]	<Product>	Name for the product traded within the EUREX system.
[Delivery Period]	<Delivery Period>	Month and year showing the beginning of the delivery period.
[Contract Volume]	<hours>	Number of delivery hours for the given product.
[Traded Contracts]	<#>	Number of contracts traded for the given product and the given delivery period.
[Volume]	<Volume>	Total volume traded for the given product and delivery period. It is calculated by multiplying the traded contracts with the contract volume.
[No of Trades]	<#Trades>	Total number of EFP trades within this product and delivery period.

Table 3-6 Description of OTC Volume line (OT)

### 3.5.5 Termination Line (AL)

The termination line is written into the *FMRF* in the following layout:

```
AL; [Numlines] <CR><LF>
```

The fields content is explained in the table below.

Field	Data Format	Description
[Numlines]	<Numlines>	Number of lines of the FMRF including this line and including comment lines.

Table 3-7 Description of number of lines (AL)

## 3.6 Total File Layout

The following table shows the complete line layout of the *FMRF*:

Lines	Line Type	Description
1	Comment	Date and file information.
2	Comment	Empty line.
3	Comment	Heading of line type ST (Status).
4	Comment	Heading of line type PR.
5	Comment	Heading of line type OT
6	Comment	Heading of line type AL (Termination).
7	Comment	Empty Line.
8	ST	Status Line.
9+A-1	PR	Product information for each product traded at this trading day.
10+2*(A-1)	OT	OTC volume information for each product traded at this trading day.
11+2*(A-1)	AL	Termination line.

Table 3-8 Total file layout

**CAUTION!!!** The line numbers are shown for documentation purposes only. They have no semantic sense. Never rely on the line number for decoding the line context. Always use the *line identifier* to refer to the field context!

## 4 Getting the EEX Result Files

The common way is to download the files from the EEX FTP-Server.

EEX allows you to connect to an in-house FTP server. For this purpose some FTP client software is needed together with the following connection parameters:

- FTP-Server: <ftp://infoproducts.eex.com/>
- User Name: <Your Login>
- Password: <Your Password>
- Directory: market\_results/power/derivatives\_market/futures/

After the settlement price calculation the result file is transferred at about 6 p.m. to the FTP Server and can be downloaded directly from the specified directory.