



# **ICE Risk Model (IRM) for ICE Clear**

## **User Guide**

**Document Version 2.0**

**(Applicable to ICE Risk Model Versions 1.4.4.1 Onward)**

**23 May 2022**

## Contents

<b>1</b>	<b>Introduction</b>	<b>4</b>
<b>1.1</b>	<b>ICE Risk Model for OTC FX</b>	<b>4</b>
<b>2</b>	<b>Installation Process</b>	<b>5</b>
<b>3</b>	<b>ICE Risk Model Parameter File(s)</b>	<b>5</b>
<b>4</b>	<b>Position File</b>	<b>6</b>
<b>4.1</b>	<b>Example Position File for OTC FX</b>	<b>7</b>
<b>5</b>	<b>Using ICE Risk Model</b>	<b>8</b>
<b>5.1</b>	<b>Download ICE Risk Model Parameter File</b>	<b>8</b>
<b>5.2</b>	<b>Load Risk Parameters (ICE Risk Model Arrays)</b>	<b>8</b>
<b>5.3</b>	<b>Load Position Files</b>	<b>8</b>
<b>5.4</b>	<b>Calculate Margin</b>	<b>8</b>
<b>5.5</b>	<b>Viewing Reports</b>	<b>9</b>
<b>5.6</b>	<b>Other Options and Functions</b>	<b>9</b>
5.6.1	Nearest Strike Option	10
5.6.2	Viewing Log File	10
5.6.3	Changing results File Name	10
5.6.4	Changing Warning Threshold	10
5.6.5	Delta Split Allocation	10
5.6.6	Output Allocated Positions	10
5.6.7	Apply WFPR Cap	10
<b>6</b>	<b>Using ICE Risk Model in Batch Mode</b>	<b>11</b>
<b>7</b>	<b>ICE Risk Model Margin Report Details</b>	<b>13</b>
<b>8</b>	<b>Net Liquidating Value</b>	<b>20</b>

## Change History

Document Version	Changes
1.7	<p>Updates to reflect changes introduced in ICE Risk Model Software version 1.3.0.6:</p> <p><b><u>WFPRCAP</u></b> - This version the option to cap the Weighted Futures Price Risk (WFPR) for a given ICE Risk Model Combined Contract within an inter-contract spread to be the minimum value of the scanning ranges applicable to any contract within that ICE Risk Model Combined Contract. This is controlled via a menu option that can be enabled/disabled by the user (See 5.6.7). The WFPR capped value is now reflected also in the Intercontract Spread report which now reports both the uncapped and capped WFPR values (ICS Report)</p> <p><b><u>Output of Positions resulting from Position Allocation</u></b> – A new menu option allows user to request that the positions created as a result of the Position Allocation process be written out to an output file; this is intended to assist in understanding the allocation process and to support users developing their own software.</p> <p><b><u>Value Losses Data File</u></b> – A new VL.CSV data file can be generated (VL Report). This is a data file providing a breakdown of value losses for each contract position; this is intended as an aide to analysing scanning losses. This contains the same information as the SVL report in a data format.</p> <p><b><u>Enhanced support for NYSE Liffe margining</u></b></p> <p><b><u>Method 02 Inter-Contract Spread</u></b> – This version implements fixes to the computation of Method 02 Inter-Contract spread credits. Method 02 spreads are utilised for certain Liffe products and this now means that ICE Risk Model fully supports calculation of Liffe contract margin.</p> <p><b><u>Results Data File</u></b> – The Results Data file (Results.csv) generated by ICE Risk Model now includes the Exchange Id in order to better support margins calculated for Liffe portfolios with 3 exchanges – “L”, “O” and “X”. NOTE that ICE Risk Model allows multiple Array files to be loaded at the same time allowing margin to be calculated across portfolios spanning multiple exchanges at the same time.</p>
1.8	Apply changes to embedded URLs in order to link to updated ICE web site.
1.9	<p>Updated the document to reflect the ICE’s rebranding of our risk management offerings to ICE Risk Model (IRM). The current implementation is not changing; this is merely a rebranding of ICE’s risk management offerings.</p> <p>Removed references to SP5 which has been previously deprecated.</p>
2.0	General review and update.

## 1 Introduction

ICE Risk Model (IRM) is a scenario-based, parameterized risk model used to evaluate the risk exposure to the Clearing House in the event of a defaulting portfolio.

All market participants and users, as well as others with an interest in understanding how ICE Clear margins its products, are welcome to download and use the IRM software.

Users are required to accept the terms of the license as part of the installation process. Users are not charged for use or download of the software, but there are limitations to using the software in commercial applications.

IRM utilises the Microsoft .NET Framework, version 3.5. Users must install this software prior to installing IRM.

### TECHNICAL REQUIREMENTS:

Windows Server 2003; Windows Server 2008; Windows Vista; Windows XP, Windows 7 (32bit and 64bit), Windows 10 (32bit and 64bit)

Microsoft .NET Framework version 3.5

400 MHz Pentium processor or equivalent (minimum); 1GHz Pentium processor or equivalent (recommended)

96 MB Memory (minimum); 256 MB Memory (recommended)

Up to 500 MB of available hard disk space may be required (including .NET)

800 x 600, 256 colours Display (minimum); 1024 x 768 high colour, 32-bit Display (recommended)

If you have any questions relating to the IRM, contact:

ICUS ICE Clear U.S. Risk team at [ICEClearUSRisk@ice.com](mailto:ICEClearUSRisk@ice.com)

ICEU ICE Clear Europe Risk team at [ICEClearEurope-FORisk@ice.com](mailto:ICEClearEurope-FORisk@ice.com) or +44(0)20 7065 7630

ICSG ICE Clear Singapore Operations team at [ICEClearSingaporeOperations@ice.com](mailto:ICEClearSingaporeOperations@ice.com)

ICNL ICE Clear Netherlands Operations team at [ICEClearNetherlandsOperations@ice.com](mailto:ICEClearNetherlandsOperations@ice.com) or + 31 20 3055164

### 1.1 ICE Risk Model for OTC FX

Note that the majority of this document applies equally to the calculation of margin for cleared energy and financials and softs (F&S) contracts and cleared OTC FX contracts. Where different approaches are applicable, these are highlighted.

## 2 Installation Process

IRM can be downloaded from the Risk management section of the ICE website: <https://www.ice.com/clear-europe/risk-management>

Scroll down to the “ICE Risk Model Overview” section and click the “Download v...” button at the end of the section.

Or simply click this [link](#).

## 3 ICE Risk Model Parameter File(s)

In order to use IRM to calculate initial margins, the user is required to input two files into the IRM tool, the first of which is the risk parameter file (also referred to as the IRM Array file). The IRM Array files are available under the risk management section of the respective jurisdiction. For example, ICE Clear Europe IRM array files for Energy and F&S products are available under:

ICE Risk Model Array Files and Margin Rates: <https://www.ice.com/clear-europe/risk-management>

Files can be downloaded from the web site via any web browser. Additionally, this web page is stored as a favourite within the IRM tool and can be accessed from within the tool by selecting “Favourites” and selecting the relevant Clearing House risk arrays. The web page will appear within the tool window.

IRM array files are available for each business day for download.

The Energy and F&S array files are available in a fixed record format (SP6) and in CSV format (CSV). The CSV format file is smaller in size, and it is recommended that this format be used.

When calculating margin requirements posted by ICE Clear on the morning of the current business day the IRM file from the previous business day should be used. Files from historic dates are also available.

**NOTE:** Save the array file to an easily accessible place on your PC. For use by IRM, it is recommended that you save the file to “*My Documents\ICE Risk Model\data*” as this is the default location that the program will look for the array file(s).

**NOTE:** When calculating margin for an F&S portfolio you may need more than one IRM Array file. For example, if your portfolio contains both FTSE Futures and FTSE Options you will need both the “LIF” or “Financial Futures and Options” and “OPT” or “Equity Options” array files.

Further information about the different formats of IRM array files and the various alternatives for obtaining them (including ICE MFT) can be found in the following documents.

ICE Risk Model Array File Formats

<https://service.ice.com/s/article/ice-risk-model-array-file-formats-23356>

ECS, Reporting and MFT Technical User Guide

<https://service.ice.com/s/article/ice-clear-user-guides-22426>

Both documents are published on the ICE Community site.

Please note you will need to request access to ICE Community to access these documents, you can do so from here <https://service.ice.com/s/>.

## 4 Positions File

The second file IRM requires as an input, is the positions file. This file needs to be produced by the user and uploaded into IRM as either a CSV file or a fixed-format text file. CSV files are preferred as they may be easily edited using programs such as Microsoft Excel.

The following information, by column, is required in the position file:

- A. **Position/Trade Flag** - this is always P.
- B. **Account Name/Identifier** - the name of the account (portfolio identifier), this can take any value, such as the user's company name. The file may contain positions for multiple Account Names; a separate margin figure is calculated for each account.
- C. **Exchange Code** - "I" for ICE Energy; "L" for Financials; "O" for Equity Options; "X" for Commodities; "F" for FX; "G" for ICE Clear Singapore; "N" for ICE Clear U.S.; "T" for ICE Clear Netherlands.
- D. **Exchange Contract Code** - this is the physical commodity code of the contract.  
A full list of the ICE Energy and F&S physical commodity codes are available from the following address: <https://www.ice.com/products>.  
There is a separate set of commodity codes for OTC FX. These are available from the OTC FX product guide.
- E. **Contract Type** - this field can take one of the following values: "F" for futures, "C" for call options, "P" for put options, "M" for monthly contracts and "D" for daily contracts, and for OTC FX contracts "N" for NDFs.
- F. **Expiry Date YYYYMMDD** - a year and month is sufficient for futures, for example 20220400 for April 2022 future. Daily contracts require the DD field to be completed as appropriate. For OTC FX this is the final maturity date of the NDF contract.
- G. **Strike Price** - for futures/NDFs, enter "0" in this field, or leave it blank. For options the strike price in ticks is required. For example, for a \$75.50 Brent option a value of "7550" should be entered, for Gas Oil options "65000" represents a strike price of \$650 and for ECF options "9500" represents a strike price of EUR 95.00.  
Please note that net liquidation value of options is not included in the calculation of initial margins.
- H. **Net Position** - the net number of lots the account is long or short within an individual contract at expiry date level, a negative sign is required for short positions. Positions for options should be netted at strike price level. The IRM tool calculates margin requirements on a net basis for positions under the same account in column B.

For OTC FX this is the terms notional amount on an NDF trade. Positive implies you are buying the terms currency, negative implies you are selling the terms currency. You can enter positions as trades or as net amount by value date for each currency pair (commodity code).

**Regime and Customer Type** – *OPTIONAL (N/A for ICUS)*. The combination of Regime and Customer Type (if specified) is used to determine the amount of additional margin that is added to the computed initial margin depending upon the type of customer. If no Regime/Customer type is specified for a position, no additional margin is added.

- I. **Regime**  
**DCO** or **RCH** (FCMs should specify DCO)
- J. **Customer Type**  
**H** – Hedger. Use rate applicable to Hedgers

**S** – Speculator. Use rate applicable to Speculators

**M** – Member. Use rate applicable to Members

### Example

Below is an example of a position file created in Excel:

	A	B	C	D	E	F	G	H	I	J
1	P	ICE	I	EFO	C	20220300	9500	1		
2	P	ICE	I	B	F	20220400	0	1		
3										

The position file shown represents a 1 lot long call position in March 2022 EUA options at a strike price of EUR 95.00 and a 1 lot long position for April 2022 Brent futures.

If you use Excel to create the positions, you **MUST** save the data as a CSV file:

Click “File” → “Save As...”, then drop down the “Save As Type” box and select “CSV (Comma delimited)”. Click “Save”.

If you create the position file using some other means (e.g., write the positions into a file from your own software), you must write the values as comma-separated values. The position file shown in the example above would look like the following, if you opened the file in Notepad (for example):

```
P,ICE,I,EFO,C,20220300,9500,1
P,ICE,I,B,F,20220400,0,1
```

### 4.1 Example Position File for OTC FX

Below is a sample OTC FX positions file created in Excel:

	A	B	C	D	E	F	G	H
1	P	Cust1	F	UK	N	20121121		14,827,285
2	P	Cust1	F	UD	N	20130509		-9,832,751
3	P	Cust1	F	UK	N	20121212		17,144,847
4	P	Cust2	F	UI	N	20130328		9,593,518
5	P	Cust2	F	UD	N	20121206		-8,818,773

As can be seen, column B contains two different customer/portfolio names; column D contains the codes for the currency pairs

```
UK - USDKRW
UD - USDIDR
UL - USDCLP
UD - USDIDR
```

Column F contains the maturity date (a.k.a. the value date) and lastly column H contains the net terms currency amount. For example, in row 1 the positive terms amount indicates the position is long terms currency. You can use any sign convention for the terms amount that you like; all that matters is that you use a consistent convention within a position file.

## 5 Using ICE Risk Model

### 5.1 Download ICE Risk Model Parameter File

The first step, if you have not already done so, is to download the IRM parameter file (IRM array file). This can be carried out from within IRM by selecting “Favourites” and selecting the relevant Clearing House risk arrays and the download web page will appear within the IRM browser window.

Select the IRM array file you require and save it locally on your PC; it is recommended that you save it to “My Documents\ICE Risk Model\data”.


See section 3 for further information about IRM array files.

### 5.2 Load Risk Parameters (ICE Risk Model Arrays)

The next step is to load the IRM array file(s) into the application.

To load the IRM array file into the application, either:

Select “File” (on the application menu) → “Load Risk Parameters” or

Click , then “Load Risk Parameters”.

Navigate to the IRM array file and select it.

IRM will now load the IRM arrays.

Repeat this step for additional IRM arrays as required.

**NOTE** that you can load multiple IRM array files. For example, when calculating margins for a F&S portfolio you might need to load the “LIF” or “Financial Futures and Options”, “FOX” or “Soft Commodities Futures and Options” and “OPT” or “Equity Options” array files in order to compute margin across a portfolio that comprises financials, FTSE Futures, FTSE Options, Equity Options and Commodity positions.

### 5.3 Load Position Files

In a similar manner, upload the position file:

Select “File” (on the application menu) → “Load Positions” or

Click , then “Load Positions”.

Navigate to your position file and select it.

IRM will now load your positions.

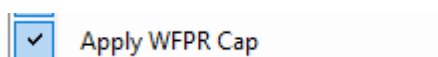
Repeat this step to load further position files.

### 5.4 Calculate Margin

Once you have loaded IRM Array(s) and position(s) into IRM, it has all the required information needed to calculate the initial margin requirement.

**At this point you MUST select the proper setting for the WFPR Cap option.** The WFPR Cap option is accessed through the Tools menu: *Tools* → *Apply WFPR Cap*.


For margining of ICE Energy contracts, this option should be enabled; it should be ticked (see below)






Now run the margin calculation by either:

Clicking “Margin” (on the application menu) → “Calculate” or


Clicking the  icon.

If your position file contains positions in contracts for which no IRM Array is found, then, these positions will be excluded from the margin calculation and warnings will be written to the log file (See section 5.6.2).

## 5.5 Viewing Reports

Once IRM has calculated the margin requirement, the user can select which reports to generate. You can select your chosen reports, by ticking those you require, and generate only those reports by selecting “Margin” → “Report Generation” → “Generate Selected Reports” (or clicking ).

Alternatively, selecting “Margin” → “Report Generation” → “Generate All” will cause IRM to generate all reports.

The user is now able to view the reports generated by selecting “View” → “Reports” → and selecting the report you wish to view, or by clicking .

Report options include:

- Summary By Margin Group
- Summary by Combined Contract
- Summary by Scanning Risk
- Summary Value Losses
- Series Value Losses
- Combined Contract Tier Details
- Strategy Spread Charge Details
- Intermontly Spread Charge Details
- Prompt Date Charge Details
- Intercontract Spread Credit Details
- Expiry Group Delta Details

Each report will show a breakdown of how a particular charge or credit is calculated. See *Section 7 for details on each report*.

For OTC FX, the following reports will be blank, as the IRM set up for these products does not include Strategy Spreads, Prompt Date charges etc.

- Strategy Spread Charge Details
- Prompt Date Charge Details
- Expiry Group Delta Details

## 5.6 Other Options and Functions

Various options are accessed under the **Tools** menu.

### 5.6.1 Nearest Strike Option

Under normal circumstances, any position for which no IRM array is found will be ignored during the margin calculation process and will generate a warning in the log file.

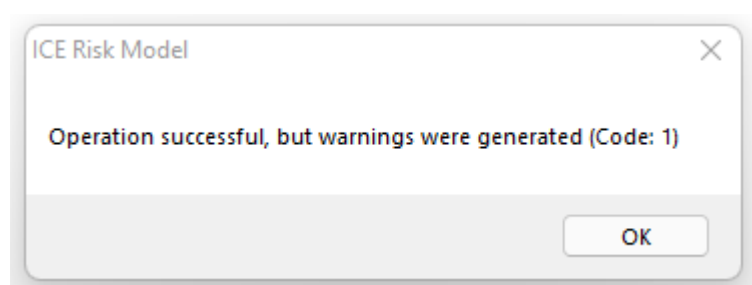
However, this behaviour can be modified in the case of options contracts. If your position file contains options positions which have options positions with strike prices for which no IRM array is found within the IRM array file, then, IRM provides the facility, called "Use nearest Strike", which causes those positions to be processed using the array for that strike price closest to that of the position. This option is only recommended for intra-day what-if type analysis as it will only give an approximation that may not be comparable to the real margin called by the Clearing House at end of day.

Entries will be written to the Log file to record the substitute arrays that were applied. It is the user's responsibility to judge whether this yields an appropriate approximation.

Note that this is not applicable for OTC FX.

### 5.6.2 Viewing Log File

Any errors or warnings issued during any part of the process are output to a log file, the error notification will look like the below. The log file may be viewed by selecting "View" → "Log File" on the application menu.



The tool will by default cancel margin calculation when there are over 200 errors in the process, this warning threshold can be amended in "Tools" → "Warning Threshold" which may help in troubleshooting.

### 5.6.3 Changing results File Name

You can change the default name of the results file generated by IRM by selecting "Tools" → "Results File" and typing a new name in the file name box (default name Results).

### 5.6.4 Changing Warning Threshold

By default, the processing of margins will stop after 200 warnings have been generated.

You can change this threshold by selecting "Tools" → "Warning Threshold" and entering a different value in the box (default value 200).

### 5.6.5 Delta Split Allocation

Position allocation is the process whereby the portfolios provided in the position file (See section 0) are transformed according to the Position Allocation records within the IRM array file. By default, IRM carries out this process. This can be disabled (not recommended) by disabling this option.

### 5.6.6 Output Allocated Positions

To assist in better understanding the Position Allocation process (referred to above), the positions that are created as a result of the transformation process can optionally be written to an output data file. By default, this file is written to the IRM data directory and is named *ppf.csv* in "My Documents\ICE Risk Model\data".

### 5.6.7 Apply WFPR Cap

IRM can constrain the amount of the WFPR used to calculate IRM Inter-Contract Spread Credits (Method 10). Whether this capping is applied can be enabled/disabled through this option.

## 6 Using ICE Risk Model in Batch Mode

An alternative way to calculate margins is by using the command line version of IRM, a program called “Marbat” which can be found in the same program directory as IRM; by default, this is “C:\Program Files\ICE Clear\ICE Risk Model”.

Running this program with no command line arguments causes it to output its ‘usage’; a list of all command line parameters and options.

The Marbat command line syntax is as follows:

```
Marbat -rf arrayfile [arrayfile2 arrayfile3 ...] -pf positionfile [positionfile2 positionfile3 ...]  
[-of outputfilename] [-od] [-ol] [-lf logfilename] [-wt threshold] [-ws] [-ns] [-wfprcap] [-v]
```

Where items contained in [...] are optional.

Marbat command line options:

<b>-rf</b>	load the given risk parameter file(s)
<b>-pf</b>	load the given position file(s)
<b>-of</b>	name of output file (optional) - default is 'results.{csv xml}'
<b>-od</b>	output detailed results (optional) - default is to not output
<b>-lf</b>	name of log file (optional) - default is 'mblog.xml'
<b>-ol</b>	output log file (optional) - default is to not output
<b>-wt</b>	set the warning threshold (optional) - default is 200
<b>-ws</b>	warning stop (optional) - default is to carry on
<b>-ns</b>	use array for Nearest Strike if no array for the actual option strike is available.
<b>-wfprcap</b>	apply capping to WFPR in computation of Method 10 spreads
<b>-v</b>	display version string

Note that it is assumed that anyone using marbat.exe is familiar with the Windows Command line environment. In the following examples you must substitute “C:\Program Files\.....\marbat.exe” with the proper/fully qualified path where the *marbat* executable is located; add this path to the “path” environment variable; or set default directory to the location etc. You can create a copy of the *marbat* executable in an alternative location; simply copy *marbat.exe* and *IceRiskModel.dll* to your chosen location.

Basic usage example:

```
C:\Program Files\.....\marbat.exe ^  
-pf My_Positions.csv ^  
-rf IPE0909F.csv ^  
-wfprcap
```

The margin results would be written to a file called *Results.csv* in the default directory. This example applies WFPR capping as required for Energy margining.

A more complex example:

```
C:\Program Files\.....\marbat.exe ^  
-pf My_Positions.csv ^  
-rf LIF0909F.csv OPT0909F ^  
-of myResults -od
```

In this example two array files are specified (LIF0909F and OPT0909F) and the results are written to myResults.csv. In addition, the `-od` flag means that the detailed XML output is created and this is written to myResults.xml. Finally, note that the `-wfprcap` flag is not specified as this should not be specified for F&S products.

When installed using standard installation settings, marbat.exe will be found in:

- For 32 Bit Windows platforms: "C:\Program Files\ICE Clear\ICE Risk Model"; or
- For 64 Bit Windows Platforms "C:\Program Files (x86)\ICE Clear\ICE Risk Model"

#### Notes:

- The name of the output results files may be changed. For example, to rename the output file the `-of` option is used as shown below:

```
C:\Program Files\.....\marbat.exe -pf data\Position_file.csv -rf
data\Parameter_file.DAT -of Renamed_results.csv
```

- A more detailed (xml) file of results will be produced if the `-od` option is used, for example:

```
C:\Program Files\.....\marbat.exe -pf data\Position_file.csv -rf
data\Parameter_file.DAT -od
```

This will produce a file called 'results.xml' in addition to the default 'results.csv'.

- A log file can be created using the `-ol` command; for example:

```
C:\Program Files.....\marbat.exe -pf data\Position_file.csv -rf
data\Parameter_file.DAT -ol
```

This will produce a file called 'mblog.xml'.

- Warnings may be issued such as when the margin calculator is unable to locate the risk data for a position in a given positions file. The default behaviour will carry on, until 200 warnings have been generated. However, by using the `-wt` option, it is possible to change the setting and force the margin calculator to stop once it detects a warning – this is achieved by the `-ws` command.
- If the positions are in more than one file, use the `-pl` option, giving the name of a file that itself contains a list of files. For example:

```
C:\Program Files\.....\marbat.exe -pl positions.dat -rf data\IF080423.DAT
```

If the 'positions.dat' file contained the following:

```
abc.csv
def.csv
```

The margin calculator would load 'abc.csv' followed by 'def.csv'.

The same can be achieved with risk parameter files: the equivalent option is `-rl`.

- Finally, it is possible to establish the version of the command line program being used with the `-v` option:

```
C:\Program Files\.....\marbat.exe -v
```

## 7 ICE Risk Model Margin Report Details

### Summary by Margin Group

The following provides an overall summary of the charges by ICE. For example, for the positions entered in the position file (see section 4 above) the clearing member would have an initial margin of 3,150 EUR plus 7,600 USD.



#### Summary Margin Report By Margin Group

09 Feb 2022

ACCOUNT: ICE

Margin Group	Currency	Scanning Risk	Strategy Spread Charge	Intermonth Spread Charge	Prompt Date Charge	Intercontract Credit	Short Option Charge	Base Initial Margin	Clearing House Margin	Initial Margin
IPE	EUR	3150	0	0	0	0	0	3150	3150	3150
IPE	USD	7600	0	0	0	0	0	7600	7600	7600

Account Totals:

EUR								3150	3150	3150
USD								7600	7600	7600

### Summary by Combined Contract

This gives the summary of all the charges by contract.



#### Summary Margin Report By Combined Contract

09 Feb 2022

ACCOUNT: ICE

Margin Group: IPE "ICE Clear Europe"

Exchange: I "ICE Energy"

Combined Contract	Ccy	Scanning Risk	Strategy Spread Charge	Intermonth Spread Charge	Prompt Date Charge	Inter-contract Credit	Short Options	Charge Rate	Short Option Charge	Base Initial Margin	Clearing House Ratio	Clearing House Margin	Customer Ratio	Initial Margin
BRN	USD	7600	0	0	0	0	0	1	0	7600	1.000	7600	1.000	7600
ECF	EUR	3150	0	0	0	0	0	1	0	3150	1.000	3150	1.000	3150
	EUR									3150		3150		3150
	USD									7600		7600		7600

## Summary by Scanning Risk

The following gives the final results for each contract, split into the 16 scenarios. It also identifies the Largest Loss Scenario and the resultant Scanning Risk.



### Summary Scanning Risk

09 Feb 2022

ACCOUNT: ICE

Margin Group: IPE "ICE Clear Europe"

Exchange: I "ICE Energy"

Combined Contract: BRN "Brent Crude Future" (USD)

Contract	Currency	F-Extreme	F-3/3 Vol Up/Dn	F-2/3 Vol Up/Dn	F-1/3 Vol Up/Dn	F+0 Vol Up/Dn	F+1/3 Vol Up/Dn	F+2/3 Vol Up/Dn	F+3/3 Vol Up/Dn	F+Extreme
B	USD	5320	7600	5070	2530	0	-2530	-5070	-7600	-5320
			7600	5070	2530	0	-2530	-5070	-7600	
BRN	USD	5320	7600	5070	2530	0	-2530	-5070	-7600	-5320
			7600	5070	2530	0	-2530	-5070	-7600	

Largest Loss Scenario: 13 (F-3/3 Vol Up)

Scanning Risk: 7600

Combined Contract Vega: 0

WFPR Cap: 7600.000000

Combined Contract: ECF "EUA Future" (EUR)

Contract	Currency	F-Extreme	F-3/3 Vol Up/Dn	F-2/3 Vol Up/Dn	F-1/3 Vol Up/Dn	F+0 Vol Up/Dn	F+1/3 Vol Up/Dn	F+2/3 Vol Up/Dn	F+3/3 Vol Up/Dn	F+Extreme
EFO	EUR	1271	955	-49	-1256	-2671	-4291	-6111	-8118	-4510
			3150	2634	1851	751	-691	-2478	-4588	
ECF	EUR	1271	955	-49	-1256	-2671	-4291	-6111	-8118	-4510
			3150	2634	1851	751	-691	-2478	-4588	

Largest Loss Scenario: 14 (F-3/3 Vol Down)

Scanning Risk: 3150

## Summary Value Losses

The following is a breakdown of the Scanning Risk calculation for all futures and options per contract, giving the results for all 16 scenarios. The results of the delivery month are then summed for each contract. The options values are summarised from the Option Value Losses report.



### Summary Value Losses

09 Feb 2022

ACCOUNT: ICE

Margin Group: IPE "ICE Clear Europe"

Exchange: I "ICE Energy"

Combined Contract: BRN "Brent Crude Future" (USD)

Contract B "B-Brent Crude Future" (USD)

Expiry	G/T	Net Position	Delta	F-Extreme	F-3/3	F-2/3	F-1/3	F+0	F+1/3	F+2/3	F+3/3	F+Extreme
					Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	
20220400	F	1	1.0000	5320	7600	5070	2530	0	-2530	-5070	-7600	-5320
					7600	5070	2530	0	-2530	-5070	-7600	

Totals For B

				5320	7600	5070	2530	0	-2530	-5070	-7600	-5320
					7600	5070	2530	0	-2530	-5070	-7600	

Combined Contract: ECF "EUA Future" (EUR)

Contract EFO "EFO-EUA Futures Options (Futures Style Margin)" (EUR)

Expiry	G/T	Net Position	Delta	F-Extreme	F-3/3	F-2/3	F-1/3	F+0	F+1/3	F+2/3	F+3/3	F+Extreme
					Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	
20220300	O	1	0.4280	1271	955	-49	-1256	-2671	-4291	-6111	-8118	-4510
					3150	2634	1851	751	-691	-2478	-4588	

Totals For EFO

				1271	955	-49	-1256	-2671	-4291	-6111	-8118	-4510
					3150	2634	1851	751	-691	-2478	-4588	

## Series Value Losses

The example below is similar to the Summary Value Losses report, but it breaks down the losses by each expiry date.



### Series Value Losses

09 Feb 2022

ACCOUNT: ICE

Margin Group: IPE "ICE Clear Europe"

Exchange: I "ICE Energy"

Combined Contract: BRN "Brent Crude Future" (USD)

Contract B "B-Brent Crude Future" (USD)

Expiry	C T	Net		Delta	F-Extreme	F-3/3	F-2/3	F-1/3	F+0	F+1/3	F+2/3	F+3/3	F+Extreme
		Strike	Position			Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	
20220400	F		1	1.0000	5320	7600	5070	2530	0	-2530	-5070	-7600	-5320
						7600	5070	2530	0	-2530	-5070	-7600	

Totals for B

					5320	7600	5070	2530	0	-2530	-5070	-7600	-5320
						7600	5070	2530	0	-2530	-5070	-7600	

Combined Contract: ECF "EUA Future" (EUR)

Contract EFO "EFO-EUA Futures Options (Futures Style Margin)" (EUR)

Expiry	C T	Net		Delta	F-Extreme	F-3/3	F-2/3	F-1/3	F+0	F+1/3	F+2/3	F+3/3	F+Extreme
		Strike	Position			Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	Vol Up/Dn	
20220300	C	9500	1	0.4280	1271	955	-49	-1256	-2671	-4291	-6111	-8118	-4510
						3150	2634	1851	751	-691	-2478	-4588	

Totals for EFO

					1271	955	-49	-1256	-2671	-4291	-6111	-8118	-4510
						3150	2634	1851	751	-691	-2478	-4588	



## Combined Contract Tier Details

The example below shows the Net Delta in each Inter-commodity Tier for each contract.



### Combined Contract Tier Details

09 Feb 2022

ACCOUNT: ICE

Margin Group: IPE "ICE Clear Europe"

Exchange: I "ICE Energy"

Combined Contract: BRN "Brent Crude Future" (USD)

Combined Contract Vega: 0

IC Tier Number	Start Date	End Date	Net Delta	Orig Vega	Tier Vega
1	00000000	20220400	1.0000	0	0
2	20220500	20220500	0.0000	0	0
3	20220600	20220600	0.0000	0	0
4	20220700	20220800	0.0000	0	0
5	20220900	20221000	0.0000	0	0
6	20221100	20221200	0.0000	0	0
7	20230100	20230300	0.0000	0	0
8	20230400	20230600	0.0000	0	0
9	20230700	20230900	0.0000	0	0
10	20231000	20231200	0.0000	0	0
11	20240100	20240300	0.0000	0	0
12	20240400	20240800	0.0000	0	0
13	20240900	20250300	0.0000	0	0
14	20250400	20260900	0.0000	0	0
15	20261000	99999999	0.0000	0	0

Tier Number	Start Date	End Date	Total Long Delta	Total Short Delta
1	00000000	20220400	1.0000	0.0000
2	20220500	20220500	0.0000	0.0000
3	20220600	20220600	0.0000	0.0000
4	20220700	20220800	0.0000	0.0000
5	20220900	20221000	0.0000	0.0000
6	20221100	20221200	0.0000	0.0000
7	20230100	20230300	0.0000	0.0000
8	20230400	20230600	0.0000	0.0000
9	20230700	20230900	0.0000	0.0000
10	20231000	20231200	0.0000	0.0000
11	20240100	20240300	0.0000	0.0000
12	20240400	20240800	0.0000	0.0000
13	20240900	20250300	0.0000	0.0000
14	20250400	20260900	0.0000	0.0000
15	20261000	99999999	0.0000	0.0000

Combined Contract: ECF "EUA Future" (EUR)

Combined Contract Vega: 1098

IC Tier Number	Start Date	End Date	Net Delta	Orig Vega	Tier Vega
1	00000000	99999999	0.4280	1098	1098

Tier Number	Start Date	End Date	Total Long Delta	Total Short Delta
1	00000000	20221200	0.4280	0.0000
2	20230300	20231200	0.0000	0.0000
3	20241200	99999999	0.0000	0.0000

Tier Number	Expiry Date	Long Delta	Short Delta
1	20221200	0.4280	0.0000

## Intermonth Spread Charge Details

The document below is a breakdown of the Intermont Charges for the positions held. For example, the charge for an intermonth spread with 1 lot long position for Apr 22 Brent Futures and 1 lot short position for Aug 22 Brent Futures.



### Intermonth Spread Charge Details

09 Feb 2022

ACCOUNT: ICE

Margin Group: IPE "ICE Clear Europe"

Exchange: I "ICE Energy"

Combined Contract: BRN "Brent Crude Future" (USD)

Spread Priority	Number Of Legs	Tier	Tier	Tier	Tier	Delta Consumed	Charge Rate	Intermonth Charge
30	2	1 1 A	4 1 B			0.8898	1.00000000000000	1
								1

## Intercontract Spread Credit Details

This report gives the breakdown of any Intercontract Spread Credits you may receive for your portfolio. In this case, a portfolio with 1 lot long May 22 Brent futures and 1 lot short June 22 WTI futures.



### Intercontract Spread Credit Details

09 Feb 2022

ACCOUNT: ICE

Margin Group: IPE "ICE Clear Europe"

Exch	Comb. Contract	Tier	Scanning Risk	Paired Line	Futures Risk	Time Risk	Volatility Risk	W.F.P.R. Net Delta	W. Futures Price Risk	Uncap W. F. Price Risk	Orig Vega	Tier Vega
I	BRN	2	7280	7280	7280	0	0	0.9581	7598.000000		0	0
I	WBS	4	7210	7210	7210	0	0	-0.6739	10699.000000		0	0

Priority / Method	Comb. Exch	Contract	Tier	Ratio / Side	Delta Spreads	Remaining Delta	Offset Charge	Portfolio Risk	Credit Rate	% Saving	Futures Credit	Vega Spreads	Remaining Vega	Vega Rate	Vega Credit	Total Credit
18318 10 I	BRN	2	1	A	0.6739	0.2842	0.0000	0	86.03	0.00	4405	0	0	86.00	0	4405
18318 10 I	WBS	4	1	B	0.6739	0.0000	0.0000	0	86.03	0.00	6203	0	0	86.00	0	6203

## 8 Net Liquidating Value

Note: This section does not apply to OTC FX.

Net liquidating Value (NLV) is calculated by ICE Clear for all premium paid up-front options, also referred to as 'equity-style options'. For these types of option contracts, variation margin is not paid or received on a daily basis, unlike futures-style options. The premium is paid from the buyer to the seller of the option when the option is first traded. NLV is calculated as follows:

$$NLV = \text{Market price of option} \times \text{contract size} \times \text{number of lots}$$

For more information, please see the NLV description document available from here:

[https://www.ice.com/publicdocs/clear\\_europe/Net\\_Liquidating\\_Value\\_Guide.pdf](https://www.ice.com/publicdocs/clear_europe/Net_Liquidating_Value_Guide.pdf)