Overview of ASX Energy Initial Margins

Introduction

This document provides guidance on how to interpret the ASX Energy Margin Parameter notice and explains the Standard Portfolio Analysis of Risk ("SPAN") margining methodology that is used to calculate initial margin requirements for exchange traded derivative ("ETD") energy products on ASX Clear (Futures).

This information should be read in conjunction with the SPAN margining overview accessible on the ASX website: **ASX Clear (Futures) Margin Overview.**

SECTION 1: UNDERSTANDING THE ASX ENERGY PARAMETER NOTICE

The **ASX Energy Parameter Notice** provides ASX Clear (Futures) Participants with a complete breakdown of all margin parameters[1] for both Australian and New Zealand Energy Products. For detailed information on SPAN Margining please refer to the following link: **ASX Clear (Futures) Margin Example.**

Table 1 details hypothetical margin parameters for Combined Commodity BN - NSW Base Load Quarterly contract.

Table 1: **Combined Commodity Table**

Tier Number[1]	First Contract Expiry[2]	Last Contract Expiry[3]	PSR[4]	VSR[5]
		BN - NSW Base Load Quarterly		
1	1	1	5%	10%
2	2	2	5%	7%
3	3	3	5%	7%
4	4	4	7%	7%
5	5	5	6%	8%
6	6	6	6%	7%
7	7	7	5%	7%
8	8	8	5%	
9	9	17	5%	
Inter-Month Spread Charge[6]			$4,300	
Spot Month Isolation Rate[7]			$400	
Short Option Minimum[8]			$88	

1. **Tier Number** - Groups contract expiries. It can contain one or multiple expiries.
2. **First Contract Expiry** - The nearest dated expiry for the respective tier number.
3. **Last Contract Expiry -** The longest dated expiry for the respective tier number.
4. **PSR -** Price Scanning Range.
5. **VSR -** Volatility Scanning Range.
6. **Inter-Month Spread Charge (IMS)** - Calendar spread margin rate.
7. **Spot Month Isolation Rate (SMIR)** - Settlement period margin rate.
8. **Short Option Minimum (SOM) -** Minimum initial margin requirement for short option contracts only.

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[1] ASX Clear (Futures) ETD span margin parameters are set by ASX to meet a minimum of 99.7% confidence interval over both a quarterly and on an annual look back period against one and two day returns.

Table 2 converts Table 1 for BN into the respective contract expiry (please note contracts are sorted by the first to the last contract expiry):

Table 2: **BN Margin Parameters by Expiry**

Tier Number	Contract	Contract Expiry	PSR	VSR	IMS	SMIR	SOM
Expired		March 2014	0%	0%	$0	$400	
1	1	June 2014	5%	10%	$4,300	$0	$88
2	2	September 2014	5%	7%	$4,300	$0	$88
3	3	December 2015	5%	7%	$4,300	$0	$88
4	4	March 2015	7%	7%	$4,300	$0	$88
5	5	June 2015	6%	8%	$4,300	$0	$88
6	6	September 2015	6%	7%	$4,300	$0	$88
7	7	December 2016	5%	7%	$4,300	$0	$88
7	8	March 2016	5%		$4,300	$0	$88
7	9	June 2016	5%		$4,300	$0	$88
7	10	September 2016	5%		$4,300	$0	$88
7	11	December 2017	5%		$4,300	$0	$88
7	12	March2017	5%		$4,300	$0	$88
7	13	June 2017	5%		$4,300	$0	$88
7	14	September 2017	5%		$4,300	$0	$88
7	15	December 2018	5%		$4,300	$0	$88
7	16	March 2018	5%		$4,300	$0	$88
7	17	June 2018	5%		$4,300	$0	$88

Table 3 translates the percentage PSR within Table 2 into its dollar equivalent, calculating PSR based on 1 long futures position for all BN contract expiries.

Please note that VSR only impacts the scanning risk for portfolios containing option positions and therefore the PSR will equate to the scanning risk for all futures only positions.

Table 3: **BN Dollar Equivalent PSR by Expiry**

Tier Number	Position	Future Contract Expiry	DSP[1]	MWH[2]	Contract Value[3]	PSR (%)	PSR ($)[4]
1	+1	Jun-14	$50.70	2,184	110,729	5%	5,537
2	+1	Sep-14	$40.75	2,208	89,976	5%	4,499
3	+1	Dec-15	$35.40	2,208	78,163	5%	3,909
4	+1	Mar-15	$38.52	2,160	83,203	7%	5,825
5	+1	Jun-15	$35.36	2,184	77,226	6%	4,634
6	+1	Sep-15	$36.96	2,208	81,608	6%	4,897
7	+1	Dec-16	$36.58	2,208	80,769	5%	4,039
7	+1	Mar-16	$38.70	2,184	84,521	5%	4,227
7	+1	Jun-16	$35.60	2,184	77,750	5%	3,888
7	+1	Sep-16	$38.20	2,208	84,346	5%	4,218
7	+1	Dec-17	$37.95	2,208	83,794	5%	4,190
7	+1	Mar-17	$42.25	2,160	91,260	5%	4,563
7	+1	Jun-17	$39.40	2,184	86,050	5%	4,303
7	+1	Sep-17	$42.50	2,208	93,840	5%	4,692
7	+1	Dec-18	$42.50	2,208	93,840	5%	4,692
7	+1	Mar-18	$44.00	2,160	95,040	5%	4,752
7	+1	Jun-18	$39.90	2,184	87,142	5%	4,358

1. DSP - Contract Daily Settlement Price
2. MWH - Contract Megawatt Hours

3. Contract Value - DSP * MWH

4. PSR ($) – PSR (%)*Contract Value

SECTION 2:   CALCULATING ASX ENERGY INITIAL MARGIN REQUIREMENTS

SPAN margining methodology is defined by the following formula:

Total Initial Margin = max [(Scanning Risk + Intra-Commodity (Inter-Month) Spread Charge + Spot Month Isolation Rate - Inter-Commodity Spread Concession); Short Option Minimum)]

These key elements are explained in the following practical examples.

a.   Scanning Risk (Price Scanning Range And Volatility Scanning Range)

Table 4 outlines the scan risk for a hypothetical portfolio:

Table 4: **Scanning Risk Composition**

Contract	Product Type	Position	Scan per contract ($)	Commodity Scanning Risk ($)
BN - Mar14	F	+10	0	0
BN - Jun14	F	+10	5,537	10,380[2]
BN - Sep14	F	-10	4,499	
BV - Sep14	F	+20	4,750	$95,000
PV - Sep14	F	-20	2540	50,800
BS - Sep14	F	-20	6,485	129,700
BQ - June 14 78.00 Call	O	-1	39	39[3]
Portfolio Scanning Risk				**$285,880**

b.   Intermonth Spread Charge

To account for divergence in correlations between different delivery dates, SPAN is able to determine intra-commodity (inter-month) spread margins for offsetting positions held across alternative delivery months. In this example, offsetting futures positions (long Mar14, short Sep14) within the BN contract incur an intermonth spread charge in addition to its scanning risk. This is outlined in Table 5:

Table 5: **Intermonth Spread Charge Composition**

Commodity	Spread Positions	Intermonth Per Spread	Intermonth Spread Charge
BN	10	$4300	$43,000

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[2] Please note Scanning Risk Requirement is calculated on a combined commodity basis and the above figure is based on the net position within the BN contract.

[3] The scanning risk for the option position is less than the short option minimum and is therefore excluded from the portfolio. A more detailed explanation is covered in section 2 part e.

c.   Spot Month Isolation Rate

SPAN calculates spot risks associated with near-expiring contracts. The Spot Month Isolation Rate is used to cover exposures such as price risks arising in the interval between a contract's expiry and settlement.

Spot Month Isolation Rates on energy contracts are currently set as a flat rate change and are applied throughout a contract's settlement period. In this example, for each BN March 2014 contract held, a Spot Month Isolation Rate of $400 per contract would be applied throughout the settlement period.

Table 6: **Spot Month Isolation rate**

Commodity	Spread Positions	SMIR per Contract	SMIR Charge
BN	10	$400	$4,000

d.   Inter Commodity Concessions

SPAN has the ability to calculate concessions to total initial margins payable due to offsetting positions held in different but closely correlated contracts.

Table 7 provides hypothetical concessions for Energy Contracts:

Table 7: **Inter-commodity Concessions**

Priority[1]	ICC[2]	Concession[3]	DSR[4]
1	BV:PV	55%	1:2
2	BV:BS	45%	1:1

1. **Priority -** the order at which a concession is applied to a portfolio
2. **ICC -** Outlines the commodities that have applicable Intercommodity Concessions.
3. **Concession -** Percentage offset applied to the commodities scanning risk
4. **DSR -** Delta Spread Ratio, the necessary spread position a portfolio is required to receive the concession.

Table 8: **Priority 1 BV PV 55%**

	Concession	DSR	Net Delta	Remaining Delta
BV	$26,125	1	10	10
PV	$27,940	2	20	0
Total	**$54,065**			

As BV: PV has a DSR of 1:2, therefore a portfolio to be applicable for a concession is required to have 2 PV contracts for every 1 BN contract. Therefore in this hypothetical portfolio, 10 long BV contracts are required to offset 20 short PV contracts.

SPAN will then allocate commodities to the next applicable concession until all net deltas are exhausted. The remaining delta for BV is than applied to the following concession, in this example BV: BS

Table 9: **Priority 2 BV BS 45%**

Priority 2 BV BS 45%	Concession	DSR	Net Delta	Remaining Delta
BV	$21,375	1	10	0
BS	$29,183	1	-10	0
Total	**$50,558**			

e. Short Option Minimum

Short option minimum is a floor on initial margin for short option positions. It is applied only when the short option scanning risk is less than the short minimum. In this example the BN June 14 78.00 Call scanning risk of $39 is less than the short option minimum of $88, therefore the short option minimum is applied as the portfolio initial margin requirement.

Table 10: **Short Option Minimum**

Short Option Position	Product Type	Position	Option Scanning Risk	Short Option Minimum
BQ - June 14 78.00 Call	O	-1	*$39*	$88

f. Initial Margin Calculation

In combining the various SPAN components, the initial margin requirement for the example portfolio is calculated in Table 11:

Table 11: **Portfolio Initial Margin**

Initial Margin Calculation	
Scan Risk	$285,880
Intra-Commodity Spread Charge	$43,000
Spot Month Isolation Rate	$4,000
Inter-Commodity Spread Credit	-$104,623
Short Option Minimum Charge	$88
Total Initial Margin Requirement	**$228,345**

For further information regarding this document please contact Exposure Risk Management on ermteam@asx.com.au **or by phone 1800-198-021.**