



Veles Water

MARGINING OF WATER FUTURES MADE EASY

November 2021

UPDATED

UNDERSTANDING FUTURES MARGINING

INTRODUCTION

This article has been revised and updated to provide a higher level overview of the complex process of Futures Margining. Veles aims to present a clear understanding of this complex subject in relation to the recently listed Nasdaq Veles California Water Futures (H2O) on the CME.

H2O Futures can be used to gain direct exposure to the price of water in California and whether to hedge or enhance a present water position or for investment purposes. A futures contract is a leveraged financial product that can allow a trader to manage a much larger position in the underlying asset with a reduced amount of cash, allowing the trader to more efficiently deploy capital. To explain by example, with the NQH2O price of water recently being circa \$859 per AF, and assume 10 AF was required, instead of buying 10 AF of water and spending \$8590, you can place \$1650 as margin at the Exchange's clearing house, buy one contract and have the same exposure.

Futures margin, an important concept to understand when trading in H2O futures, is defined as the amount of capital required by a broker/clearing firm to open and trade a futures contract. It is important to note that unlike most stock margins, futures margins are not a down payment and you do not own the underlying commodity. Futures margins are considered a deposit in good faith, to ensure that the trader can meet their financial obligations at the time the contract settles. The examples below are showing a net cash flow situation, what is not illustrated is that during the time periods of the transactions there may have been situations where the futures may have moved out of line with the general trend and would require a further margin call to maintain the position. If the trend continues then this margin is obviously returned. The near month futures are the most liquid hence the examples show using the near month and rolling this position to the next calendar month. When the liquidity of the contract increases it will be possible to implement the trade on the 6 month out futures hence avoiding rolling costs.

CATEGORIES OF CLIENTS

There are **TWO CATEGORIES** according to the CME margining system. There are two categories under CME's system because pursuant to CFTC regulations, clearing firms must determine whether a customer account presents a heightened risk profile.

The **first** category is the **Non-Heightened Risk Profile Account** which is required to deposit with its clearing firm a margin amount of at least \$1500 per contract and this is called the **Maintenance Margin**. The **second** category is the **Heightened Risk Profile Account Holder** which is required to deposit with its clearing firm a margin amount of at least \$1650 per contract and this is called the **Initial Margin**.

For both Non-Heightened Risk Profile Account and Heightened Risk Profile Account holders their clearing firms are required to deposit at least the Maintenance Margin amount (i.e., \$1,500) with CME.

When the account balance of the Heightened Risk Profile Account holder reduces due to losses on the account, it has to be topped up once it passes below \$1500 per contract (i.e., Maintenance Margin). The margin call must put the account balance back to being \$1650 per contract (i.e., Initial Margin).

For a Non-Heightened Risk Profile Account holder, any drop below \$1500 would trigger a margin call requiring the account to post additional collateral to bring it back up \$1500 per contract.

Both Heightened Risk Profile and Non-Heightened Risk Profile Account holders have a bare minimum of \$1500 per contract but the Heightened Risk Profile Account holders have to top up an extra 10% that is deposited at their clearing firms – i.e., \$150 per contract which equates to the \$1650 per contract.

MARGIN TYPES

INITIAL MARGIN

The initial margin requirement is the minimum amount of collateral required to open a position by a **Heightened Risk Profile Account holder**. Where a clearing firm determines that an account holder has a heightened risk profile, this amount is required by the Exchange's clearing house to be deposited on account by the futures position taker with its clearing firm to allow the price of the position to move against the account holder. The Heightened Risk Profile Account holder's clearing firms would then deposit the maintenance margin amount, as described below, with the Exchange's clearing house. In the case of H2O futures Initial Margin has been set at **\$1650** per contract.

MAINTENANCE MARGIN

The maintenance margin requirement is the minimum amount of collateral required to open a position by a **Non-Heightened Risk Profile Account holder**. Where a clearing firm determine that an account holder has a non-heightened risk profile, this amount is required by the Exchange's clearing house to be deposited on account by the futures position taker with its clearing firm. The Non-Heightened Risk Profile Account holder's clearing firm would then deposit this amount the Exchange's clearing house. In the case of water futures Maintenance Margin has been set at **\$1500** per contract.

MARGIN CALLS

A **Margin Call** is triggered when funds in a trading account fall below the required minimum level (i.e., for water futures, \$1500 per contract in both Heightened- Risk Profile Account and Non-Heightened Risk Profile Account holders).

Margin calls occur when having taken a position in the market and the market price has moved in the opposite direction. If buying a contract and the market price moves down, then this will cause a margin call at a certain level. Conversely if selling a contract and the market price moves up, then past a certain point this will initiate a margin call. As described below for water futures, at this point more funds must be allocated to the account to return the margin to the appropriate margin level for the account holder type, as determined by the clearing firm (i.e., Heightened Risk Profile Account or Non-Heightened Risk Profile Account). Regardless of account holder type, when the total value of the collateral dips below the maintenance margin requirement, the position holder must pledge additional collateral to meet the margin call.

In the case of H2O futures, Maintenance Margin has been set at \$1500. A margin call on a **Heightened Risk Profile Account holder** would require additional funds to be deposited to reach \$1650 per contract, however with a **Non-Heightened Risk Profile Account holder** the additional funds required would need to reach \$1500 per contract.

EXAMPLE 1.

A FARMER WANT TO BUY 100 AF OF WATER IN 6 MONTHS

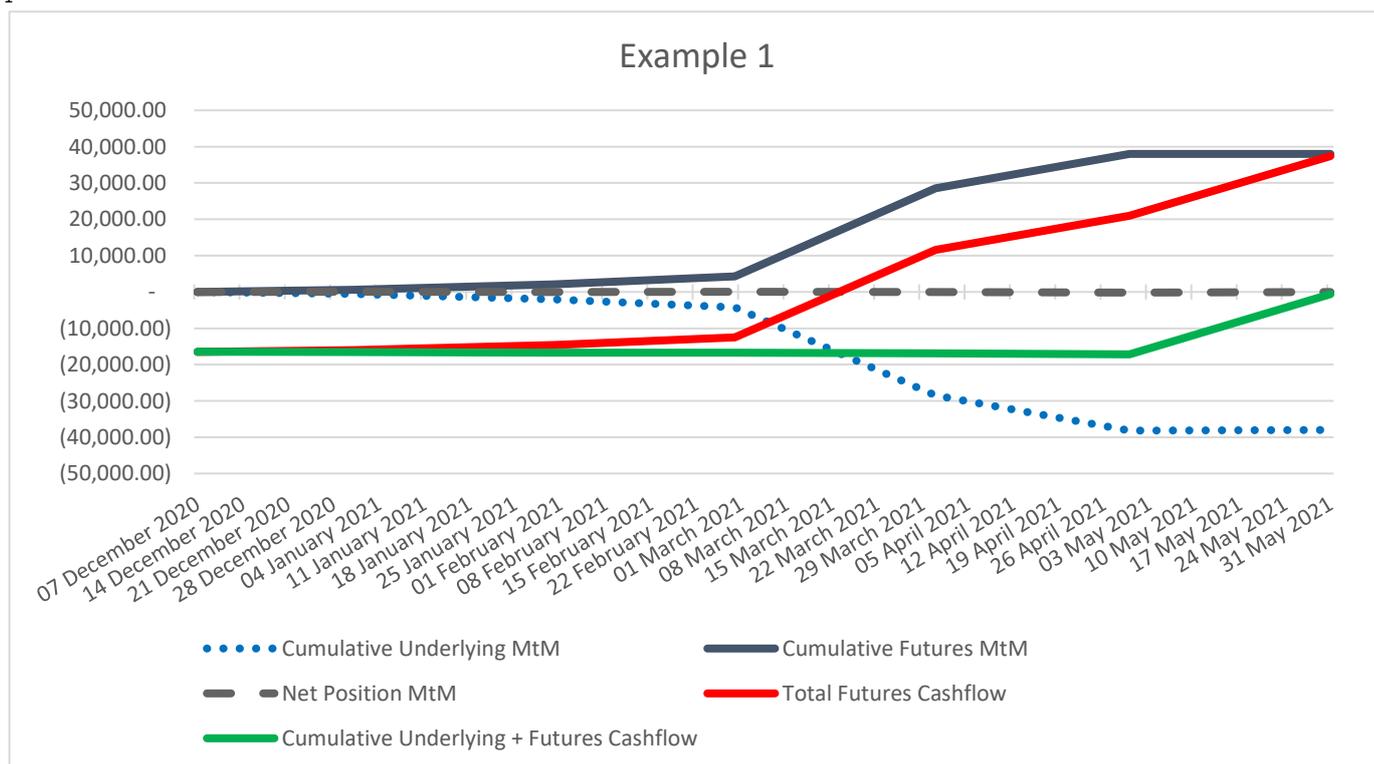
Scenario: A farmer who is classed as Heightened Risk Profile Account holder by its clearing firm that needs water in 6 months' time wants to hedge against an increase in water prices so in Example 1 the farmer purchases water futures to protect his business by locking in the price of water at the current spot level.

Assumptions:

- Farmer requires 100 AF in a futures contract in 6 months
- Water spot price is \$486.93/AF
- Purchase futures contract at \$487 – Note futures prices are not always exactly the same as spot prices other than on expiry date
- The Exchange's clearing house sets an Initial Margin requirement of \$1650 per contract for a Heightened Risk Profile Account holder
- Water futures contracts are 10 AF/contract so the Farmer will need to buy 10 contracts
- For ease of understanding the example, margin calls are monthly (to save on daily data points, these can be added easily)
- Trade date is 7th Dec 2020
- Farmer exits the futures position at \$867 on the 31st May 2021
- The above example is based on actual historic prices
- The assumption is that the Farmer rolled his contract from month to month rather than buying the 6 month future

Date	Underlying Position		Futures Position				Total Futures Cashflow
	Spot	Future	Cumulative Underlying MtM	Cumulative Futures MtM	Initial margin MtM	Contract roll cost	
07 December 2020	486.93	487.00	-	-	(16,500.00)	-	(16,500.00)
31 December 2020	492.56	493.00	(563.00)	600.00	600.00	(100.00)	(16,000.00)
31 January 2021	507.78	508.00	(2,085.00)	2,100.00	1,500.00	(100.00)	(14,600.00)
28 February 2021	529.43	530.00	(4,250.00)	4,300.00	2,200.00	(100.00)	(12,500.00)
31 March 2021	772.10	772.00	(28,517.00)	28,500.00	24,200.00	(100.00)	11,600.00
30 April 2021	868.70	867.00	(38,177.00)	38,000.00	9,500.00	(100.00)	21,000.00
31 May 2021	867.00	867.00	(38,007.00)	38,000.00	16,500.00	-	37,400.00

Fig. 1



Summary: In fig 1 the Farmer requires 100AF in 6 months' time and is willing to purchase at \$487.00 /AF. During the 6 months the water price increases from \$487.00 to \$867 /AF creating what would have been an additional purchase cost of \$38,000. The hedge position of long 10 water futures acts as a price lock-in, hedging this additional cost, generating an offsetting cash settled gain of \$38,000 plus the return of the initial margin minus the cost of rolling the contract month to month (assumed at 10 points per month, hence totalling \$600). The Farmer has locked in the target price level of \$487.00. The farmer started with a deposit of \$16,500 and once he had bought and sold, plus return of margin, he had a net balance of \$53,900.00. ($\$16,500$ (deposit which is returned)+ $\$38,000$ (mark to market gain which he banks)- $\$600$ (loss from rolling the contract 6 times)= $\$53,900$ in the account). The Farmer has realised a net gain of \$37,400.00 in the futures market plus the return of the initial margin.

EXAMPLE 2.

FARMER WANTS TO SELL 100 AF OF WATER IN 6 MONTHS

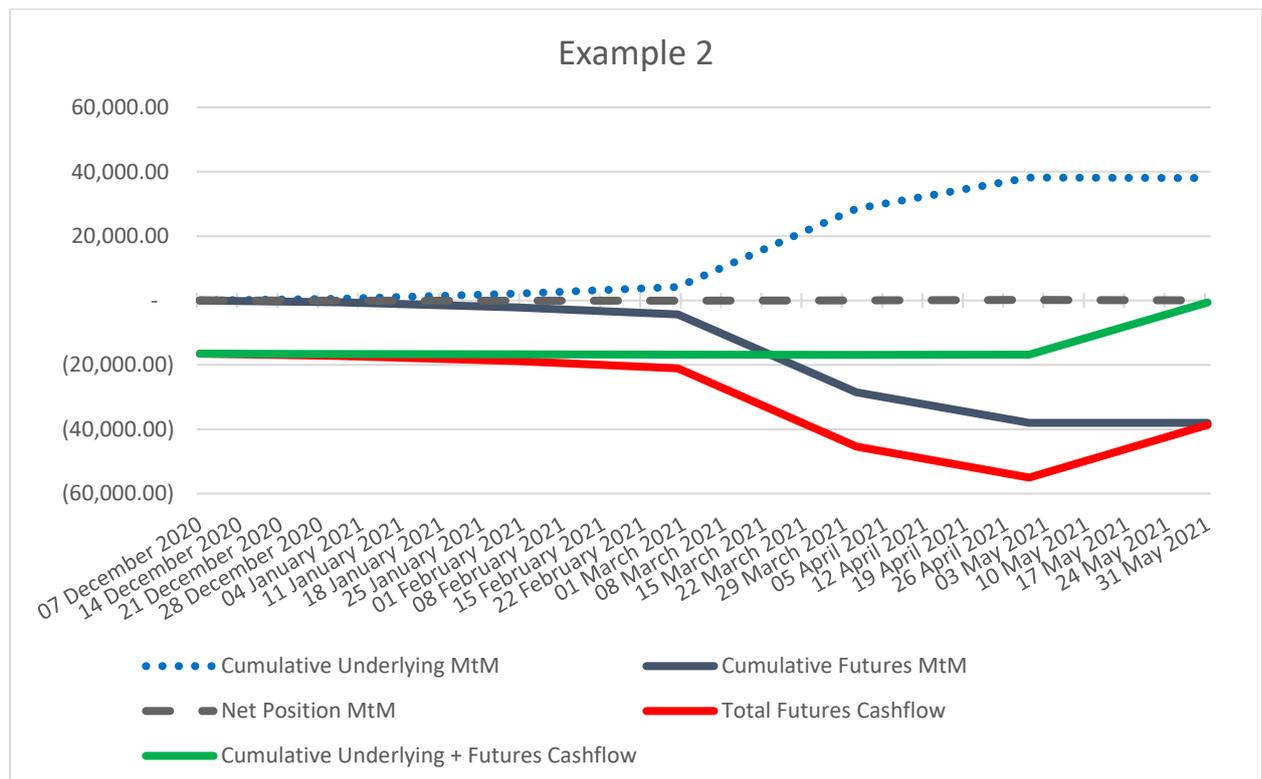
Scenario: A Farmer who is classed as Heightened Risk Profile Account holder by its clearing firm wants to sell their surplus 100AF of water in 6 months' time. The Farmer believes the price has peaked and is happy to sell the surplus water at \$487.00. Looking to protect his business from falling water prices he sells 10 water futures contracts. The Farmer in this scenario has taken the opposite position of the trade in example 1.

Assumptions:

- Farmer sells 100 AF of the quality captured in a futures contract in 6 months
- Water futures price is \$487.00/AF
- The Exchange's clearing house sets an Initial Margin requirement of \$1650 per contract for a Heightened Risk Profile Account holder Water futures contracts are 10 AF/contract so the Farmer will need to sell 10 contracts
- For ease of understanding the example, margin calls are monthly (to save daily data points, these can be added easily)
- To roll a contract month to month \$10 per contract cost
- Trade date is 7th Dec 2020
- Farmer exits the futures position on the 31st May at \$867
- The above position was calculated on actual historical prices

Date	Spot	Future	Underlying Position		Futures Position		Initial margin	MtM	Contract roll + Total Futures Cashflow
			Cumulative	Underlying MtM	Cumulative	Futures MtM			
07 December 2020	486.93	487.00	-	-	-	(16,500.00)	-	-	(16,500.00)
31 December 2020	492.56	493.00	563.00	563.00	(600.00)	-	(600.00)	(100.00)	(17,200.00)
31 January 2021	507.78	508.00	2,085.00	2,085.00	(2,100.00)	-	(1,500.00)	(100.00)	(18,800.00)
28 February 2021	529.43	530.00	4,250.00	4,250.00	(4,300.00)	-	(2,200.00)	(100.00)	(21,100.00)
31 March 2021	772.10	772.00	28,517.00	28,517.00	(28,500.00)	-	(24,200.00)	(100.00)	(45,400.00)
30 April 2021	868.70	867.00	38,177.00	38,177.00	(38,000.00)	-	(9,500.00)	(100.00)	(55,000.00)
31 May 2021	867.00	867.00	38,007.00	38,007.00	(38,000.00)	16,500.00	-	-	(38,600.00)

Fig. 2



Summary: In fig 2 the Farmer wants to sell 100AF in 6 months' time and is willing to sell at \$487 /AF. The Farmer in this example has taken the opposite position to the Farmer in Example 1. During the six months the water price increases from \$487.00 to \$867.00 /AF resulting in margin calls totalling \$38,000.00. As the Farmer met all of his margin calls the initial margin was returned at the end of the trade plus the \$600.00 received from rolling the contract. (This time the roll factor is in the Farmers favour hence a gain of \$600). The Farmer has realised a loss of \$37,400.00 in the futures market. In his account there will be $(\$16,500 + \$600 = \$17,100)$ which will be returned to the Farmer on closing out of the position.

EXAMPLE 3.

FARMER WANTS TO SELL 100AF IN 6 MONTHS

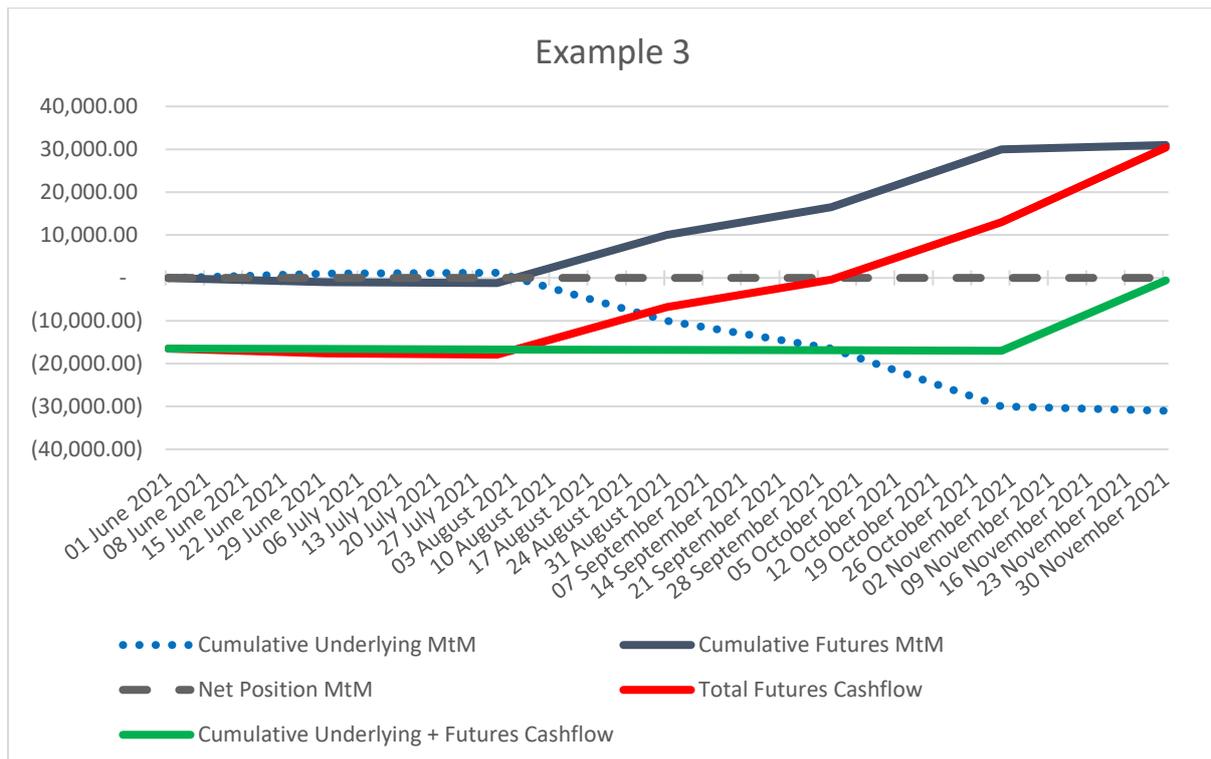
Scenario: It's the middle of the summer irrigation season and a Farmer has a surplus 100 AF of water they would like to sell on a 6 month basis. The water price and its associated futures have risen to \$900 the Farmer decides to protect his business from any downside water price risk and sells 10 H2O futures contracts at \$900.00.

Assumptions:

- Farmer sells 100 AF of the quality captured in a futures contract in 6 months.
- Water futures price is \$900.00/AF.
- The Exchange's clearing house sets an Initial Margin requirement of \$1650 per contract for a Heightened Risk Profile Account holder
- Water futures contracts are 10 AF/contract so the Farmer will need to sell 10 contracts
- For ease of understanding the example, margin calls are monthly (to save daily data points, these can be added easily).
- To roll a contract month to month \$10 per contract cost
- Trade date is 1st June 2021
- The following trades are based on a historical sale price but the exit price is a theoretical one as is in the future and hence is an assumption
- Farmer exits the futures trade on November 30th at \$590.00

Date	Underlying Position		Underlying Position		Future Position		Contract roll cost	Total Futures Cashflow
	Spot	Future	Cumulative Underlying MtM	Cumulative Futures MtM	Initial margin	MtM		
01 June 2021	900.00	900.00	-	-	(16,500.00)	-	-	(16,500.00)
30 June 2021	910.00	910.00	1,000.00	(1,000.00)		(1,000.00)	(100.00)	(17,600.00)
31 July 2021	912.00	912.00	1,200.00	(1,200.00)		(200.00)	(100.00)	(17,900.00)
31 August 2021	800.00	800.00	(10,000.00)	10,000.00		11,200.00	(100.00)	(6,800.00)
30 September 2021	735.00	735.00	(16,500.00)	16,500.00		6,500.00	(100.00)	(400.00)
31 October 2021	600.00	600.00	(30,000.00)	30,000.00		13,500.00	(100.00)	13,000.00
30 November 2021	590.00	590.00	(31,000.00)	31,000.00	16,500.00	1,000.00	-	30,400.00

Fig. 3



Summary: In fig 3 the Farmer has a surplus 100AF and wants to sell in 6 months' time. They are willing to sell at \$900.00 /AF. During the 6 months the water price initially increases (creating a mark to market loss) and then decreases from \$900 to \$590 /AF resulting in a profit of \$28,800.00 in the futures. The hedge position of short 10 water futures has acted as a price lock-in, hedging against this downside price movement, generating a cash settled gain of \$28,800.00 plus the return of the initial margin plus the gain of rolling the contract month to month (assumed at 10 points per month, hence totalling \$600). The Farmer has locked in the target price level of \$900.00. The Farmer started with a deposit of \$16500 and once he had sold and bought, plus return of margin, he had a net balance of \$45,900.00. ($\$16,500 + \$28,800 + \$600 = \$45,900.00$). The Farmer has realised a net gain of \$29,400.00 ($\$28,800 + \600). This completely offsets his loss in the underlying water position that he has.

EXAMPLE 4.

FARMER WANTS TO BUY 100AF IN 6 MONTHS

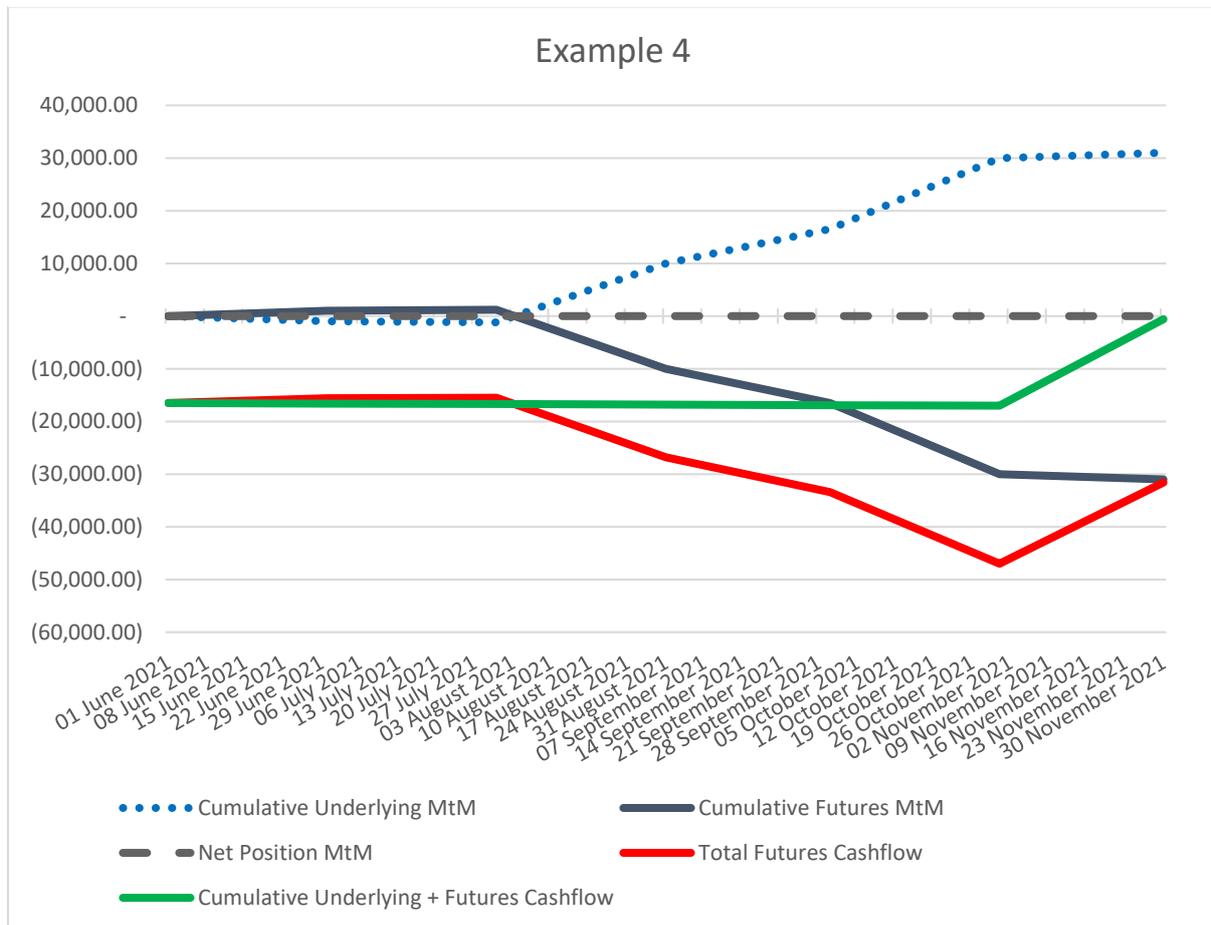
Scenario: It's the middle of the summer irrigation season and a Farmer needs to purchase water in six months' time. The Farmer believes the price of water will continue to increase over the next six months and is happy to purchase water at \$900/AF. The Farmer in this scenario has taken the opposite side of the trade to the Farmer in example 3.

Assumptions:

- Farmer buys 100 AF of the quality captured in a futures contract in 6 months.
- Water futures price is \$900.00/AF.
- The Exchange's clearing house sets an Initial Margin requirement of \$1650 per contract for a Heightened Risk Profile Account holder
- Water futures contracts are 10 AF/contract so farmer will need to sell 10 contracts.

Fig. 4

Date	Spot	Future	Underlying Position		Futures Position		Initial margin	Contract roll cost	Total Futures Cashflow
			Cumulative Underlying MtM	Cumulative Underlying MtM	Cumulative Futures MtM	MtM			
01 June 2021	900.00	900.00	-	-	-	(16,500.00)	-	-	(16,500.00)
30 June 2021	910.00	910.00	(1,000.00)	1,000.00	1,000.00	1,000.00	(100.00)	(100.00)	(15,600.00)
31 July 2021	912.00	912.00	(1,200.00)	1,200.00	1,200.00	200.00	(100.00)	(100.00)	(15,500.00)
31 August 2021	800.00	800.00	10,000.00	(10,000.00)	(10,000.00)	(11,200.00)	(100.00)	(100.00)	(26,800.00)
30 September 2021	735.00	735.00	16,500.00	(16,500.00)	(16,500.00)	(6,500.00)	(100.00)	(100.00)	(33,400.00)
31 October 2021	600.00	600.00	30,000.00	(30,000.00)	(30,000.00)	(13,500.00)	(100.00)	(100.00)	(47,000.00)
30 November 2021	590.00	590.00	31,000.00	(31,000.00)	(31,000.00)	16,500.00	(1,000.00)	-	(31,600.00)



Summary: In fig 4 the Farmer requires 100AF in 6 months' time and is willing to purchase at \$900.00 /AF. During the 6 months the water price decreases from \$900.00 to \$590.00 /AF resulting in margin calls of \$31,000.00 minus the initial gains of \$2200.00 to equal \$28,800.00. As the Farmer has met all of the margin calls (net total being \$29,400 including roll costs) during the 6 months. The initial margin of \$16,500.00 will be the net balance in the account which will be returned. The net loss to the farmer is \$29,400 (\$28,800 mark to market margin call +\$600 roll cost).

To see further more in depth working of these examples please visit

<https://veleswater.com/veles-water-market-insight/>



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If the market moves against you, you may sustain a total loss greater than the amount you initially invested. You are responsible for all the risks and financial resources you use. You should not engage in investing unless you fully understand the nature of the transactions you are entering into and the extent of your exposure to loss. If you do not fully understand these risks you must seek independent advice from your financial advisor.

All trading strategies are used at your own risk.

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