

Financial Transmission Rights

FTR Prudential Methodology Overview

FTR Prudential Exposure Calculation

- ◆ An estimate of the maximum holding exposure of an FTR portfolio.
- ◆ Done for each FTR product, then the portfolio is netted.

Key components are:

- ◆ **Daily Settlement Price:** Mark to Market value of the portfolio
- ◆ **Acquisition Cost:** Total acquisition cost of the portfolio
- ◆ **Initial Margin:** Maximum initial margin of the portfolio

FTR Prudential Exposure

$$= (\text{Daily Settlement Price} + \text{Acquisition Cost} - \text{Initial Margin}) \times \frac{\text{Volume} \times \text{trading periods in FTR period}}{2}$$

Daily Settlement Price (DSP)

- ◆ Estimates the average Settlement Price (Sink – Source) over the FTR period.
- ◆ A DSP is calculated for every FTR product.

How is the estimated settlement price calculated?

- ◆ 3 Methodologies – Based on time until Settlement.
- ◆ Final prices are used when applicable (Methodology 3)
- ◆ Reference prices are utilised where no trading date is available:
 - Reference price 1: ASX Future Prices
 - Reference price 2: Price Predictive Model (Energy Link)

DSP Methodology 1

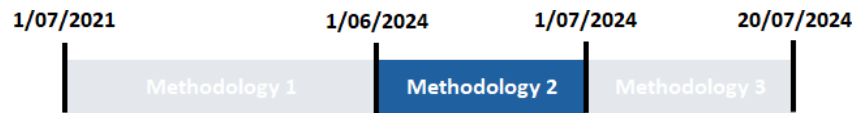


Five Calculation Methods under Methodology 1.

- ◆ Price setting trades are treated as the market value where available. These are trades such as an Assignment or Reconfiguration.
- ◆ A drifting DSP is estimated in between Price setting trades.
- ◆ The drifting DSP is estimated by applying the daily changes in the reference model prices to the DSP.
- ◆ **Important:** DSP is related to reference price but not equal to it.
- ◆ **Example FTR Product:** BEN-OTA-202407
- ◆ **Methodology Period:** FTR First Auction – 1 month before FTR period

	Conditions	DSP today	Where	Notes
1.1	- OBL or OPT - P.S.T on previous business day	= Price Setting Trade		- Price setting trade is an assignment or reconfiguration price. - Min volume requirement
1.2	- OBL - No Price Setting Trade on previous business day	= DSP yesterday + 0.5 x (PPM today – PPM yesterday) + 0.5 x (ASX today – ASX yesterday)	- PPM today = PPM price today - PPM yesterday = PPM price yesterday - ASX today = ASX price today - ASX yesterday = ASX price yesterday	- OBL uses PPM and ASX as reference prices.
1.3	- OPT, No Price Setting Trade - PPM price at time of last P.S.T > P.S.T - PPM today or PPM today > 0	= DSP Yesterday + [(PPMp.s.t/PSTp) x (PPM today – PPM yesterday)]	- PPMp.s.t = PPM price at time of previous Price Setting Trade - PSTp = Previous Price Setting Trade	- OPT uses PPM price only . - Applies the ratio of the reference price to PST to the daily PPM price change
1.4	- OPT, No Price Setting Trade - PPM price at time of last P.S.T > last P.S.T - PPM today and PPM today = 0	= DSP Yesterday + [(PPMp.s.t/PSTp) x (Δ latest PPM)]	- PPMp.s.t = PPM price at time of previous Price Setting Trade - PSTp = Previous Price Setting Trade - Δ latest PPM = latest non-zero daily price change	- Applies the previous daily change when one is not available.
1.5	- OPT - ELSE	= DSP yesterday + (PPM today/PPM yesterday)		- Situations where PPM is not overvaluing the FTR. - Applies the ratio price change

DSP Methodology 2



Methodology 2 gets phased in as the month progresses.

- ◆ Starts to use the Clearing Manager’s Spot Market Prudential Security Price Projection Methodology (CMSMPSPPM) Price.
- ◆ Starts with a 5% weighting on CMSMPSPPM and 95% on Methodology 1.
- ◆ Increases linearly to 100% by the end of the month.
- ◆ **Example FTR Product:** BEN-OTA-202307
- ◆ **Methodology Period:** 1 month before FTR period

CMSMPSPPM

- ◆ Average previous 21 days prices for applicable nodes.
- ◆ Calculate sink – source of average prices.
- ◆ Adjust to apply for the FTR period (i.e. trading periods in the month).
- ◆ Average this out to get a final settlement price.

Actual Calculation

- ◆ Find the average final/interim prices for the previous 21 days (T-22 to T-2) for the sink and source nodes.
- ◆ Split this average out for Weekend and Weekday.
- ◆ Calculate the WE and WD forecast price difference (Sink – Source).
- ◆ Multiply the WE and WD average price difference by the trading periods in the month.
- ◆ Add the WE and WD sum.
- ◆ Average forecast price difference = Total Difference/Number of half hours in the month.

DSP Methodology 3



Actual final prices become available.

- ◆ Use final prices when available, otherwise use the CMSMPSPPM prices.
- ◆ Find total difference for all trading periods.
- ◆ Average difference = Total Difference for FTR period/Number of trading periods
- ◆ **Example FTR Product:** BEN-OTA-202407
- ◆ **Methodology Period:** during the month of the FTR period until settlement.

Initial Margin

Covers the adverse price change from the time of participant default until positions can be exited.

- ◆ Assuming:
- ◆ It would take 14 days to exit positions.
- ◆ Probability of loss given default (PLGD) would equal 15%.
- ◆ FTR auction winners immediately subject to Initial Margin requirements.
- ◆ Requirements exist until either: a) Assignment or b) Nil price risk

Obligation Product	Time Remaining Before FTR Period	Product Season	85% Requirement (\$/MWh)
BEN-OTA OTA-BEN	> 5 months	n/a	\$5.60
	<= 5 months	Winter	\$21.70
		Summer	\$8.70
OPT: BEN-OTA	> 5 months	n/a	\$1.90
	<= 5 months	Winter	\$3.48
		Summer	\$6.04

- ◆ Initial margins are calculated for each FTR product and for each of the three cases:
 - The far term (FTR period > 5 months in the future)
 - The near term (<= 5 months), Summer months (October - March)
 - The near term (<= 5 months), Winter months (April - September)

Calculate Initial Margins

- ◆ It looks at the volatility of the product's DSP over the past 2 years.
- ◆ Finds the 85th percentile price change of the DSP.
- ◆ Obligations look at negative and positive changes.
- ◆ Options only look at negative changes.
- ◆ Initial margin is set at this price change.

Actual Calculation

- ◆ For each business day for the previous 2 years, find the DSP difference between that day and the day 2 weeks before.
 - Uses reference models prices where 2 years data isn't available.
- ◆ Create a numerical list of the DSP changes.
- ◆ **Obligations:**
 - Find the 85th percentile for each direction (negative and positive changes).
 - Initial margin is set at the highest absolute value.
- ◆ **Options:**
 - Find the 85th percentile of only negative changes.
 - Initial margin is set at the absolute value of this value.