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

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

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)

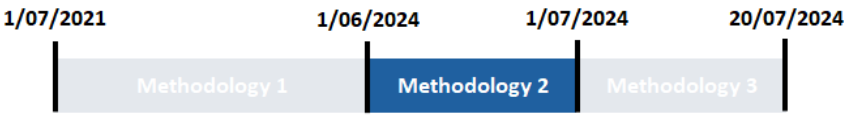
DSP Methodology 1

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

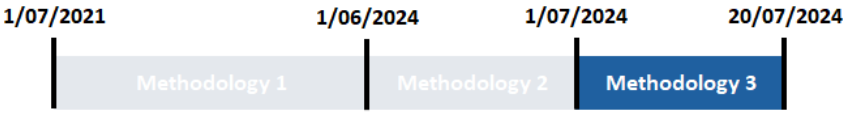
CMSMPSPPM

- 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
	<= 5months	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.