National Market for Instantaneous Reserves - Useful Definitions

The following is a selection of terms, some new and some not so new, which will be used when introducing and discussing the National IR Market. While primarily intended to be used as a handout that can be referenced when Transpower are running NMIR presentations and workshops it is being made available along with other reference information on our website.

Term	Definition and/or Relevance to Reserve Sharing	New/Existing
BP/Bipole	HVDC operation with both poles transferring energy in the same direction	Existing
BP to MP/Monopole Transition	The MW value at which the HVDC controls will move the HVDC from bipole to monopole operation.	Existing
Cable discharge	The period of time that a pole must remained blocked before it is able to be started in the opposite direction. This introduces a temporary constraint when scheduling reserve sharing at low DC transfer levels. Only impacts reserve sharing for the BP to MP transition	Existing
Effectiveness Factor	The factor, of 1 or less, by which reserve offered in the sending island has to be multiplied to obtain the required transferred MW response in the receiving island	New
FIR/SIR Sharing Limit	The maximum quantity of FIR/SIR that can be procured for transfer to the other island. Equals reserve sharing capacity – modulation risk – shared NFR	New
FKC – Frequency Keeping Control	The HVDC operating mode that varies (modulates) the transfer on the HVDC off of the dispatch point to maintain the same system frequency in both the North and South Islands and thereby shares reserves between the islands	Existing
FKC Band/HVDC Control Band	The maximum MW value that the HVDC controls will allow the HVDC to move off its dispatch point to maintain the same system frequency in both islands	Existing
Forward Reserve Sharing	Sharing of reserves over the HVDC *in the direction of energy transfer*	New
HVDC Transition	The automatic movement of the HVDC power flow across Round Power Operation to Monopole Operation, or Monopole Operation to Bipole Operation for increasing power flows and vice versa for reducing power flows	Existing
Monopole Minimum	The lowest level that the HVDC will be dispatched to when round power is not available to preserve the required Modulation Risk headroom for frequency keeping. This value is Pmin +MR i.e. 35MW + [MR].	Existing
Moving Through Zero / Dispatch Through Zero	The ability of the HVDC controls to reverse the direction of energy transfer between the two islands enabled by the *round power* function where the two poles are transferring energy in opposite directions and reduction in the transfer level and/or increase in the transfer level on one or other pole results in the net direction of energy to reverse or 'pass through zero'.	Existing
MP to BP Transition	The MW value at which the HVDC controls will move the HVDC from monopole to bipole operation.	Existing

Term	Definition and/or Relevance to Reserve Sharing	New/Existing
MR – (Modulation Risk)	A fixed MW quantity added to the HVDC reserve risk to cover the average difference between actual HVDC transfer and the HVDC dispatch value when FKC is in operation to maintain frequency	Existing
Negative Reserve Losses	Reserve "gained" in the receiving island when 'shared' in the opposite direction to HVDC energy transfer. Reserve transfers in the opposite direction to DC energy transfer benefit from a net reduction in losses over the HVDC as the reserve will be provided in the receiving island by *reducing* energy transfer which reduces total losses on the HVDC	New
NMIR	Acronym: National Market for Instantaneous Reserves	New
Reserve Losses	Reserve lost on the HVDC when sent in the direction of energy transfer. Reserve transferred in the same direction as DC energy transfer will be subject to losses relative to the energy transfer level (the higher the transfer the greater the percentage losses)	New
Reserve Sharing	The ability to utilise the HVDC to transfer FIR and/or SIR between the two islands in response to an under frequency event.	New
Reverse Reserve Sharing	Sharing of reserves over the HVDC *in the opposite direction to energy transfer*	New
RP/Roundpower	The HVDC mode that allows energy to be transferred in opposite directions simultaneously on each pole	Existing
RP Entry	The MW value at which the HVDC controls will move the HVDC from monopole to round power operation	Existing
RP Exit	The MW value at which the HVDC controls will move the HVDC from round power to monopole operation.	Existing
Shared NFR	The value of island NFRs that will be transferred to the other island in response to an under frequency event when reserve sharing is enabled.	New
Shared Reserve	The quantity of FIR and SIR cleared to be shared between the two islands.	New
Sharing Limit	The calculated maximum amount of reserve that the HVDC is capable of sharing in any given trading period after taking into account the HVDC operating mode, system conditions and all relevant constraints	New