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- For reader's information, these slides were prepared for the 30th July 2019 MDAG meeting.
 - They address questions raised at previous meetings.
 - The intention of the slides is to help group members to better understand aspects of the market and to assist with decision making.



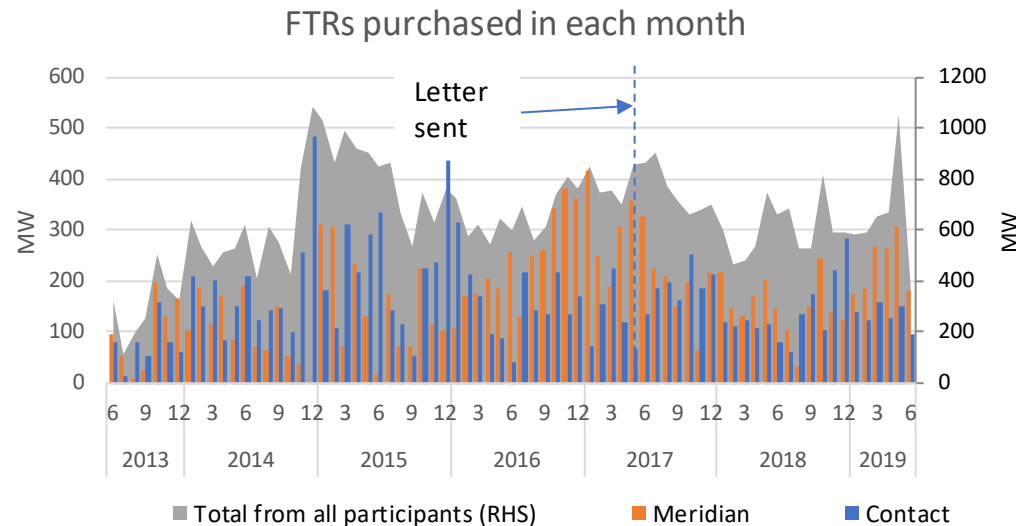
South Island Market Changes

David Weaver
Concept Consulting
19th June 2019

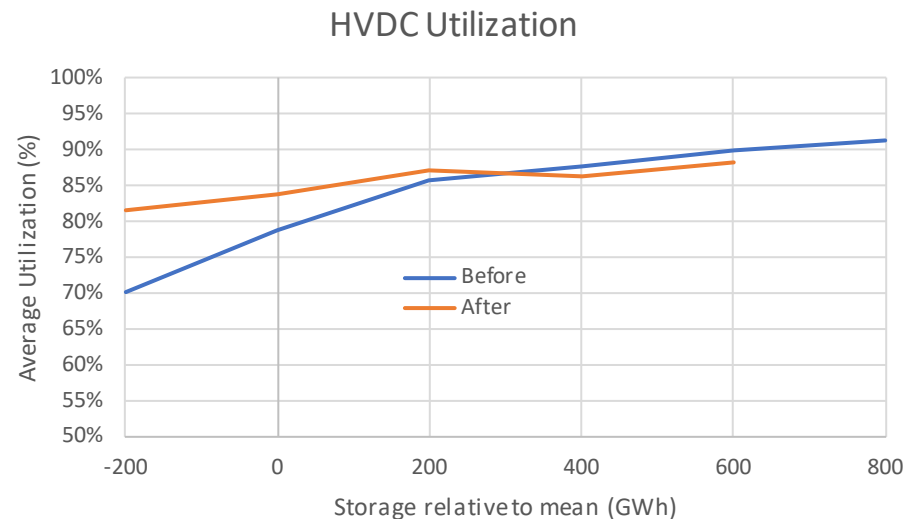
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- The EA's letter to Meridian indicated that South Island generators were not intended to be able to cover their locational risk by modifying their offers in a specific manner.
- Accordingly, we might expect to see an increase in the procurement of other types of risk management products after the letter.
- These include:
 - FTRs
 - OTC hedge contracts
 - ASX hedge contracts
- There is limited publicly available information on parties involved in contracting.
- FTR auction data is available, and identifies purchasers.

- We looked at South to North FTRs, as these would hedge a South Island gentailer against high prices in the North Island.
- We included all FTRs purchased by Contact or Meridian that went from a node in the South Island to one in the North Island.
- Total purchased quantity from all market participants is also shown
- There is no apparent increase in FTRs purchased by either Contact or Meridian after the letter was sent.



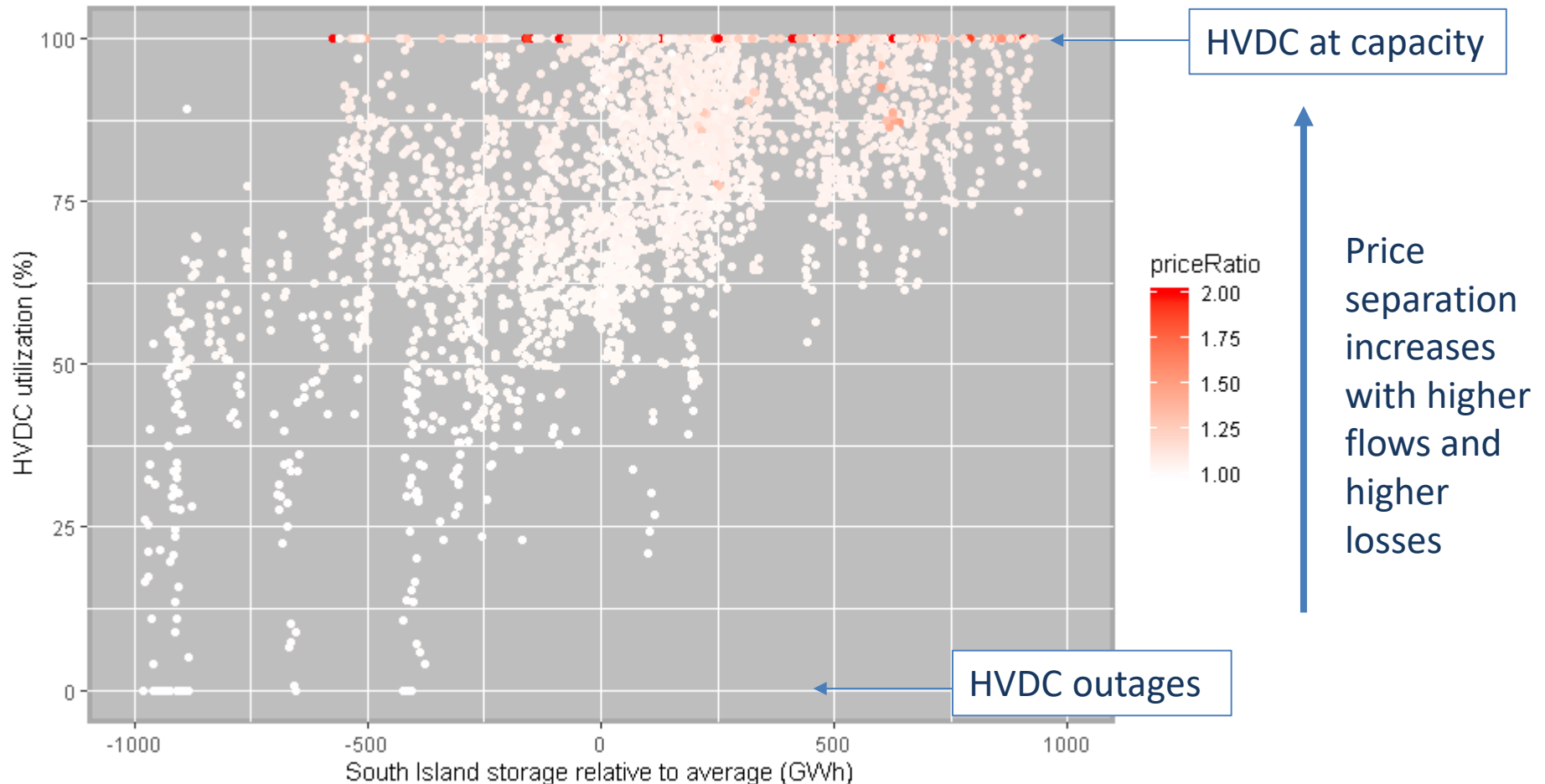
- Utilization charts have been updated to account for reserve sharing.
- Picture changes slightly
 - Still lower utilization at higher storage levels in recent years, but effect is less pronounced
 - Utilization is higher at average storage levels in recent years.



- Previous analysis highlighted two important points
 1. There are many periods with high prices, less than 100% utilization on the HVDC and high storage.
 2. There have been fewer periods with 100% utilization during high storage in recent years.
- Point 1) is a reflection of conditions in the market as a whole. It's not specifically an issue with South Island offers and utilization of the HVDC
- Point 2) is more indicative of a change in South Island offers in particular.
- As such, we have looked further into 2)
- We present similar scatter plots to last time, but show price *separation* rather than absolute price.
 - Absolute price is determined by the market as a whole.
 - Price *separation* is a better indicator of HVDC utilization.

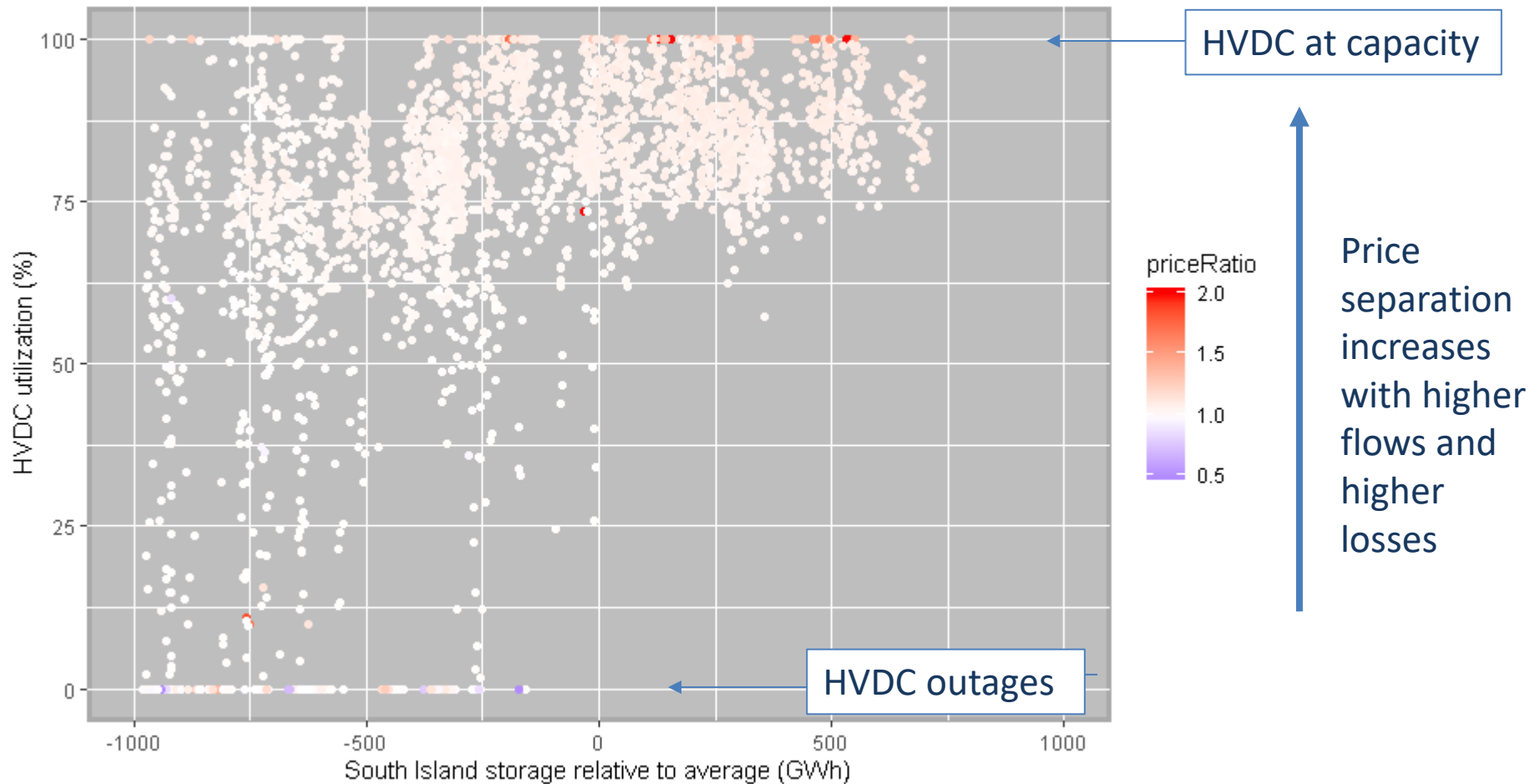
Price separation – “Before”

- Many periods with 100% utilization, many of which have price separation
 - Recall that “utilization” considers reserve requirement in North Island.
- No periods with price separation without 100% utilization



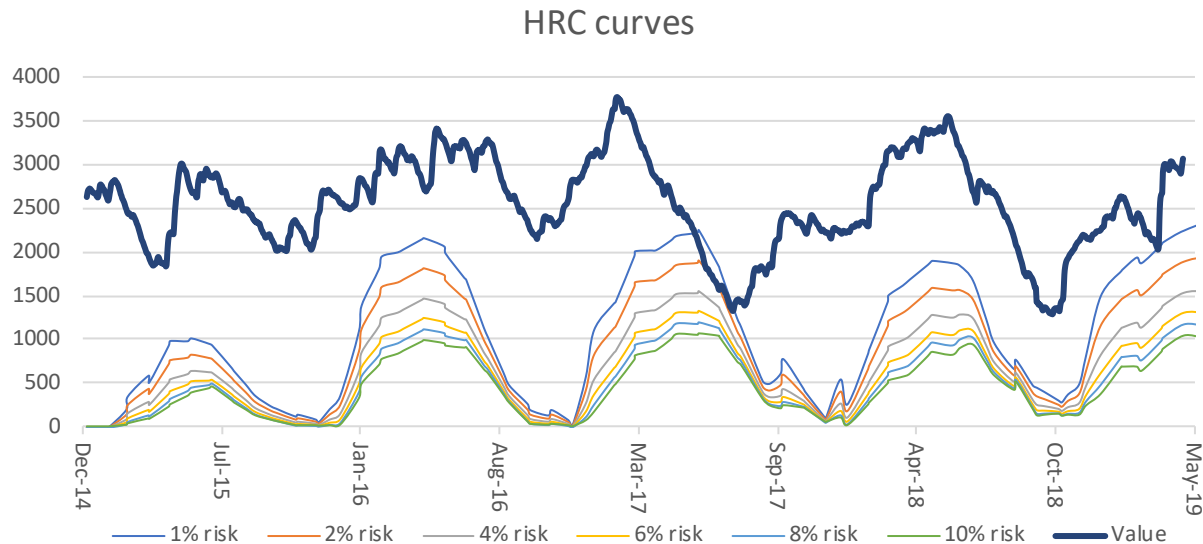
Price separation – “After”

- Fewer periods with 100% utilization,
- Again, minimal periods with price separation unless 100% utilization

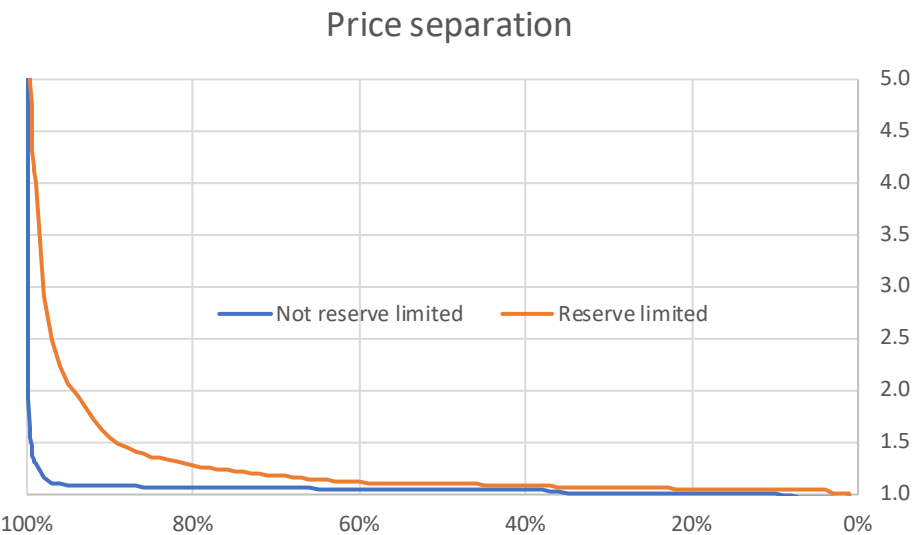


- The scatter plots are interesting and suggestive, but don't provide clear evidence of fewer periods with <100% utilization
- Quantifying the effects shows that this is indeed the case.
 - “Before”, about 23% of wet peak periods had 100% utilization of the HVDC.
 - “After” this dropped to only 13% of periods
- However, many nominally wet periods after the letter had restricted gas supply. If we exclude those, the percentage of period rises to 19%. This is marginally lower than the “before” period.
- Changes to HVDC charge regime (i.e. HAMI vs SIMI) occurred in about 2016, and will have, all else being equal, increased the utilization of the HVDC at peak times.

- Hydrology can have a large impact on much of this analysis.
- National storage for recent years is shown for reference.

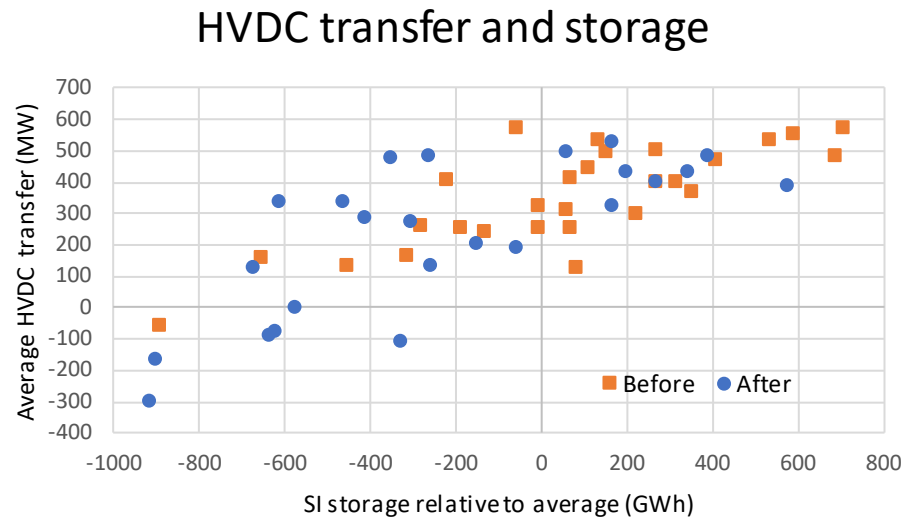


- When the HVDC is the binding risk, price separation happens much more often.



Appendix C – Tipping plot

- No obvious difference between before and after
- Similar to graphs on slide 5, but shows monthly averages, and includes all periods.



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