Demand Flexibility

This session investigated the world of demand flexibility and DSR. The aim was to share WPD's learning on the topic as well as understand people's perceptions on the topic.

The session initially covered the DNO use case for flexibility as well as the requirement to fit into the wider market. It then covered WPD's learning on industrial flexibility followed by learning on domestic demand flexibility. Some potential new services such as storage and reactive power requirements were then covered and the session finished covering WPD's requirement to continue to facilitate the connection of flexible loads to the network both for its own requirements but also to allow participation in the wider markets.

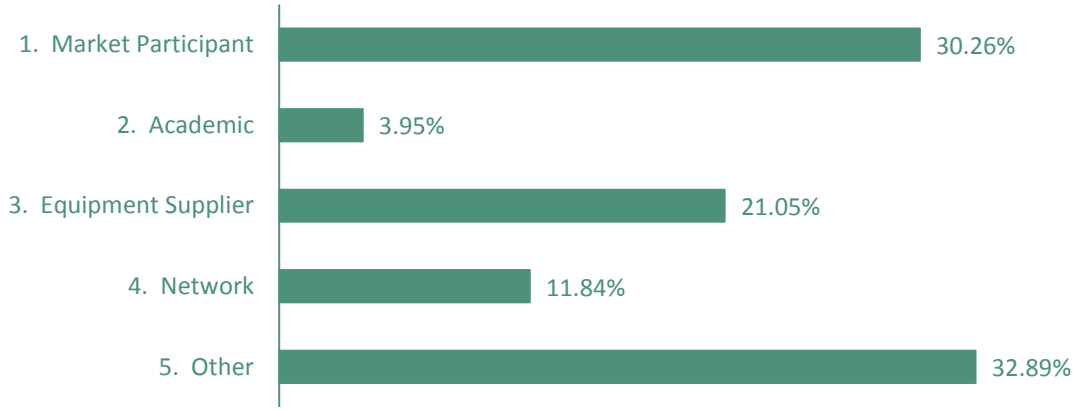
The questions and feedback were used to understand the perceptions of WPDs wider stakeholders and understand if these align with WPDs views. It also allowed WPD to help inform stakeholders of new learning from relevant projects.

In general the feedback aligned with WPD's expectations. Where this is not the case, this will feedback into WPD's projects and innovation strategy to help address the concerns.

As part of WPD's Balancing Act Event, participants were asked a series of questions across two sessions of a Demand Flexibility workshop. This document summarises the results from those sessions. The slides from the workshop are also available to view online.

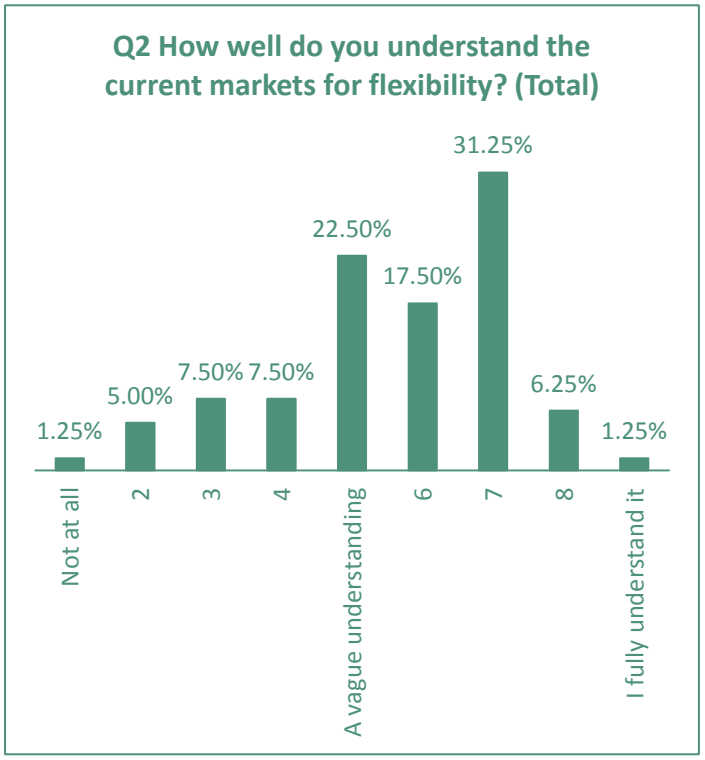
The first question simply asked for participant background. This question was used to understand the make-up of the workshop participants as well as allowing subsequent filtering of the results.

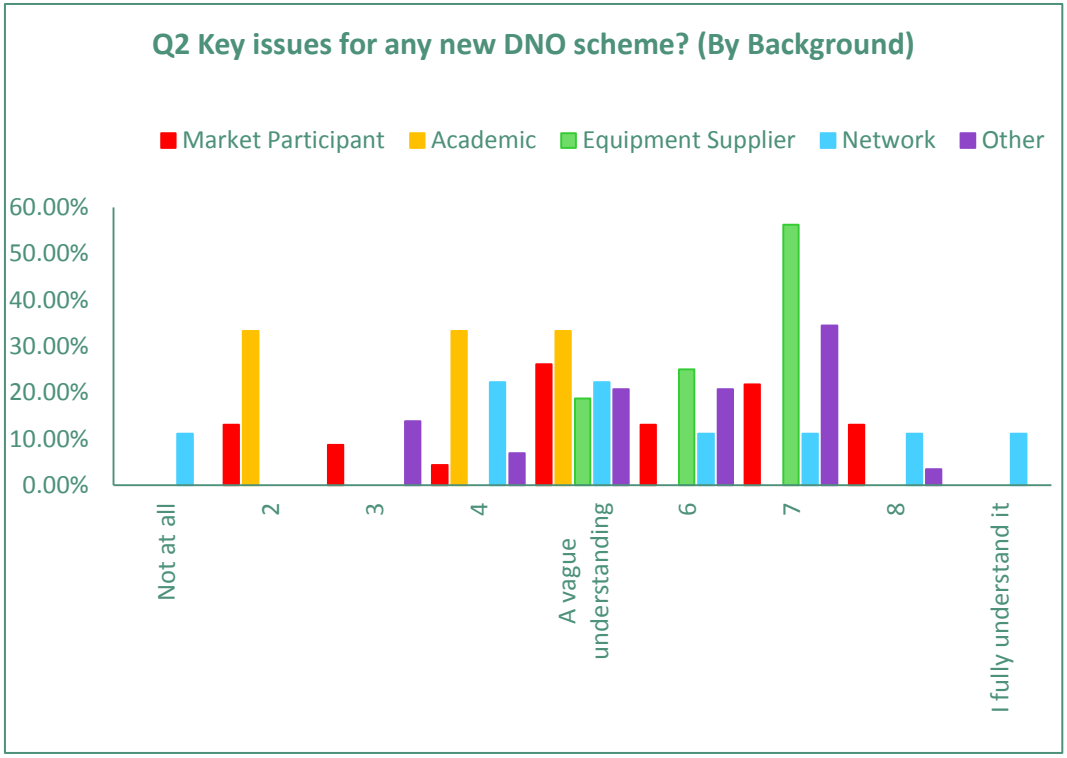
Which term best categorises your background?



How well do you understand the current markets for flexibility?

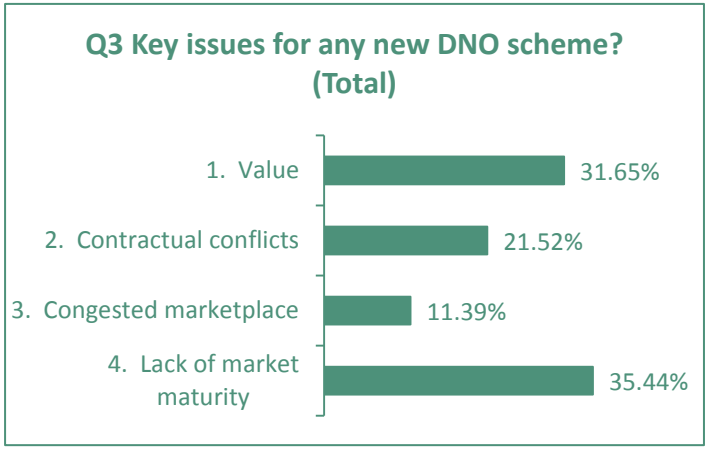
Q2 – 4 focussed on the wider market and the DNO use case for flexibility.



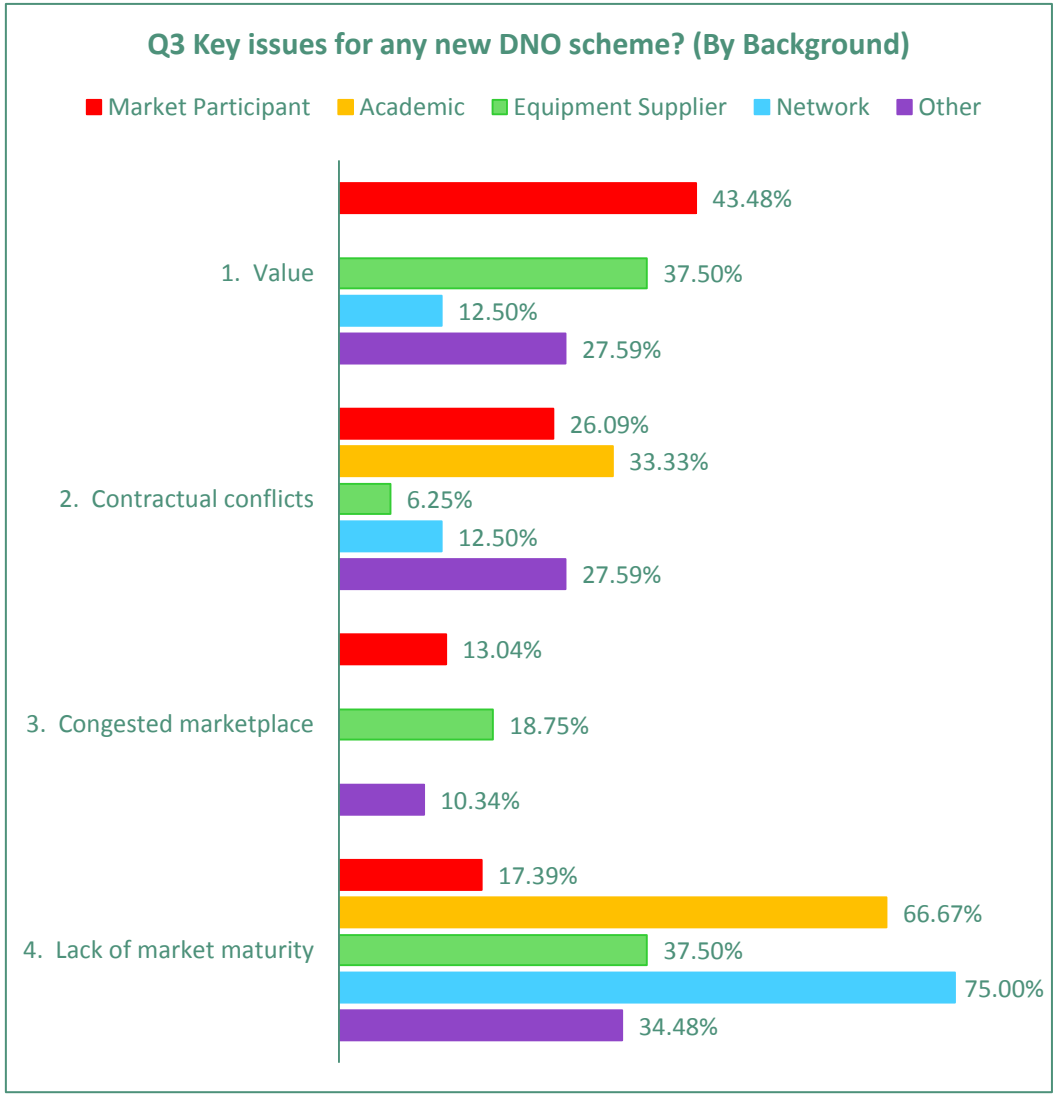


As can be seen there is wide spread of understanding with most participants having a decent but not perfect understanding of the market. This reflects the complexity of the current marketplace which spreads across the different sectors of the electricity market.

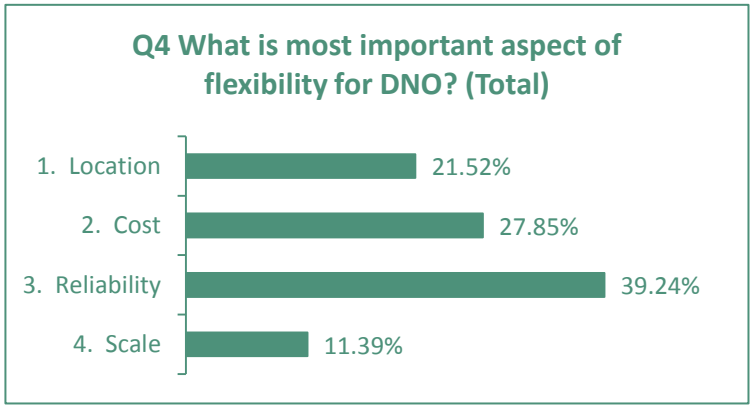
Key issues for any new DNO scheme?



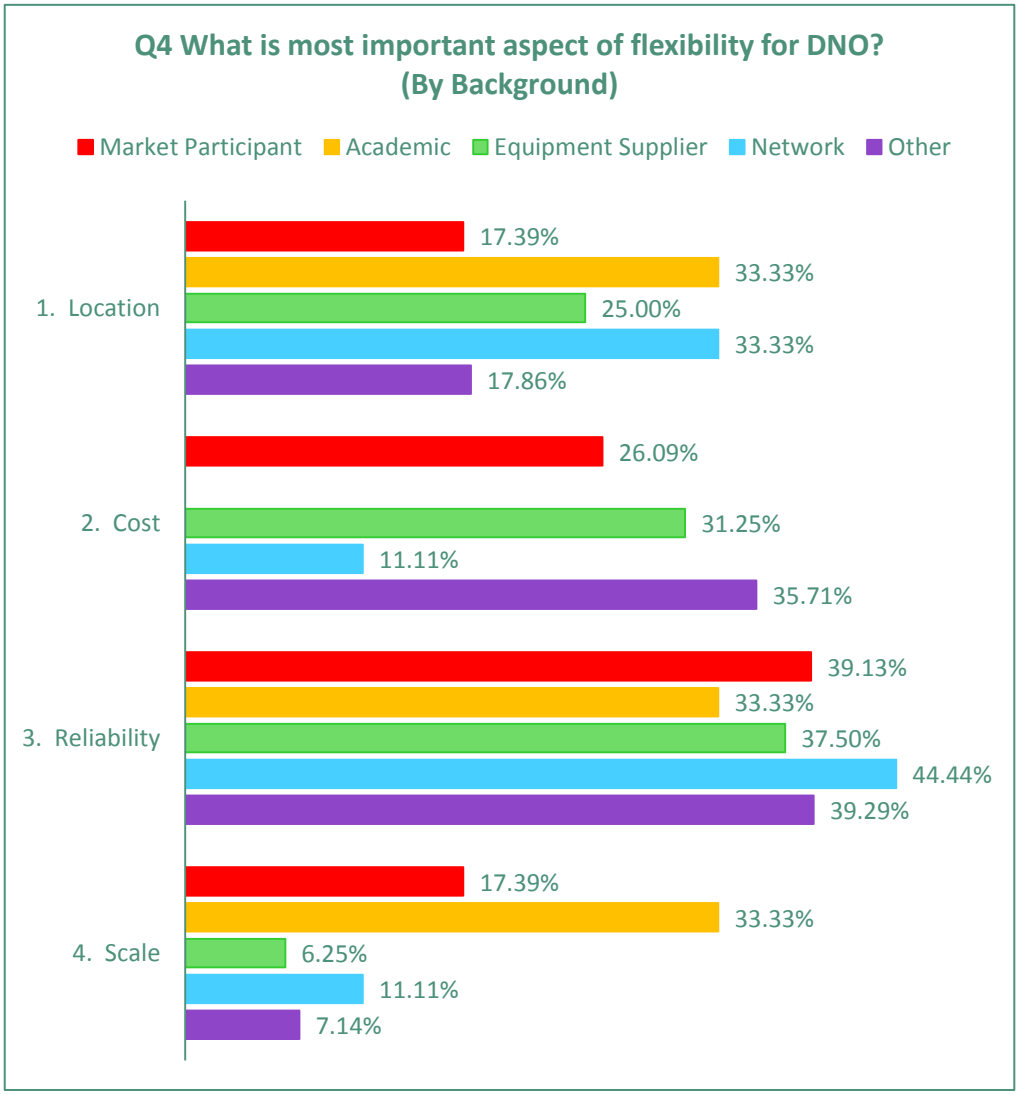
The third question investigated the key issues for DNO schemes. This tried to understand what might be the key hindrances for new DNO schemes. This highlights issues around low value and a lack of market maturity. Interestingly market participants had a strong bias to a lack of value, whereas the networks and academics highlighted the lack of maturity.



What is most important aspect of flexibility for DNO?



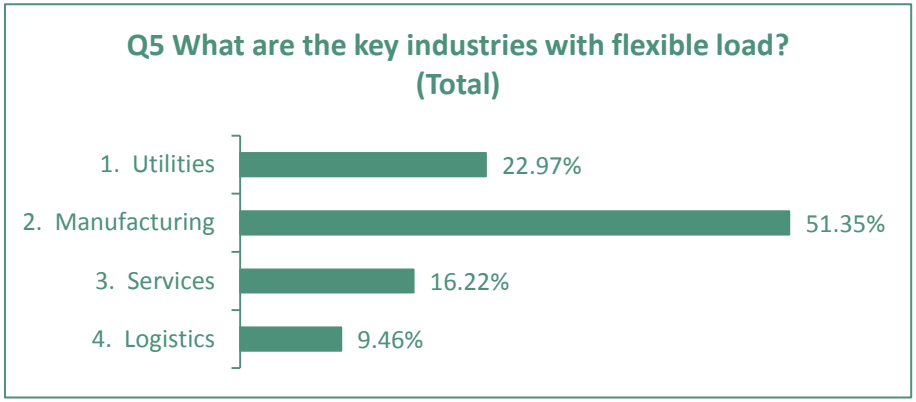
Q4 investigated the perceptions of the most important aspects for DNO flexibility services. This highlighted the perceived importance of reliability for services. In reality all the options mentioned are important for the delivery of a useful DNO DSR scheme. The flexible load must be in the right location and reliable as well as being cost effective and at sufficient scale to solve the issue.

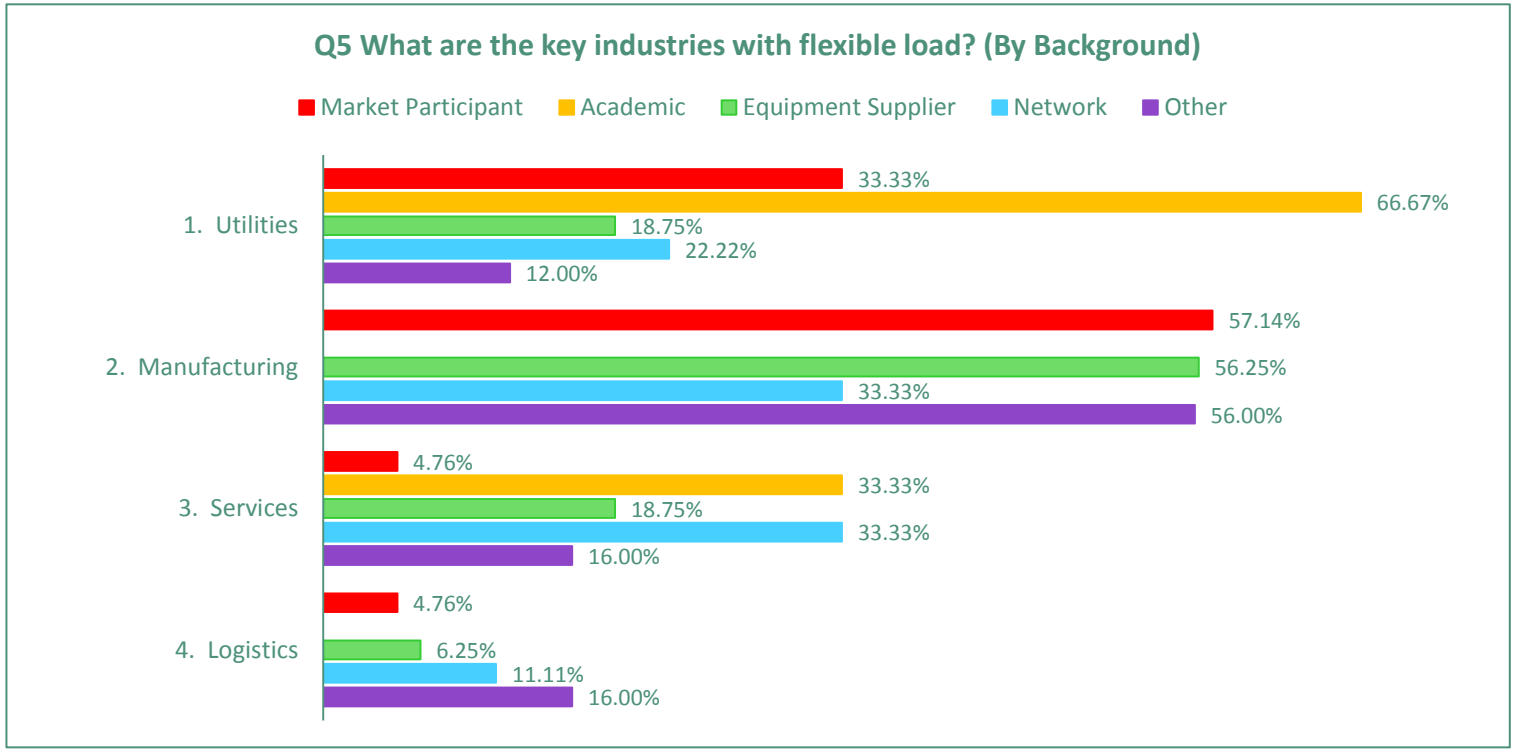


Q5-6 investigated participant perception of industrial flexibility.

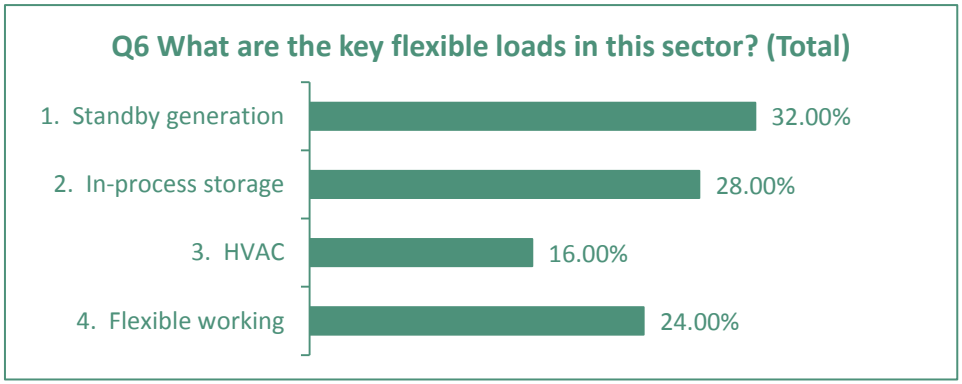
These highlighted manufacturing as an area with lots of flexible load, with multiple sources of flexibility being available. It also identified the potential to affect processes as a key barrier to participation. Interestingly most of the flexibility found within previous trials has been found through standby generation rather than load itself and as such can be found across the sectors. The few genuine shifts in demand have been in the utility sector. This shows that whilst most processes could be flexible, the potential of risking key business output for relatively small returns limits participation. This highlights the commercial barriers to flexibility and the challenges with finding truly flexible loads. This situation may change with improvements in technology and control of processes in the other sectors.

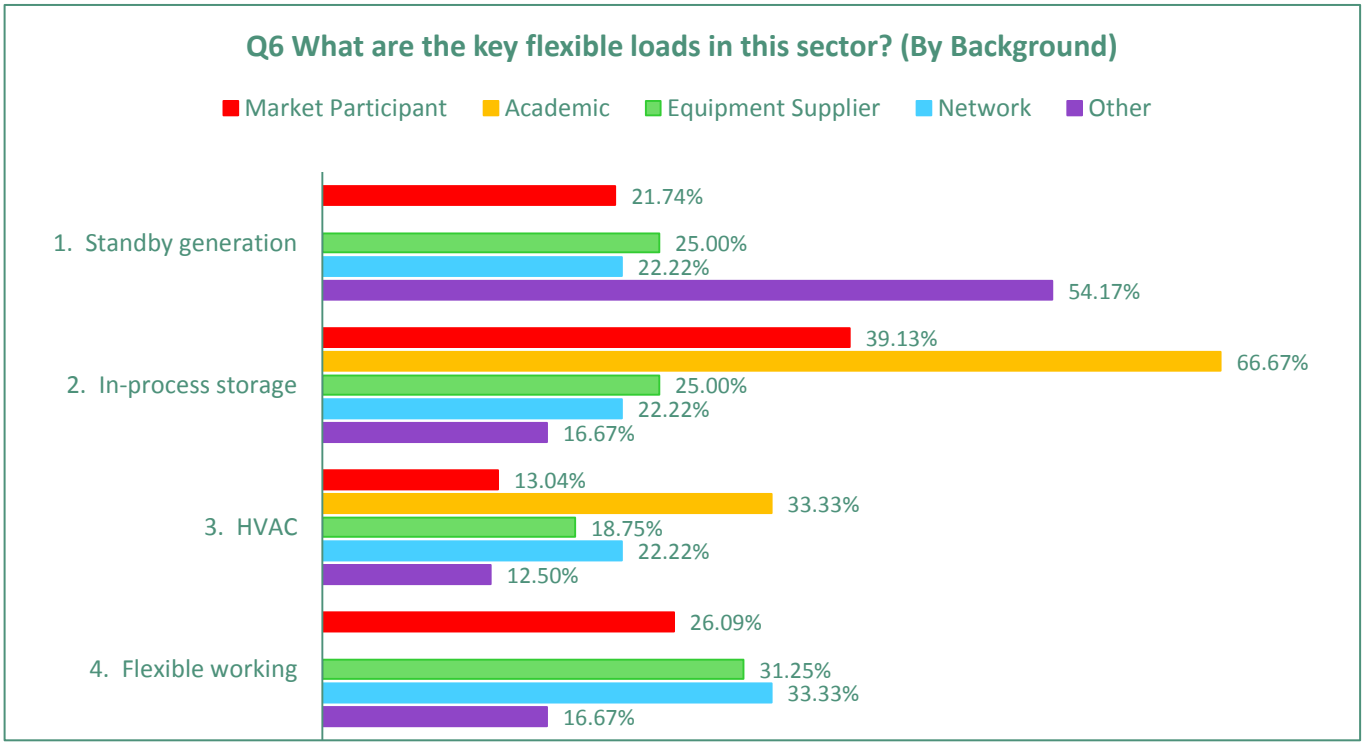
What are the key industries with flexible load?



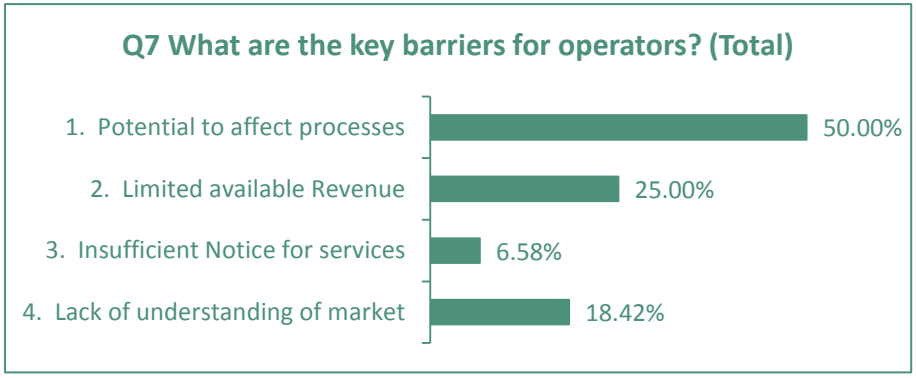


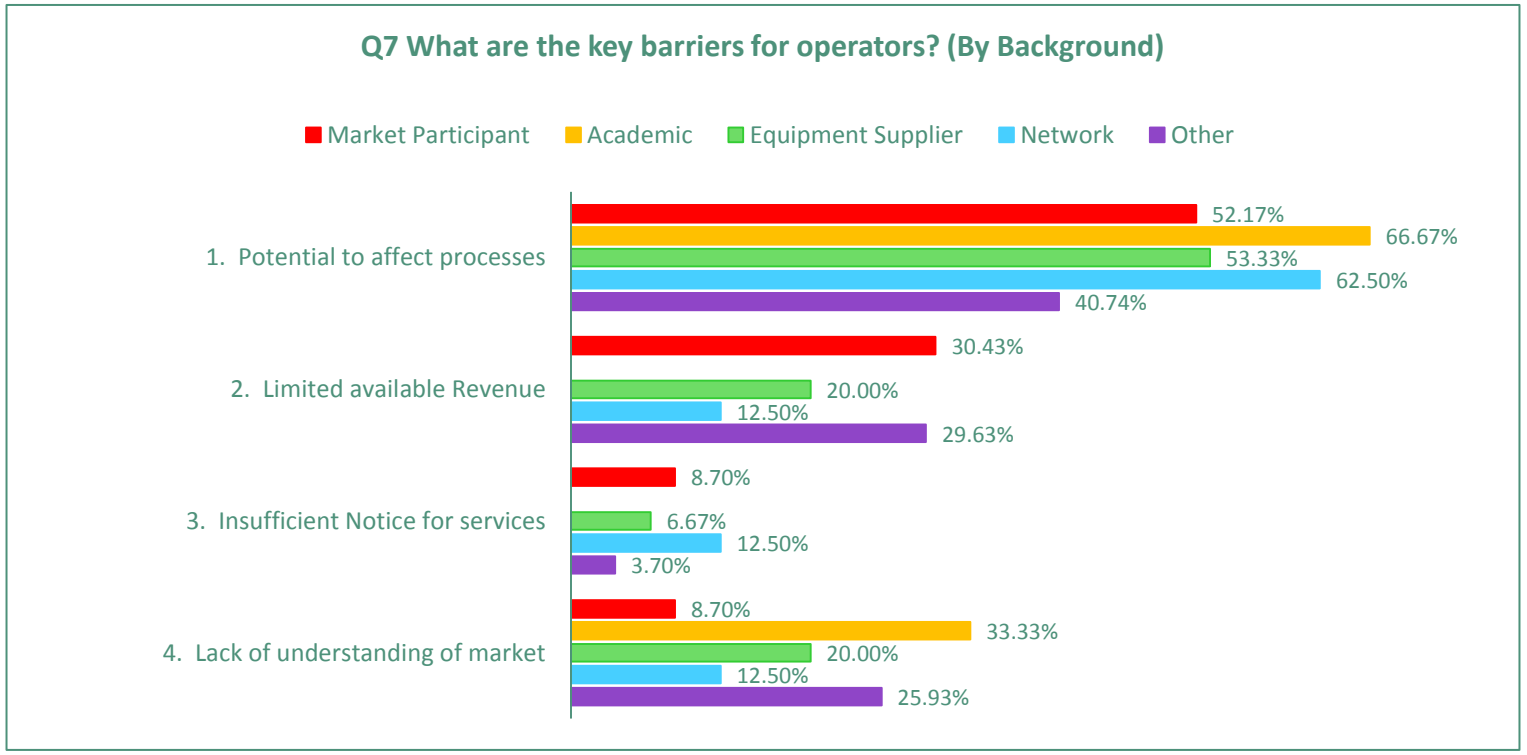
What are the key flexible loads in this sector?





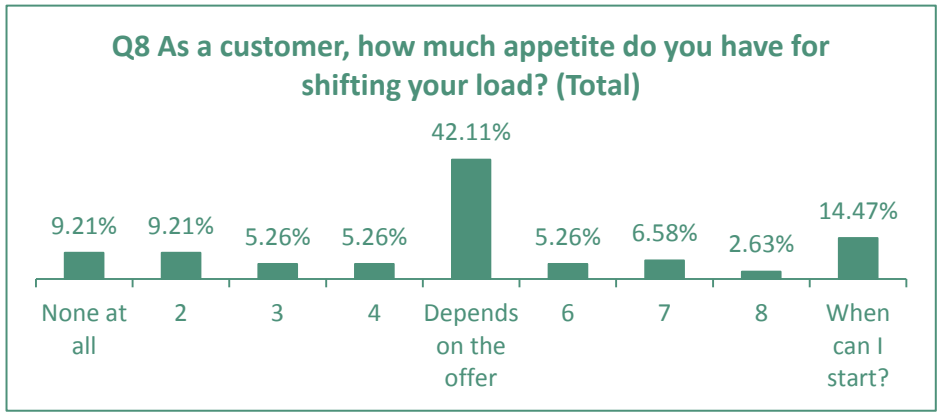
What are the key barriers for operators?



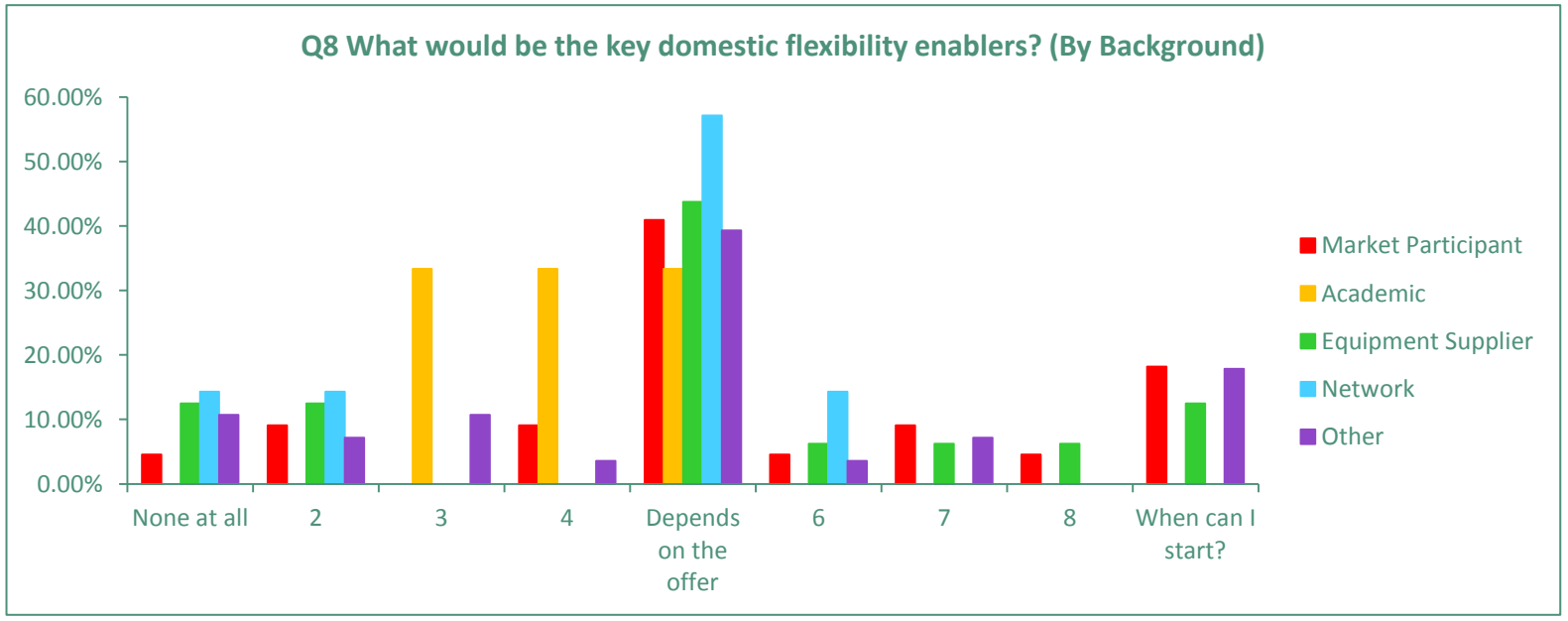


As a customer, how much appetite do you have for shifting your load?

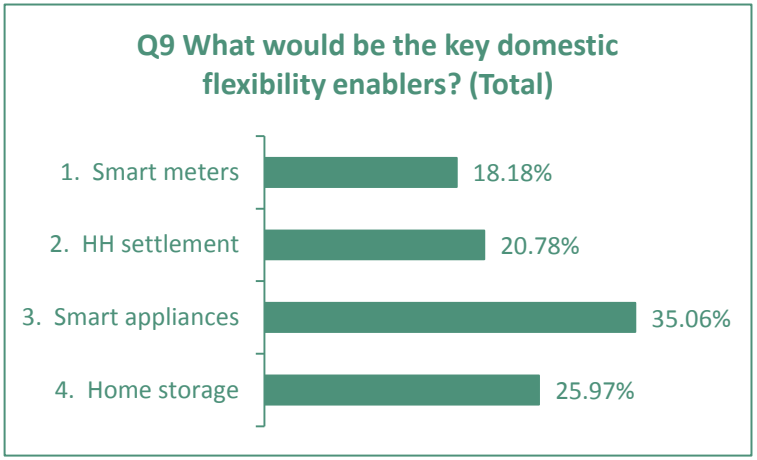
Q8-9 looked into the area of domestic flexibility.



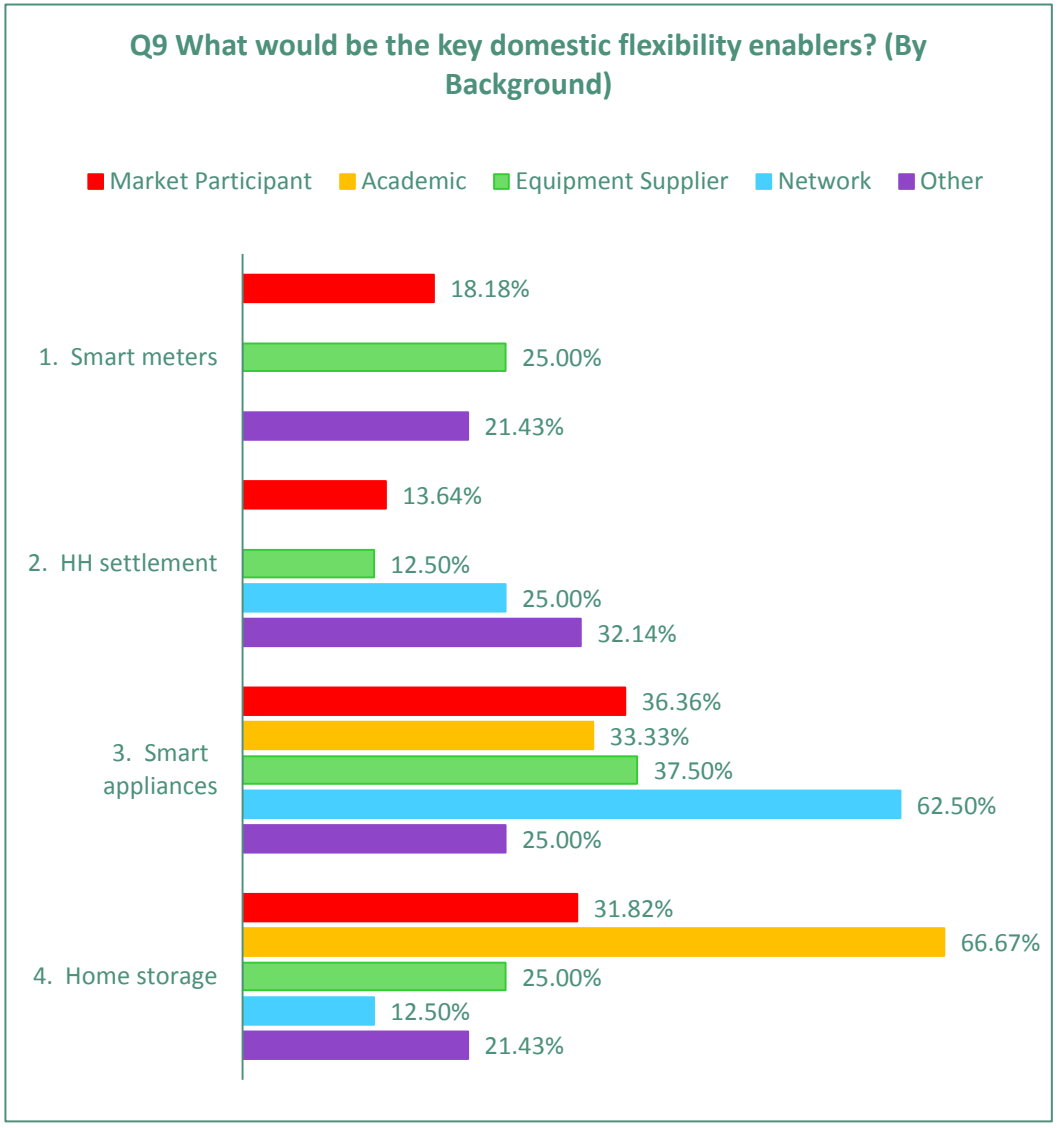
Q8 highlighted the general appetite for flexibility. This shows that even in a room of energy experts and enthusiasts, there isn't a strong drive for personal flexibility. This ties into several of our domestic DSR trials where customer recruitment and apathy have been significant challenges.



What would be the key domestic flexibility enablers?

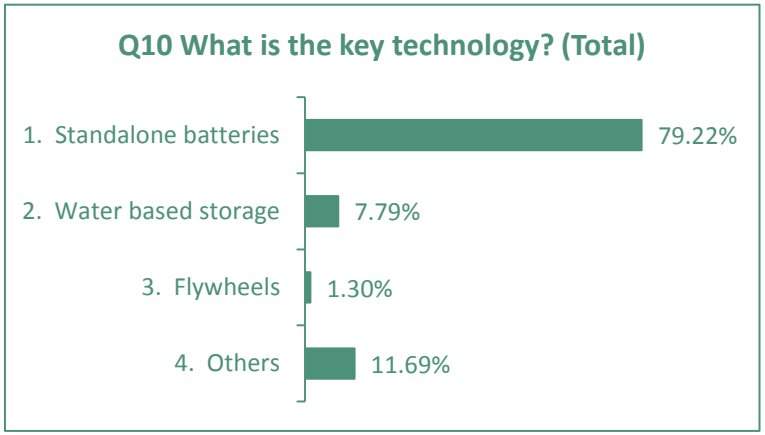


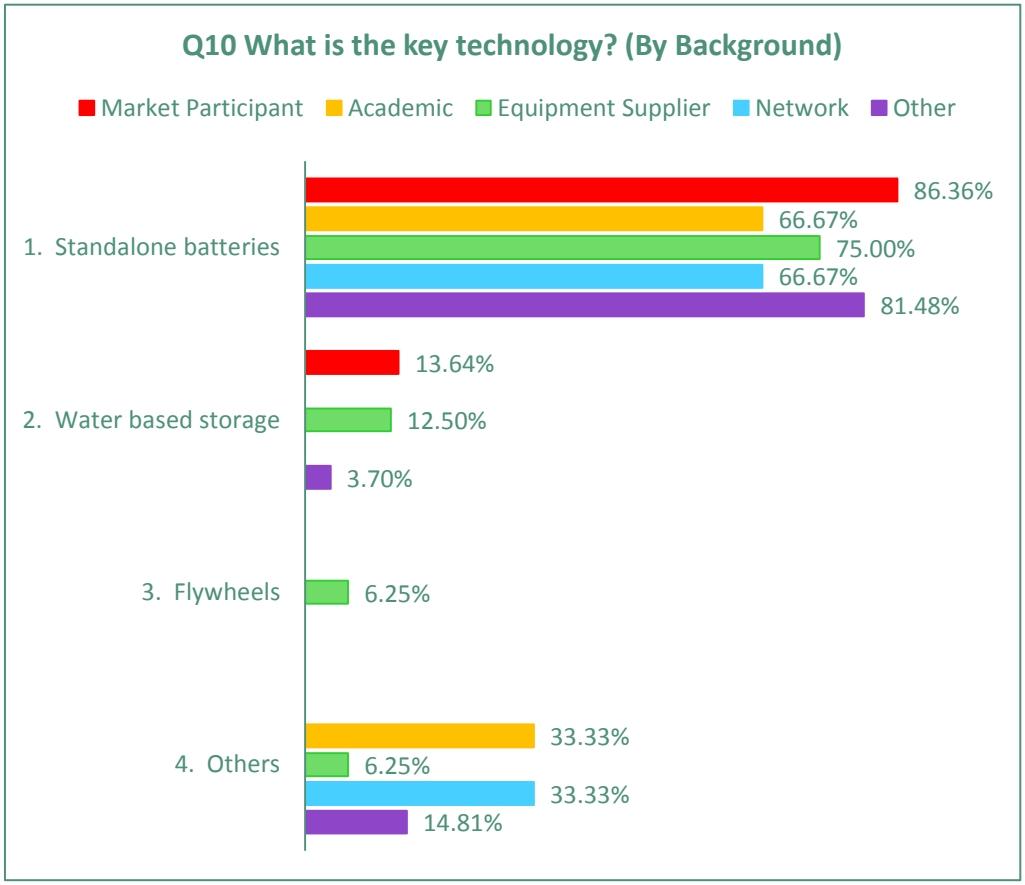
Q9 looked at the potential enablers for domestic flexibility which showed a preference for smart appliances and storage. This must however be taken along with the roll out of smart metering and HH settlements to allow the value of the technical enablers to be passed through.



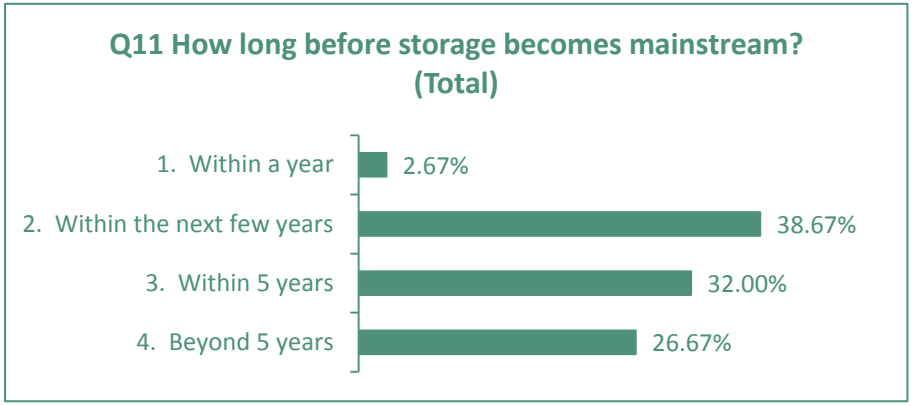
Q10-12 looked into storage.

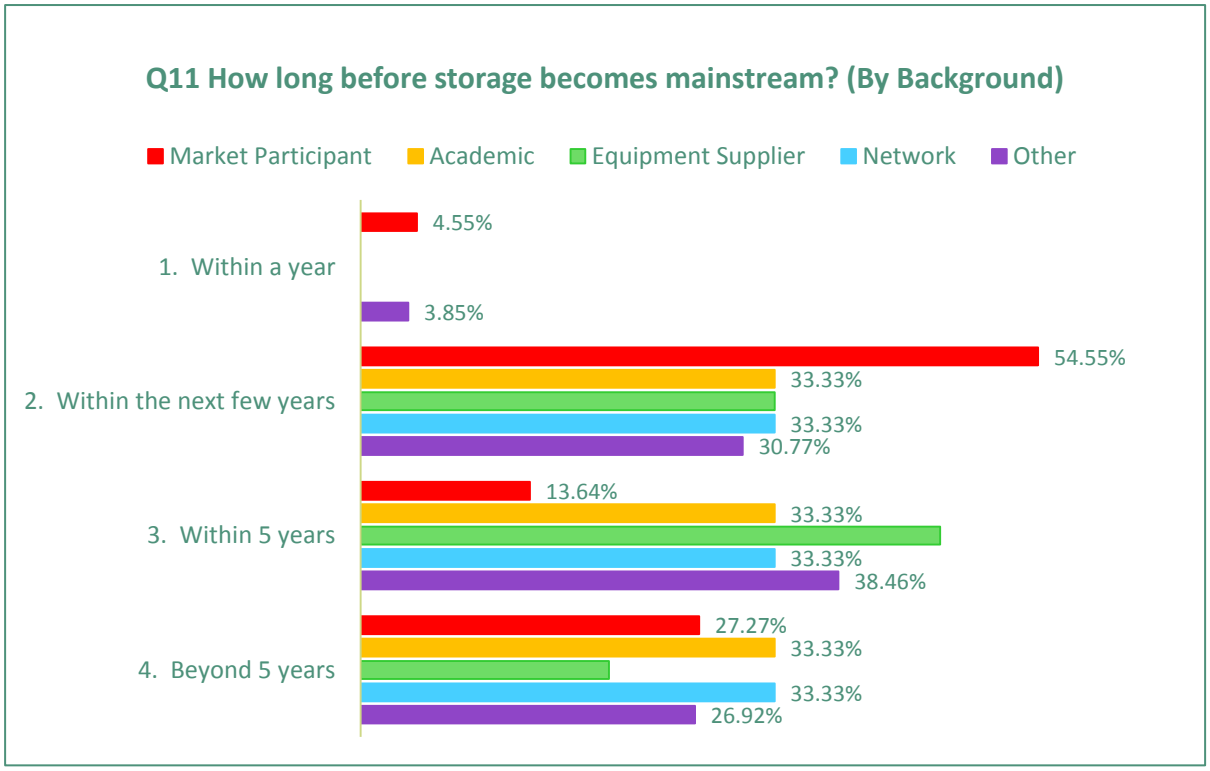
These highlighted the dominant position of batteries in the storage market as well as the fact that the technology is still reaching maturity. It also showed a strong bias away from domestic storage, especially from the market participants who were most keen on grid scale storage.





How long before storage becomes mainstream?





Will it be bigger at domestic or industrial scale?