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44. Do you have any data which illustrates:
a) the current scale and cost of the system impacts described in table 7, and how these might change in the future?
b) the potential efficiency savings which could be achieved, now and in the future, through a more co-ordinated approach to managing these impacts?

The DTS data set holds granular data pertaining to import and export energy for all sites in the UK. Analysis of this data can provide detailed insight into the system impacts of embedded generation. Using data analytics against export metering data, ElectraLink has been able to identify renewable generation and demonstrate the growth of distribution network connected generation over time.
Fig 1 shows the increasing proportion of renewable generation that is connected to the distribution networks. This generation is not visible to the SO and this lack of visibility creates issues with the accurate forecasting of the impact of renewable generation. Information pertaining to the volumes and types of renewable generation needs to be available to the network planners.

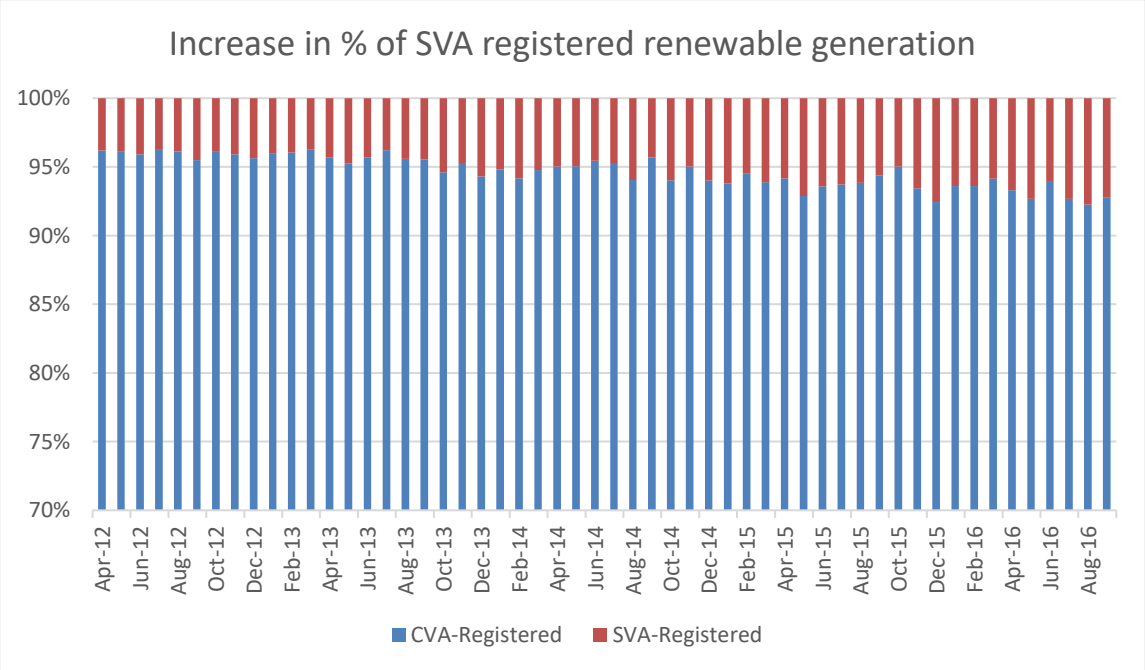

Fig 1 Percentage of CVA / SVA registered renewable generation.

Fig 2 shows the change in renewable generation volume over time by geography (grid supply point). It shows that whilst the overall trend is growth, in certain geographies renewable generation is actually reducing. This can be due to the decommissioning of significant plant or the difference in weather conditions year on year.

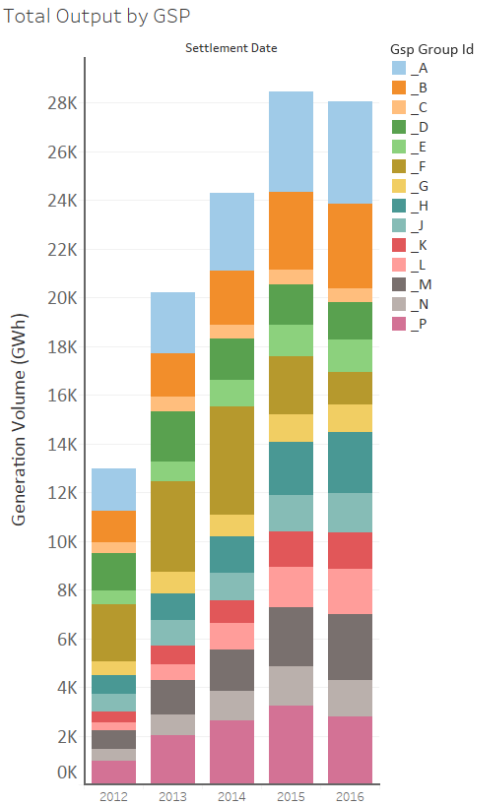

Fig 2 Renewable energy output by GSP

Fig 3 shows the breakdown of renewable generation types across Great Britain (split by GSP). There is significant variability in terms of volume and type. Each area will therefore be impacted differently and DSOs will need to vary their approaches to network management.

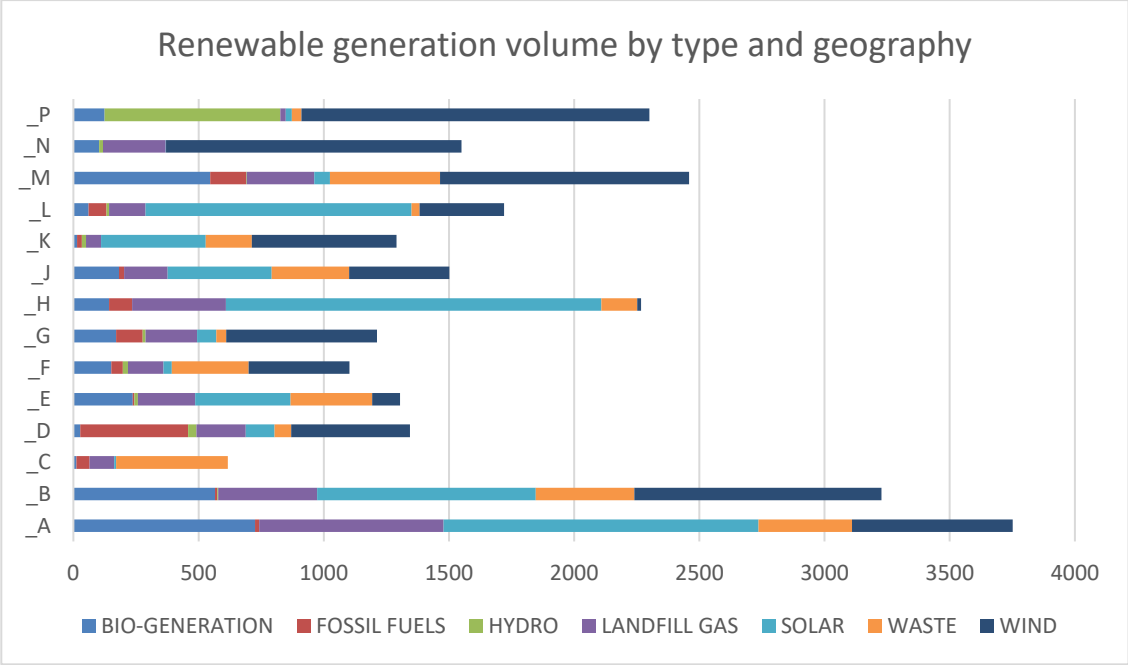

Fig 3 Breakdown of renewable generation type by GSP.