**Acceleration of tidal stream turbulence research in the North West** - Grant Awarded £ 39,134

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## Summary

There has been much work within the UK concerning the design of tidal energy devices and on the potential and extractable tidal resource. A significant fraction of the extractable UK tidal resource is associated with flows with depth averaged velocity greater than 2 m/s and over 4 m/s at some locations. Although knowledge of the mean velocity is adequate for estimating device performance, the characteristics of these high-velocity flows are not well understood and it is clear from the limited offshore experience to-date that turbulent loads are likely to be significant for fatigue design of structures and components.

This funding proposal is to provide part-time support for a researcher who has considerable experience in the development and analysis of turbulence models. Over six months, the researcher will review the existing literature and on-going work on tidal-stream turbulence and of turbulence models used by comparable industries. The review process will be accelerated by appointment of a researcher such as Dr Gant with expertise in the simulation and analysis of turbulent flows. This would lead to an EPSRC research application for developing tools to analyse the influence of differing site features on design loads for the major types of tidal stream device and to compare these models to experimental measurements in the University of Manchester flume. The views of device developers will be sought through collaboration with Det Norske Veritas (DNV), Electricitie de France (EDF) and Bridge Across the Bay Ltd amongst others.