

## Abstract 031 – Rolls Royce Marine

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Presentation Title: Dynamic positioning systems for the offshore wind industry

### Abstract:

The offshore wind power capacity has increased steadily for the past decade and new wind farms are increasing in size. In 2017, the London Array in the UK was the world's largest at 630 MW. The Hornsea Wind Farm under construction will be largest when completed at 1200 MW. Projects at the planning stage include the Dogger Bank at 4800 MW and Greater Changhua in Taiwan at 2400 MW. The decreasing cost and low carbon footprint are key drivers for an expanding business.

This paper considers the background, design and use of dynamic positioning systems for the offshore wind industry. Service operation vessels may operate in a windfarm for weeks at a time, servicing a number of wind turbines each day. The paper will consider how accurate and continuous dynamic positioning are essential for efficient operation.

The paper will study the operational requirements particular for service operation vessels. It will take a closer look at the functionality required for mission planning and examine how automated operations between wind turbines improve productivity and speed up mobilization and demobilization at each wind turbine. A detailed case study demonstrates how the positioning system design integrates with heave compensated walk-to-work gangways to increase efficiency and safety of the gangway landing. Furthermore, the paper will show how accurate positioning and vessel control for a range of different working speeds increase service capability within the wind farm.

The paper will include operational experience from two service operation vessels. The presentation will include videos and images for demonstration.