

Press Release

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World premiere: Deutsche Bucht offshore wind farm will install two turbines on Mono Buckets

- **Financial close achieved for pilot project**
- **First trial foundation in commercial use**

HAMBURG, 19 July 2018. – Northland Deutsche Bucht GmbH announced today that the Deutsche Bucht Mono Bucket pilot demonstrator ("Demo") project has reached financial close. In May, the Federal Maritime and Hydrographic Agency of Germany (BSH) granted the Deutsche Bucht offshore wind project the permit required to erect two additional pilot wind turbines using Mono Bucket foundations. Deutsche Bucht will be the first offshore wind farm worldwide to test this new type of foundation structure under commercial operating conditions. The foundations will be equipped with V164-8.4 MW wind turbines by MHI Vestas. The two turbines will contribute an additional 17 MW of capacity to the base 252 MW project for a total of 269 MW and 33 turbines.

John Brace, CEO of Northland Power: "Today's announcement represents yet another first for Northland Power. The addition of the Demo turbines is not only innovative and accretive to the base project, but we are able to undertake this initiative with little additional risk since they will be integrated into the overall construction project. The innovative new mono bucket design could be of significant benefit to some of Northland's future offshore wind farms. The learnings from this pilot could allow Northland to construct faster and lower costs for certain site conditions."

Jens Poulsen, Project Director of Northland Deutsche Bucht GmbH: "We are proud that with the BSH permit we will now be able to test the two Mono Bucket foundations at the Deutsche Bucht offshore wind farm. Realizing the pilot project has been possible thanks to the support of the Deutsche Bucht development and construction teams and all the contractors involved. In particular, I would like to acknowledge the constructive collaboration with the BSH."

Fred. Olsen, Shipowner and Chairman of the Board in Fred. Olsen Ocean: "Competition in today's offshore wind market is fierce. The industry is evolving, and it is important to challenge the existing standard, while continuing to respect the environment. This pilot offers the opportunity to test an environmentally sound solution with the support of a progressive market player, Northland Power. For the project teams, this has been a marathon of overcoming challenges together. Their commitment to find innovative solutions has been essential to our progress."

Kristian Ravn, Managing Director of Universal Foundation: "This pilot provides a unique opportunity to utilize the Mono Bucket foundation in a commercial project, demonstrating the above state of the art technology's low impact on marine habitats. The support from Northland Power has been second

to none. All of the parties involved have invested a lot of effort into making this project a reality, and we are delighted that it will now move forward.”

Arnoud Kuis, Director Van Oord Offshore Wind: “As EPC/BoP contractor, Van Oord offers tailor-made solutions for the challenges that this expanding offshore wind market brings along. As such we are excited to be responsible for the manufacturing and installation of this new foundation type. Passion for entrepreneurship and marine construction is what binds us as partners in the realisation of this pilot project.”

In 2016, the German Federal Network Agency (BNetzA) assigned an additional 16.8 megawatts of grid connection capacity to the Deutsche Bucht project as part of a tender for testing these prototype foundations with MHI Vestas turbines (model V164-8.4).

In developing the foundation, Universal Foundation applied experience gained from the oil and gas industry. The Mono Bucket foundation structure consists of a single steel cylinder, known as a “suction bucket”, upon which is mounted a shaft. The advantage of the suction bucket construction is that its own weight and vacuum pressure causes it to become firmly embedded in the sea floor. This method eliminates the need for pile driving, and consequently, for noise mitigation measures such as big bubble curtains. This results in benefits for the environment, including less disruption for local porpoise populations, and the ability to completely decommission the Mono Bucket. The Mono Bucket concept has been in development by Universal Foundation since 2001 and has already been successfully used in applications such as the foundations for offshore met masts.

Once completed, the 269 MW Deutsche Bucht wind farm will have the capacity to meet the needs of approximately 328,000 households each year. In-water construction is expected to start in summer 2018, and installation of the Mono Bucket foundations will follow in the second quarter of 2019. Commissioning of the wind farm is expected to take place in the second half of 2019. As the general contractor for the Balance of Plant, Van Oord is also responsible for the manufacturing and installation of the Mono Bucket foundations. On behalf of Northland Deutsche Bucht, K2 Management is responsible for project management throughout the construction phase; Green Giraffe supported Demo project contracting and financing.

With an investment budget of approximately 1.4 billion euros, Deutsche Bucht is Canadian power producer Northland Power’s third North Sea offshore wind farm. Gemini and Nordsee 1, of which Northland Power owns 60 and 85 percent respectively, began operations in 2017.

Mono Bucket fast facts:

- Overall height: about 61 metres
- Total weight: 1,100 metric tonnes
- External diameter of the suction bucket base: approximately 19 metres
- Designer: Universal Foundation
- Installation and EPCI contractor: Van Oord
- Manufacturing subcontractors: SiF and Harland & Wolff

– End of the Press Release –

Picture: Mono Bucket info graphic

Caption: Two Mono Buckets will be tested at the Deutsche Bucht wind farm in the North Sea, for the very first time in commercial use. The installation method using suction buckets produces less noise and is thus highly environmentally compatible.

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ABOUT WIND FARM DEUTSCHE BUCHT

The Deutsche Bucht offshore wind farm will be constructed about 95 kilometres to the northwest of the North Sea island of Borkum in Germany's Exclusive Economic Zone (EEZ). The power plant with 33 wind turbines of type V164-8.4 by MHI Vestas will provide a grid capacity of close to 269 megawatts. Included in this, as part of a tender by the German Federal Network Agency (BNetzA) an additional 16.8 megawatts was allocated for two pilot wind turbines with the innovative Mono Bucket type of foundation. The Federal Maritime and Hydrographic Agency of Germany (BSH) granted its approval for this pilot project on 8 May 2018. In the future the offshore wind farm with 33 turbines will generate annually after deductions approximately 1.1 billion kilowatt-hours of eco-friendly electricity. This means the Deutsche Bucht wind farm will supply renewable energy equivalent to the annual demand of 328,000 households with an average of 3,440 kilowatt-hours each. Construction of the wind farm is due to commence in summer 2018. Completion of the commissioning phase is planned for the second half of 2019. The offshore wind farm Deutsche Bucht is being built by the project company Northland Deutsche Bucht based in Hamburg, which is 100 per cent owned by Canadian power producer Northland Power Inc. For further information refer to www.owf-deutsche-bucht.de.

ABOUT NORTHLAND

Northland is an independent power producer founded in 1987, and publicly traded since 1997. Northland develops, builds, owns and operates facilities that produce 'clean' (natural gas) and 'green' (wind, solar, and hydro) energy, providing sustainable long-term value to shareholders, stakeholders, and host communities.

The Company owns or has an economic interest in 2,458 MW (2,029 net Northland interest) of operating generating capacity and 269 MW of generating capacity under construction, representing the Deutsche Bucht offshore wind project, in addition to the 1,044 MW (net 626 MW) of grid capacity allocated to the Hai Long 2&3 offshore wind projects in Taiwan; the Company is pursuing additional growth, with significant opportunities across multiple development markets and technologies. Northland's cash flows are diversified over five geographically separate regions and regulatory jurisdictions in Canada and Europe.

Northland's common shares, Series 1, Series 2 and Series 3 preferred shares and Series B and Series C convertible debentures trade on the Toronto Stock Exchange under the symbols NPI, NPI.PR.A, NPI.PR.B, NPI.PR.C, NPI.DB.B, and NPI.DB.C, respectively. www.northlandpower.ca

ABOUT UNIVERSAL FOUNDATION A/S

Universal Foundation is the Fred. Olsen related company responsible for bringing the Mono Bucket foundation to the offshore wind industry. The Mono Bucket offers key partners a unique advantage for combining profitability & winning bids with offshore foundations. A unique concept in offshore wind engineering, the Mono Bucket combines the key benefits of a gravity base foundation, a monopile and a suction bucket. It is recognized by industry as the foundation solution for the latest generation of offshore multi-MW wind turbines and stands as a key Balance of Plant component with the potential to significantly lower the Levelized Cost of Energy. The company is currently involved in projects in Europe, the USA and Japan, which underlines the strong industry and market interest in the technology. <http://universal-foundation.com/>

ABOUT VAN OORD

Van Oord is a Dutch family-owned company with 150 years of experience as an international marine contractor. The focus is on dredging, oil & gas infrastructure and offshore wind. In 2017, Van Oord recorded a turnover of more than EUR 1.5 billion. Its head office is in Rotterdam. Van Oord employs approximately 4,500 staff, who worked in 2017 on 180 projects in 42 countries. The fleet consists of more than one hundred vessels. Marine ingenuity is characteristic of Van Oord. By using innovative, smart and sustainable solutions, it wishes to contribute to a better world for future generations. In 2018, the company is celebrating its 150th anniversary. <https://www.vanoord.com/>

ABOUT K2 MANAGEMENT

K2 Management supports its clients in their efforts to develop, improve and optimize energy projects to achieve the best possible return on their investment. Our global advisory and service offerings within project management and planning, risk and opportunity management make K2 Management a unique energy project consultancy covering the entire value chain; from the earliest phases of planning and development, to the actual construction and maintenance of wind and solar PV projects. K2 Management is headquartered in Denmark with 16 global offices and, accumulated, our experienced team has been involved in more than 1,400 wind and solar projects in over 40 countries.

<https://www.k2management.com/>

ABOUT MHI Vestas Offshore Wind

MHI Vestas Offshore Wind is a joint venture between Vestas Wind Systems A/S 50% and Mitsubishi Heavy Industries (MHI) 50%. The company's focus is to design, manufacture, install and service wind turbines for the offshore wind industry. The company aims to create sustainable value through offshore wind power by driving capital and operating savings and increasing the power output of wind turbines. An innovative force in offshore wind since its inception in 2014, the company is guided by its founding principles of collaboration, trust, technology and commitment. For more information, see www.mhivestasoffshore.com or follow @MHIVestas on Twitter

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