Kitty Hawk Offshore Wind
Avangrid Renewables

A collection of exceptional assets...

One of the largest wind project owners in the U.S. with more than 6 GWs owned and contracted

More than $10 billion of U.S. assets at nearly 60 installed plants

750+ employees at the end of 2016, compared with 12 in 1999

636 MW of CCGT & peaking capacity on the strategic CA-OR border

Represents 39% of Iberdrola S.A.’s global wind capacity

US Renewables

Wind

Power

Solar & Biomass

6,000+ MW

536 MW CCGT

100 MW peaking

106 MW Solar

55 MW Biomass

And clean gas generation

...focused on operational excellence and selective growth

April 2017
More than 48,000 MWs of installed capacity...

150-year history with roots in hydroelectric energy

Leading renewables producer worldwide with around 16 GW installed

> 34,000+ employees in nearly 40 countries

One of the cleanest portfolios in the energy sector

Strategic focus on US, UK, Latin America and Spain

...that is flexible and economical

Energy Capacity*
(67% emissions free)

- Renewables 33%
- Hydro 26%
- Gas Combined Cycle 29%
- Cogeneration: 3%
- Nuclear 7%
- Coal: 2%

*Deviates slightly from chart due to rounding.

March 2017
AVANGRID’s Geographic Presence

~ $32 billion in assets with a presence in 27 states
3rd largest wind operator in the U.S.
> 6 GW wind & solar in operation

AVANGRID’s Geographic Presence

- Wind
- Solar
- Thermal
- Networks
- Gas Storage

Core Operations

Headquarters in Orange, CT

(1) Under strategic review
Iberdrola Group offshore wind pipeline overview

**WODS**
- Operation: 389 MW
- Consent: 2011
- COD: 2014

**EA1**
- Construction: 714 MW
- Consent: 2014
- COD: 2020

**EA3**
- Consent: ≈1200 MW
- COD: 2023-25

**E2/EA1N**
- Pre-consent: ≈800 MW each
- Consent: 2021-22
- COD: 2025+

**Vineyard 1**
- Procurement: 800 MW +1200 MW
- Consent: 2019
- COD: 800MW 2021-22

**Vineyard 2**
- Pre-consent: ≈2000 MW
- Consent: 2022
- COD: 2024+

**Kitty Hawk**
- Pre-consent: ≈2400 MW
- Consent: 2022
- COD: 2025+

**St. Brieuc**
- Procurement: 496 MW
- Consent: 2017
- COD: 2023

**Baltic Eagle**
- Procurement: 476 MW
- Consent: 2019
- COD: 2022-24

**Wikinger**
- Operation: 350 MW
- Consent: 2015
- COD: 2017

**Vineyard 2**
- Procurement: 800 MW +1200 MW
- Consent: 2019
- COD: 800MW 2021-22

**Pre-consent**
- Consent: 2022
- COD: 2024+

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Anatomy of an Offshore project

Complex power plants located far from shore

- Marine environment: sea waves, seabed mobility, corrosion, weather downtime
- Specific Health and Safety risks and requirements
- Huge scale of operations

Key technological decisions are taken 3 to 5 years before actually implemented
Kitty Hawk Wind Energy Area
Planned activities offshore NC & VA

2018
Planning, assessment & stakeholder outreach

2019
Planning, assessment & stakeholder outreach
Aerial Surveys of wind energy area – Avian, Marine Mammals, Sea Turtles, Fish
Marine geophysical, geotechnical & benthic reconnaissance surveys
Buoy deployment

2020
Planning, assessment & stakeholder outreach
Aerial Surveys of wind energy area – Avian, Marine Mammals, Sea Turtles, Fish
Marine geophysical, geotechnical & benthic surveys of potential project area(s) & cable routes

Potential
2021-2022
Planning, assessment & stakeholder outreach
Project permitting
2023 Onshore construction
2024-2025 Offshore construction
Highlights from APEM surveys to date
For more information:

www.avangridrenewables.com/kittyhawk

Questions?

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