

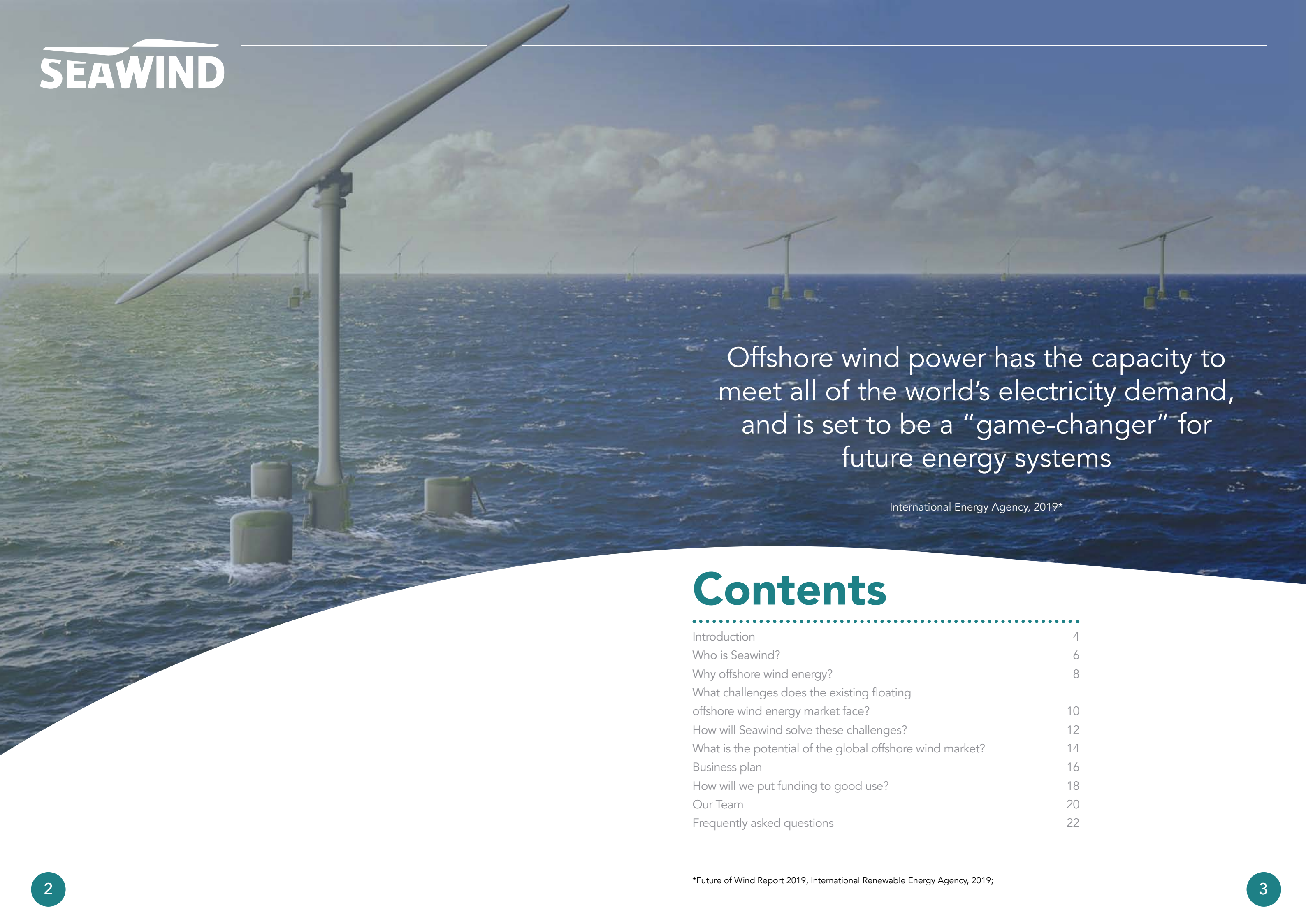
# The future of offshore floating wind



European Clean  
Hydrogen Alliance







Offshore wind power has the capacity to meet all of the world's electricity demand, and is set to be a "game-changer" for future energy systems

International Energy Agency, 2019\*

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\*Future of Wind Report 2019, International Renewable Energy Agency, 2019;



# Introduction

## Be part of the green-energy future

Our team of industry pioneers have developed the first fully-integrated and 2-bladed floating wind turbines. They will unlock 80% of the world's waters inaccessible to fixed-base turbines\* and deliver renewable energy at a significantly lower cost than existing floating wind solutions.

To support our development phases, and global market entry in 2025, we are inviting investments from select individuals until the end of 2021 to finance the Seawind 6 Demonstrator Project.

“Seawind aims to deliver sustainable wealth creation that enriches our investors, society and planet.”

In return, we are offering equity shares in Seawind at an exclusive rate, with an additional early-investment incentive.

**We hope you will join us in helping to accelerate the world's decarbonisation.**



Vincent Dewulf  
CEO - Seawind Ocean Technology

\*Future of Wind Report 2019, International Renewable Energy Agency, 2019.

“Seawind is passionate about preserving our planet by replacing fossil fuels with wind energy generated at sea”

Vincent DeWulf CEO, Seawind



Unleashing the massive potential of wind is crucial to achieve the Paris climate targets.

The International Renewable Energy Agency (IRENA), 2019

# Who is Seawind?

## Renewable energy pioneers and technology innovators

- Decades of combined experience developing and implementing global green-energy solutions

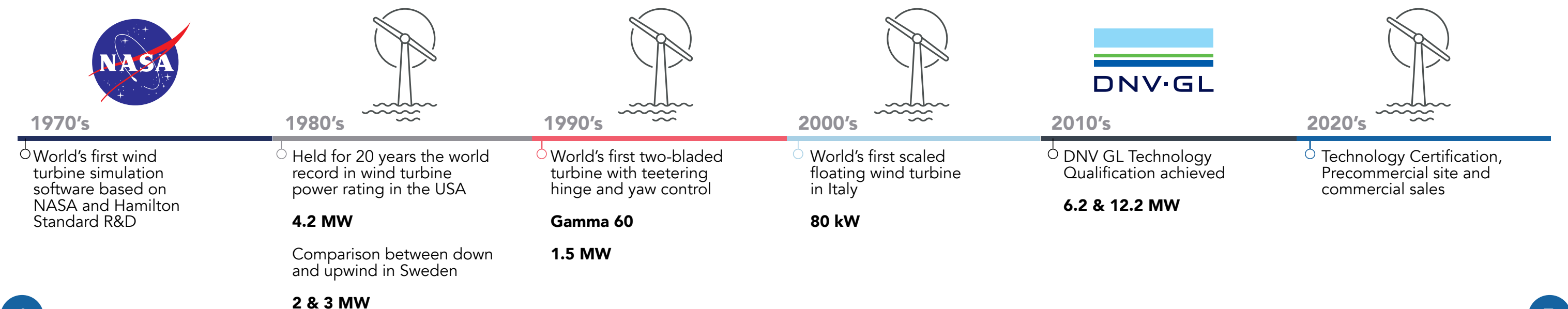
## Developers of floating offshore wind solutions

- Designed and developed the first fully-integrated and 2-bladed floating wind turbines that will redefine the future of green energy

## Founders of strategic global partnerships

- Established strategic global partnerships with blue-chip multinational organisations for manufacture and installation of our solutions

- Technology based on original research by NASA and Hamilton Standard (today UTC)
- Technology certified by international accreditor DNV GL
- Achieved European seal of excellence
- Achieved Solar impulse efficient solution label
- >40 international patents
- Commercial in 2024
- Global market entry in 2025
- Strategic global partnerships with multinationals for solution delivery and installation





# Why offshore wind energy?

Market growth predicts  
>70,000 new turbines  
installed globally by 2050



“Fixed-bottom offshore wind will run out of space, like onshore has in some places”

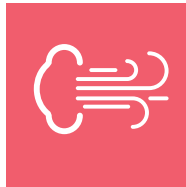
Yale school of the Environment, 2020

**Floating offshore wind energy is the future...**



## Accelerates transition to a low-carbon, sustainable energy future

Wind energy is a naturally abundant green-energy source that does not emit environmental pollutants or greenhouse gases.



## Industrial-scale and green-energy generation

Faster, stronger and more consistent wind speeds generate industrial-scale energy more reliably than onshore wind farms.



## Immense future potential

Industry experts project 1,000GW of offshore wind energy installed globally by 2050\*.

Two offshore turbines available to global wind farm developers currently



## Fixed-base turbines

- Established market >30 years
- >100 wind farms operating globally
- Unable to access deep oceanic waters >60m



## Floating turbines

- Emerging market
- All operating in stages of demonstration
- Potential to unlock deep oceanic waters

\* Future of Wind Report 2019, International Renewable Energy Agency, 2019.



# What challenges does the existing floating offshore wind energy market face?



## Lack of design optimisation

### Not integrated

- Turbine components designed and supplied by different organisations

### Limited capability

- Technical challenges in deep oceanic waters
- Operation window limited in extreme weather, including cyclonic regions
- Limited lifetime, 25yrs maximum



## Environmental barriers

### Harmful materials

- Use high-embedded carbon materials and rare earth metals

### Destructive Installation & maintenance

- Heavy-vessels and machinery for installation and maintenance

Floating offshore wind energy: a policy blueprint for Europe, WindEurope 2018; Offshore wind outlook 2019, International Energy Agency(IEA), 2019.

Around  
**80%**

of the offshore wind resources is located in waters of more than 60m depth, where bottom-fixed offshore wind is not economically attractive.

WindEurope, 2018

The next generation of floating turbines capable of operating further from the shore could generate enough energy to meet the world's total electricity demand 11 times over in 2040.

International Energy Agency, 2019



# How will Seawind solve these challenges?

Our proven technology and floating-wind solutions

Seawind's floating offshore wind solutions will deliver energy at >25% lower cost compared to existing floating solutions for all seas and oceans, including cyclonic regions, redefining the future of green energy.



## Robust solutions

### Fully-integrated

- Seawind designs and manufactures all components to create an integrated floating wind turbine solution

### Optimal capability

- Efficient floating 2-bladed technology
- Effective in deep oceanic waters >60m
- Efficient in extreme weather patterns
- Ease of installation and maintenance
- >50 years turbine longevity



## Environmentally kinder

### Responsible materials

- 25% less material in turbine
- Low carbon footprint
- No rare earth metals

### Low impact installation and maintenance

- No requirement for heavy-vessels and machinery for installation and maintenance



## Low-cost green energy

### Positive Financial Impact

- 25% lower Capex, 25% lower Opex compared to leading 3-bladed turbines
- Significantly lower cost of energy at €40/MWh
- Highly competitive compared to other energy sources
- Cost economies from integrated solution
- Affordable at-sea installation and maintenance



## Credible global alternative

### Solutions accessible to all

- Proven technology with >40 years of R&D
- 40 patents and DNV GL accreditations
- Unlocks affordable energy and 80% of the world's seas and oceans
- Global delivery through blue-chip international strategic partnerships



# What is the potential of the global offshore wind market?

## A \$1tr market and 30% CAGR\* by 2030

International Renewable Energy Agency (IRENA), 2019

### Immense market size & growth

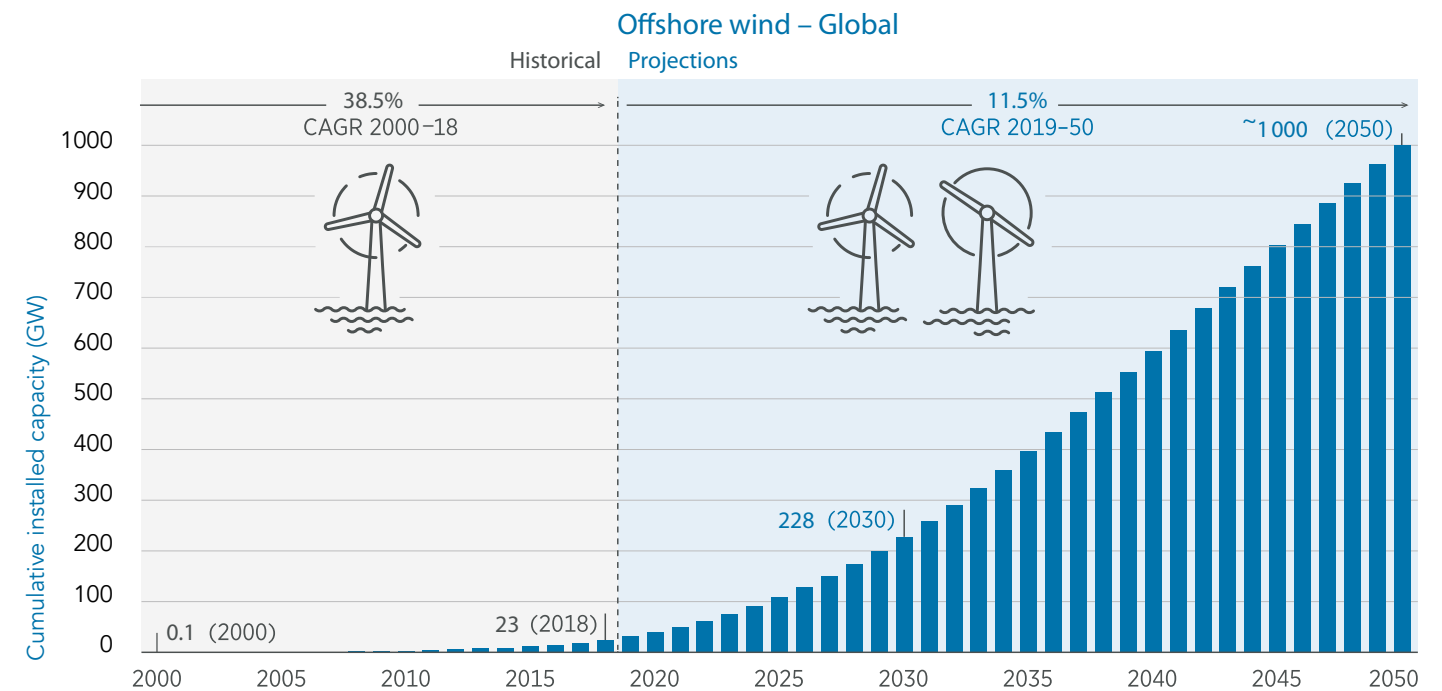
- Recognised as a fundamental energy source of the future and valued as \$1tr market by 2030 with 30% annual growth\*
- New installations projected to double over next 5 years, and grow fivefold by 2030\*
- Global political leaders are making strong commitments to offshore wind energy powering homes and industries over the coming decades
- Floating offshore wind market to grow rapidly with c.40% of world's offshore wind farms using floating technology from 2030\*\*

### Strong Competitive Position

- No like-for-like competitors with 2-bladed and integrated floating wind solutions
- Only a few 3-bladed floating turbine prototypes being tested globally

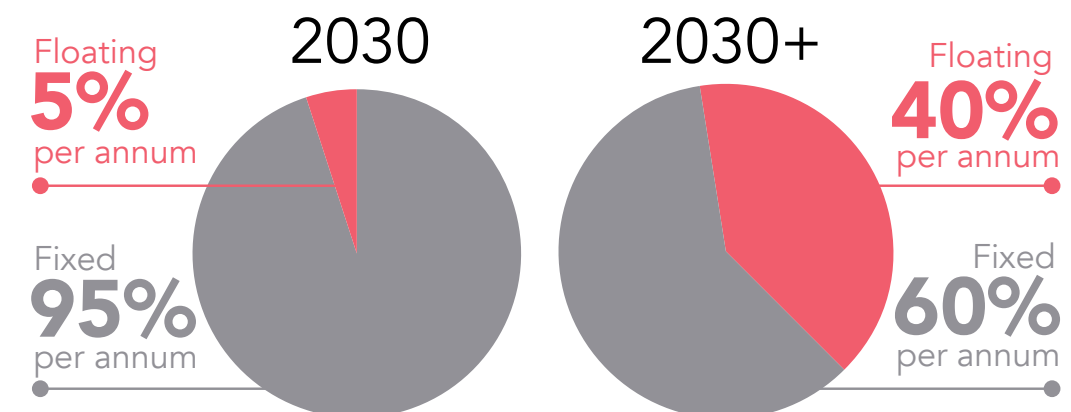
Seawind's solutions have no like-for-like competitors globally

Growth of global offshore wind power deployment to nearly 1,000GW by 2050.



\* Historical values based on IRENA's renewable capacity statistics (IRENA, 2019d), future projections based on IRENA's analysis (IRENA, 2019a).

Strong growth of floating offshore wind installed capacity up to and after 2030



Based on GWEC Market Intelligence Offshore Wind Pipeline Database (May 2019), GWEC Market Intelligence Offshore Wind Outlook to 2030 (June 2019).

\* Future of Wind Report 2019, International Renewable Energy Agency, 2019.

\*\*Global offshore wind report 2020, The Global Offshore Wind Energy Council (GWEC), 2020.

**c.40%** of the world's offshore wind farms [will be] using floating technology from 2030

The Global Offshore Wind Energy Council (GWEC), 2020



# Business plan

## Creating 1000s of NEW JOBS

across business services, engineering, manufacturing and assembly

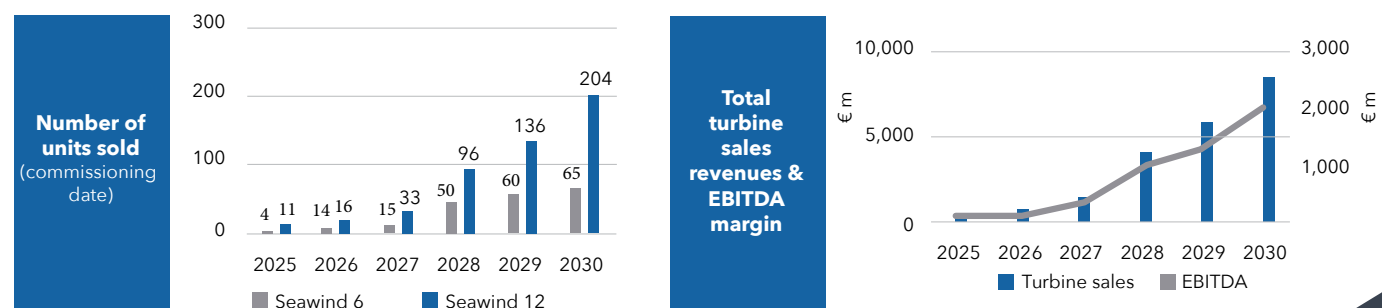
### Creating a new business and new jobs

- Gaining financial returns and accelerating global decarbonisation
- Supporting national and local economic and social regeneration
- Enabling the creation of a new business portfolio and >5,000 new jobs across business services, engineering, manufacturing and assembly

### Strong economic fundamentals

- **Sustainable growth market** - Offshore wind energy will be a sustainable ROI market for decades\* and the emerging floating wind market will unlock additional significant opportunities
- **Competitive solution** - Proven and accredited technology, and solution capability to deliver low-cost green energy.
- **Credible developing pipeline** - Significant expressions of interest from UK, Europe, Japan and Middle East, with strong sales and profit projections
- **Strong cash position** - Cash-positive position projected for 2025 and liquidity option for investors 3-4 years after that
- **Experienced global team and strategic partners** - Global renewable energy experts experienced in delivering major green-energy projects, and start-ups through to successful floatation

### Our strong projected pipeline and profit



\* Future of wind report, 2019. The International Renewable Energy Agency 2019.

# Our Team

## Board of Executive Directors



**Martin Jakubowski**  
Chairman



**Vincent Dewulf**  
Chief Executive Officer



**Silvestro Caruso**  
Chief Technical Officer



**Gert-Jan Ros**  
Chief Investment & Finance Officer



**Eugenio Belgiojoso**  
Director IP & Supply Chain

## Executive team



**Kyriakos Gialoglou**  
Director Government Affairs, PR, Comms & Managing Director Greece



**Maarten van Aller**  
Chief Operating Officer



**Dimitrios Moudouris**  
Chief Commercial Officer



**Victor Ojeda**  
Chief Operating Officer Asia



**Justin O'Flynn**  
Director New Business Development & Management Director France

## Advisory Board



**Arthouros Zervos**  
Previously President of the European Wind Agency and EU Renewable Energy Council



**Andy Calitz**  
Secretary-General, International Gas Union

## Team



**Penny Tokmakidou**  
Director Data Process & Management



**Manu Frère**  
Business Developer



**Ryan Patryluk**  
Managing Director Asia



**Hidetoshi Otsuka**  
Managing Director Japan



**Ray Dackerman**  
Chief Executive Officer USA



**Michael Nates**  
Director ESG & HSE



**David Garner**  
Managing Director Ireland



**Pedro Casaca**  
Managing Director Portugal



**Fabricio Sardella**  
Deputy Chief Technical Officer



**Sesto Avolio**  
Deputy Chief Technical Officer & Load Engineer



**Gian Paolo Fazio**  
Chief Stress Analysis Engineer



**Bernardino Federico**  
Government Relations Italy



**Ingrid Rommens**  
Corporate Secretary



**Vincenzo d'Elia**  
Managing Director Italy



**Jan Niesten**  
Project Manager H2 Production

## Strategic global partners



Contact details:

@ [www.seawindtechnology.com](http://www.seawindtechnology.com)

📧 [info@seawindtechnology.com](mailto:info@seawindtechnology.com)



# Frequently asked questions

## FAQ's

**Q.** Why does Seawind technology use a 2-bladed turbine?

**A.** The 2-bladed rotor allows control of the wind turbine by yawing only, that is when the turbine head is turned into the wind at lower wind speeds and out of the wind at higher wind speeds. The turbine doesn't need complex and failure-prone active blade pitching.

**Q.** Are 2-bladers producing the same amount of energy as 3-bladers?

**A.** The 2-bladed turbine produces almost the same electricity as a conventional 3-bladed turbine with a similar rotor diameter. The 1 to 2% of lower energy output can be easily compensated by slightly longer blades but the 2-bladers are less complex (see above) and can therefore produce the electricity more economically.

**Q.** Why is the 3-bladed more common?

**A.** A 2-bladed turbine is slightly noisier than a 3-blader and therefore it doesn't fully comply with EU regulations regarding noise emission onshore. Offshore, this is not an issue.

**Q.** Why aren't other organisations using 2-bladed technology?

**A.** A 2-bladed technology must have a teetering hinge, which is the elastic joint between the rotor and the shaft. This teetering hinge derives from the helicopter industry and has never been used in the wind turbine industry. One of Seawind's founders was the US helicopter pioneer Glidden Doman, who first recognised that a 2-bladed rotor was optimum to eliminate stresses in wind turbines.

**Q.** How confident are you in delivering this project?

**A.** There has been very intensive simulation work done by Seawind and third parties which has been validated by DNV GL. As in the aircraft industry, the intensive simulation work leads to the development of a prototype operated in the relevant environment, and those prototypes are delivered. The same applies to our industry.

**Q.** Can the technology be imitated?

**A.** Seawind owns 40+ patents for its technology. Seawind is continuing to develop the technology-based on these patents.

**Q.** How do you know that a 2-bladed turbine will successfully generate energy?

**A.** The Seawind technology was proven with the successful operation of a 1.5MW onshore prototype. Seawind needs to demonstrate the upscaling of the technology for the floating 6.2MW prototype.



Redefining the future of green energy

[seawindtechnology.com](https://seawindtechnology.com)