



## **PRESENTATION TO INDUSTRYA**

17 January 2022

# **Data Analytics to Boost Wind Energy Asset Returns**

*€2 million Fundraise*



# Investment Highlights

Disruptive digital solution in commercial acceleration phase

Dynamic team supported  
by experienced & engaged  
sector experts

Attractive business-  
model (40%+  
recurrent revenues)

System sales already with  
5 of global Top 20 (63  
commercial units<sup>3</sup>) with  
strong commercial  
pipeline



Huge addressable market  
(300K installed base @  
end-2020<sup>1</sup>) and high  
growth (+20K pa)

Highly differentiated  
SaaS solution +  
“solid-state” sensor<sup>2</sup>

Capital-lite & flexible  
("fabless") operating model

<sup>1</sup> Global Wind Energy Council (GWEC); <sup>2</sup> 3rd generation (already "offshore-ready"); <sup>3</sup> sold / booked (Sales & Rental business models)

# Agenda

## Our Go-to-Market

Key account strategy,  
internationalisation, competitive  
position, commercial progress

## Team & Resourcing

Team Profile & resourcing plans

## Financials & Funding

New Business Plan highlights, funding  
needs & uses

## Appendix

GTM by Geography, Detailed Competitive Analysis

# Epsiline's Go-To-Market Strategy

The existing funding round will enable Epsiline to execute its GTM strategy



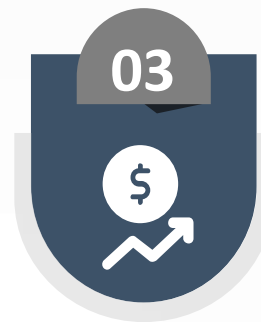
## Target Market

- 300,000+ units installed base
- Existing windfarms:
  - France 2020+
  - EU 2021+
  - NA 2023+
  - China 2024+



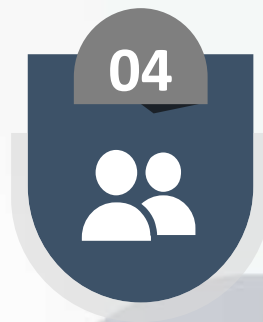
## Unique Selling Proposition

- Accurate & relevant data capture
- Sophisticated data analysis tools
- Ease-of-installation
- Low capital outlay
- Compelling functionality roadmap



## Channel

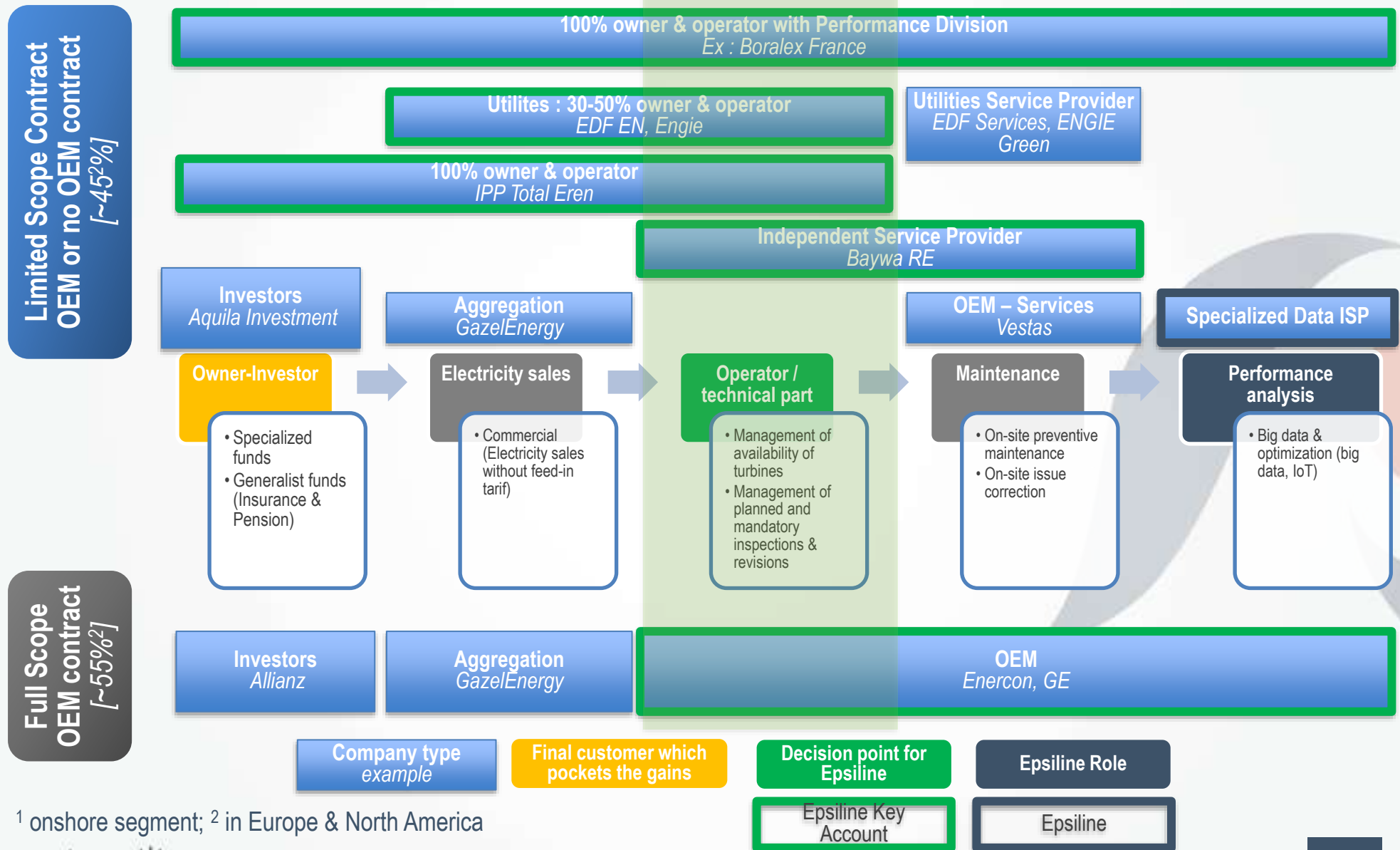
- Direct B2B sales
- Agents (currently) for Qualified Lead generation
- Existing windfarms under:
  - **Limited-scope OEM contracts → Utilities & IPPs**
  - Full-scope OEM contracts → OEM Services Divisions



## Launch Market Team

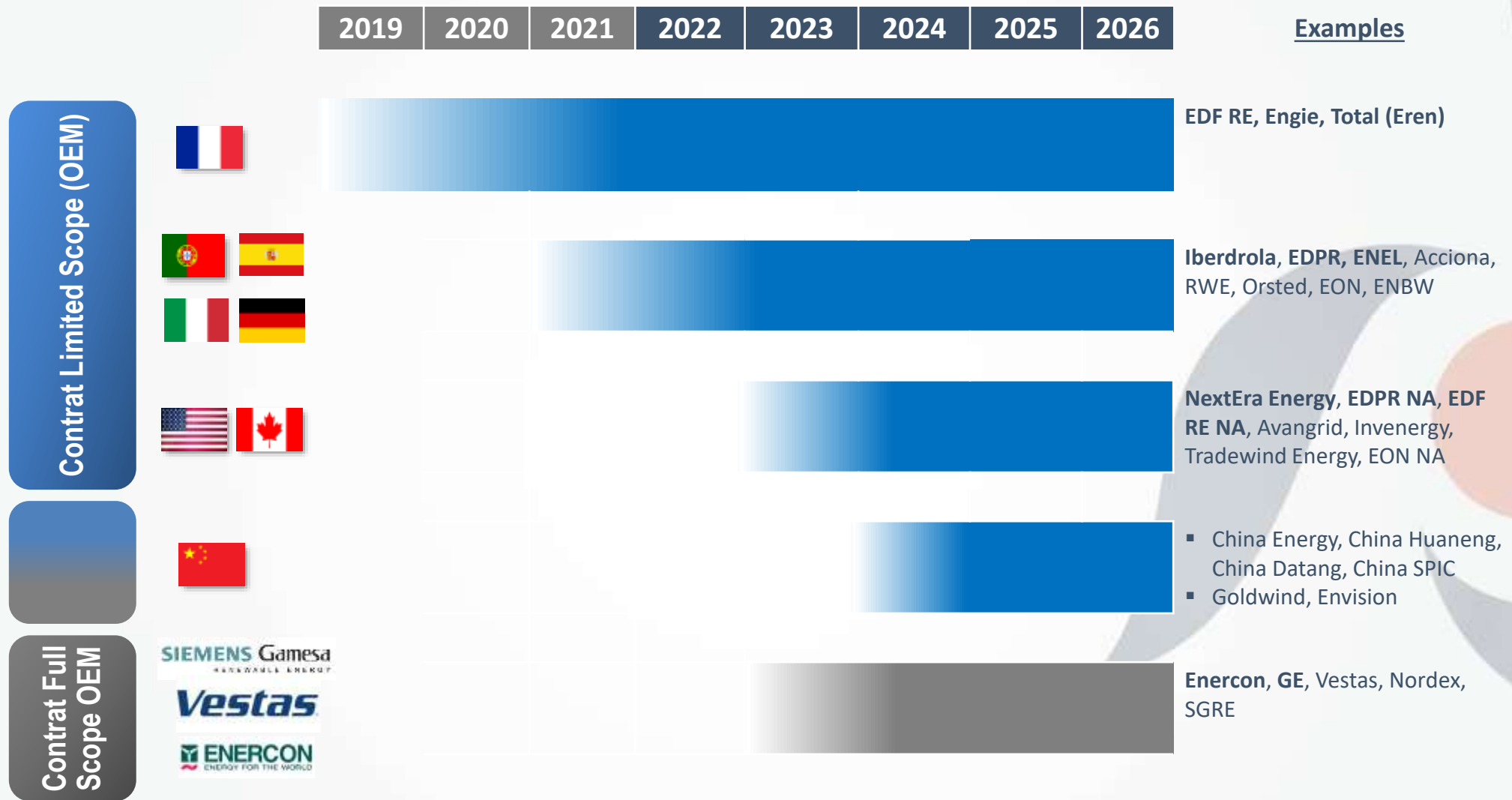
- Hiring of dedicated international sales team 2022-2024
- Key near-term hires:
  - VP Sales Europe
  - Data analysts
- Dedicated resource for OEMs

# Value Chain & Actors' Activities<sup>1</sup>



<sup>1</sup> onshore segment; <sup>2</sup> in Europe & North America

# Commercial Internationalisation Plan



BOLD = target Key Accounts for Epsiline

# Commercial Internationalisation Strategy (2022-2025)

## Europe (ex-France)

- | Key Goals   | Key Initiatives  |
|---|--|
| <ul style="list-style-type: none"> <li>2022: Field trials with main utilities (Iberdrola, EDPR, EON, ENBW etc.)</li> <li>2023: fleet deployment with these utilities</li> </ul> | <ul style="list-style-type: none"> <li>Hire VP Sales Europe</li> <li>Open Sales offices in Hamburg &amp; Madrid</li> <li>Target customers with dedicated "Performance Optimization" teams</li> </ul> |
| <ul style="list-style-type: none"> <li>2H23: Field trials with 5 of the top 10 US utilities</li> <li>2025: US subsidiary @ breakeven</li> </ul>                                 | <ul style="list-style-type: none"> <li>Leverage European HQ relationships</li> <li>Open office in Chicago</li> <li>Hire NA Sales Head</li> </ul>   |
| <ul style="list-style-type: none"> <li>2H24: Field trials with 3 of the "Big 5"</li> <li>2025: fleet deployment with 2 utilities</li> </ul>                                     | <ul style="list-style-type: none"> <li>2024: Open office In Beijing with <u>Chinese</u> Senior Sales Team + dedicated after-sales service</li> </ul>   |
| <ul style="list-style-type: none"> <li>2022: Field trials with Enercon &amp; GE</li> <li>2023: WindEagle as an option / add-on in these OEMs' services catalogue</li> </ul>     | <ul style="list-style-type: none"> <li>Active Advisor support for GE (Europe Offshore) &amp; Enercon</li> <li>Hire OEM Senior Sales for Europe (initial focus SGRE &amp; Enercon)</li> </ul>         |

## North America

## China

## OEMs

# Go-To-Market SWOT Analysis

## Strengths

- Strong solution USP
  - Attractive customer value proposition
  - Robust competitive moat
  - Accomplished & active Advisory team
- 

## Opportunities

- “Digitalization” of wind sector the key trend 2020-2030
- Large portion of European & US windfarms exiting feed-in-tariff (& non-repowerable) in the coming 2 years
- OEMs need to develop their Services offering
- Offshore windfarm segment (“wake effect” ...)



## Weaknesses

- Limited commercial (sales & after-sales) resources
  - Narrow leadership team
  - Insufficient balance sheet
- 

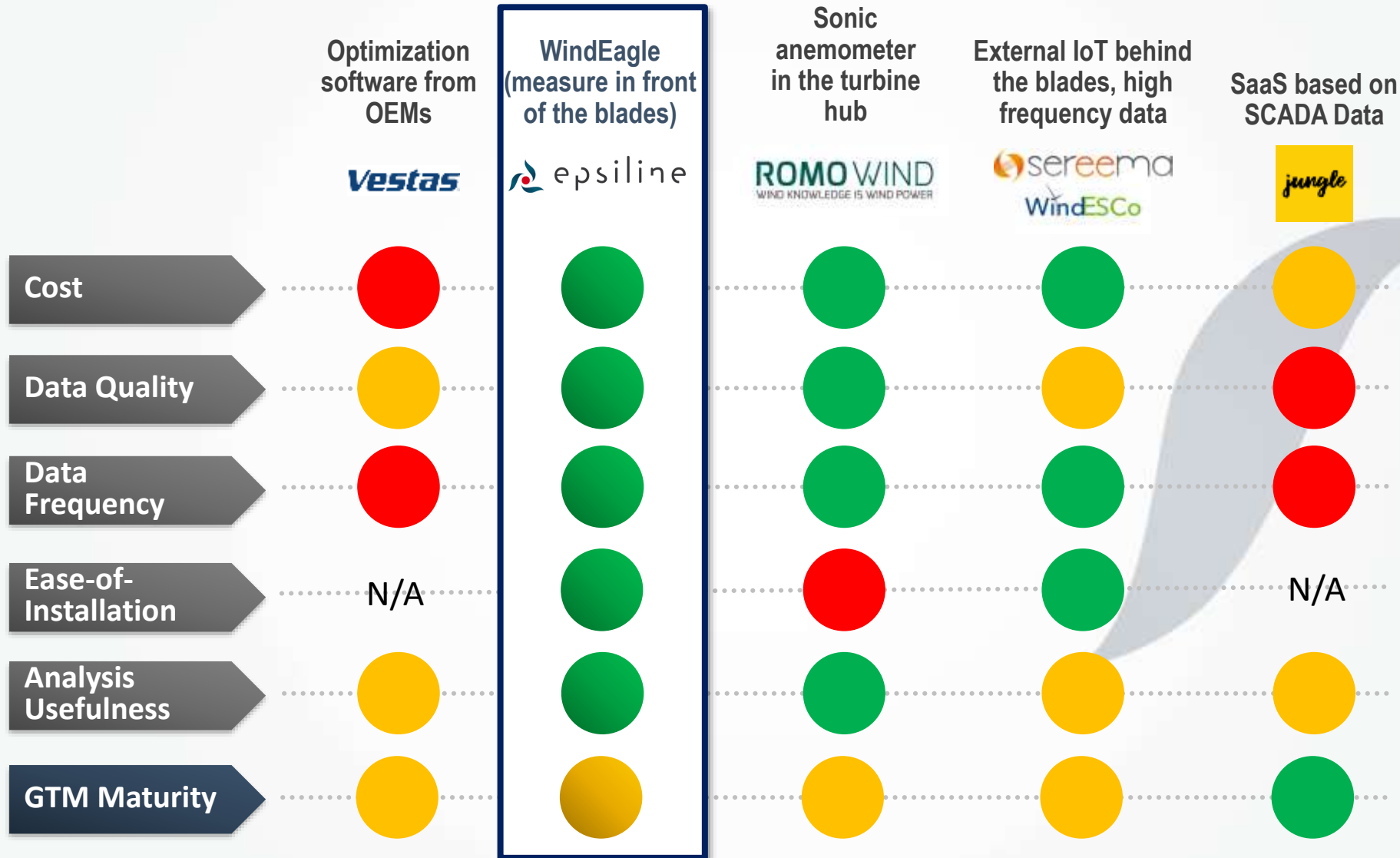
## Threats

- OEM services strategy
- OEM “blocking” tactics (full-scope contracts only)
- Competitor actions (unknown)

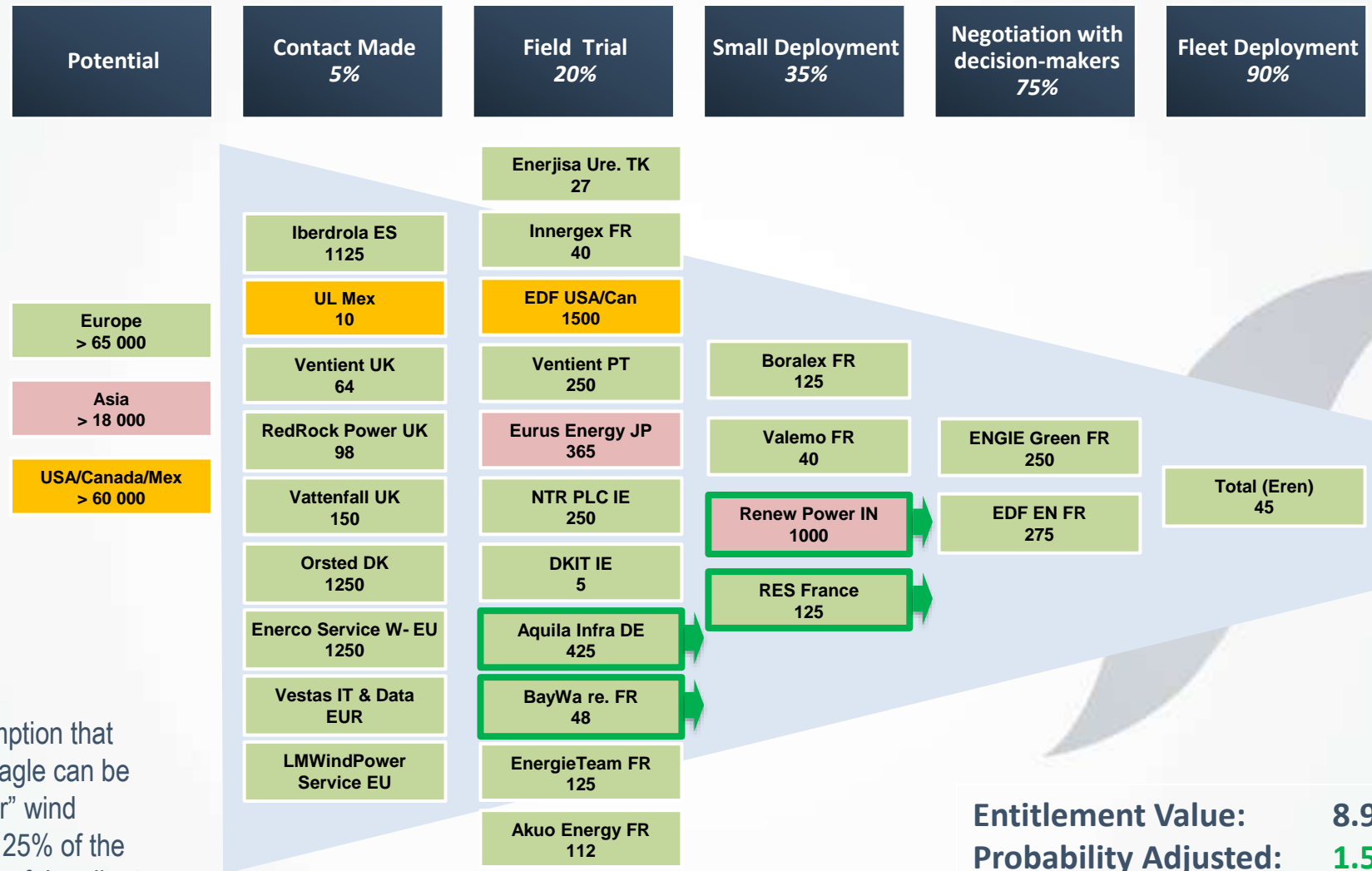


# Competitive Position

Epsiline optimizes important criteria



# Commercial Funnel [units<sup>1</sup>] – End-December 2021



Note: Assumption that “one” WindEagle can be used for “four” wind turbines, i.e. 25% of the total turbines of the client

<sup>1</sup> total demand over 2-3 years

Entitlement Value: **8.900 Units**  
Probability Adjusted: **1.585 Units**

☐ Best momentum

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# Start-2022 Operating Team



**Christophe LEPAYSAN**

CEO, Founder (after studies)

- Engineer Sup-Optique, branch Entrepreneur (Institut d'optique, Paris-Saclay)
- Founded EPSILINE

## Commercial Team



**Murray DAWSON**

Sales, Europe

- 30 years sales experience in multinationals
- BAE Systems, Elf, Louis Dreyfus



**Inmaculada SOMOSIERRA**

Sales Agent, Southern Europe  
Since 03/2021

- 15 years experience in wind turbines : Envision Energy, EDPR, Siemens Gamesa



**Fabrice MARTIN**

Sales Agent, DACH Zone  
Since 12/2021

- Background in German wind energy market

## Technical Team



**Raphaël TEYSSEYRE**

Doctorate, R&D Optics & Software

- Co-inventor of patents
- 10 years technology sector experience



**Marc PREVOSTO**

Mechanical engineer

- 4 years technology sector experience



**Sébastien ROUX<sup>1</sup>**

Data Analyst

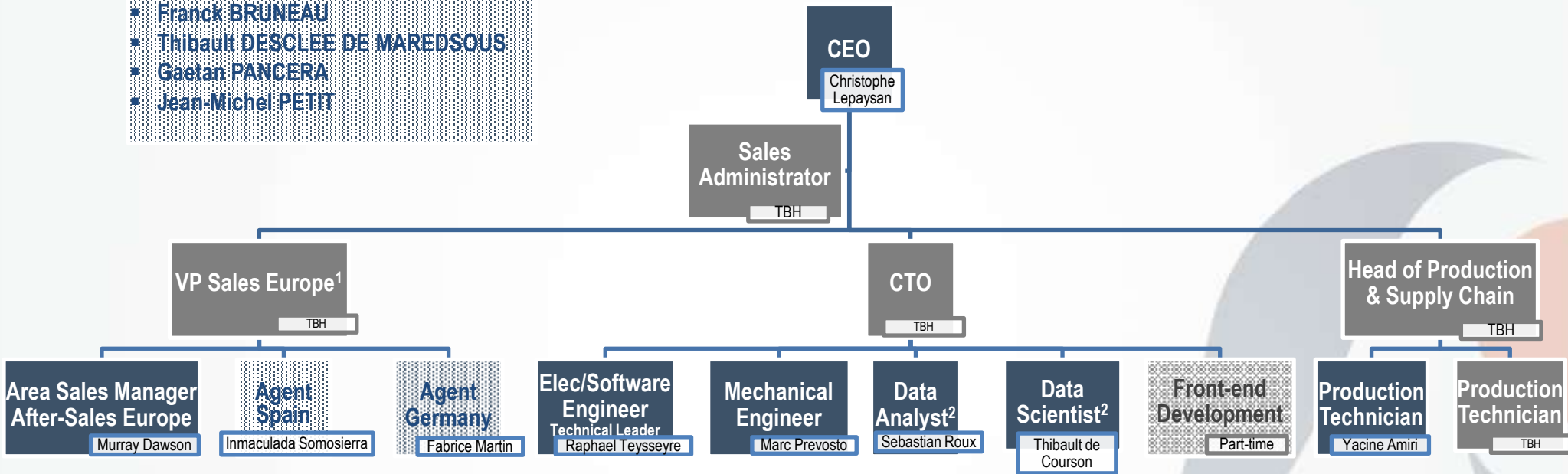
- MSc Mathematics & AI

<sup>1</sup> interim targeted for full-time role

# Organisation Chart: 2022

## Board "Comite Strategique"

- \* André ANTOLINI
- \* Franck BRUNEAU
- \* Thibault DESCLEE DE MAREDSOUS
- \* Gaetan PANCERA
- \* Jean-Michel PETIT



Current Team

New Hire

Non-FTE

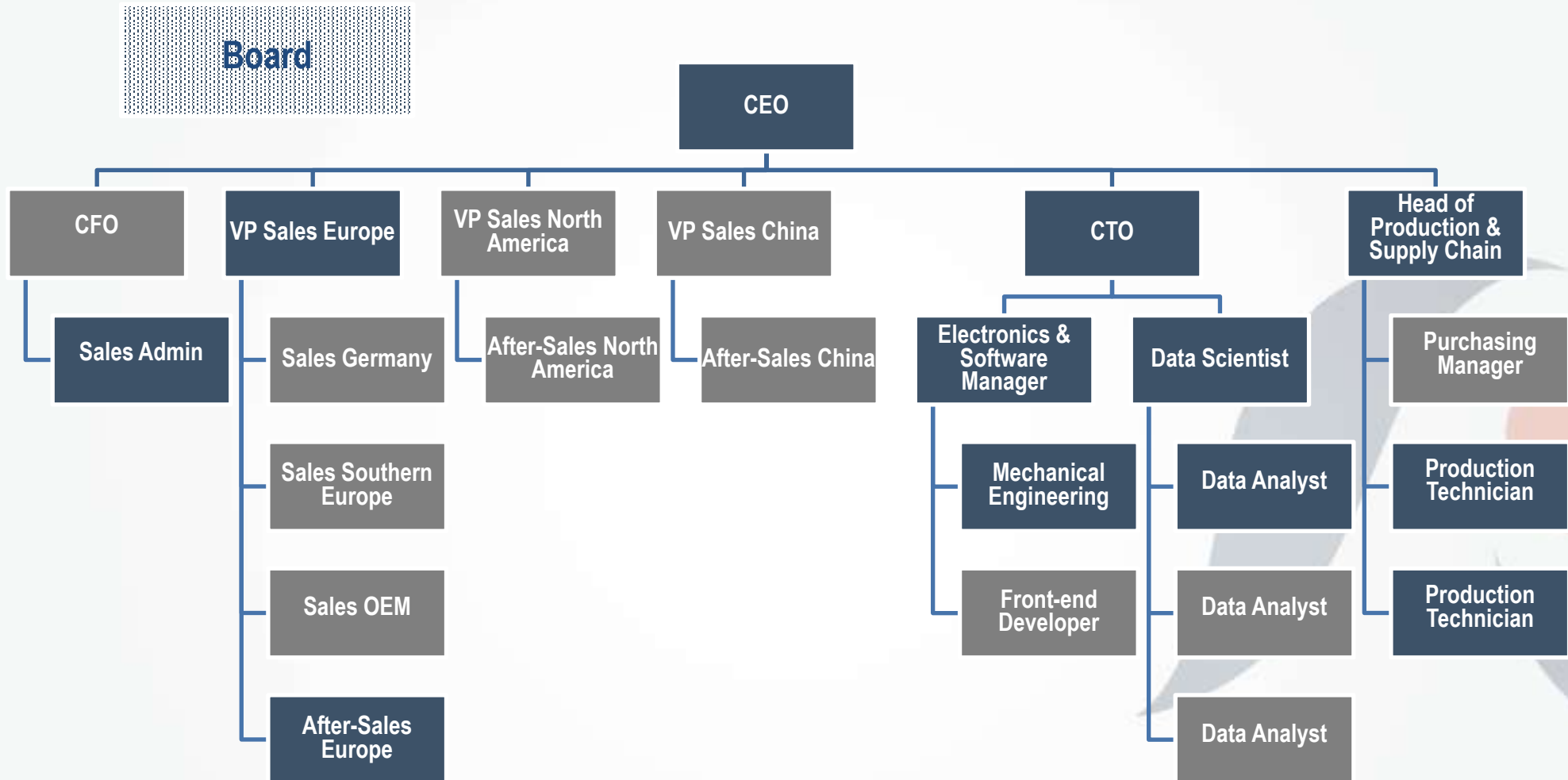
<sup>1</sup> recruitment in progress; <sup>2</sup> current interims, targeted for full-time roles

Note: Sales activities currently undertaken by C. Lepaysan & M. Dawson + Sales Agents (Qualified Lead generation)

André ANTOLINI's active support for contacts with Senior Executives of French Utilities

Thibault DESCLEE DE MAREDSOUS' active support for contacts from European OEMs

# Target Organisation Chart: "by end-2025"



End-2022

By end-2025

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# Business Model

Epsiline is rolling out an attractive new services model in response to customer demand

Business Model	Description	Comments
IoT sales & subscription to web platform	<ul style="list-style-type: none"><li>▪ Purchase of IoT sensor (9k€-13k€ subject to volume)</li><li>▪ Web platform subscription 600-900 €/yr (subject to volume), data transfer costs included</li></ul>	<ul style="list-style-type: none"><li>▪ Initial business model (2020+)</li></ul>
Full Services	<ul style="list-style-type: none"><li>▪ Wind turbine selection service from SCADA data: 700 € / day</li><li>▪ Installation of the sensor on a wind turbine: € 550 / wind turbine</li><li>▪ Rental (3-year commitment) for monitoring to ensure immediate detection when problems arise:<ul style="list-style-type: none"><li>– € 575 / month / wind turbine the first year</li><li>– € 325 / month / wind turbine the following years</li><li>– Data post-analysis included</li></ul></li></ul>	<ul style="list-style-type: none"><li>▪ New business model responding to specific customer request</li><li>▪ More attractive margin + ARR profiles</li><li>▪ Sensors partially funded by our banks<sup>1</sup></li><li>▪ First step towards a “Data-as-a-Service” business model</li></ul>

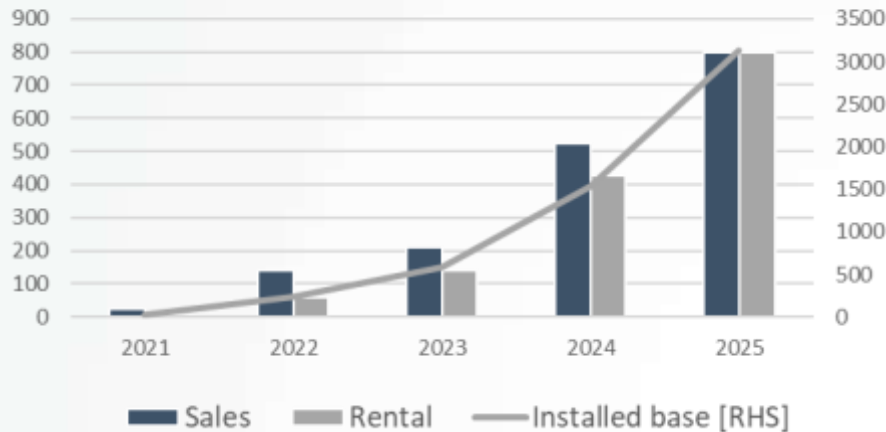
<sup>1</sup> Currently €85,000 approved, renegotiating to €150,000 (no firm order obligation necessary)



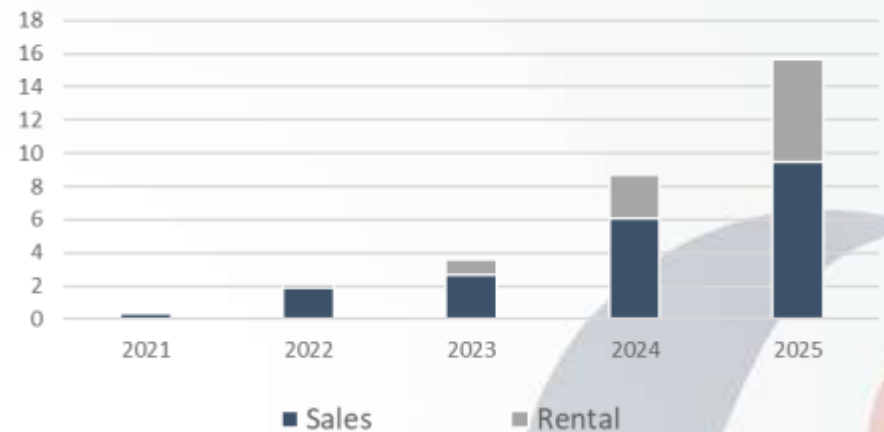
# Revised Business Plan<sup>1</sup> – Scale-Up

Attractive new business model supporting sales ramp ...

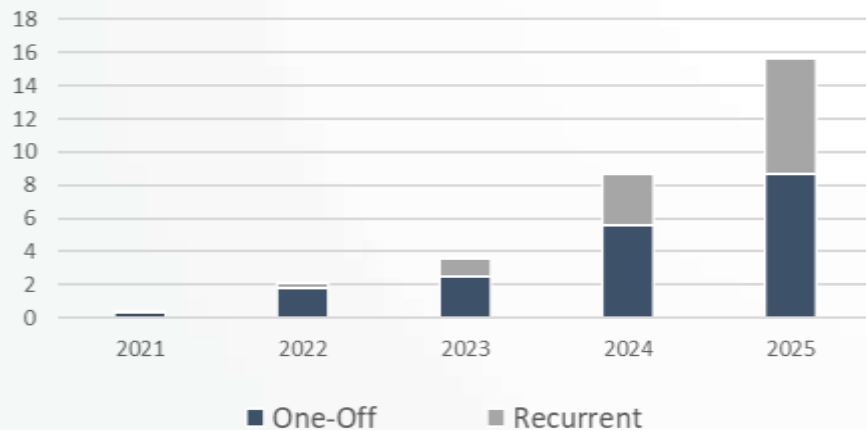
Unit Trends



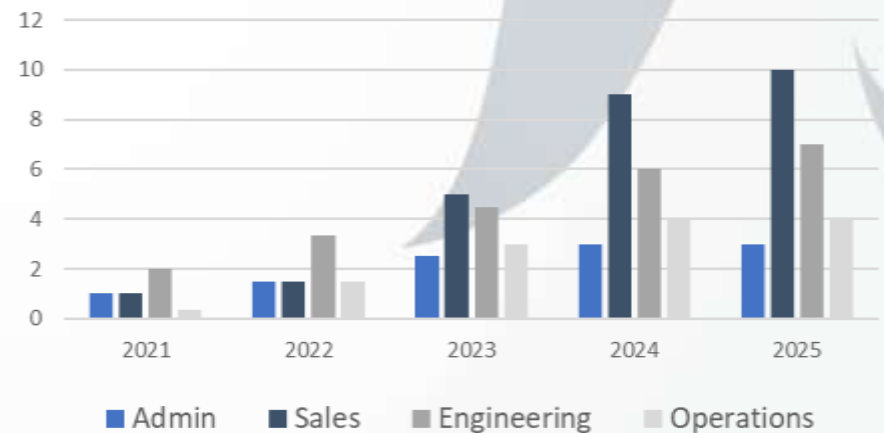
Revenues - by Business Model [€ million]



Revenues - by Type [€ million]



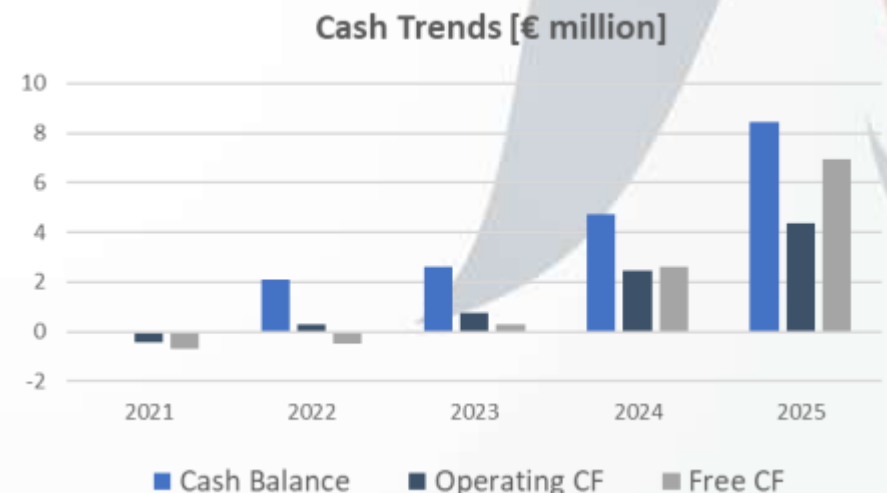
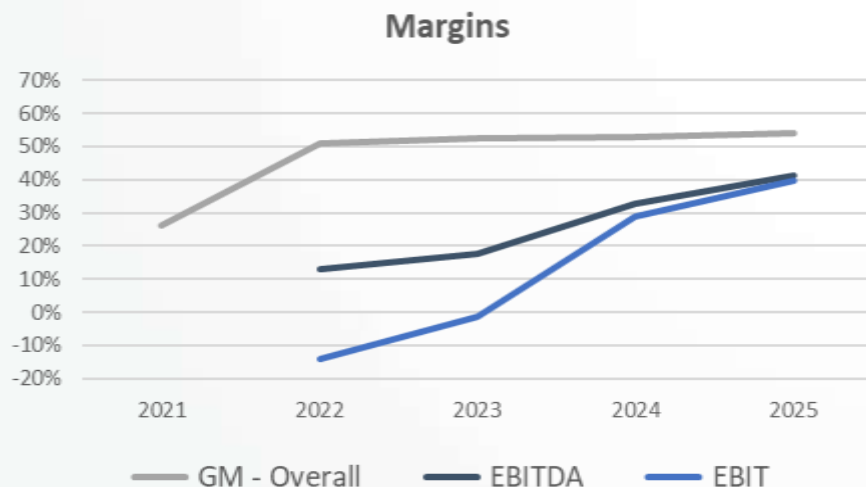
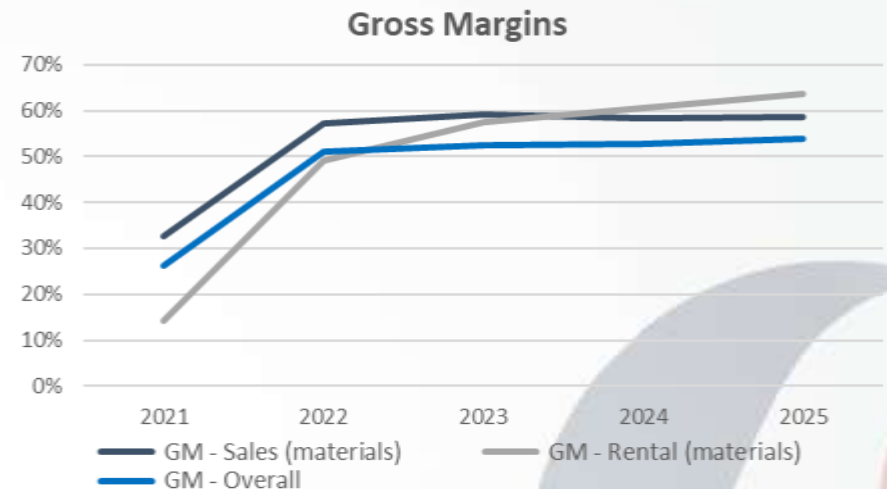
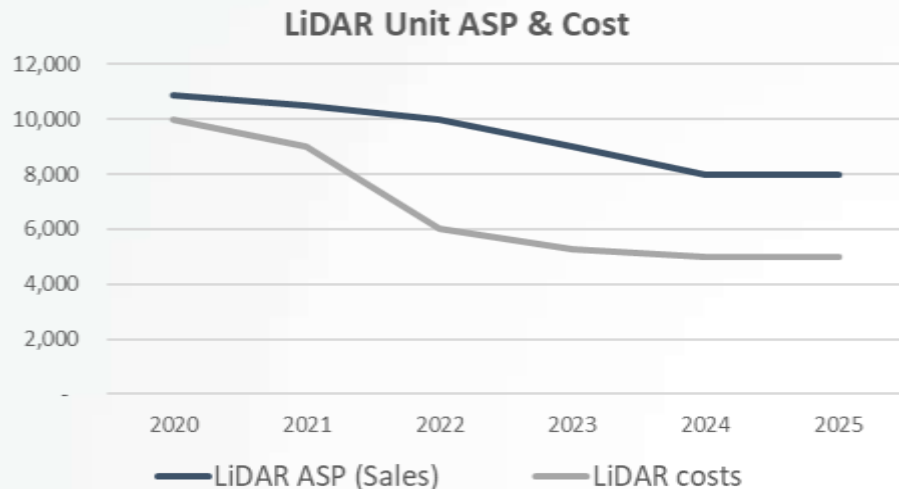
Headcount [# / year]



<sup>1</sup> assumes €2 million fundraising in 1Q22; awaiting final Board approval

# Revised Business Plan<sup>1</sup> – Returns

... as well as attractive margin profile



<sup>1</sup> assumes €2 million fundraising in 1Q22; awaiting final Board approval

# Uses of Funds

2M€ to accelerate commercial scale-up

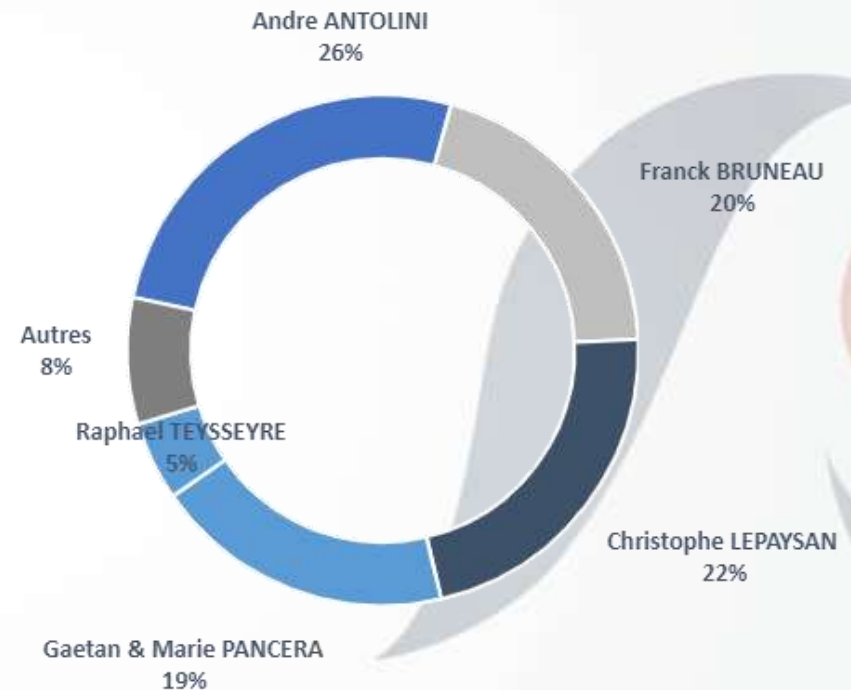
## 2022:

- ❖ Commercial scale-up in Europe
  - VP Sales - Europe
  - EU country offices
- ❖ Working capital
- ❖ Supply chain hires
- ❖ Reinforcement of the technical team (data analysis)

## 2023-2025:

- ❖ Worldwide scale-up
  - Europe country Sales
  - OEM Sales
  - VP Sales – North America
  - VP Sales China
  - Country offices
- ❖ Ongoing Engineering efforts
- ❖ Working capital (incl. Rental model ...)

## Shareholder Base - Fully-Diluted<sup>1</sup>



<sup>1</sup> includes an agreement in principle with the current shareholders on a BSPCE plan to increase the ownership of Christophe LEPAYSAN and Raphaël TEYSSEYRE over 3 years, pre current funding round.

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# Our Value Proposition

RoI typically < 1 year

## WindEagle Functionality

Yaw Misalignment

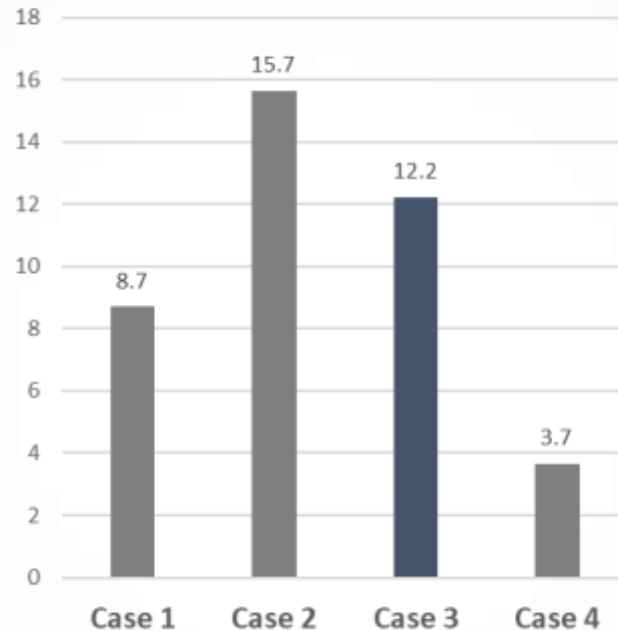
Aerodynamic Imbalance

Turbulence Intensity Gain

Mass imbalance



## Payback Time [months]



## Site / Turbine Specifics

Age

Rating (MW)

Current degree of optimization

Complexity of terrain

**Case #1:** 3MW, 25% capacity factor, newer turbine, several optimisations necessary

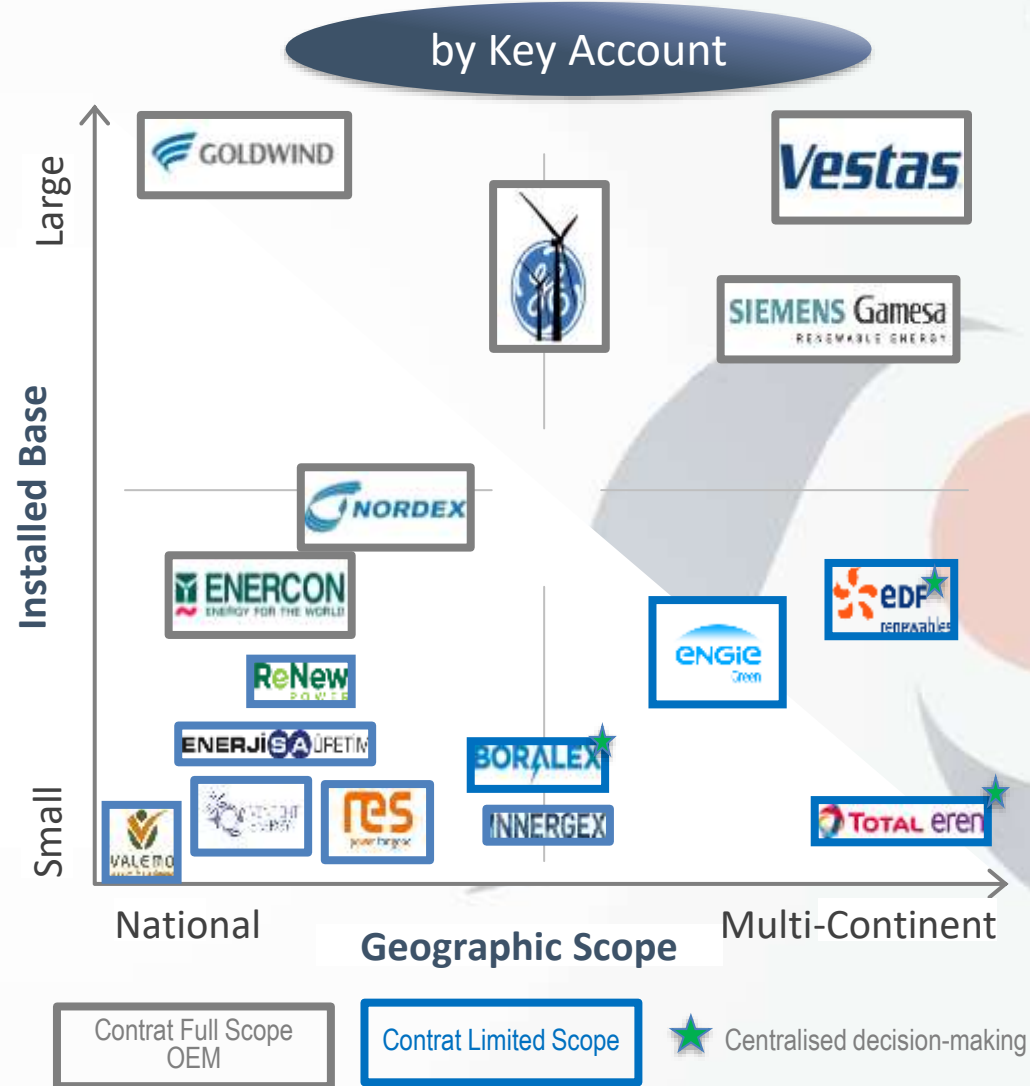
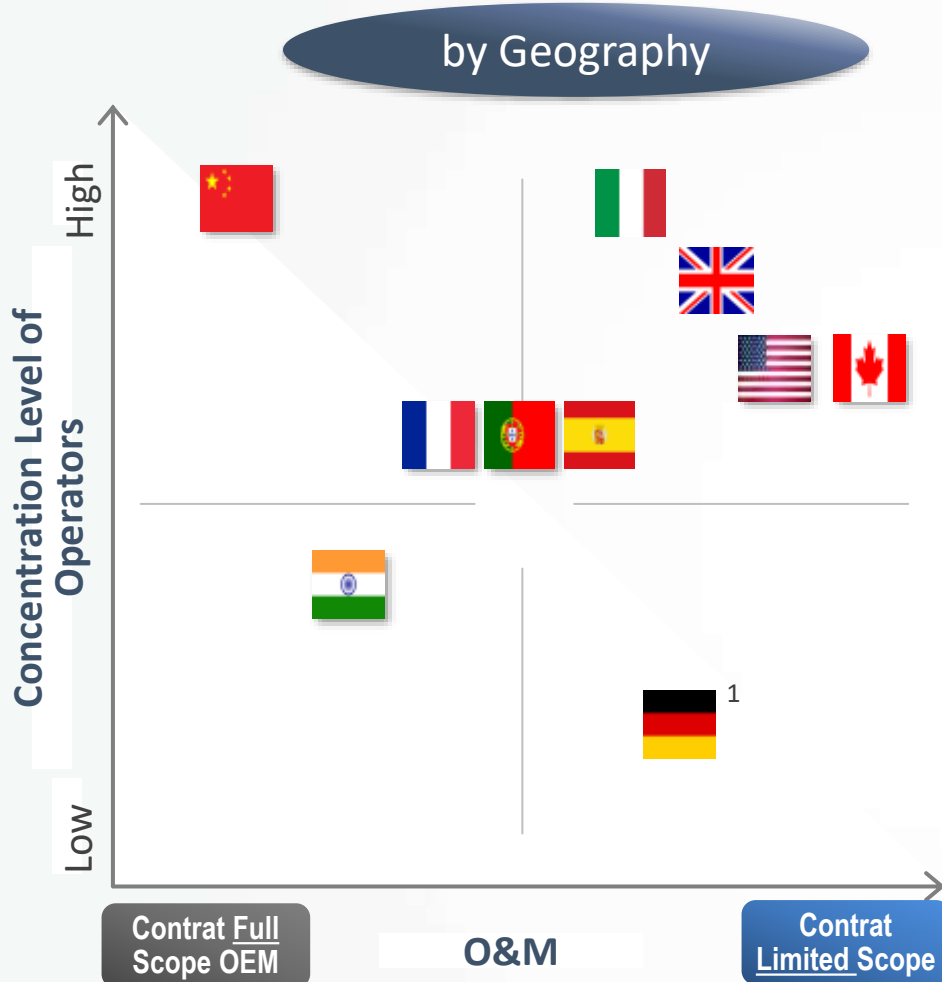
**Case #2:** 3MW, 25% capacity factor, newer turbine, moderate misalignment and weak aerodynamic imbalance

**Case #3<sup>1</sup>:** 2MW, 30% capacity factor, older turbine, moderate misalignment

**Case #4:** 2MW, 30% capacity factor, older turbine, significant misalignment

<sup>1</sup> Most common case for wind turbines installed from 2005-2015

# Geographic Market & Customer Profiles



<sup>1</sup> Significant portion (~30%) of market is owned by councils & farmowners

# Commercial Strategy : Europe ex-France

## Target Accounts [GW]

- Iberdrola 17 GW
- Acciona 8 GW
- EDPR 12 GW
- ENEL 15 GW
- EON 13 GW
- EDF 8 GW
- ENGIE 6 GW
- ENEL 6 GW

## Commercial Initiatives (2022-2025)

- Hire VP Sales Europe
- Germany: Open office in Hamburg; Sales process by region
- Spain : Open office in Madrid in 2022-2023 & enter AEE & AEMER
- Target customers with dedicated Performance Optimization team

## Market Specificities (pertinent to Epsiline)

- Many of installed wind turbines will be out of feed-in tariff in the next 2 years + full-scope contract prices increase every year → opportunity when O&M is brought in-house
- Germany:
  - Utilities purchasing decision decentralized by Länder (most HQ located in Hamburg)
  - Relatively old wind farms
- Spain: Relatively old windfarms

## 2022-2025 Goals

- 2022 : Field trials with main utilities (Iberdrola, EDPR, EON, ENBW etc.)
- 2023: fleet deployment with these utilities

# Commercial Strategy : North America

## Target Accounts [GW]

- NextEra Energy Resources 15 GW
- Avangrid 7 GW
- MidAmerican Energy 6 GW
- EDP NA 6 GW
- ENEL NA 5 GW
- RWE NA 4 GW
- EDF NA 4 GW
- Invenergy 3 GW

## Market Specificities (pertinent to Epsiline)

- Same target customers US & Canada
- European Utilities (esp. Spain, Portugal, Italy) are present on this market
- Tariffs (PPA) ~1/2 European level
- Big and remote windfarms (30-70 WT/WF), bulk orders targeted
- US: Modern WT specifically in the MidWest (from Illinois) to Texas
- Canada : most of WT in Ontario & Quebec

## Commercial Initiatives (2022-2025)

- Leverage European HQ relationships
- Open office in Chicago
- Hire NA Sales Head
- Customer after-sales team

## 2022-2025 Goals

- 2023 : Field Trial stage with 5 of the top 10 US utilities
- 2024 : US subsidiary @ breakeven



# Commercial Strategy : China

## Target Accounts [GW]

- China Energy 43 GW
- China Huaneng Group 23 GW
- China Datang Group 20 GW
- China SPIC 19 GW
- CGN Power Group 17 GW
- China Huadian Group 15 GW

## Market Specificities (pertinent to Epsiline)

- Several large State-owned utilities dominate the market (most HQ'ed in Beijing)
- No subsidies since end-2020 → pressure for owners to optimize
- Big and remote windfarms (30 WT/WF) - bulk orders targeted
- Not so much local technical competence near the windfarms
- After-sales service important

## Commercial Initiatives (2022-2025)

- 2023 : Open office In Beijing with Chinese Senior Sales Team + dedicated after-sales service

## 2022-2025 Goals

- 2023 : Field trials with 3 of the “Big 5”
- 2024 : fleet deployment with 2 utilities

# Commercial Strategy : OEMs

## Target Accounts [GW]

- Vestas 145 GW
- Siemens-Gamesa 115 GW
- GE 62 GW
- Enercon 50 GW

## Market Specificities (pertinent to Epsiline)

- OEMs pursuing strategy to increase service revenues (more profitable than turbine sales)
- OEMs have to increase the value of their services (e.g. with IoT)

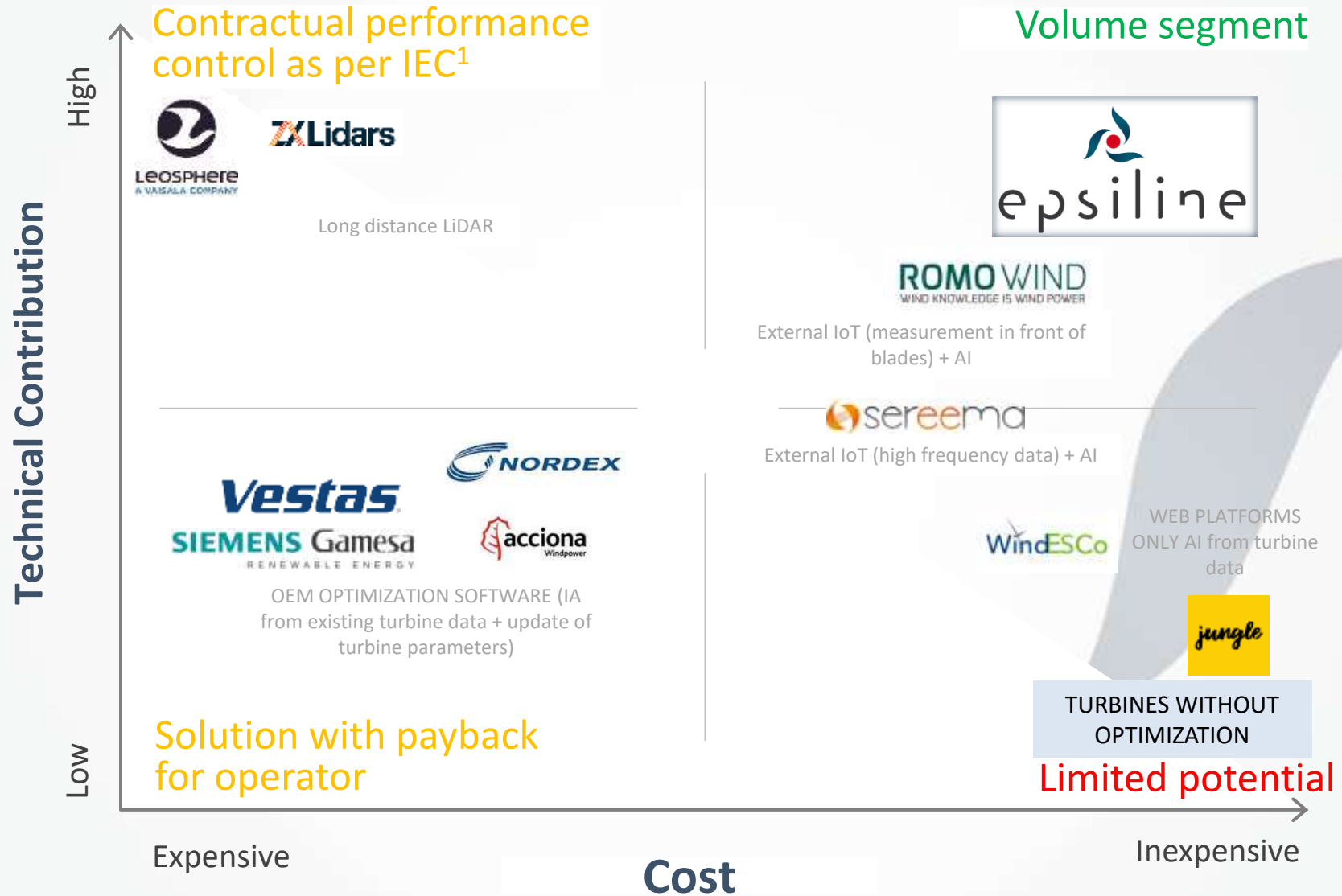
## Commercial Initiative (2022-2024)

- Active Support of Thibault Desclee for GE (Europe Offshore) & Enercon
- Hire OEM Senior Sales for Europe (initial focus SGRE & Enercon)

## 2022-2025 Goals

- 2022 field trials with Enercon & GE
- 2023 : WindEagle as an option / add-on in these OEMs' services catalogues

# Competitive Position



<sup>1</sup> International Electrotechnical Commission norms

# Competition - Details

	Epsiline	RomoWind	Sereema/WindEsco	Jungle	Vestas/SGRE
Technology	Short range Lidar+ PTU+ accéléromètre	Sonic Anemometer +PTU	Sonic Anemometer + Vibrations	SCADA based Saas	OEM Optimization software
Yaw misalignment (precision)	✓✓✓	✓✓✓	✓ measures behind the blades, same than nacelle sensors	✓ (IA with unprecised data)	✓ (IA with unprecised data & update of turbine parameters)
Power Curve	✓✓✓	✓✓✓	✓ measures behind the blades, same than nacelle sensors	✓ Same issues than nacelle sensors	✓ (nacelle anemometers)
Turbulence	✓	✓	✗	✗	✗
Pitch	✓	✗	✓	✗	✗
Wake steering	R & D	✗	R & D	✗	✗
Installation	Nacelle roof (1H), customers can install themselves	Installation in the hub, specialized teams	Nacelle roof, customers can install themselves	N/A Software update	N/A Software update
Possibility to move the sensors	✓	✗	✓	N/A Software update	N/A Software update
Diagnostics reports (dashboard)	One-clic SaaS (under development)	Diagnostic, option with fee for raw data	One-clic SaaS	One-clic SaaS	Data & diagnostics not sent
Public price (€) + annual subscription	Sales : 9K-13K € + 600-900 €/an (export)	9K € – 12K € + 600 €/year	Lease model 3.200 €/year/sensor for 20 units	2.000 € + 400€/turbine/year	25.000 €/turbine
5 years total (€) for 6 WT	78 000 €	78 000 €	96 000 €	14 000 €	150.000 €

# Competition vs. SEREEMA – 1/2

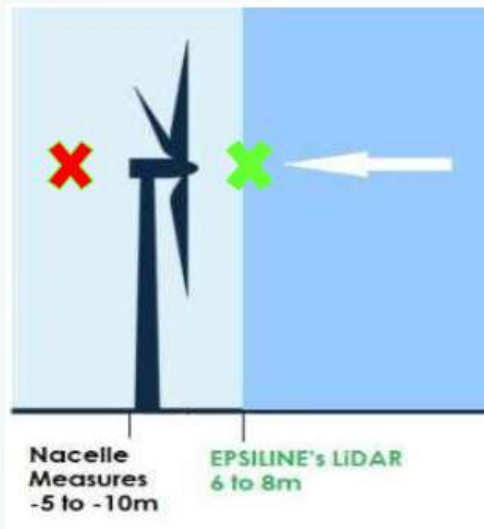
Epsiline : reliable measurement in front of the blades

The wind turbines are controlled by sonic anemometers located behind the blades. The measurements are disturbed by the turbulence generated by these blades and are by nature erroneous, despite sophisticated software to correct them.

Sereema solution provides a partial and imprecise response because it uses the same technology (sonic anemometers) located behind the blades, simply with a higher measurement frequency than turbine anemometers.



The only reliable solution is to measure in front of the blades: the EPSILINE LiDAR allows this thanks to its remote measurement



# Competition vs. SEREEMA – 2/2

Epsiline : Yaw and Rotor Imbalance diagnostics more precise

	SEREEMA	EPSILINE
<b>Technological Key benefits</b>		
Independent data from OEM	YES	YES
Static yaw correction	Unprecise No direct measure	Precise
Yaw reactivity	YES	YES
True North Detection	YES	YES
Aerodynamic rotor imbalance (Pitch)	Overestimated	Precise
Mass Rotor Imbalance	YES	YES
Turbulence	NO	YES
<b>Solution</b>		
Easy installation	YES	YES
Business model	All-inclusive subscription	IoT sales + web subscription or all-inclusive subscription
<b>Dashboard</b> At-a-glance tracking	YES	YES
Double-check after corrections	YES	YES
Gain estimation	Automatic	Manual / automation in progress
Monitoring	Automatic	Manual / automation in progress

# Competition vs. WINDESCO – 1/2

Epsiline : reliable measurement in front of the blades

**Data from the wind turbines (sonic anemometers which measure behind the blades) are unprecise and do not allow optimal control of the wind turbine.**

WindEsco offers tools based mainly on wind turbine data, which results in great imprecision in the detections and in the modeling of the wake effect

The only reliable solution for measuring turbulence and thus accurately modeling the wake effect and measuring in front of the blades : the EPSILINE LiDAR allows this thanks to its remote measurement

# Competition vs. WINDESCO – 2/2

Epsiline : Yaw and Turbulence Intensity measurements more precise

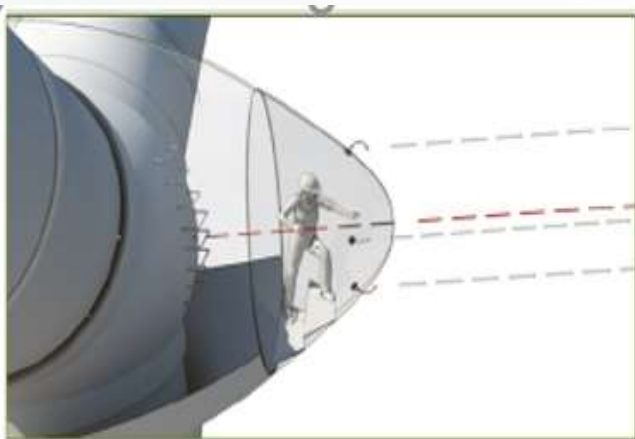
	WINDESCO SWARM	EPSILINE
<b>Technological Key benefits</b>		
Independent data from OEM	<b>NO (SCADA)</b>	<b>YES</b>
<b>Static yaw correction</b>	<b>Unprecise No direct measure</b>	<b>Precise</b>
Yaw reactivity	<b>NO</b>	<b>YES</b>
True North Detection	<b>NO</b>	<b>YES</b>
<b>Aerodynamic rotor imbalance (Pitch)</b>	<b>Overestimated</b>	<b>Precise</b>
Mass Rotor Imbalance	<b>NO</b>	<b>YES</b>
Turbulence	<b>NO</b>	<b>YES</b>
<b>Solution</b>		
Easy installation	<b>YES</b>	<b>YES</b>
Business model	<b>All-inclusive subscription</b>	<b>IoT sales + web subscription or all-inclusive subscription</b>
Wake steering	<b>Pilot project with an IoT accelerometer (new - nov21)</b>	<b>R&amp;D</b>
<b>Dashboard</b> At-a-glance tracking	<b>YES</b>	<b>YES</b>
Double-check after corrections	<b>YES</b>	<b>YES</b>
Gain estimation	<b>Automatic</b>	<b>Manual / automation in progress</b>
Monitoring	<b>Automatic</b>	<b>Manual / automation in progress</b>



# Competition vs. RomoWind – 1/2

Epsiline : easy installation possible by the customer

**The only reliable solution is to measure in front of the blades: but the solution must be easy to install**



The solution provided by RomoWind measures in front of the blades, where it is most precise like WindEagle

but the installation requires entering the hub or "nose" of the wind turbine with teams who have unusual authorizations (therefore very limited number of teams).

In addition, the angle between the three parts of this instrument must be achieved with great precision, otherwise the measurement is totally disturbed. This severely limits the ability of the customer to install this solution: the owner-operator of the wind farm must call on RomoWind to come and install the solution.

The WindEagle is easy to install: the customer can do it himself thanks to an installation video

# Competition vs. RomoWind – 2/2

Epsiline : easy installation possible by the customer

	RomoWind (nabla wind hub)	EPSILINE
<b>Technological Key benefits</b>		
Independent data from OEM	YES	YES
<b>Static yaw correction</b>	YES	YES
Yaw reactivity	YES	YES
True North Detection	YES	YES
<b>Aerodynamic rotor imbalance (Pitch)</b>	NO	YES
<b>Mass Rotor Imbalance</b>	NO	YES
Turbulence Intensity	YES	YES
Bats detection	Detection through weather conditions, unprecise	R&D for curtailment optimization
<b>Ergonomie de la solution</b>		
<b>Easy installation</b>	NO	YES
Business model	IoT sales + web subscription	IoT sales + web subscription or all-inclusive subscription
<b>Dashboard</b>		
At-a-glance tracking	YES	YES
Double-check after corrections	YES	YES
Gain estimation	Automatic	Manual / automation in progress
Monitoring	Automatic	Manual / automation in progress

# Competition vs. Software from OEMs

Epsiline : easy installation possible by the customer

**The wind turbine is not producing at the maximum**

Wind turbines are supplied by the turbine manufacturers with anemometers which do not allow precise measurement (measurement behind the blades)

Optimization software are offered by the turbine manufacturer himself -> conflict of interest

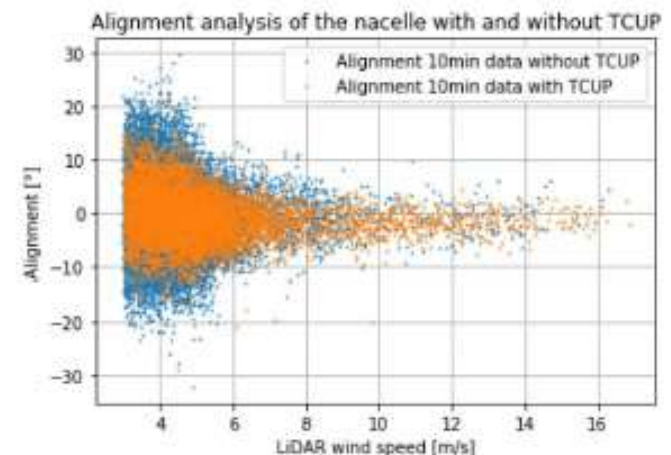
In addition, the software is a "black box", the owner-operator does not know exactly what is optimized.

Finally, it is not possible to measure the gain precisely with SCADA data from the wind turbine

WindEagle allows PRECISE and INDEPENDENT measurement

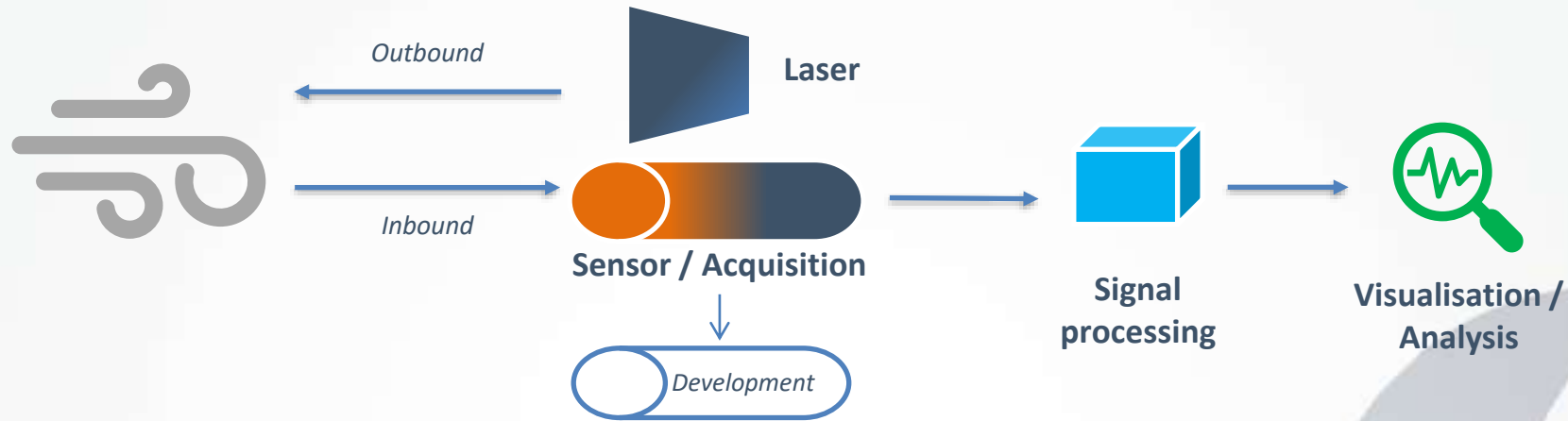
*Example : characterization of the Siemens-Gamesa TCUP software by EPSILINE*

*In this study, the operator has to use the WindEagle solution to assess the gain of this software provided by the turbine manufacturer*



# Intellectual Property

Concept impossible for our competitors to replicate



## Equipment/Material

- ❖ Precise measurement ahead of blades enabled by proprietary laser technology  
⇒ Other projecting LiDAR technologies much more expensive
- ❖ External installation which improves autonomy and minimises incremental installation costs

## Services/Data

- ❖ Sensor « all-in-one » : Algorithms developed to automatically combine multiple data sources for diagnostics on the overall operating behaviour of the turbine
- ❖ Web portal: Availability of data visualisation portal to minimise operator IT costs







# epsiline

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