

## Nature-Inspired Technology

## Transforming Gentle Winds Into Power Giants



# The Challenge



How to generate cheap renewable energy, in regions with lower wind speeds, where traditional turbines and solar panels are impractical?

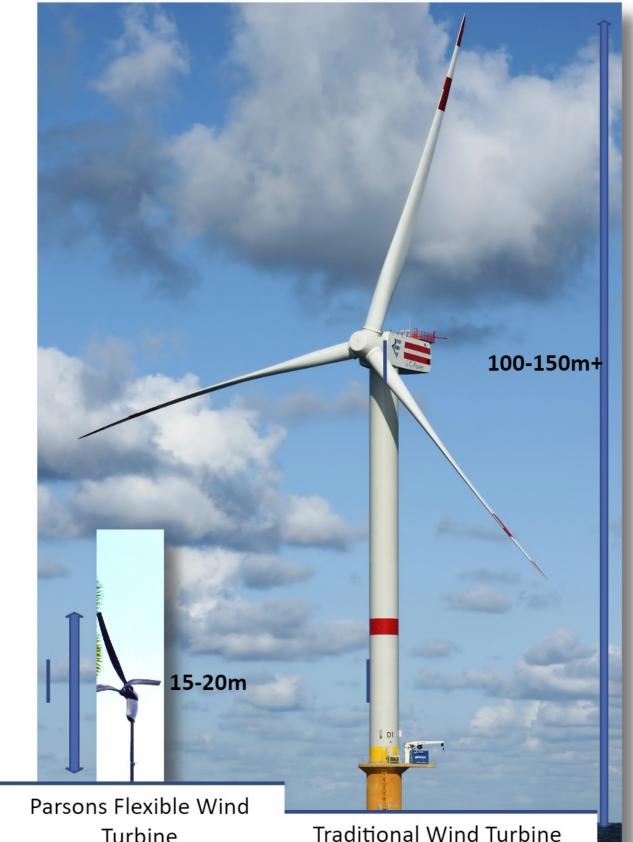


# Why not just use big traditional wind turbines?

- 1. Necessity of very remote locations
- 2. Requires High wind-speeds to be cost effective
- 3. Years of planning AND community agreements
- 4. exclusive niche of very large investments
- (a <u>2 MW turbine costs between \$3 and \$5 million to install!)</u>
- 5. High Noise and environmental impact







## The Opportunity-Unlocking the Potential of the <u>underdeveloped Low Wind Speed market</u>



- 1. Potential Global Market Size is enormous
- 2. New patented technology achieves Highest Energy Efficiency
- 3. Sustainable production materials used (recycled plastics, iron magnets and carbon fiber blades)
- 4. Highly scalable energy solution suitable for large AND small urban projects

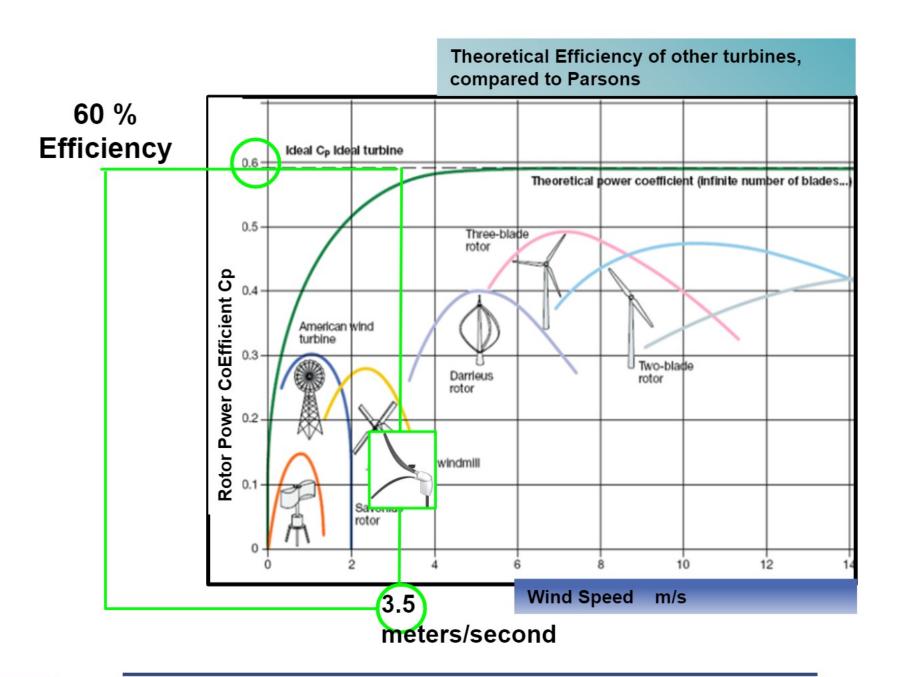
## THE SOLUTION- The Bio-Seed Wind Turbine



The refined patented blade shape, inspired by lift-spinning seeds, maximizes energy generated in calmer winds

These areas constitute ~20% of landscapes, previously unsuitable for wind farms

7,5 KWh @ 10000 USD to produce each unit!



Patented Protection in USA, Europe, China and & Colombia (WO2014/009934 A2)

> Source: Published peer reviewed paper in Journal: Composite Structures:

https://www.sciencedirect.com/science/article/abs/pii/S0263822318302460?via%3Dihub

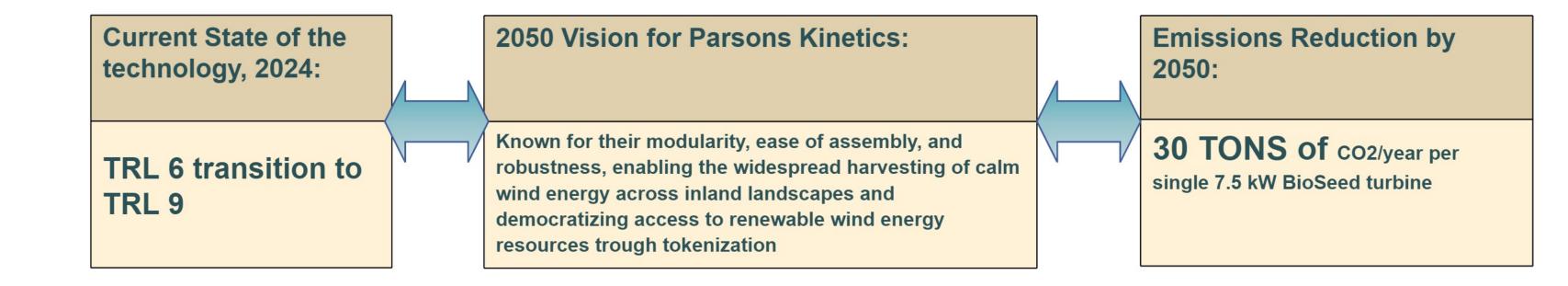
Close to the ideal coefficient (60%) of efficiency for wind turbines at only 3.5 m/s wind speed

## Join us and Invest Where innovation meets sustainability



Lets revolutionize the wind energy market by:

- > Local investment agreements
- > Evolving design using sustainable materials and improved tech (MOU's in place with several Technical Universities)
- > plant construction plans for the manufacturing of wind turbine and realization of pilot wind farms



## \$9,2 billion GLOBAL Market-Potential





The global market size is forecasted to reach:

\$920 billion

by 2030

(=100%)

Total for Wind Energy 10%

Parsons BioSeed wind turbines, target the 1% of the distributed energy demand

Serviceable Obtainable Market ~ \$9,2 billion

Clients: SMALL AND MEDIUM ISLANDS



There are about 900,000 official islands in the world and accounts for roughly 1/15th of the total land area of Earth.

- Imported Fossil fuels are expensive and the main polluting electricity source
- Reduced land availability
- Ideal Wind conditions



**Clients: Data Centers** & other remote

energy intensive industries



Data center energy consumption is expected to increase due to the **explosive use of Al** and green energy demand

- Data centers could double their electricity consumption in just two years. That means they would devour as much energy in 2026 as the entire nation of Japan, with a population of 125 million (source New Scientist)
- Often remotely located high energy consuming industries

   (i.e. Oil and gas, mining, ports etc) often require quick fix
   for their CO2 emission chain

Solar PV as the main competitorsimilar cost of energy per MW



Table 1. Comparing Solar PV vs	Table 1. Comparing Solar PV vs BioSeed					
Property	Solar	Parsons BioSeed Turbine				
Levelized Cost of Energy	\$24 to \$96/MWh	~\$52/MWh  (is in the same range as Solar)				
-Energy delivery -during peak demand (~6 to 8 pm)	-~Between 6 am and 6 pm -none during peak demand	-At least 16 houres per day -also during evening peak demand				
Land Utilization	3 Ha per Mw and land remains UNUSABLE	16 Ha per USABLE LAND  Lands <u>remains usable</u> for agriculture, leisure, housing				

## The **2** Business ModelS and revenue streams:



1. B2B under a PowerPurchaseAgreement and 2. B2C through direct sales of turbines through Tokenization \_\_\_\_

#### 2 Revenue Streams

from
1.Direct turbine sales
using **tokenization**and

2. Energy sales to the local grid under a Power Purchase Agreement(PPA)

local energy company or token owner - 70% Parsons Kinetics - 30% (=For Operation and Maintenance)

#### Costs

ONE Manufacturing Plant with a 200 units/ month Production capacity:

Requires Investment of €2.5M

#### **Market & Pricing**

Clients: power companies aiming to transition out of fossil fuels, data centers, other high energy off grid Our pricing is competitive with other solutions

Tentative sales pricing PER UNIT= 10.000 USD:

Detailed cost an pricing Breakdown in backup slides

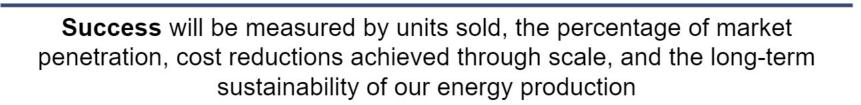
#### **Scalability**

up to

#### **35 GW**

Pilot Wind Farm Locations negotiations in the Dutch Caribbean, Japan, Latin America, US, Europe etc

The modular design of our turbines allows for scalability across diverse settings, from small community projects to large commercial farms. Future innovations will target efficiency improvements and cost reductions



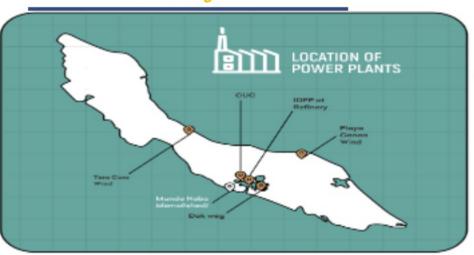


## First large scale Pilot Project-Carribean Dreams turned reality



- Curação sets as objective achieving 65 MW of wind electricity production by
   2025
- MOU available from the government, resulting from BD visit in person by the Parsons Team in January 2024, which cover:
  - Factory and maintenance training using local personnel
  - Technical Agreement with Aqualectra National Energy Company
- Pilot project showcases the BioSeed turbines' potential and
   Demonstrates HUB potential for the whole Caribbean Market
- Curação Part of the EU and eligible for EU HORIZON grants and subsidies of up to ~50%
- Several ideal locations identified where traditional Wind turbines are not feasible (e.g. port, refinery, asphalt lake, remote leisure locations etc,etc)
- Technical cooperation between Universities of Curação and Bogota (TU Delft pending)

#### Curação



# The Pilot Project in Curação Tentative Timeline and Objectives

2024

2025

Actual

state



## **Key Objectives:**

- Increase renewable energy contribution to the island's grid
- Test and validate the performance under real-world conditions
- Demonstrate environmental and economic benefits
- making use of recycled materials and sustainable magnets in a local production process
- Make use of grants and use Free Zone tax advantages to demonstrate export potential

Tentative Timeline

Pre – Feasibility Study

Preliminary due diligence.
First round of funding

Feasibility engineering

requires **€350K** (2024-Q1)

Phase 1- Project development 1-5 MW wind farm

Requires **€2,5**M (2024-2025)

Onsite pilot

Land control

Permitting

Design Engineering

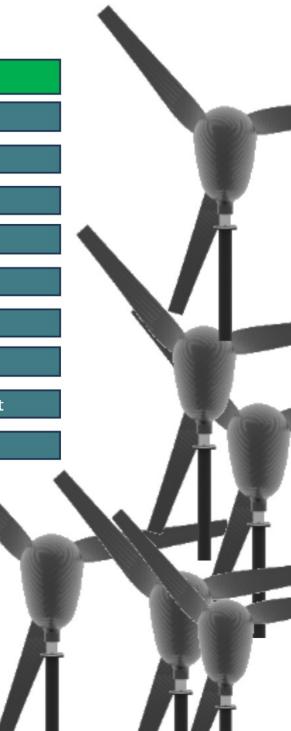
Interconnection

Commercialization agreement

construction debt

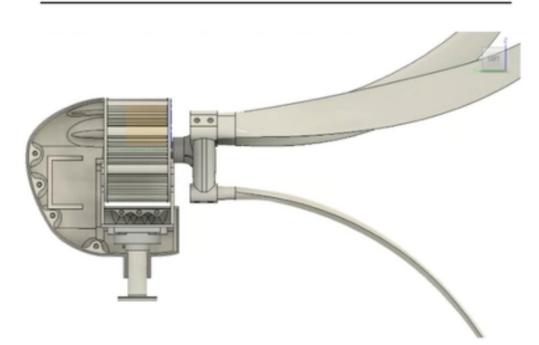
The project aims to produce up to 5 MW of clean energy,

reducing CO2 emissions by 40.000 tons annually, and setting a precedent for future renewable energy initiatives



### Data Sheet - Bioseed 25K

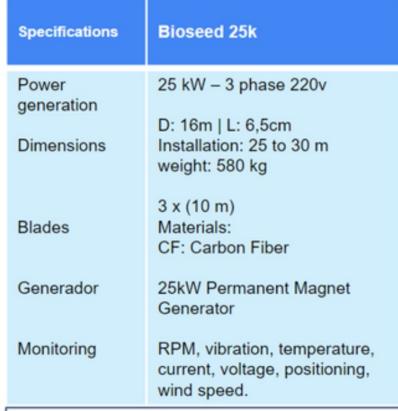
Bioseed 25K - CF



#### **Product description**

The 25 kW Bioseed turbine is the largest version of the bio inspired turbine series, very useful in distributed wind generation projects and compatible with solar parks.





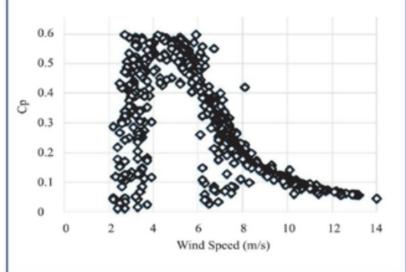
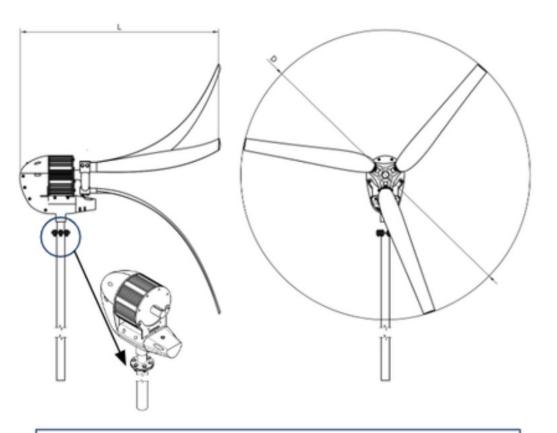


Figura 1. Power coefficient





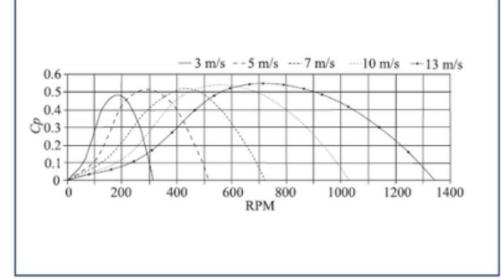
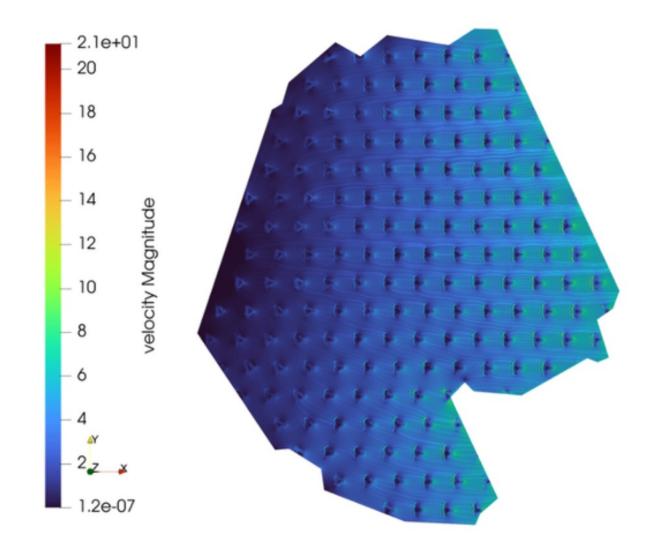


Figura 2. Cp. performance in various wind conditions

## 160 25KWh Bioseeds Park with Solar Panels

17 X 14 staggered distribution with 50m spacing 160 Bioseeds@25kwh inside the 58000 m2 landscape

Approximately 200 W/m2 (6 m/s E-W) @ 30 m above sea level (3.2MW - 4MW) range with the 160 Bioseeds@25kwh

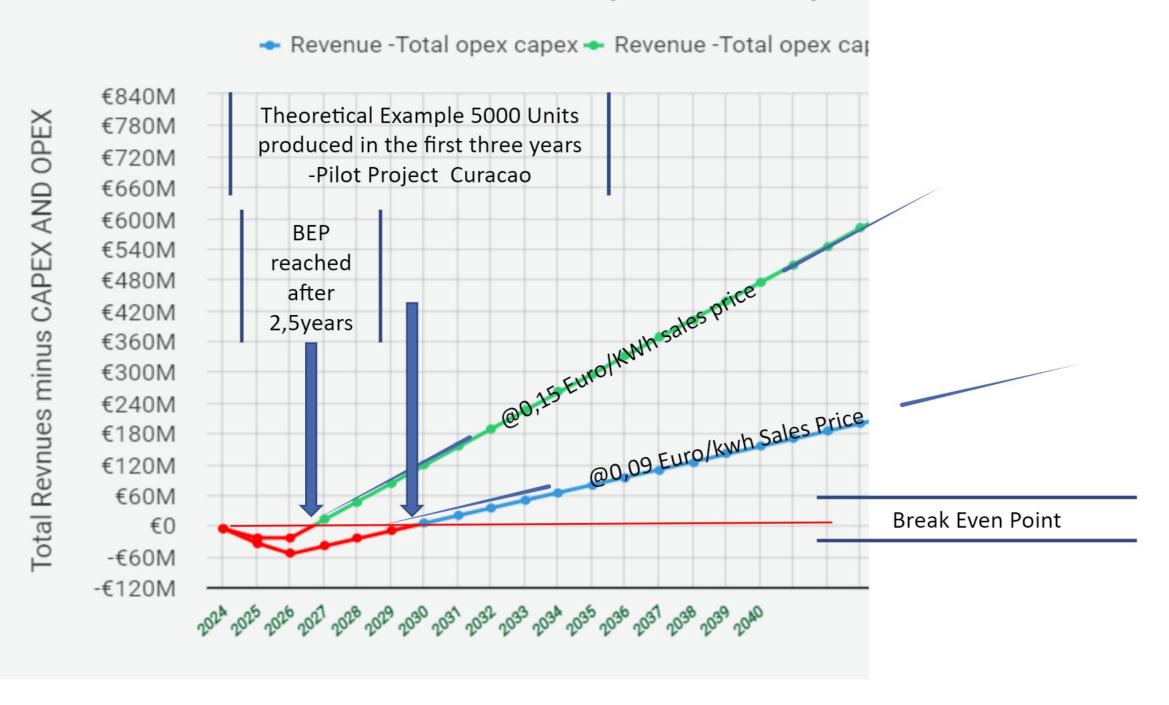






## Financial projections Theoretical Scenario PARSONS

Total Revenues minus Total Opex and Capex





## Financial projections(II)

## Need to finalize 10 year Forecast showing revenues/costs/profit, ROI according to pilot project scenarios

3 yrs route map.	•									
BP.2	MWh		kWh		T. Capacity		Investment T.			
Wind farms		65	65.000		65.000	kWh	€243.572.05	0		
	Nominal		Power @ 20m high							
Bioseed gen Power		7,5	6,50	kWh						
Bioseed REQ.		9.993	Units	416	month					
Wind Farms Business Uni	t			Energy Producti	on & Sales		Wind farm	Орех		
kW intallation		65.000	kWh	kW sale price	€ 0,09	per kWh	Operation Opex	€	0,0140	per kW
kW installation CAPEX	€	3.747,26	per kW	Generation p90	31.200.000	kWh per Month	Maintenance Opex	€	0,0081	per kW
T. Installatin CAPEX	€2	43.572.050		Energy sales income	€ 2.808.000,00	month	Land usage Opex	€	0,0116	per kW
Montly income:	€ 2.8	808.000,00		Energy sales income	\$31.824.000	Yr	Energy transmision Opex	€	0,0128	per kW
Montly Opex:	€ 1.451	1.162,7907					Total Opex per kW	€	0,0465	Total Op
Montly profit:	€ 1.3	356.837,21								
Yearly profit:	€ 16.2	282.046,51								

## Electricity sale price and wind harvesting scenarios: High, mid and low cases (Curacao/Caribbean setting)



Variable	Optimistic Scenario (High sale Price & wind energy collected)	most likely scenario (current price & most likely wind conditions in area)	Worst case scenario (lowest price & worst wind conditions)
Target Sales Price per kWh	€ 0,12	€ 0,09	€ 0,08
Potency density (W/m2) (=how much wind energy do we collect per unit)	365	300	260
Radius of Turbine(m)	3,4 m	3,4 m	3,4 m
Turbine efficiency (%)	58%	58%	58%
Installation height (m)	20	20	20
Electricity generation per turbine v 1.0 (KWh)	7,69	6,32	5,48
Yearly hours of generation	6390	5440	4480
AVG hour per day with wind speed > 5m/s	18	16	14
AVG operational days per year	355	340	320
Yearly energy generation (kW)	49.128,15	34.376,12	24.535,11
Yearly energy sales per unit (Eur)	€ 5.895,38	€ 3.093,85	€ 1.962,81

Meet The Experts





Serial Entrepreneur

**IOT** and climate solutions

Houston/Bogot a based

> Track record successful Startups

Renewable Energy expert AND mentor ClimateLaunchPad

Ex-Shell (15+ y experience in managing energy projects)

**Dutch Based** 

Leader/Changemaker





**PHD Professor** Mechanical Engineering

Expert in modeling of complex systems **Several Scientific Publications** 



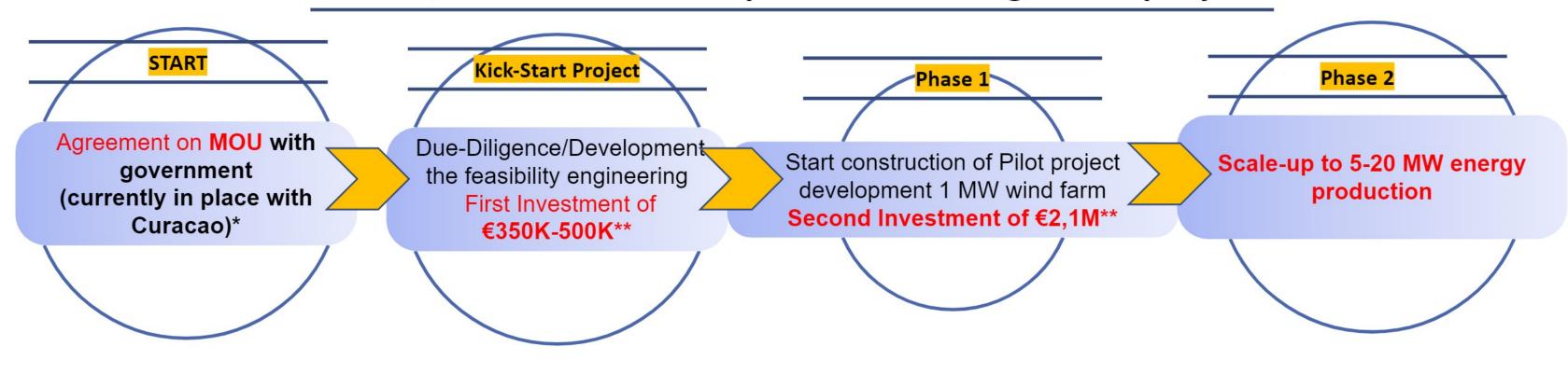


Click here for Video Introduction of the team Members

## The ASK-Joining Forces for a Sustainable Future



## ~€2,5M investment required in exchange for equity



#### Partnership Benefits:

pioneering tech innovation in green energy AND potential high Return On Investment

#### **Looking for Angel Investors**

(e.g. VC's, individuals, corporate, private equity firms, etc)
Further details to join in this venture, click **here** 

## Closing, way forward and Q&A



#### Click <u>here</u> for 3D animation of bioseeds turbine in urban setting:

https://cloud.3dvista.com/hosting/7090288/8/index.htm?utm\_medium=email&utm\_source=govdeliver

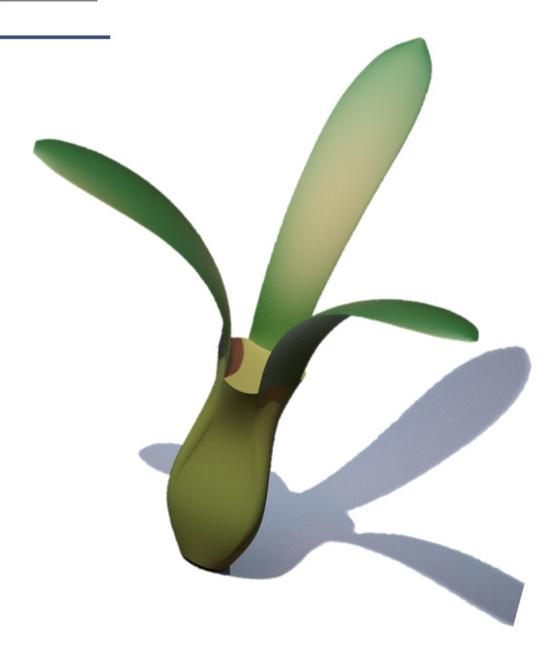
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3D Animation in Landscape

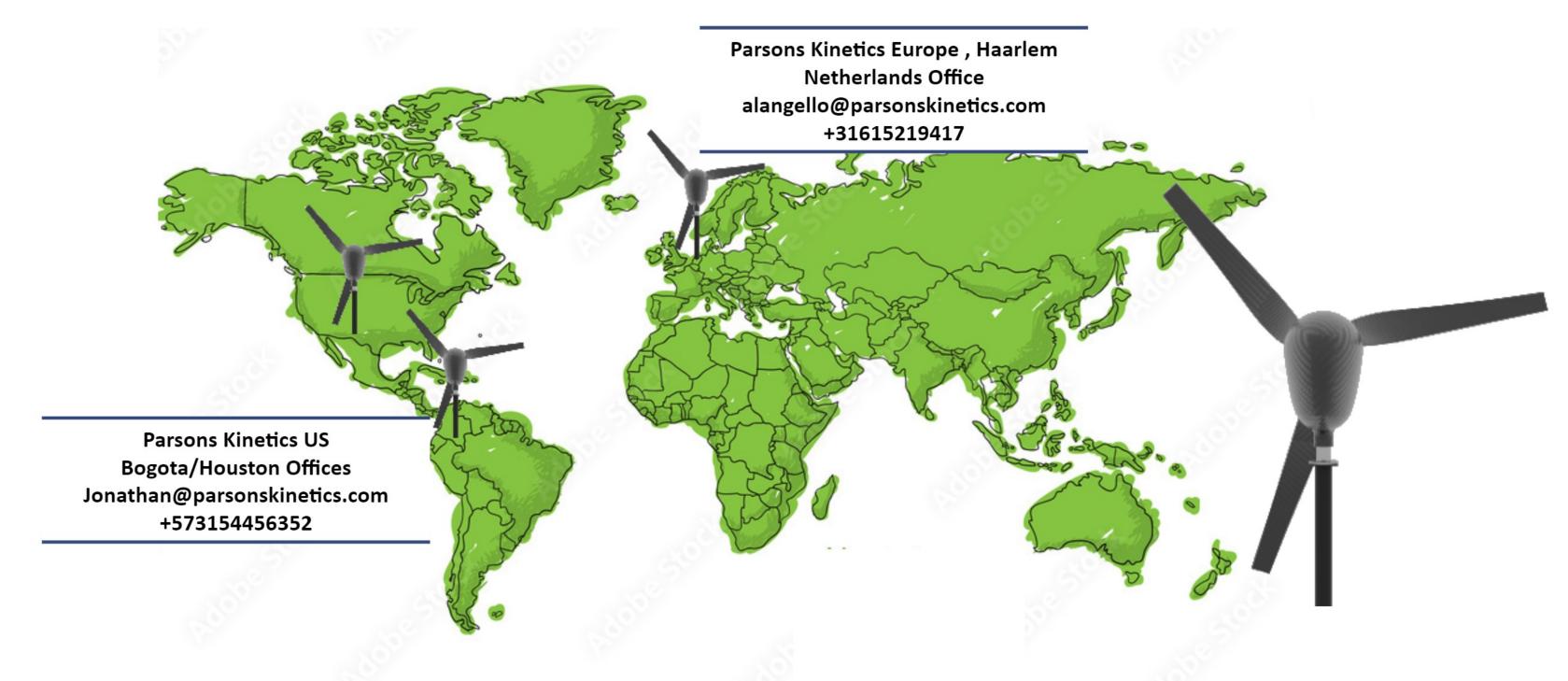


TOKENIZED WIND TURBINES



## Backup Slides & Contact Info





## Backup Slides



## Proyectos en curso



Samacá / Boyacá

Fase piloto

- √ Factibilidad
- ✓ Acuerdo tierras (400 Ha)
- √ Acuerdos comercialización
- ✓ Inio fase piloto
- o Inicio fase implementación



Tolú / Coveñas

Fase estudio de factibilidad

- ✓ Factibilidad
- ✓ Acuerdo tierras
- ✓ Acuerdos comercialización
- Inio fase piloto
- o Inicio fase implementación



Curacao / Lago de Asfalto

Fase estudio de factibilidad

- √ Factibilidad
- ✓ Acuerdo tierras (85 Ha)
- √ Acuerdos comercialización
- o Inio fase piloto
- o Inicio fase implementación



## MODELO DE NEGOCIO Parques eólicos compartidos

## Tolú



Pov	ver	50 kW		
Models		Bioseed 1,5kW		
Investment		US\$ 2.900 / kW		
% occupancy		100%		
್ಲಿ	Wind profile	0000		
43	kW sale price	0000		
CO2 mitigation		0000		
<b>\$</b> Environment risk		0000		

## Samacá



Power		12,5 MW		
Models		Bioseed 1,5 / 7,5 kW		
Investment		US\$ 2.200 kW		
% occupancy		8%		
<u></u>	Wind profile	00000		
ゆ	kW sale price	0000		
×	CO2 mitigation	0000		
8	Environment risk	00000		

## Curacao

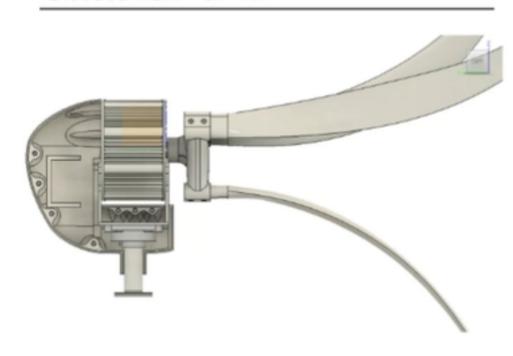


Power		5 MW	
Models		Bioseed 7,5kW	
Investment		Eur 2.550 / kW	
% occupancy		15%	
್ಲಿ	Wind profile	00000	
中	kW sale price	0000	
Ł	CO2 mitigation	00000	
۶	Environment ris	k 0000	

#### Ficha técnica - Bioseed 7.5K

Bioseed 7.5K - CF - RP



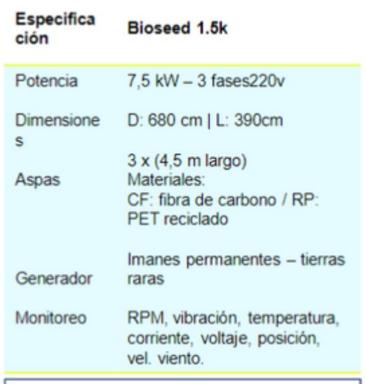


#### Descripción del producto

La turbina Bioseed 7,5K es ideal para proyectos de generación distribuida de energía con un LCOE competitivo.

Es pequeña y compacta, incorpora un generador de alta eficiencia de imanes permanentes de 7500W AC trifásico y opciones de monitoreo remoto.

<u> </u>	1	<u></u>
7,5kW	6,5m	58%
Potencia Nominal	Diámetro	Cp. eficiencia



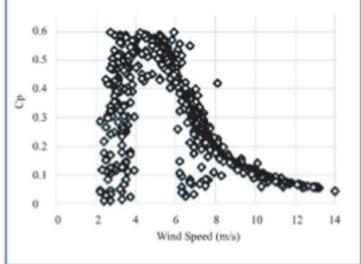
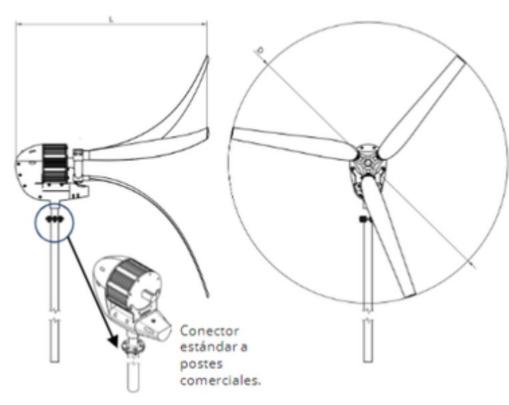


Figura 1. Coeficiente de potencia



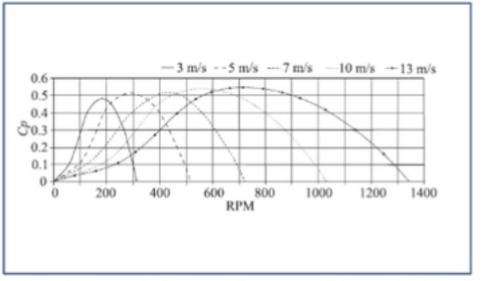


Figura 2. Cp. rendimiento en diversas condiciones de viento

## Backup Slide: Asphalt lake Location in Curacao

Tar was dumped in the lake in Willemstad during the Second World War This is a result of the heavy production of Kerosene in the battle against Germany



Total cleaning time estimate is 5 years. The location is not suitable for large industrial Wind Turbines due to LOW WIND SPEEDS.

The use of Bio-Seed turbines would permit agriculture, housing and recreation as well as nature reservation activities, s well as provide GREEN ENERGY FOR THE CITY

BUSKABAAI NV(partially government owned) is the owner of the lands and the cleanup is done by Asphalt lake Recovery Ltd





## Backup Slide: Wolrd Wide projects planned



#### World Wide Planned Projects

Wind farms B2B Dutch Antilles

**20 MW** 

Business potential: US\$27 M 2600 turbines Wind farms B2B Colombia

**10 MW** 

Business potential: US\$13 M 1300 turbines Wind farms B2B Tokyo

**20 MW** 

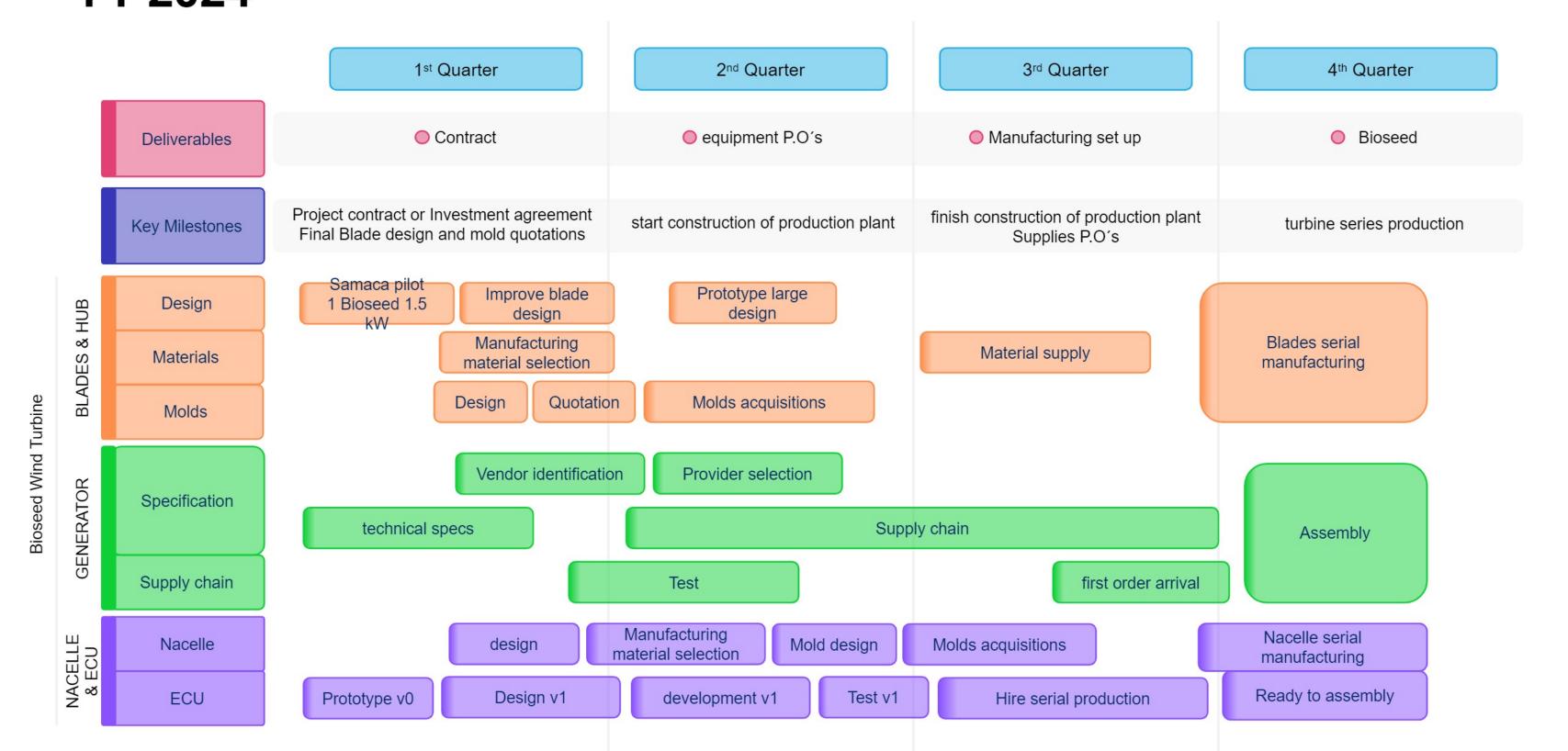
Business potential: US\$27 M 2600 turbines Tokenized Wind farms B2C Worldwide

**TBD** 

Business potential: TBD

## **Back Up Slide: TECH ROUTE MAP AND TIME TO MARKET FY 2024**

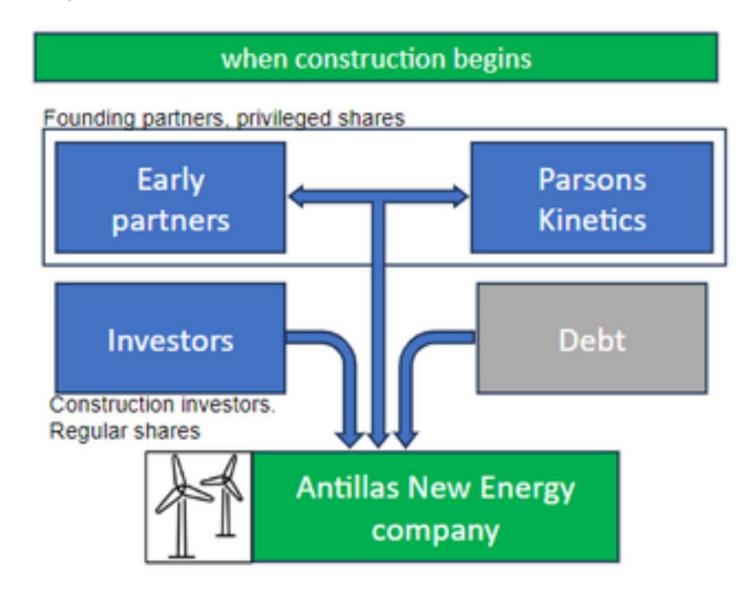






## Back Up Slide: Pilot Project 1: Partnership Structure Dutch Antilles

# Pre – Construction Early partner(s)\* Parsons Kinetics MOU. Early-stage support and financing contract and future promise of company formation and allocation of shares.



- Potentially one or multiple partners depending on the final commitment amount from the potential partners.
- Interested partners will enter the joint development agreement with the Parsons Kinetics to support early phases of the project.
- Interested partners will commit and provide financial sponsorship to the Preliminary due diligence and Development and feasibility Phase and In return, interested partner receives a right to subscribe shares of the future development wind farms on a pro-rata basis of the financial contributions, <u>Parsons Kinetics</u> reserve the rights of the 50% of the equity for the future company.



# **Back up Slide: Levelized Cost Of Energy Comparison Projected: US\$52 /**MWh

Key Inputs and Levelized Cost of Energy Results

Parsons Kinetics

		Land-Based	Offshore			Distributed		
Parameter	Unit	Utility-Scale Land-Based	Utility-Scale (Fixed-Bottom)	Utility-Scale (Floating)	Single- Turbine (Residential)	Single- Turbine (Commercial)	Single- Turbine (Large)	
Wind turbine rating	MW	3	8	8	20 (kW)	100 (kW)	1.5	
Capital expenditures (CapEx)	\$/kW	1,501	3,871	5,577	5,675	4,300	3,540	
Fixed charge rate (FCR) [real]	%	5.88	5.82	5.82	5.88	5.42	5.42	
Operational expenditures (OpEx)	\$/kW/yr	40	111	118	35	35	35	
Net annual energy production	MWh/MW/yr	3,775	4,295	3,336	2,580	2,846	3,326	
Levelized Cost of Energy (LCOE)	\$/MWh	34	78	133	143	94	68	

Bioseed 7,5 kW	Distributed		
Single Bioseed 7,5 kW	Projections for 1,5 MW farm		
7.5 (kW)	1,5 MW /200 unt		
1,826 ☺	1,787 ©		
TBD	TBD		
135	135		
40,800 (kWh/kW/yr)	7,507		
52	52		

Note: Unless specifically stated, all cost data are reported in 2021 U.S. dollars (USD).

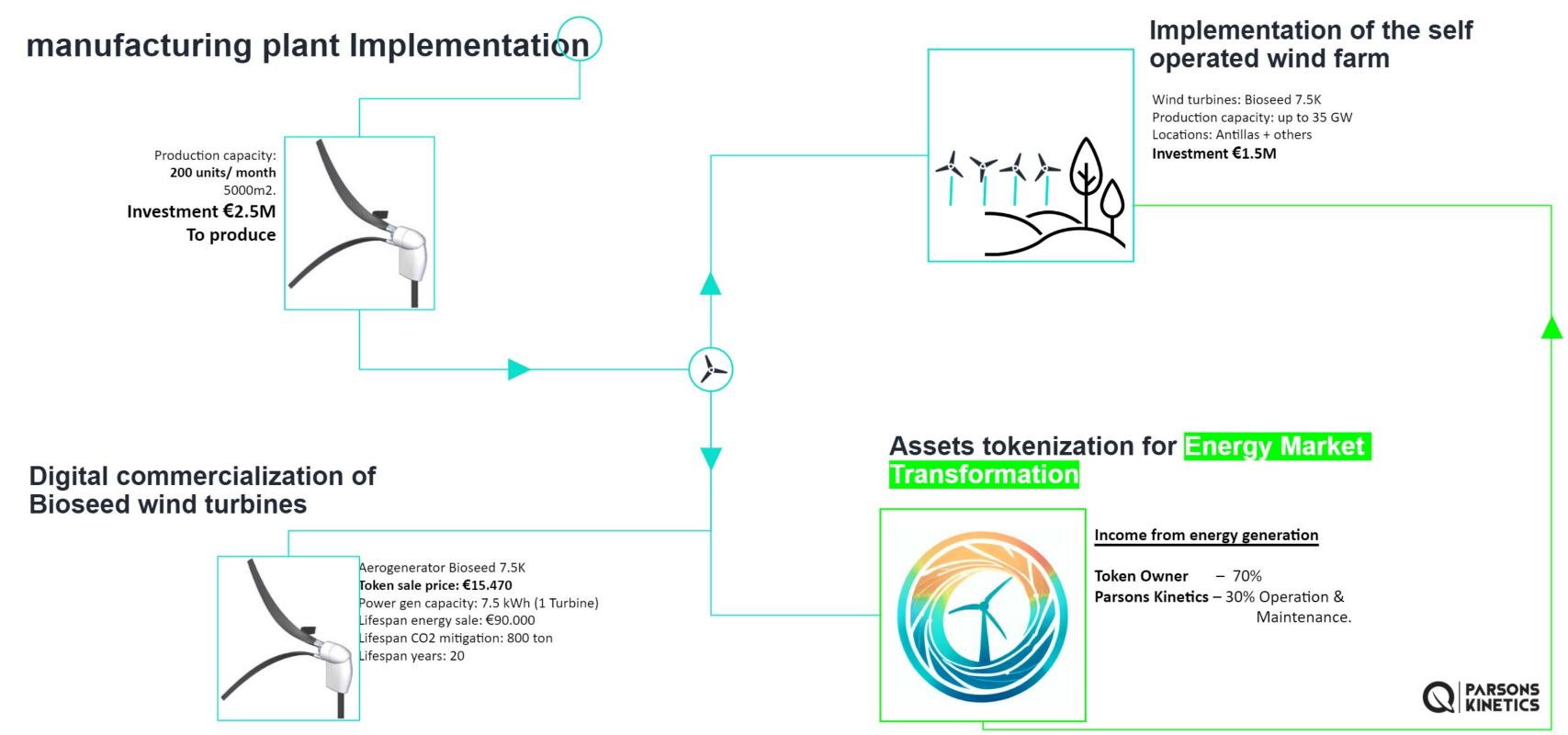
## **Back UP Slide: BUSINESS MODEL Calculations**



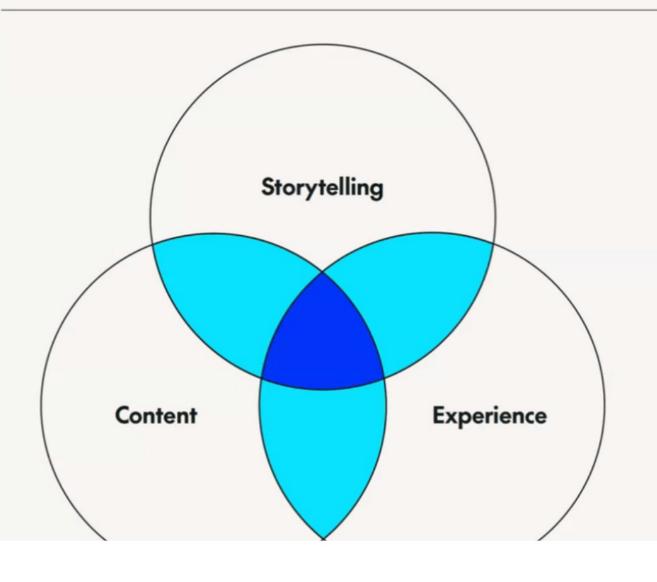
## Manufacturing and sell wind turbines

	Total
Payroll	US\$132.000
Warehouse rental	US\$12.000
Accountant and tax rev.	US\$2.500
Grooming and surveillance	US\$3.500
Utilities	US\$8.000
Incidentals	US\$2.700
Technology	US\$2.300
Total Month	US\$163.000
By Turbine:	US\$424
By kW:	US\$57





#### What makes a good pitch deck?

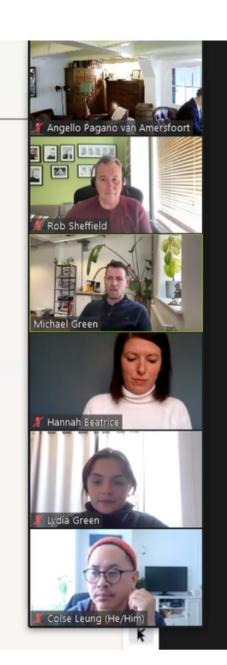


## Storytelling

How you guide the audience through your information

#### Content

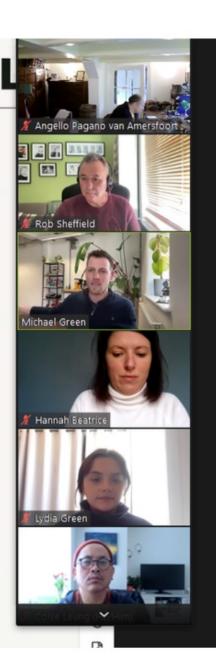
How your audience digest the content



#### The questions you need to ask yourself

## Before you pitch...

- Who are you pitching to?
- What context do they have at the outset?
- What's their starting mindset?
- What do you want them to feel/think/do at the end?



#### The second conversation

What do you want others to be sharing (and potentially pitching) when you're not there?



#### The in-person deck

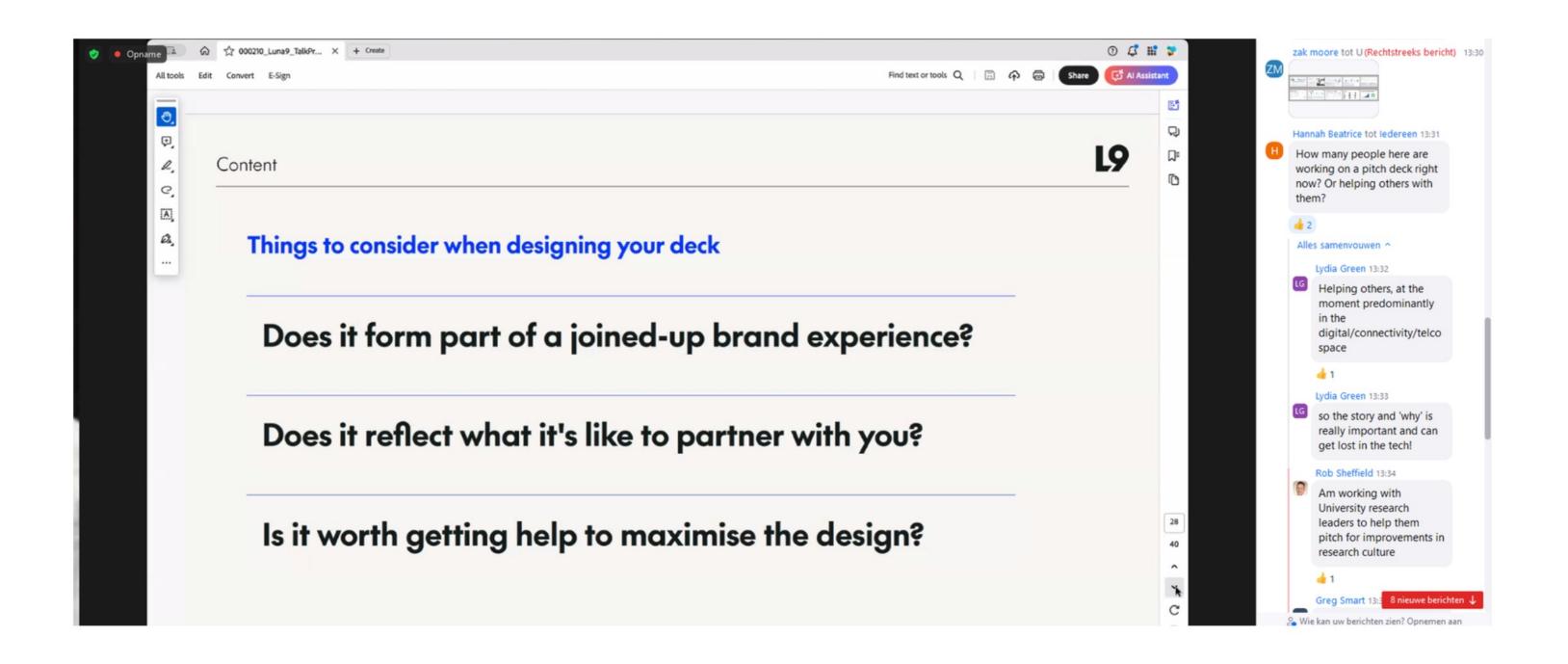
- More targeted
- Light on text and data
- Cues and prompts
- Working in harmony with the presenter

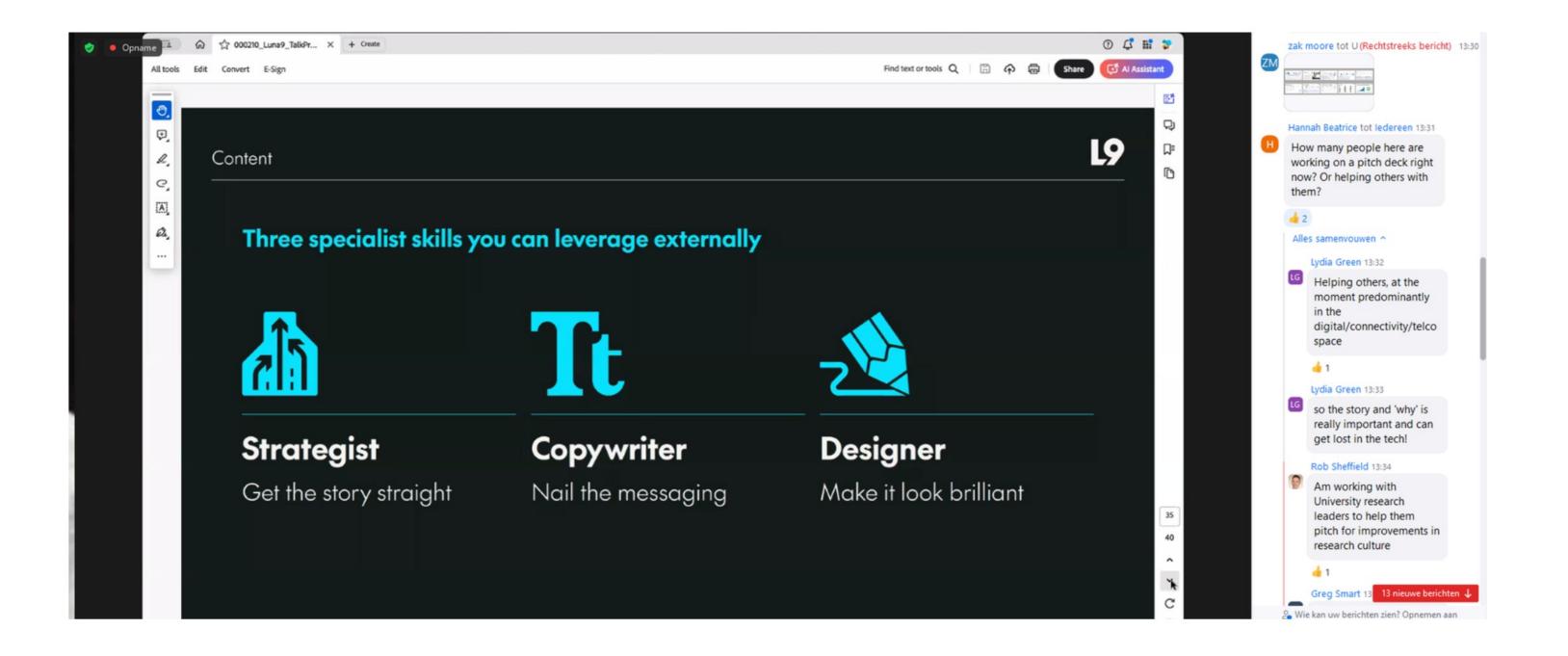


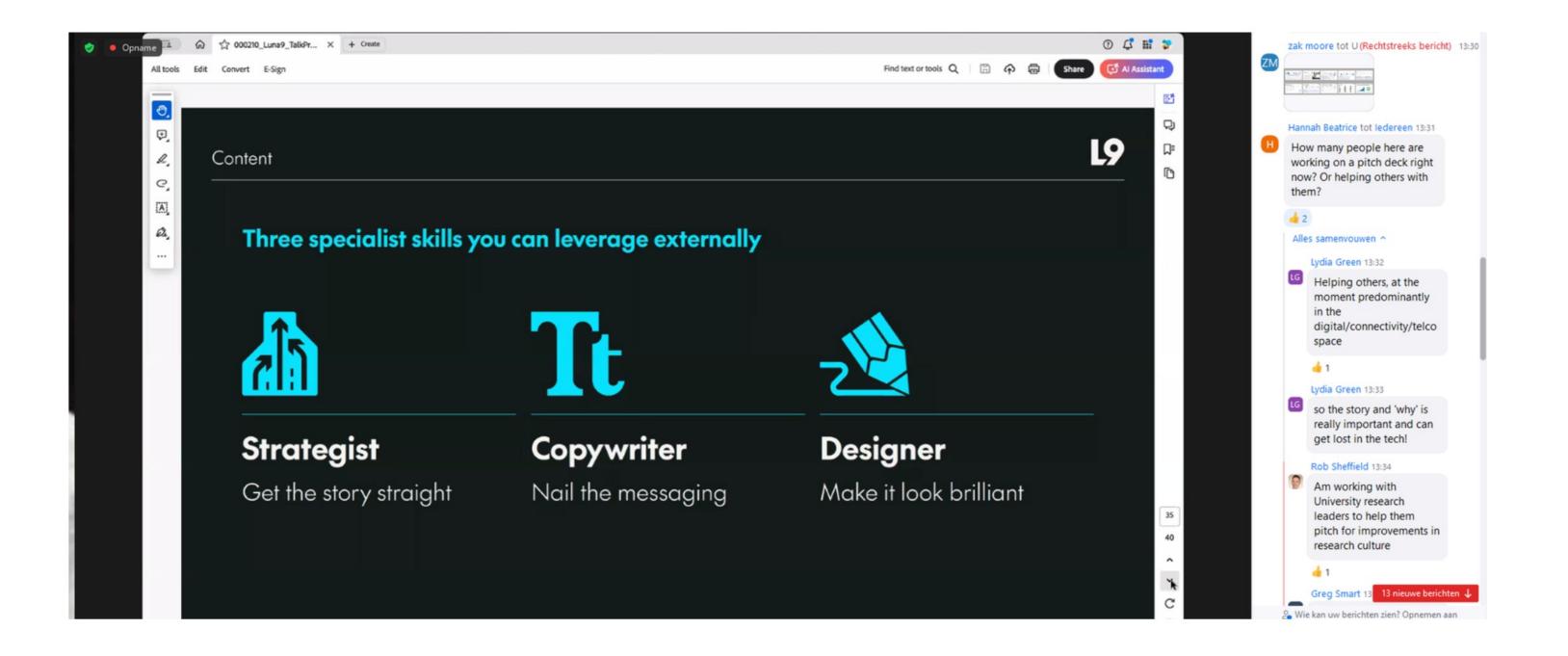
#### The 'leave behind'

- More versatile
- Has necessary context to work without a presenter
- Potentially less linear
- Familiar but different







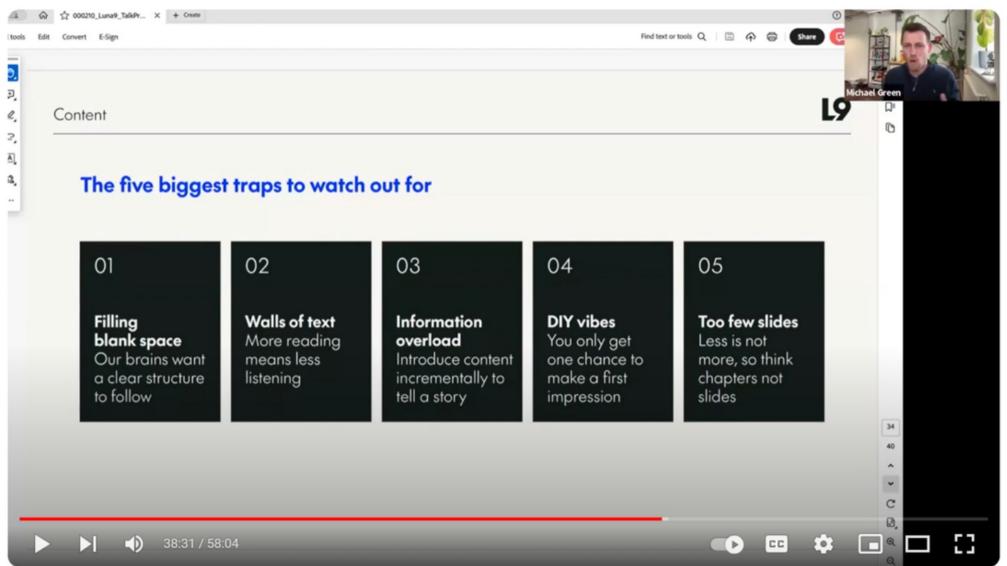


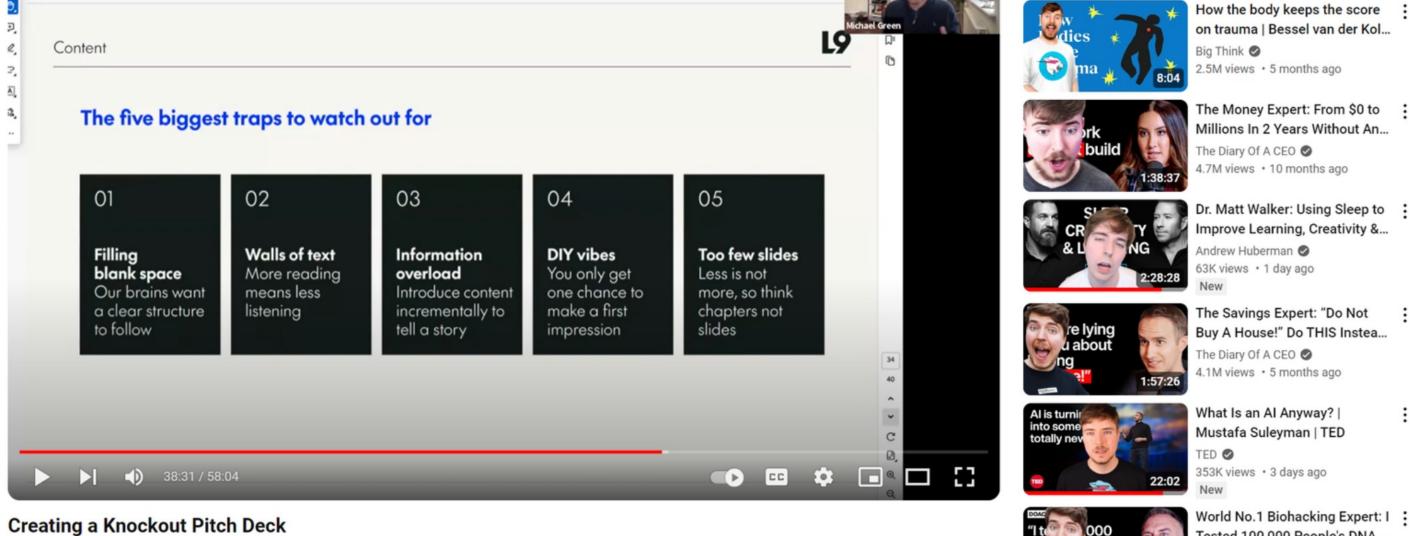


#### The questions you need to ask yourself

## After you pitch...

- · What will you share?
- Would it make sense without you there to pitch with it?
- How would you feel about someone passing it on?
- What is your follow up?





All

Related

Watched

Tested 100.000 People's DNA....

For you

