

TWINGTEC

WIND ENERGY 2.0



HARNESSING WIND POWER
BEYOND CONVENTIONAL LIMITS

FOR NET ZERO IN 2050 WE NEED >20 TW RENEWABLE ADDITIONS

“INSTALLED RENEWABLE CAPACITY NEED TO TRIPLE BY 2030” - IEA

GLOBAL RENEWABLES CAPACITY ADDITIONS – 2023-2050¹



> 20 TW

New Installations until 2050 to meet decarbonization commitments

> USD 23 B

Capex required until 2050²

> 18 X

Growth in Offshore Wind between 2023 and 2050

Indicative numbers in 000' TWh & CAPEX in \$BN

¹ Additions required to meet decarbonization commitments

² Capex estimation based on Lazard 2023 levelized cost of energy assessment, reflecting avg. capex per KW and avg. capacity factors per technology

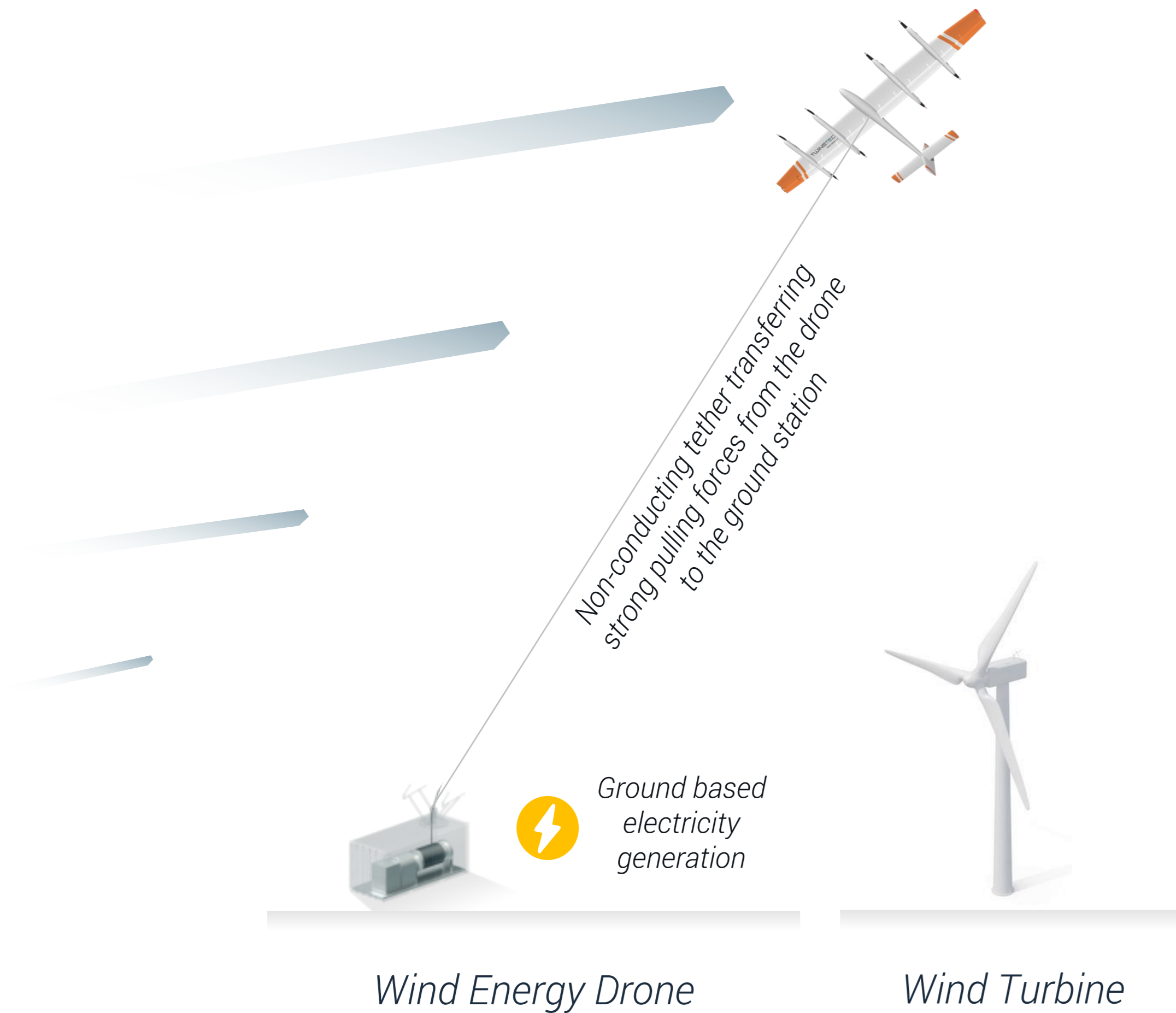
Source: Indicative from McKinsey Global Energy Perspective 2023 and Lazard levelized cost of energy assessment

RENEWABLE DEPLOYMENT GOALS ARE CONSTRAINT. WHY?

PV	Strong dependency on one manufacturing country
Wind Offshore	Cancelled & delayed projects, lack of crane ships, material cost rise, limited space in flat waters (< 50m)
Wind Onshore	Low public support, land scarcity, increased material & logistic cost
Decentralized Power	Missing competitive & “mobile” green power solutions to replace Diesel/grid power

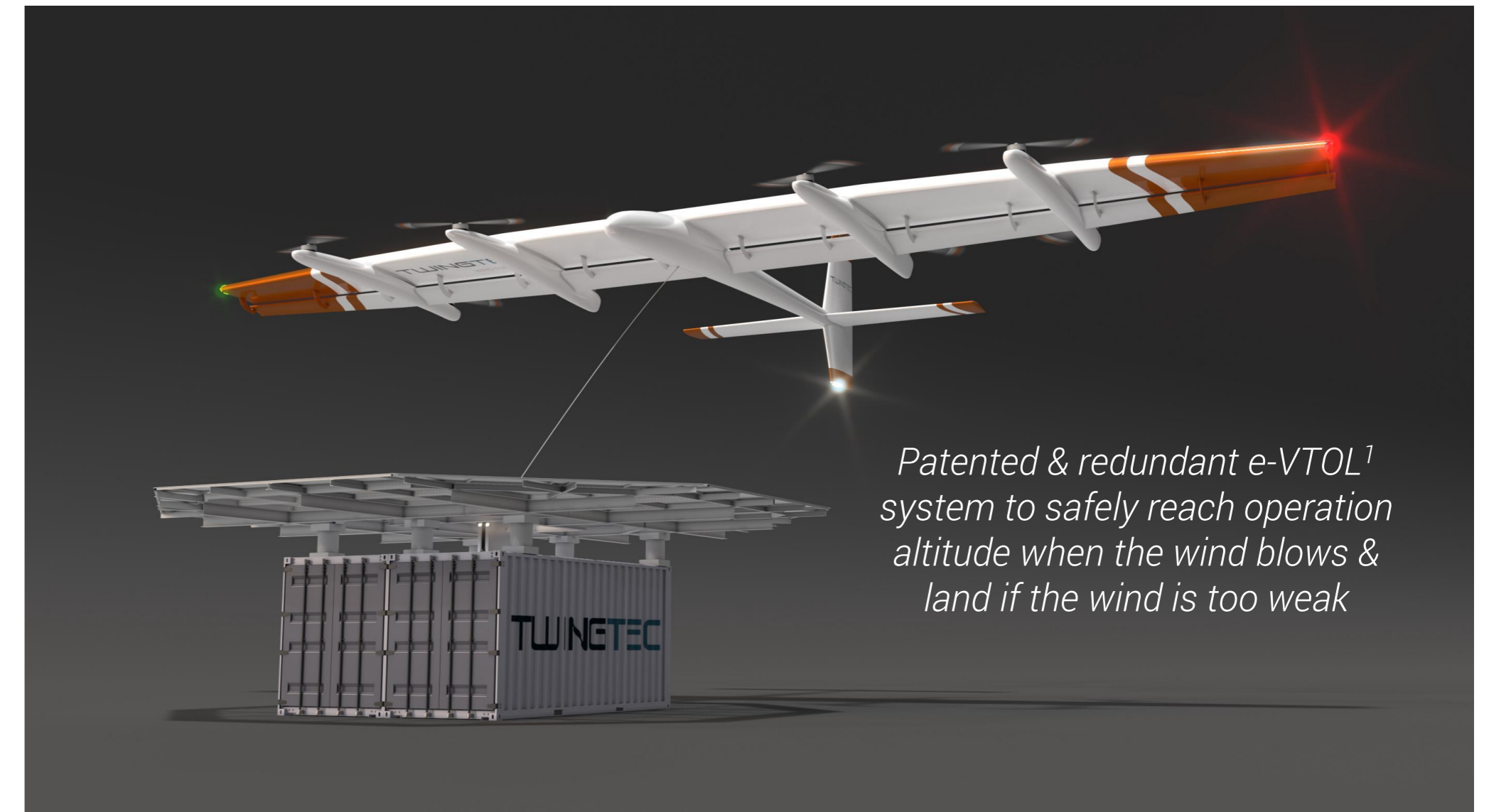


WIND ENERGY DRONES TO UN-CONSTRAIN WIND DEPLOYMENT



CAPTURING STRONG HIGH-ALTITUDE WINDS USING DRONE TECH

MORE WIND POWER FOR ON- & OFFSHORE @ MINIMAL USE OF MATERIAL & LAND & LOWEST ELECTRICITY COSTS



¹ electrical vertical take-off & landing system



USERS GET MORE POWER FOR LOWER COSTS

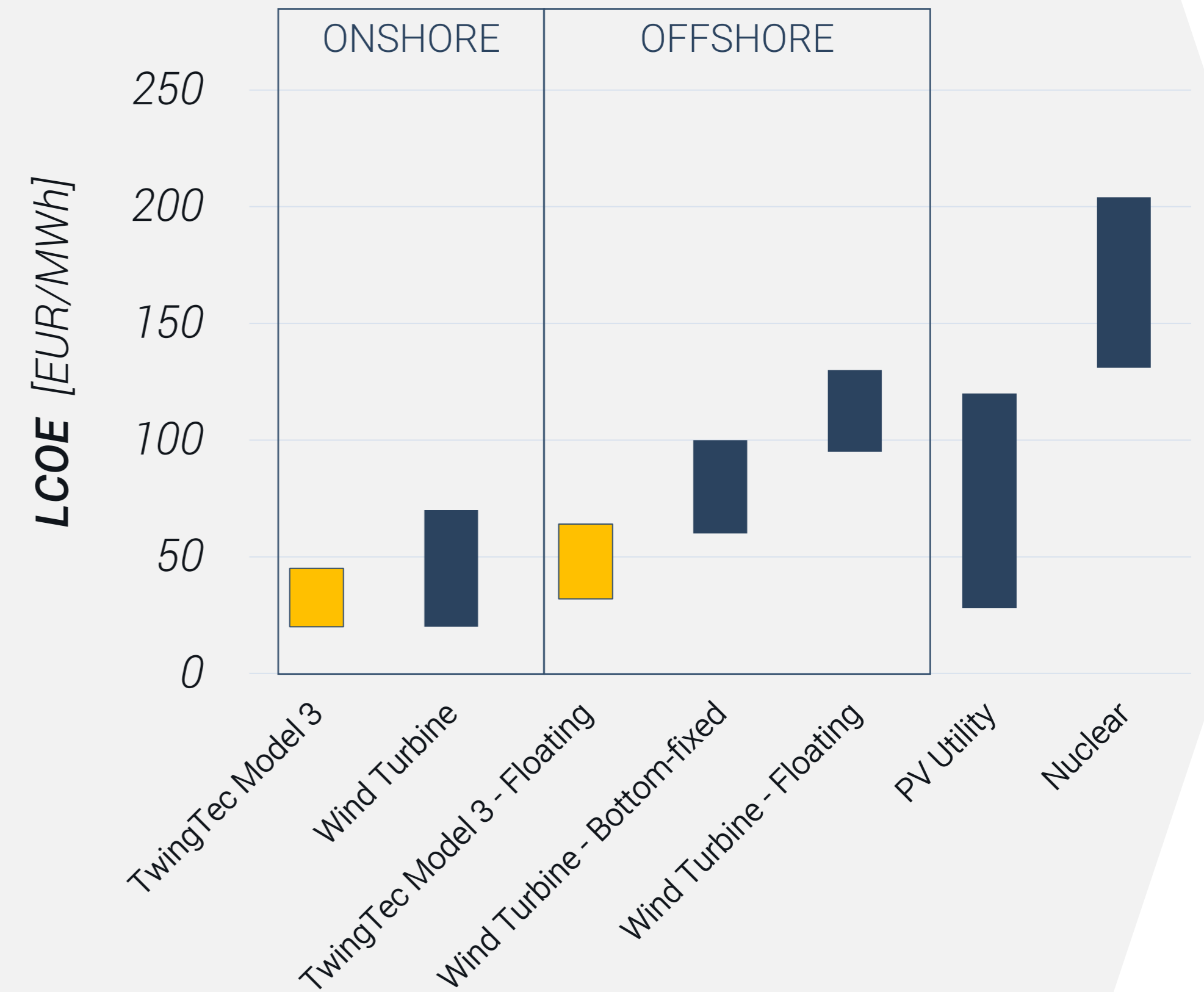
WE CAN...

- + USE UP TO 90% LESS MATERIALS
- + YIELD UP TO 2 X THE ENERGY PER LAND/SEA AREA
- + REACH 2 X STRONGER & MORE CONSTANT HIGH-ALTITUDE WINDS
- + MINIMIZE ENVIRONMENTAL & VISUAL IMPACT

=

... LEADING TO LOWER COSTS

Expected levelized cost of electricity



OUR SOLUTION WILL CREATE NEW WIND ENERGY MARKETS...

UP TO 5 GT CO₂e ADDITIONAL SAVINGS TILL 2050

MOBILE WIND ENERGY



Replacing diesel or grid power usage
in decentral on- and off-grid market

EUR 70 B/year

HYBRID SYSTEMS



Doubling the output of PV & wind turbine
farms in utility onshore market

EUR 90 B/year

FLOATING WIND ENERGY



Almost "unlimited" wind energy in depths
> 50m in utility offshore market

> EUR 200 B/year

TOTAL ADDRESSABLE MARKET¹: > EUR 360 B/year

¹ the market numbers account for the entire airborne wind energy sector; only considering market volumes complementary to wind turbines, potential replacement volumes are not considered here, servable obtainable market is EUR 8 B/year in first 10 years

UNIT ECONOMICS

EXAMPLE FOR MINING SECTOR

Key offerings :

- *Financial savings*
- *Greenhouse gas reduction*
- *Hedge against rising fuel costs*

Hybrid power with diesel gen-set and Model 2

- *Model 2 produces 3'500 MWh of electricity per year¹*
- *Model 2 saves 1'000'000 litres of diesel per year²*
- *Model 2 saves 2'600 tons of CO₂ per year³*

Model 2 payback in 2.2 years⁴

¹ Site with 9.2 m/s average wind speed at 200 m altitude

² Diesel generator produces 3.5 kWh electricity per litre diesel

³ Diesel generator produces 2.6 kg CO₂ per litre diesel

⁴ Model 2: ca. 1 MW nominal power, Capex EUR 2 M, OPEX EUR 80 k/year, Projex EUR 90 k
cost of diesel including transport to site: 1 EUR/litre, no financing costs included (simple payback)

NOTE: CAPEX & OPEX expected to further decrease for Model 2 & especially Model 3 with manufacturing volume & learning curve



LARGE CUSTOMERS TO APPLY OUR PRODUCTS IN KEY MARKETS



World leading supplier for rental power
Runs 10 GW of fossil-fueled generators¹
Great access to global off-grid markets

Market access off-grid

Validation & testing



Global utility; renewables pioneer
They identified large potential for our products in
decentralized on-grid markets
up to offshore installations

Market access on-grid

R&D partner – providing
data, technical know-how

+ SEVERAL MORE POTENTIAL STRATEGIC CUSTOMERS WITH SIGNED LOI'S

¹ That is the equivalent power of 10 nuclear power plants

ROADMAP TO UNLOCK KEY MARKETS & TECHNOLOGIES

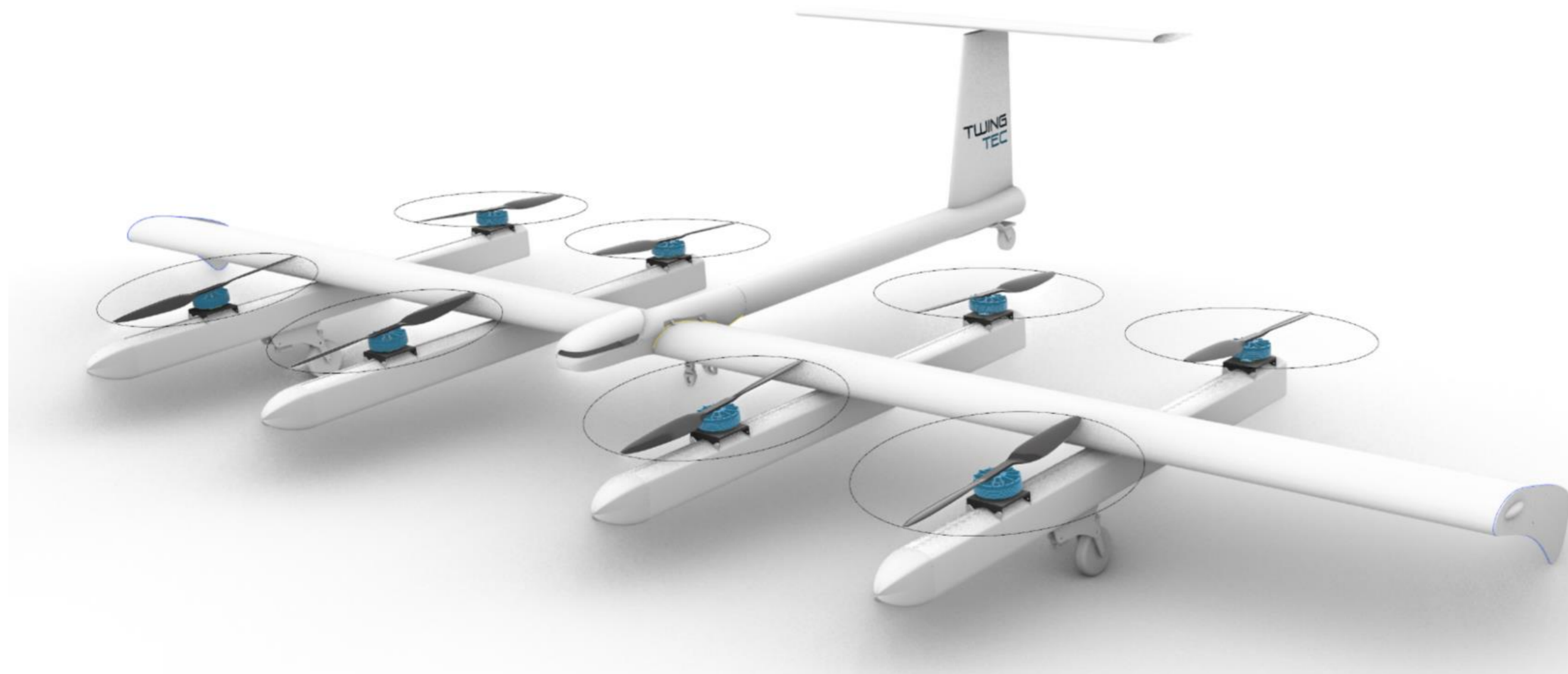


PROGRESSIVE ACHIEVEMENT OF TECHNOLOGY MILESTONES RESULTING IN UNLOCKING OF CORE MARKETS

- 1 MOBILE & DECENTRAL WIND ENERGY
- 2 UTILITY ONSHORE INCL. HYBRIDS
- 3 FLOATING OFFSHORE

MVP = Minimal Viable Product
 Disclaimer: Preliminary forecast based on today's progress and understanding. Time plan strongly depends on timing of closing next funding round. Nothing contained herein shall constitute any representation or warranty as to future performance.

NEXT: MVP TO COST EFFECTIVELY OPEN MARKETS AND INCREASE SAFETY, RELIABILITY, OPERATION TIMES & EFFICIENCY



2024				2025			
DESIGN							
	BUILD						
				TEST & PERFORMANCE VALIDATION			
SIMULATION & CONTROL IMPROVEMENTS							
FLIGHT PERMISSION							

MVP = Minimal Viable Product

Disclaimer: Preliminary forecast based on today's progress and understanding. Time plan strongly depends on timing of closing next funding round. Nothing contained herein shall constitute any representation or warranty as to future performance.

FAST & COST-EFFECTIVE DE-RISKING OF:

- ✓ **PERFORMANCE:** ITERATIVELY IMPROVING EFFICIENCY, AUTOMATION & RELIABILITY
- ✓ **SAFETY & REGULATION:** FAST BRIDGE TO PRODUCT
- ✓ **SCALING:** MVP DESIGN SCALES TO >1 MW

- ✓ **MARKET INTRODUCTION → REALIZE 1ST REVENUES**

FIRST VIABLE & SELLABLE CUSTOMER DEMO SYSTEMS

- ✓ **FUTURE INVESTMENTS:**

COMMERCIAL PROOF POINT FOR STRATEGICS

UPSIDE POTENTIAL:

MVP MAY BECOME A PRODUCT ITSELF

STRATEGIC PARTNERS FOR FAST & DE-RISKED MARKET ENTRY



FAST OFFSHORE MARKET ACCESS

- Norwegian offshore and hydraulic pump specialist
- Invested in TwingTec
- Leading edge ground station technology

Complementary European players in airborne wind

PRODUCT & MANUFACTURING CAPABILITIES

- Close cooperation to speed up commercialization
- Leverage the best expertise, IP, strategic partners and customers



LEVERAGING SWISS AVIATION & DRONE TECH. EXPERTISE



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Innosuisse – Swiss Innovation Agency



WE BRING 90+ YEARS OF AIRBORNE WIND EXPERTISE: SCIENCE-BASED, PRAGMATIC, CUSTOMER-FOCUSED LEADERSHIP

Our board



R. FEZZANI
CHAIRMAN (INDEPENDENT)



M.-P. DHERS
INDEPENDENT BOARD MEMBER



T. GHIDINI
INDEPENDENT BOARD MEMBER



M. G.-CHÉDEVILLE
INDEPENDENT BOARD MEMBER



The TwingTec team



G. HANNA
CEO, BOARD MEMBER



F. GOHL
CTO, CO-FOUNDER



D. COSTA
CIO, CO-FOUNDER,



R. LUCHSINGER
COO, CO-FOUNDER, BOARD MEMBER



C. GALLIOT
CH. PRODUCTION & CO-FOUNDER



All company logos represent previous employers of the team & board members.

JOIN US ON THE JOURNEY TO ZERO CO₂ EMISSIONS

TO FLY IN ONE OF THE MOST DISRUPTIVE GREEN ENERGY MARKETS



TWINGTEC

WIND ENERGY 2.0

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SUSTAINABLE DEVELOPMENT GOALS

7 AFFORDABLE AND CLEAN ENERGY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



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