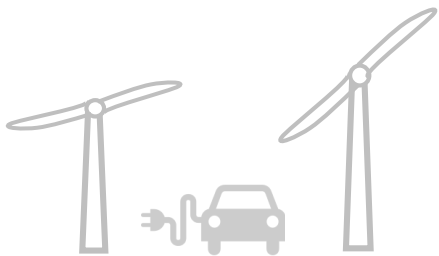




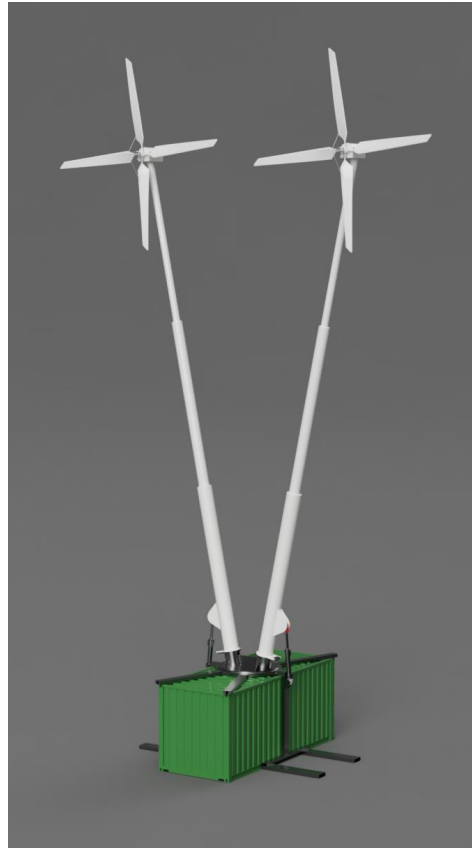
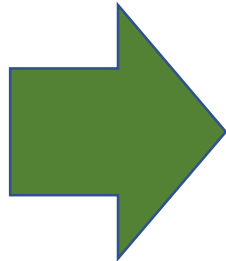
TWind 12



© RESiT

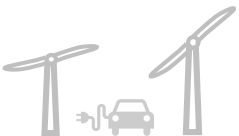


# Technology Evolution

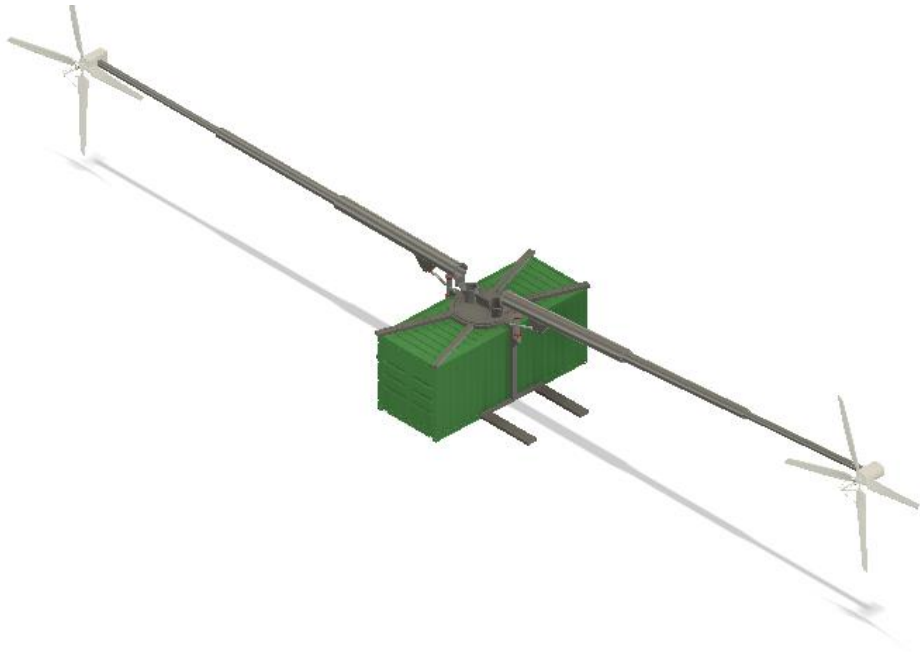
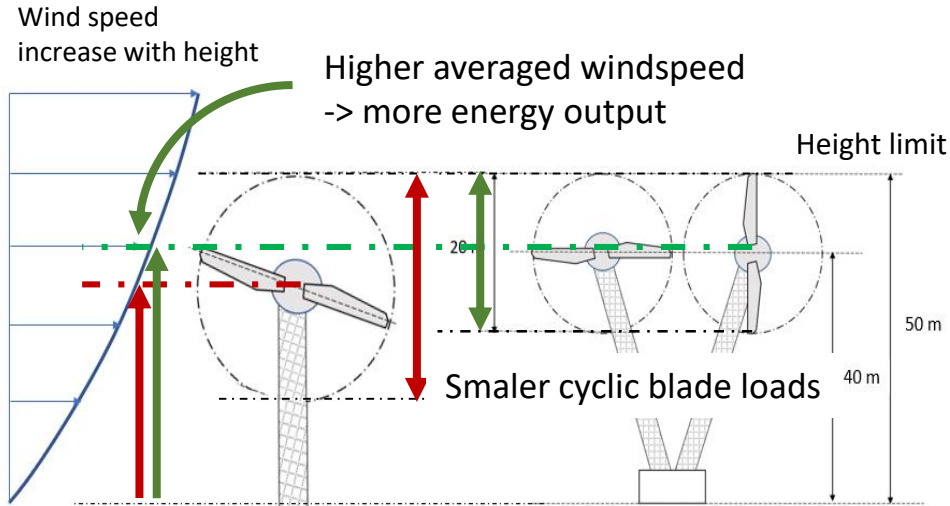


- Adapt existing turbines to be used as Multi-Rotor turbine
- Include easy transport, installation and maintenance capabilities
- Easy expansion with other energy generation and storage systems

Goal: Minimize LCOE for wind turbines with max. 50 m total height.



# Twin rotor as a low-cost electricity supplier

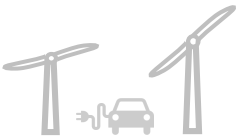


- Optimal energy yield especially at sites with a height restriction
- Easy installation of the turbine because it takes place on the ground
- Survival during extreme wind events, as the individual rotors can be lowered to the ground in a short time (<30 min)
- Lowering of the rotors as needed
- Easy access to all components and thus low maintenance/service costs
- Easy transport due to small and light plant modules to the site (container transport)

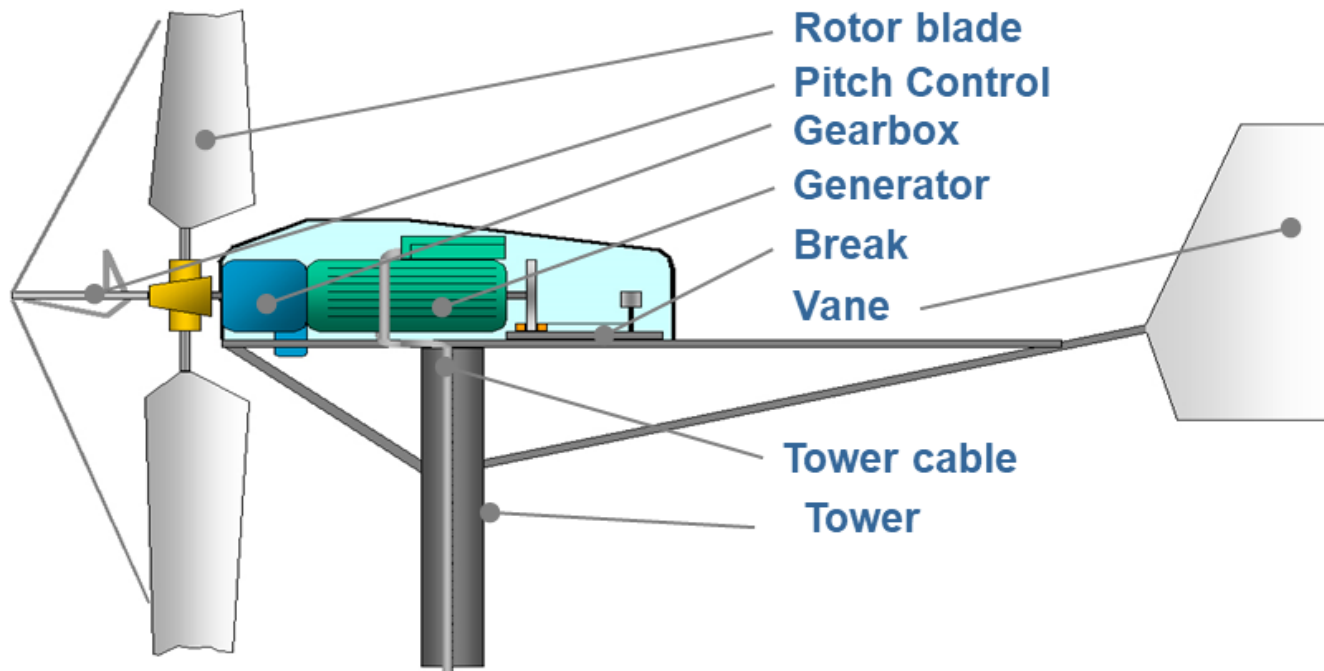
# Proven EasyWind 6 kW turbine as basis



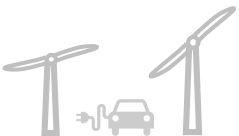
Rated power: 6 kW  
Rotor diameter: 6,2 m  
Hub height: 13/19 m  
Passive pitch system  
Hydraulic safety brake  
Damped yawing wind vane



# Turbine Technical Data



<b>Technical Data EasyWind 6kW AC</b>	
Rotor diameter:	6.2 m
Number of blade	4
Position	Upwind
Rated speed	83/ 124 RPM
Design of blade	Steel/ glassfiber
Design of hub	Rigid/ solid steel
Capacity output:	6 kW
Rated voltage	400 V, 3 phase 50 Hz
Cut-in wind speed:	3 m/s
Rated wind speed	11.5 m/s
Cut-out wind speed:	none - stormproof
Survival wind speed.:	70 m/s
Control system:	passive pitch
Yawing control by	Wind vane



# Type certification IEC 61400-2 Class 1



DEWI-OCC Offshore and  
Certification Centre GmbH  
Am Seedeich 9, D-27472 Cuxhaven



## Type Certificate

TC – 101204, Rev. 1

This Type Certificate is issued to

Easywind GmbH  
Redlingsweg 3  
25842 Langenhorn  
Germany

For the wind turbine

**EasyWind 6 AC**

This statement attests compliance with

IEC 61400-2

Wind turbines – Part 2: Design requirements for small wind turbines,  
2<sup>nd</sup> Edition 2006-03  
**SWT Class I**

concerning the design and manufacture. It is based on the following Statements of Compliance and Evaluation Report:

STC – 090201	Design Assessment	DEWI-OCC, Rev. 0, 2009-02-20
STC – 090202	Prototype Testing	DEWI-OCC, Rev. 0, 2009-02-20
STC – 101209	Manufacturing Evaluation	DEWI-OCC, Rev. 0, 2010-12-23
R100268-12	Final Evaluation Report	DEWI-OCC, Rev. 0, 2010-12-23

The conformity evaluation was carried out according to IEC WT 01:2001-04 IEC system for conformity testing and certification of wind turbines – Rules and procedures in connection with the amendments of IEC 61400-2: 2006-03, Annex A: Type certification of small wind turbines.

The wind turbine type is specified in the annex of the following Statement of Compliance:

STC – 090201	Design Assessment	DEWI-OCC, Rev. 0, 2009-02-20
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Any change in the design or the manufacturer's quality system shall be approved by DEWI-OCC, otherwise this Type Certificate loses its validity. This Type Certificate is valid until 2015-12-22.

Cuxhaven, 2011-01-11

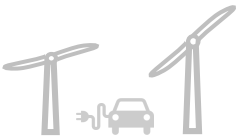
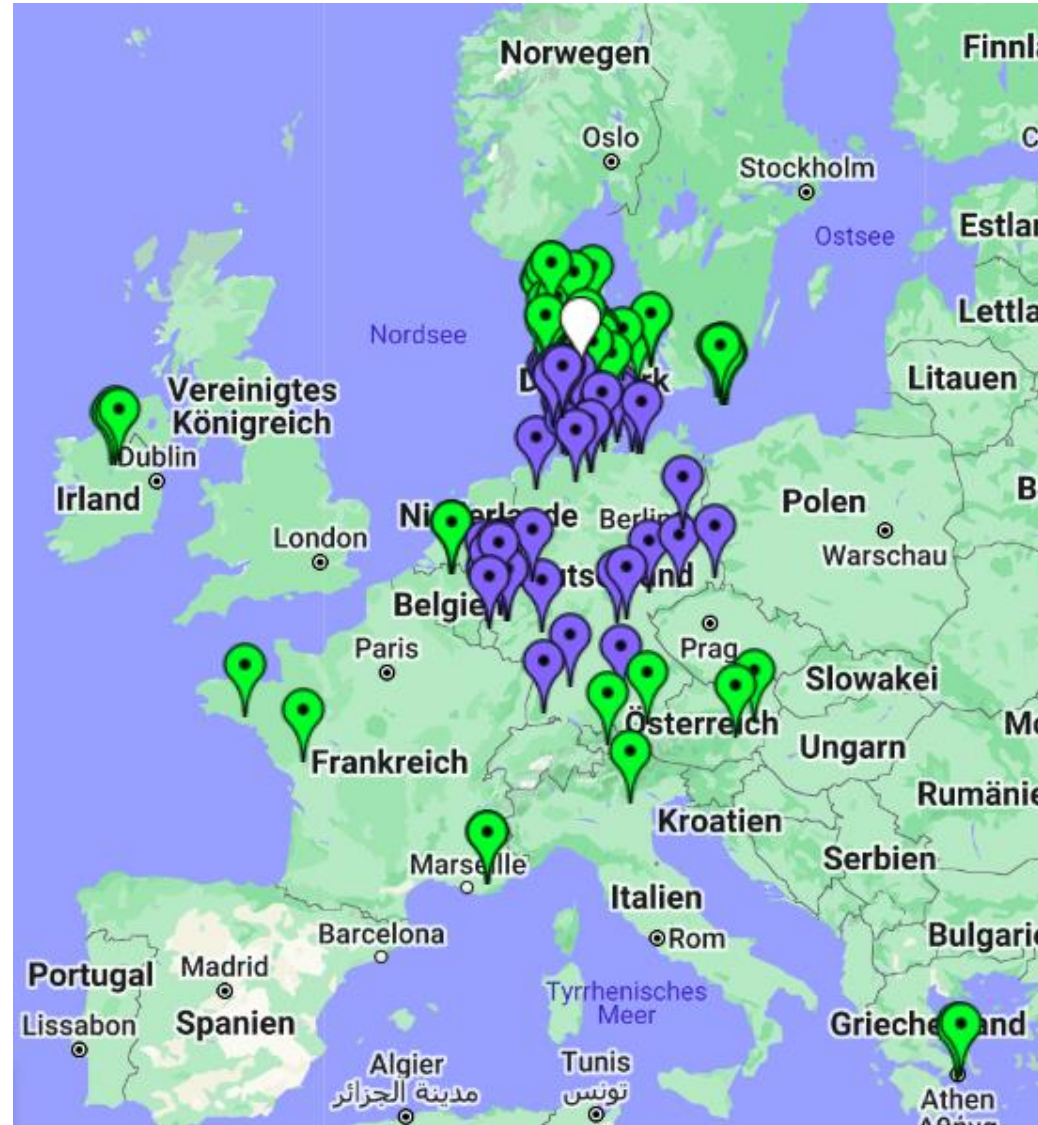
A handwritten signature in blue ink, appearing to read 'J. Kröning'.

Dipl.-Ing. Jürgen Kröning  
Head of DEWI-OCC  
Certification Body for Wind Turbines





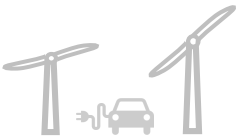
# Success of EasyWind turbines





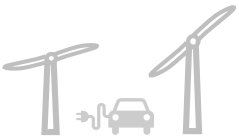
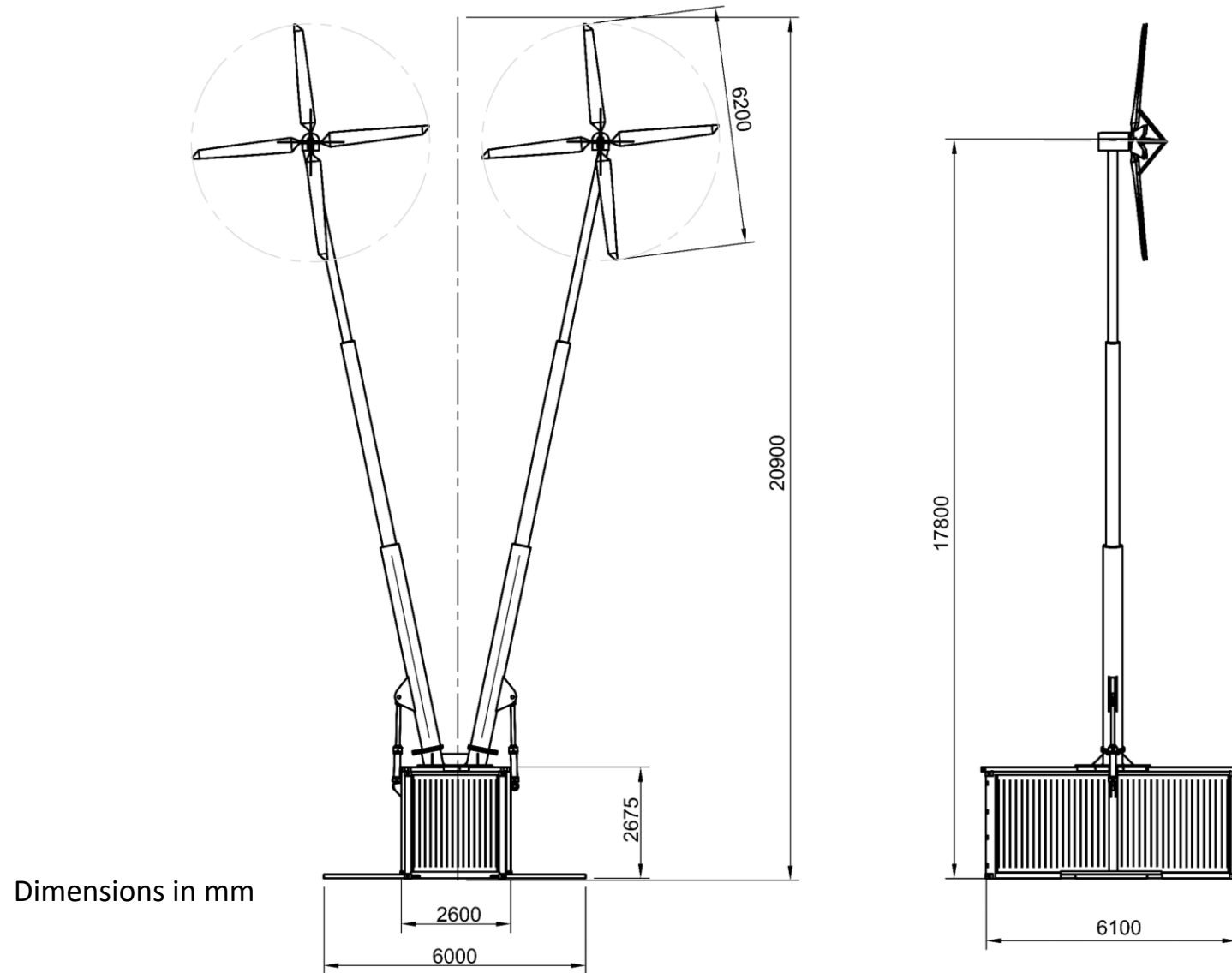
## RES/T TWind 12 kW

- 2 x EasyWind 6 kW turbine
- EasyWind Mono-Tower with hydraulic tilting system
- Central active yawing system
- 20 ft Container with support structure as „foundation“
- Container used for transportation to site and storage for complementary systems (batteries, (hot) water tank, PV, electrolyser,...)

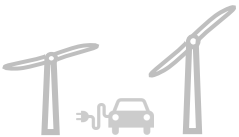
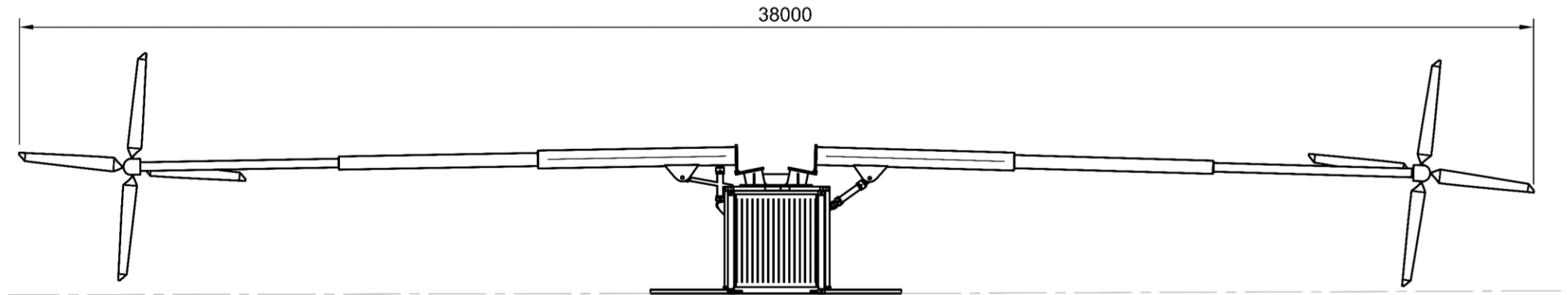




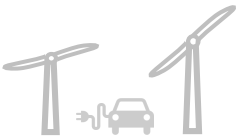
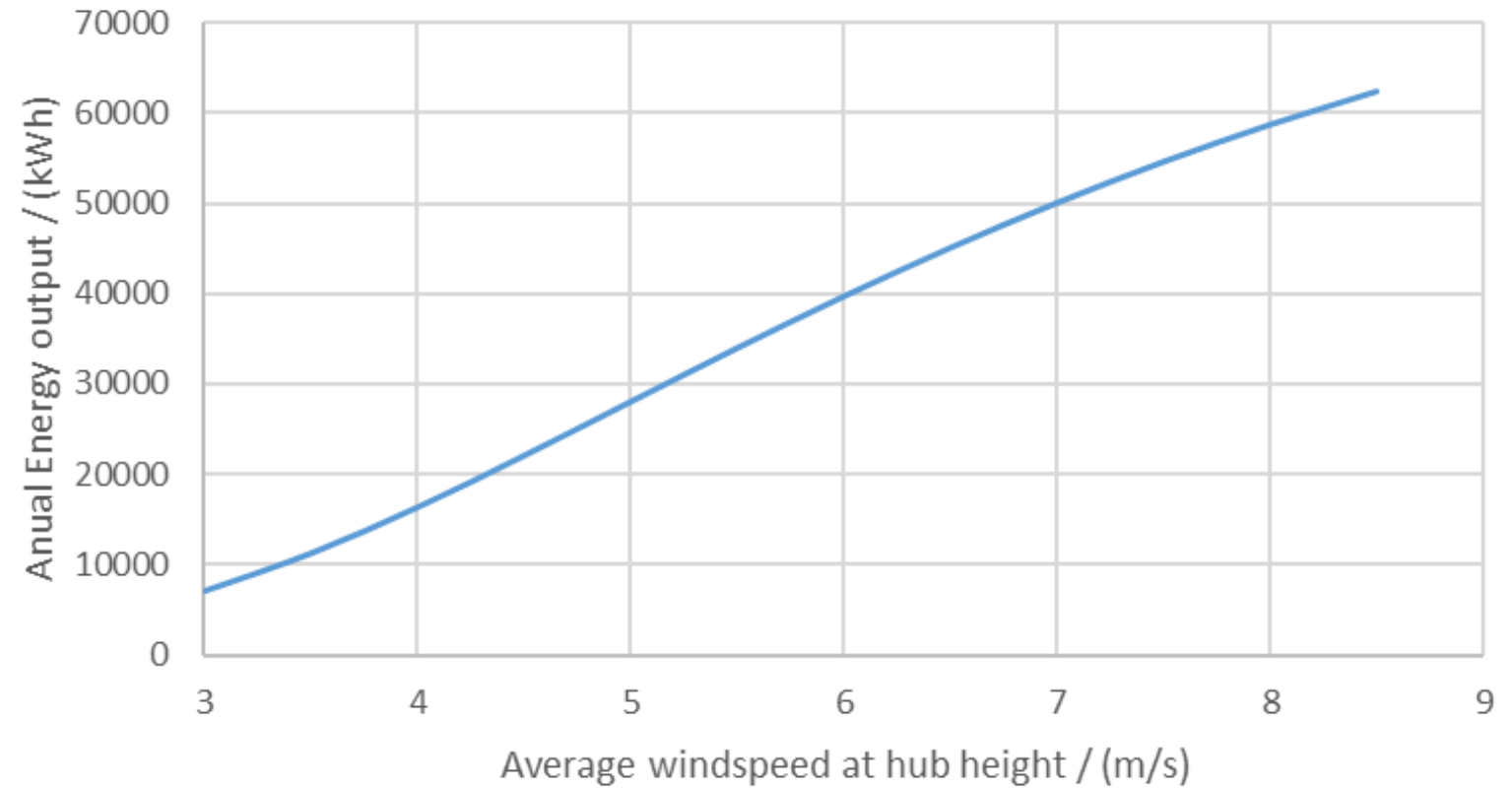
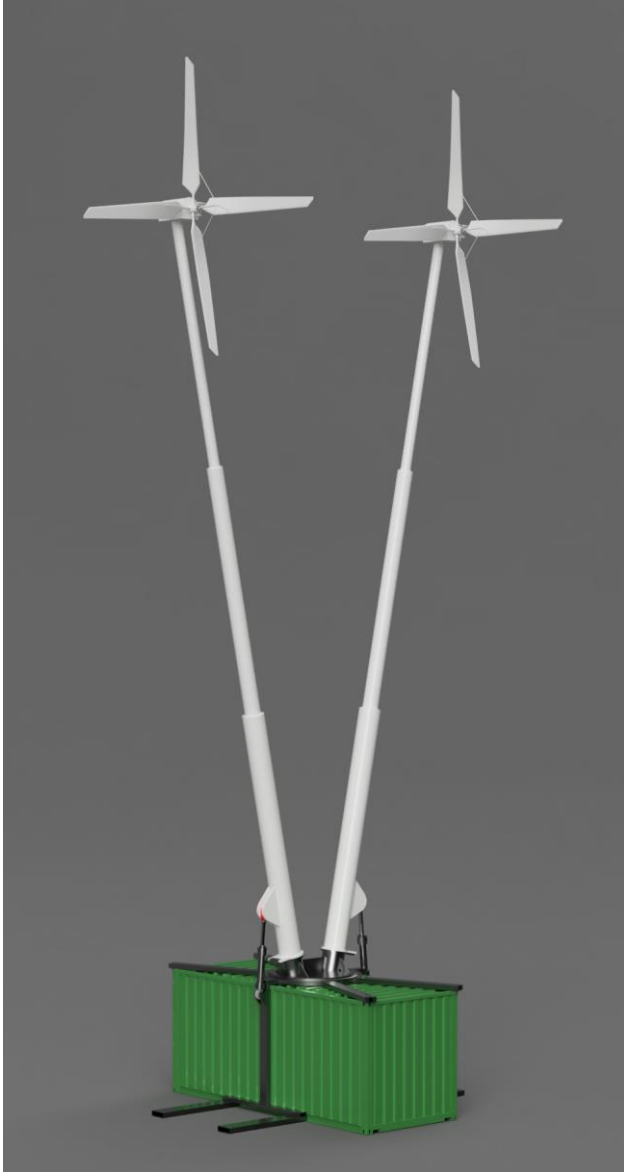
# TWind 12 dimensions

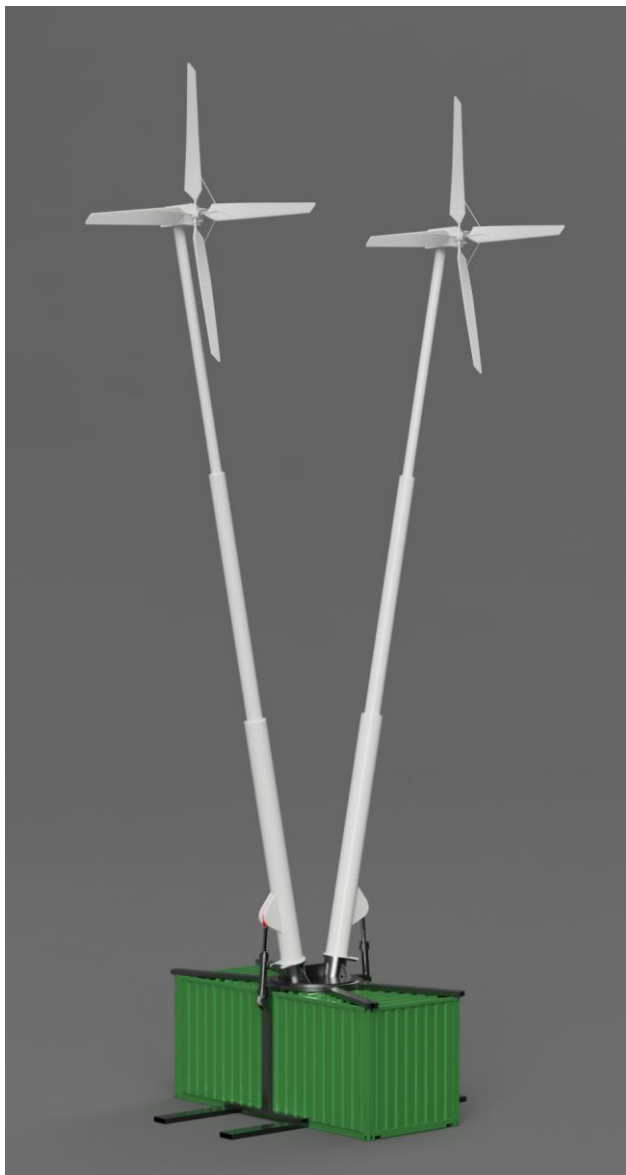


# TWind 12 dimensions



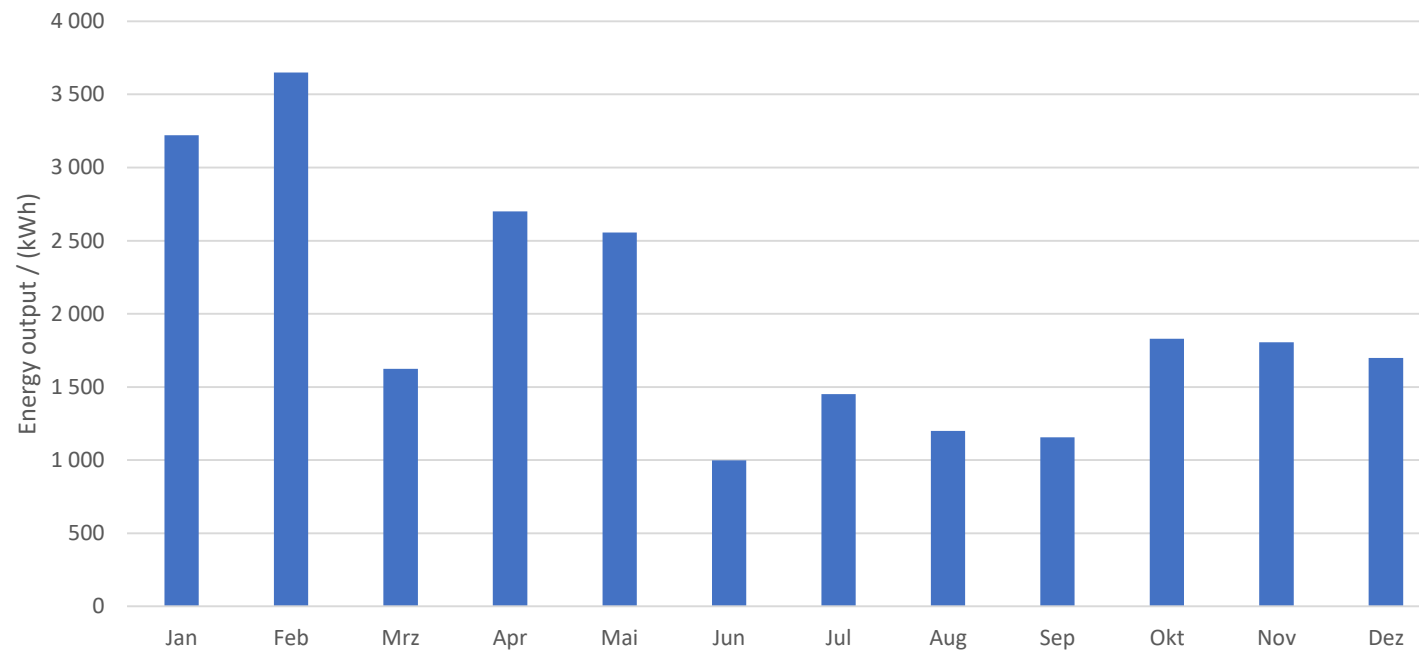
# TWind 12 Annual Energy Output





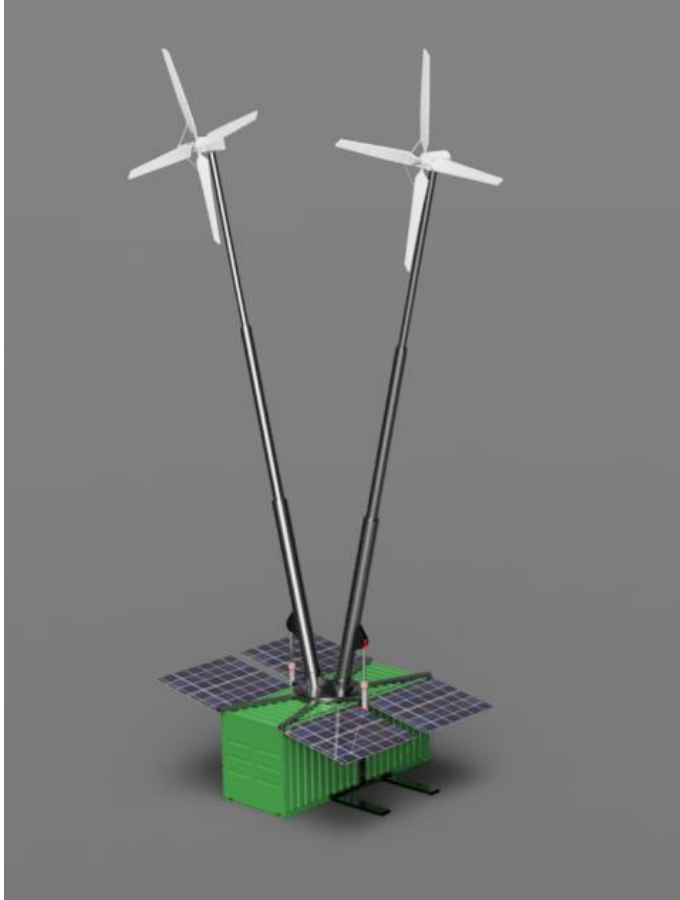
# TWind 12 Monthly Energy Output

( 4.8 m/s anual average windspeed at hub height)

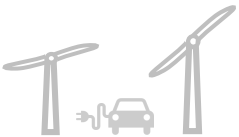


Total / year : 23000 kWh



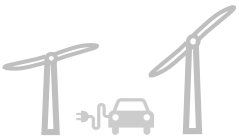
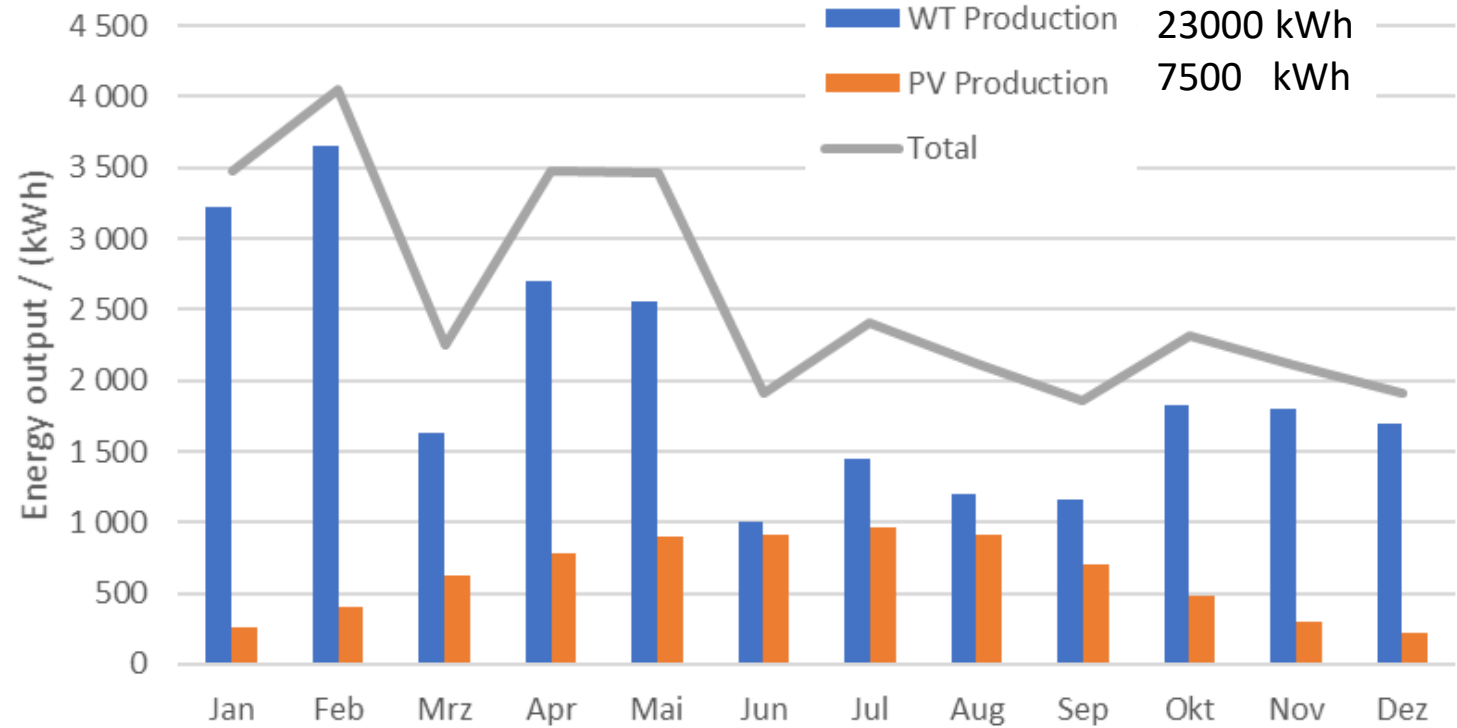
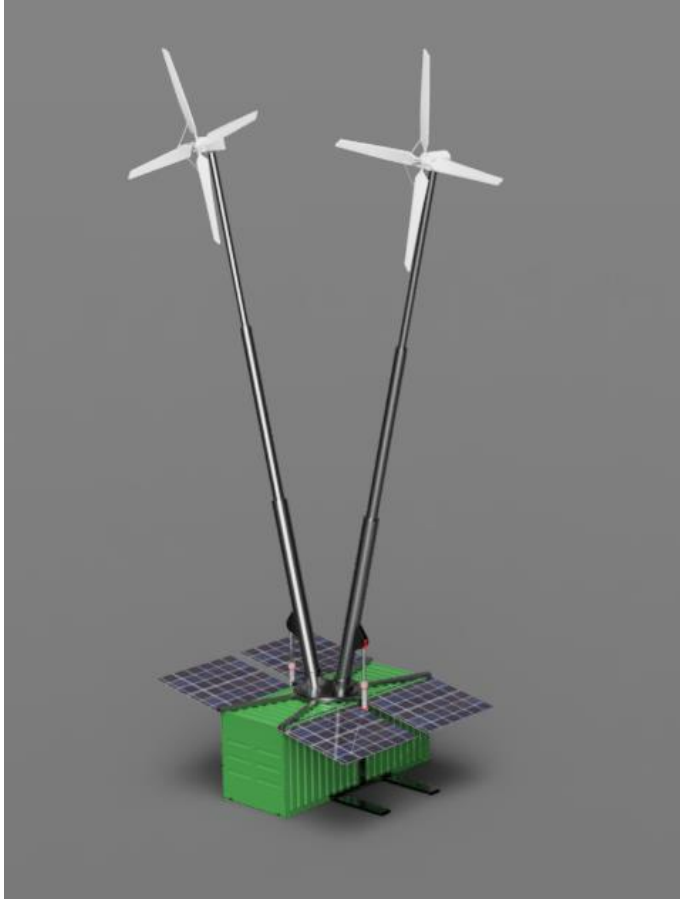


- Attached 7 kW Peak PV system
- Integrated storage systems:
  - Lithium battery
  - Redox-Flow battery
  - Fly-wheel
  - H2 electrolyser
- Integrated heat systems:
  - Direct heating of hot water tank
  - Heat pump



# TWind Monthly Energy Output

( 4.8 m/s anual average windspeed at hub height and 7 kW peak PV System)







Renewable Energy Systems & Technology UG

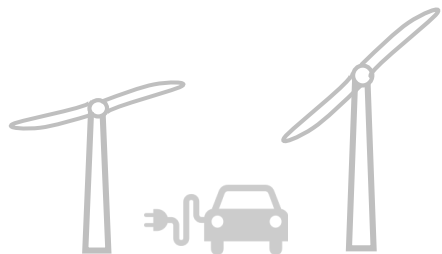
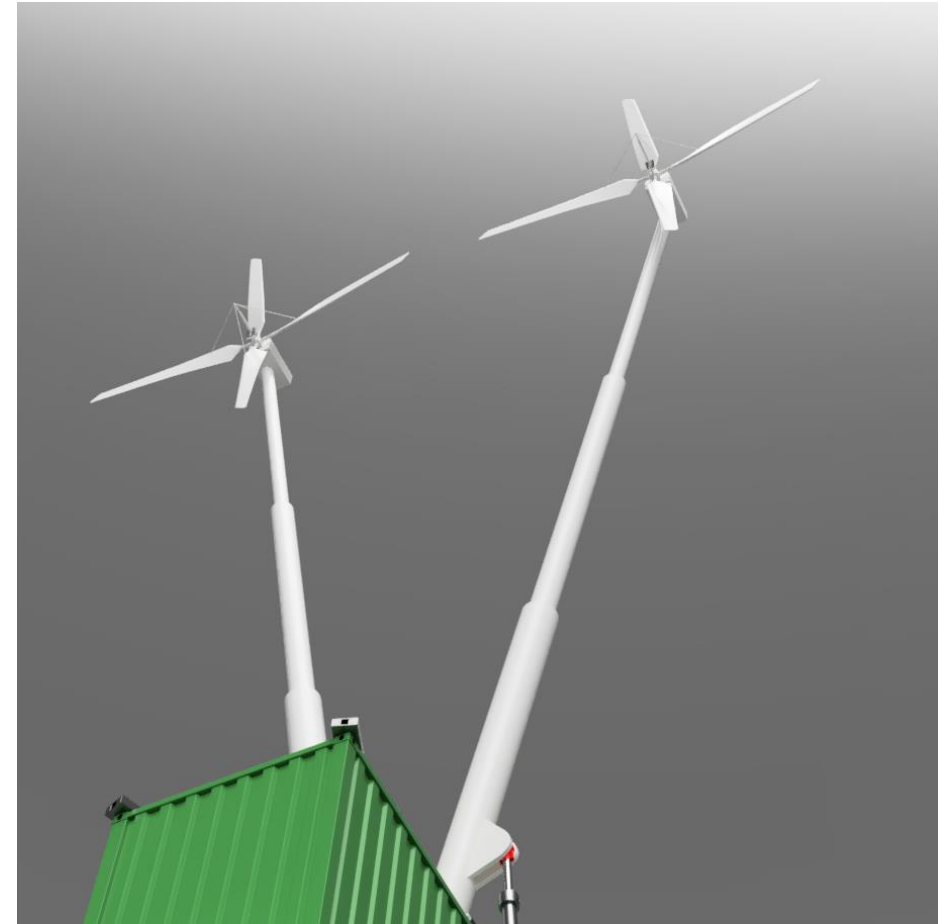
m: +491725482736

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D25920 Stedesand



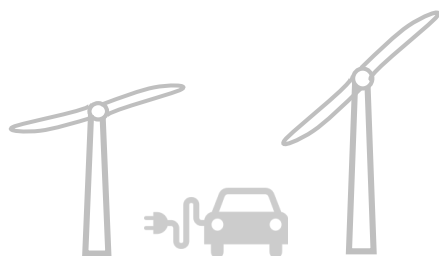
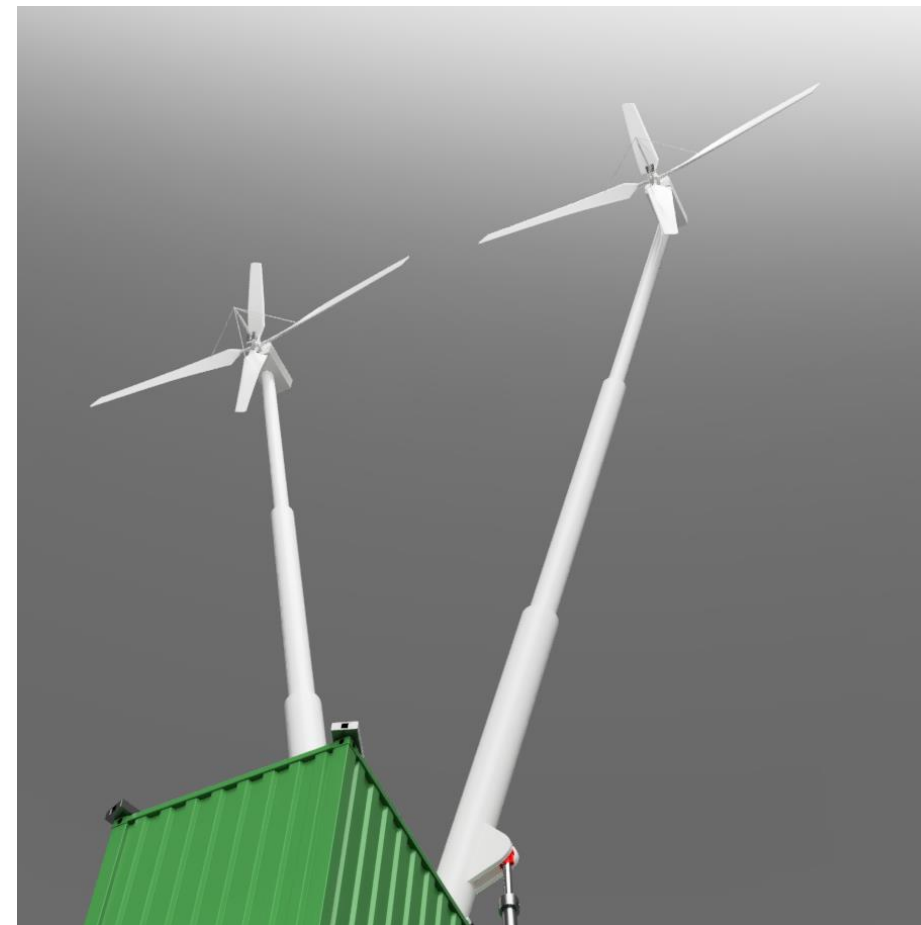
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Dr. Heuberger



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