KITE//KRAFT

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Categories	Electrical Distribution, Energy, Renewable Energy, Wind Energy

Overview

Kitekraft is a startup focused on revolutionizing wind energy through its innovative flying wind turbines. These systems employ a tethered aircraft instead of traditional turbine structures, reducing material usage by 10x and drastically improving installation logistics and costs. This approach allows wind power generation in areas previously deemed unsuitable due to logistical or aesthetic concerns. [0]

The company's technology has been funded under the European Union's Horizon Europe program and continues to expand its capabilities through partnerships with various industry experts. Kitekraft aims to play a crucial role in the global shift toward 100% clean energy by delivering low-cost, efficient wind energy solutions. [1][0]

A strong team of engineers and entrepreneurs supports Kitekraft, including CTO Florian Bauer and CEO Maximilian Isensee. The leadership is driven by expertise in fields like electrical engineering, renewable energy, and aerodynamics, primarily acquired through educational backgrounds at the Technical University of Munich. [2]

In its quest to optimize airborne wind energy systems, Kitekraft leverages scientific research and practical testing, as evidenced by multiple publications and patents secured by its team members. The company was also part of Silicon Valley's Y Combinator accelerator program and has received multiple awards for its contributions to sustainable energy technology. [2]

[0]https://www.kitekraft.de
[1]https://www.kitekraft.de/technology
[2]https://www.kitekraft.de/about

About Products and Technologies

Kitekraft is focused on developing next-generation wind turbines with significantly reduced material usage and enhanced cost-efficiency. Their systems use a tethered, flying device, reducing the environmental footprint and offering a scalable solution for wind energy generation. [0]

The technology includes a boxplane structure with aluminum extruded wings and multi-element airfoils, ensuring a high power density even at small system sizes. Their technologies are built for robustness, utilizing brushless DC motors and carbon fiber rotor blades. This setup enables efficient energy harvesting even under gusty wind conditions. [1]

Kitekraft works with various partners to source components like motion tracking hardware and energy storage systems, relying on a robust industrial network for development and production. They focus on agile development, continuously refining their models and systems through real-world testing. [1]

[0]https://www.kitekraft.de
[1]https://www.kitekraft.de/technology

Main Product Names

Flying Wind Turbines: An innovative solution using tethered aircraft to collect wind energy; offers 10x material savings and cost reductions over traditional turbines. [0]

[0]https://www.kitekraft.de

Leadership team

Name: Maximilian Isensee
Position: CEO
About: Maximilian Isensee is a renewable energy engineer and a co-founder of the climate NGO Protect Our Winters Germany. He has experience as a startup consultant at the Karlsruhe Institute of Technology.

Name: Florian Bauer
Position: CTO
About: Florian Bauer has a PhD in Electrical Engineering with research focus on multidisciplinary optimization of drag power kites. He has published extensively on the subject and holds several patents related to flying wind turbine technology.

Name: André Frirdich
Position: Head of Aerodynamics
About: As an Aerodynamics Engineer with a Master's degree in Mechanical Engineering, André manages aerodynamics with a special focus on rotor optimization at Kitekraft, inspired by efforts to change global energy generation methods.

Name: Christoph Drexler
Position: Head of Business Development
LinkedIn: View on LinkedIn
About: Christoph Drexler, with a Master's degree in Mechanical Engineering, manages the mechanical system aspects of Kitekraft, with interests aligning with sustainability-focused technological advancements.

Most Recent Patents

N/A

Most Recent News Articles

Title: Winds of change New wind energy tech developed by European startups.
Publication Date: 20/05/2023
Abstract: People dont just fly kites for fun. At a test site near Munich, engineers recently launched an electricity-generating, box-style kite fitted with small, wind-catching rotors. The contraption, tethered to the ground by a hefty cable, flew repeatedly in a predetermined figure of eight its rotors spinning in the wind. The wind speed is a couple of times higher than that a conventional wind turbine would see, says Maximilian Isensee, chief executive of Kitekraft, explaining how the very movement of the kite itself boosts power generation. Thats why we can get away with much smaller rotors. The figure of eight means the kite reverses direction as it flies, so the tether does not get twisted, which it would if the kite simply flew in a circle. Wind energy is going from strength to strength, with 17% of Europes electricity needs met by wind generation in 2022. The International Energy Agency says that the
URL: https://thenextweb.com/news/winds-of-change-new-wind-energy-tech-developed-by-european-startups

Title: Kitekraft, a startup in Munich, has developed an electricity-generating kite with wind-catching rotors that can fly in a predetermined figure of eight.
Publication Date: 20/05/2023

Abstract: Kitekraft, a startup in Munich, has developed an electricity-generating kite with wind-catching rotors that can fly in a predetermined figure of eight pattern, generating power from the movement of the kite. The kites figure of eight pattern means it reverses direction as it flies, so the tether does not get twisted. Kitekrafts prototype is a quarter scale version of the first commercial product, a kite with a capacity of 100 kilowatts that would require a lengthy tether extending to 150 metres. Kitekraft aims to build megawatt-range kites with tethers longer than 300 metres that could fly at altitudes comparable to the Empire State Building in New York. European startups are developing new technologies that could make wind energy more accessible and enable the construction of huge three-bladed turbines. One such innovation is being developed by Kitekraft, a company that recently launched an electricity-generating kite fitted with small, wind-catching rotors. The kite
URL: https://www.bollyinside.com/news/technology/european-startups-develop-innovative-wind-energy-technology/

Title: Wind kites could soon provide substantial energy to the masses.
Publication Date: 01/04/2023
Abstract: Moritz Diehl, who heads the Department of Microsystems Engineering at the University of Freiburg, told DW that wind kites could be one of the 'most promising' technologies for generating renewable energy in the future. 'You see all the sky above conventional turbines, and you think all this wind energy is just blowing there, and it's not used,' he said. Stephan Wrage, CEO of the German wind power company SkySails-Power, wants to make the 'largest yet untapped source of renewable energy worldwide' suitable for mass use. In August of 2022, we reported on one company making great strides in the field. Its cheaper to manufacture, cheaper to transport, and also has higher efficiency, told Ars Technica at the time Florian Bauer, co-CEO and chief technology officer of Kitekraft, a Munich-based company developing a kite power system. The carbon footprint is also much smaller. If you have all those advantages, why would anyone build a conventional wind
URL: https://interestingengineering.com/innovation/wind-kites-could-soon-provide-substantial-energy-to-the-masses

Title: A green solution in the form of kites aims high for wind power.
Publication Date: 23/08/2022
Abstract: Forget wind turbines on the ground, and put them on kites! That's the new frontier of wind energy, and there are already fledgling projects ramping up. Munich, Germany - If we want to solve the climate crisis, we're going to need every trick in the book. Even though we already have wind turbines springing up all over the country and offshore, kites might be the next move. There's plenty of wind up above where turbines spin, and a company called Kitekraft, based in Munich, Germany, is betting on kites to harness gusts high above where regular wind farms reach, per arsTechnica. Their research shows that there is ample wind to be had about 650 feet off the ground, and that using kites to snag the gusts' power would be way cheaper because you don't need hefty concrete and steel installations. Kitekraft's CEO and chief tech officer, Florian Bauer, claims, 'Its cheaper to manufacture, cheaper
URL: https://www.tag24.com/science/environment/a-green-solution-in-the-form-of-kites-aims-high-for-wind-power-2590042

Title: How Kites Are Being Used to Create Green Energy.
Publication Date: 04/05/2022
Abstract: Wind energy is projected to play a pivotal role in the green energy transition. According to the International Energy Association (IEA), wind energy is expected to increase 11-fold by 2050. IEAs report also states that By 2050, almost 90% of electricity generation comes from renewable sources, with wind and solar PV together accounting for nearly 70%. And it looks like kites, or Airborne Wind Energy, (AWE), may have a part to play in this model. There are two main ways that kites can be used to harness energy. One way is to attach a generator directly to the soft-winged kite and allow the energy to be routed to the ground through a cable. Another method is to install ground stations that generate the power and collect the energy from kites when they come down. A third option was explored by Google, led by Makani Technologies, back in 2013, which involved a
URL: https://www.onegreenplanet.org/environment/how-kites-are-being-used-to-create-green-energy/

Title: High-flying kites could power your home with wind energy.
Publication Date: 22/04/2022
Abstract: For Florian Bauer, co-CEO and chief technology officer of Kitekraft, a Munich-based company developing a flying wind turbine power system, tackling climate change is personal. 'It all started during my school days when I read Al Gore's book and saw his documentary 'An Inconvenient Truth'. It triggered me and encouraged my decision to study renewable energies because I felt I could help solve the problem by being an engineer,' he tells IE in a video interview. Today, Bauer, along with Andr Frirdich, Christoph Drexler, and Max Isensee, are shifting the direction of renewable wind energy through Kitekraft. The company builds flying wind power plants that include a tethered electric aircraft called a kite. The kite has onboard wind turbines and flies in a figure of eight to generate electrical energy from the wind. Though flying wind turbine technology is in its infancy, several firms across the world have taken it upon themselves to
URL: https://interestingengineering.com/high-flying-kites-power-wind-energy

Title: New Tech Is Accelerating The Wind Energy Revolution.
Publication Date: 20/04/2022
Abstract: Wind energy production is steadily increasing, with several innovative projects being established around the world. While some countries continue to invest in traditional wind developments others look for innovative new projects, as wind energy and other renewables appear set to overtake fossil fuels in several parts of the world within the next decade. Wind energy production overtook coal and nuclear output in the U.S. in March, according to the Energy Information Administration. It was the first time that wind energy output surpassed both that of coal and nuclear power on the same day. Although natural gas continues to be the main electricity generation source. Wind and solar power have both hit milestones globally in recent months, with the two energy sources contributing 10 percent of global electricity for the first time in 2021. This figure rises to 38 percent when taking into account all clean energy sources. The fastest-growing wind and solar
URL: https://oilprice.com/Alternative-Energy/Wind-Power/New-Tech-Is-Accelerating-The-Wind-Energy-Revolution.html

Title: Bird-killing wind turbines could be replaced by giant high-tech kites — but there's a catch.
Publication Date: 18/04/2022
Abstract: flown a kite has learned the lesson: Once you can get the kite off the ground and high into the air, you're more likely to find a steady breeze to keep it aloft. A fledgling wind power industry is taking that lesson to heart. Flying massive kites 200 meters or more above the ground, companies are using the wind they find there to generate electricity. At least 10 firms in Europe and the United States are developing variations of this kind of kite power. If they succeed, kites could make it possible to build wind farms on land that isn't windy enough for conventional wind turbine towers. Kites might also be a better choice for offshore wind power, and one day could even replace at least some anchored towers now in use. "It's cheaper to manufacture, cheaper to transport, and also has higher efficiency," says Florian Bauer, co-CEO and chief technology officer of
URL: https://www.inverse.com/innovation/kites-electricity-green-energy

Title: Could high-flying kites power your home?.
Publication Date: 09/04/2022
Abstract: Any kid whos ever flown a kite has learned the lesson Once you can get the kite off the ground and high into the air, youre more likely to find a steady breeze to keep it aloft. A fledgling wind power industry is taking that lesson to heart. Flying massive kites 200 meters or more above the ground, companies are using the wind they find there to generate electricity. At least 10 firms in Europe and the United States are developing variations of this kind of kite power. If they succeed, kites could make it possible to build wind farms on land that isnt windy enough for conventional wind turbine towers. Kites might also be a better choice for offshore wind power, and one day could even replace at least some anchored towers now in use. Its cheaper to manufacture, cheaper to transport, and also has higher efficiency, says Florian Bauer, co-CEO and
URL: https://arstechnica.com/science/2022/04/could-high-flying-kites-power-your-home/

Title: Die Alternative zu Windrdern ist da.
Publication Date: 07/04/2022
Abstract: Mit einer Alternative zum Windrad will eine deutsche Firma die Energiewende beschleunigen. Auch dort soll Strom entstehen, wo herkmmliche Windkraftanlagen keine Option sind mit fliegenden Drachen. ber einer abgelegenen Insel kreist ein Schwarm riesiger Drachen. Sie sind angebunden, die Leinen leiten ihre Energie ins Stromnetz weiter. Was klingt wie die Anfangsszene eines Fantasy-Films, ist in Wirklichkeit die Geschftsidee des Mnchner Start-ups Kitekraft. Mit fliegenden Windkraftanlagen hoffen die Firmengrnder, die Welt der Windenergie zu revolutionieren. Noch feilen sie an Prototypen, doch schon bald wollen sie ihre Drachen zu Tausenden in den Himmel schicken berall dort, wo herkmmliche Windrder nur schwer einsetzbar sind. Prototypen von Kitekraft fliegen ber einem Tagebausee (Montage) Die Mnchner Ingenieure bauen ihre Drachen aus Aluminium. Das ist preiswert, haltbar und zu 100 Prozent recyclingfhig. (Quelle Kitekraft/WWF Deutschland) 'Wir brauchen 90 bis 95 Prozent weniger Material und knnen auch groe Megawatt-Systeme bauen. Der Kite fliegt hher, wo strkere Winde wehen, und
URL: https://www.t-online.de/nachhaltigkeit/id_91975708/deutsche-erfinder-entwickeln-alternative-zum-windrad-windkraft-von-fliegenden-alu-drachen.html

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