TWD Industries AG

Confidential Information Memorandum

Mars 2022

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TWD Industries AG

TWD Industries AG is seeking equity capital to fund the initial implementation of its lossless wireless technology, or WET, a revolutionary technological accomplishment that was first envisioned by Nikola Tesla over a century ago and that, until now, has remained unfulfilled.

We will use these funds to prove that we can transfer electrical power wirelessly (that is, without the need for cables or other physical medium), safely and securely and through physical obstacles, to a fixed power receptor placed at a significant distance from the power source. To our knowledge, to date, no one has even come close to successfully carrying out such an experiment, as the competing technologies currently being pursued all have very significant shortcomings.

After the initial implementation of our disruptive technology, we intend to raise additional funds to scale up the application of WET with the ultimate goal of applying it on an industrial scale, by wirelessly linking energy plants to all their remote consumers.

As WET is implemented on an industrial scale, we believe its applications are potentially limitless, from powering *stationary* receptors of energy, such as appliances, homes and buildings, to powering *mobile* energy receptors, such as cars, trains, hand-held devices, airplanes, ships, submarines or satellites.

It is our belief that WET will ultimately render the antiquated and inefficient energy grid we all continue to rely on since 1882 (the year in which Thomas Edison opened the first power plant in New York City) obsolete, thereby drastically reducing energy waste and the environmental pollution associated with it, greatly accelerating the electrification of developing countries, creating significant wealth for providers of electrical power and consumers alike, and, ultimately, improving living conditions across the globe.

With appropriate funding, TWD Industries AG will be able to ensure that WET is delivered in a safe, secure, clean and sustainable way, such that it will not expose human and other living things to the health risks typically associated with wireless transmission of energy, and will not be vulnerable to theft, hacking or other unwanted human intervention.

We seek CHF 15,000,000 in funding, which will be placed in escrow for the protection of our investors and released gradually over time only upon the achievement of agreed milestones that will unequivocally prove the viability and virtues of our WET.

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ELECTRICITY TRANSMISSION

The Basics

Electricity

Electricity is the physical flow of *electrons* (subatomic particles, generally negative in charge, that orbit the nucleus of an atom) in a stream called *current* through a conducting medium, such as a metal, acid or similar conductor. Current is a count of the number of electrons flowing through such medium.

There are two types of electricity: *alternating current* (or AC), the type of electricity commonly used in homes and businesses throughout the world; and *direct current* (or DC). While DC flows in one direction through a wire, AC alternates its direction from positive to negative and vice versa in a back-and-forth motion. The AC electric generator (or alternator) determines the frequency (i.e., the rate per second at which AC electricity alternates its direction) in Hertz. That rate is 50 or 60 times per second, depending on the electric system of the country or continent: for example, 50 Hertz in Europe and 60 Hertz in North America. What is special about AC electricity is that the voltage can be readily changed (higher or lower, by the use of a transformer), thus making it more suitable for long-distance transmission than DC electricity. (One notable exception to this, is the State Grid Corporation of China, which has deployed UHV 1.1 million Volt DC to transmit five times more power than conventional lines over longer distances, at lower costs.) AC also can employ devices such as capacitors and inductors in electronic circuitry, which can affect the way AC passes through a circuit, allowing for a wide range of applications. For example, a combination of a capacitor, inductor and resistor is used as a tuner in radios and televisions. Without those devices, tuning to different stations would be very difficult. The below depicts the sine waveform AC electricity typically follows in alternating between positive (+) and negative (-), as measured with a voltmeter or multimeter.



DC electricity is found in almost all electronics. AC and DC, however, do not mix very well, and AC will need to be transformed to DC before most electronics can be plugged into a wall outlet.

Electricity Generation

There are three stages of electric power supply: generation, transmission and distribution.

Most commonly, electric current is generated through electro-magnetic conversion, by moving an electric conductor, such as a wire, inside a magnetic field. For example, in a generator connected to a turbine, the turbine provides the motion required to move the conductor in the generator. The energy for motion can come from various technologies, such as wind turbines, hydropower, or the steam created from heat produced in fossil fuel (natural gas or coal) or nuclear fission combustion. Electricity can also be generated through chemical reaction (for example, in a battery or fuel cell) or solid-state conversion, using the structure and properties of a (specially constructed) solid consisting of different molecules packed closely together that create an electric current when stimulated, such as a solar photovoltaic (PV) cell. The first power plant, owned by Thomas Edison, opened in New York City in 1882.

Electricity is the same, regardless of how it is produced. The rate at which electricity is produced is referred to as a *watt*. The quantity of energy used over a certain period of time is referred to as kilowatthour (or kWh). A watt is the product of a *volt* and an *ampere* (or *amp*), where a volt designates the size of the force that sends the electrons through a circuit, and an amp the unit used to measure electric current. Voltage can be thought of as the pressure of water flowing through pipes, whereas amps as a unit of measure indicating the volume of water moving past a certain point. That is also a function of resistance: one amp is the amount of current produced by a force of one volt acting through the resistance of one ohm. An *ohm* is a way of measuring resistance. For example, a certain length of copper wire, which is a good conductor, has a resistance of .0000017 ohms, while the same length of Sulfur, which is a very poor conductor, has a resistance of 200,000,000,000,000,000 ohms.

While water dams can be used to delay electricity generation until needed (by releasing water into turbines) and battery capacity is improving at a fast pace, storing large quantities of electricity is still not economically viable with current technologies, therefore when electricity is produced it must be used immediately. For this reason, the grid must be managed continuously to balance electricity supply with demand. The below depicts where electricity is generated from in the United States.



Source: U.S. Energy Information Administration, Annual Energy Outlook 2021 (AEO2021)

Depending on the source of electricity, electricity production can have significant environmental and health impacts. Fossil fuel resources, like coal and natural gas, although carbon intensive, are the most convenient sources used to generate power (e.g., thermal power) to meet consumer demand at any given time and place as burning fossil fuels can be operated anywhere as they can easily be transported and stored. Thermal generation sources, however, produce air pollutants that can cause significant harm to human health and contribute to global greenhouse gas emissions. Renewable sources of electricity, like solar and wind, do not produce direct carbon emissions (except to manufacture, transport and replace parts), but generate electricity only on an intermittent or variable basis, and consumers must be nearby to limit transmission losses so there are limitations also to deployment.

Electricity Transmission and Distribution

Most electricity is generated by *power plants* at 13,200 to 24,000 volts. When electricity comes out of a generating station, the transmission substation located there (*step-up transmission substation*) steps up the voltages to the range of 138,000-765,000 volts. After electrical power is generated, it is transmitted over distances using *transmission lines*. Transmission lines are constructed between transmission substations and may be supported overhead on towers or they may be underground. They are operated at high voltages. They send out large amounts of electrical power and extend over considerable distances.

Energy grids are operated at high voltage to reduce the energy transmission losses which occur in longdistance transmission (amounting to many of billions of dollars per year in the U.S. alone).

Within an operating area, transmission substations (*step-down transmission substations*) reduce the transmitted voltage to 34,500-138,000 volts, so it can be sent on smaller power lines. The distribution system connects the transmission system to the customer's equipment. The *distribution substation* further reduces the transmitted electrical voltage to 2,400-19,920 volts. A *distribution transformer* then reduces the voltage to make the power safe to use in homes. The process of transmission and distribution also generates energy conversion losses and further emissions.



Wireless Transmission

Wireless power transfer or transmission (or *WPT*) and wireless energy transmission (or *WET*) are generic terms for a number of different technologies used for transmitting energy by means of electromagnetic fields, without a physical link (be it a wire or battery). While all WET technologies allow for transmission of electrical energy without a physical link, they differ in:

- the <u>type</u> of electromagnetic energy they use (e.g., time varying electric fields, magnetic fields, radio waves, microwaves, infrared or visible light waves);
- the <u>distance</u> over which they can transfer power efficiently; and
- whether the transmitter must be aimed at the receiver (i.e., <u>alignment</u>).

In general, a wireless power system consists of a *transmitter* device connected to a source of power (such as a mains power line), which converts the power to a time-varying electromagnetic field, and a *receiver*, which receives the power being transmitted through space (i.e., extract it from the field) and converts it back to DC or AC electric current for use by an *electrical load* (i.e., the electrical component or portion of a circuit, such as a light or electrical appliance, that consumes electric power).

At the transmitter the input power is converted to an oscillating electromagnetic field by some type of *antenna* device (which may be a coil of wire generating a magnetic field, a metal plate generating an electric field, an actual antenna radiating radio waves, or a laser generating light). A similar antenna or coupling device at the receiver converts the oscillating fields to an electric current. Because these waves travel at the speed of light (of 300,000 km per second), the frequency is proportional to the wavelength.^{*}

^{*} Wavelength = (transmission speed: 300,000 km/second) / (frequency: 3 GHz) = $3x10^8$ / $3x10^9$ = 0.1 meter (10 centimeters).

The wavelength determines the size of the antenna, which matters for reasons ranging from health (a chosen size would not interfere with live creatures) to performance (lower frequencies deliver a longer range).

Historically, the trend has been to increase frequencies (decreasing antenna size) in an attempt to deliver higher bandwidth and lower latencies (at the expense of the transmission range):

Access	System	Frequency Band	Network	Transmission	Achievable	Application
Mode			type	Range	Rate	scenarios
	2G	890-960MHz	GSM	35km	270.83kb/s	Macro Cell
	3G	1.94-2.145GHz	WCDMA	10km	5.75-14.4Mb/s	Macro Cell
	4G	0.7-3.6GHz	LTE/LTE-A	1-5km	0.1-1Gb/s	Macro Cell
	5G	30-300GHz	mmWave	<1km	10Gb/s	Massive MIMO, Macro/Pico Cell
	6G	0.3-3THz	THz wave	<1km	1Tb/s	Small Cell
	WMAN	2.3-3.6GHz	WiMax	50km	around 100Mb/s	Macro Cell
Licensed	IoT	0.703-2.2GHz	NB-IoT	<10km	160-250kb/s	M2M
Band	Satellite	0.3-4GHz (UHF)	L/S	GEO/LEO	0.432-3Mb/s	Space-air/ground/sea,
						Inter-Satellites, GNSS
		4-30GHz (SHF)	C/X/Ku/K/Ka	GEO/MEO/LEO	1-200Mb/s	Space-air/ground/sea,
						Feeder Link, Inter-Satellites
		30-75GHz (EHF)	Ka/Q/U/V	MEO/LEO	several Gbps	Space-air/ground/sea
						Feeder Link, Inter-Satellites
Unlicensed Band	WLAN/WPAN	2.4GHz,5GHz	WiFi	120m	11-600Mb/s	Pico/Femto Cell, UAV
		2.4-2.4835GHz	Bluetooth	100m	around 1Mb/s	M2M
		430-790THz	Visible Light	<100m (LOS)	around 500Mb/s	Micro cell
	ЮТ	0.125-13.56MHz	RFID/NFC	10cm	1-424kb/s	M2M
		300-400THz	IrDA	10m	around 4Mb/s	M2M
		5.85-5.925GHz	DSRC (IoV)	1km	around 27Mb/s	V2V, V2I, V2R, V2P

Source: *Envisioning Device-to-Device Communications in 6G* (2019)

The trend toward diminishing ranges is suboptimal (as it requires a multitude of relays, each adding latency and increasing energy consumption) and any technical solution to that persistent issue would be a most welcome breakthrough given the ever-increasing problems caused by ever-higher frequencies.

Wireless Power vs. Wireless Communication

Today, wireless power usually relies on the same fields and waves used by wireless communication devices, like radio, a familiar technology involving electric energy transmitted without wires by electromagnetic fields and is used in cell phones, radio and television broadcasting, and Wi-Fi.

In radio communication, however, the goal is the transmission of information, so the amount of power reaching the receiver is not critical, as long as it is sufficient to allow for the information to be received intelligibly.

In contrast, with wireless power transfer the amount of energy received is what matters, so the *efficiency* (i.e., the fraction of transmitted energy that is received) is the more significant parameter. Unfortunately, conventional wireless power technologies are more limited by distance than wireless communication technologies. Whether conditions also matter, as the water in clouds, fog, rain and snow absorbs radio waves, further reducing the amount of power that can reach receivers.

Nikola Tesla and Beyond

The 19th century saw the development of several theories on how electrical energy might be transmitted. These culminated, at the turn of the century, with Nikola Tesla using resonant inductive coupling, also known as *electro-dynamic induction*, to wirelessly light up phosphorescent and incandescent lamps.

In 1897, Tesla patented the *Tesla coil*, a high-voltage, spark-excited radio frequency resonant transformer which, by transferring electrical energy from a primary coil to a secondary coil by resonant induction, was capable of producing very high AC voltages at high frequency. Initially, Tesla attempted to develop a wireless lighting system based on *near-field* (short-range) inductive and capacitive coupling, and conducted a series of public demonstrations where he lit Geissler tubes and even incandescent light bulbs from across a stage. He then found that he could increase the distance at which he could light a lamp by using a receiving LC circuit – an electric circuit consisting of an inductor (represented by the letter L) and a capacitor (represented by the letter C) connected together – tuned to resonance with the transmitter's LC circuit, using resonant inductive coupling. Tesla managed to power light bulbs from more than two miles away with a 140-foot Tesla coil, but in the process he burned out the dynamo at the local powerplant and plunged the entire town of Colorado Springs into a blackout. Tesla failed to make a commercial product out of his findings, but his resonant inductive coupling method is now widely used in electronics and is currently being applied to near-field wireless power systems.



U.S. Patent No. 645576: Nikola Tesla, System of transmission of electrical energy (1897)

Near-field, non-radiative technologies

Near-field inductive power transfer between nearby wire coils was the earliest wireless power technology to be developed.

With the advent of cordless devices, induction charging stands have been developed for appliances used in wet environments, like electric toothbrushes and electric razors, to eliminate the hazard of electric shock.

In the early 1960s, resonant inductive wireless energy transfer was used to recharge the batteries of implantable medical devices, such as pacemakers and artificial hearts. The proliferation of wireless communication devices such as mobile phones, tablets, laptop computers and even electric cars in recent decades is currently driving the development of mid-range wireless powering and charging technology to eliminate the need for these devices to be tethered to wall plugs during charging.

Near-field power transfer suffers transmission losses proportional to the square of the distance, which limits the exploitable range to short distances. Even the most recent mid-range power transfer technology is currently limited to 5 to 6 meters, when operated with financially-bearable transmission losses.

Radiative, far-field technologies

The development of microwave technology during World War II made radiative (*far-field*) methods practical for the first time – albeit for radars and telecommunications. *Radio waves* could not be used for power transmission since they spread out in all directions and are absorbed and/or diffracted by obstacles (such as water, metal, or mountains), such that little energy reaches the receiver.

More efficient power transmission required transmitters that could generate *higher-frequency microwaves*, which could be focused in narrow beams towards a receiver. In 1964, William C. Brown invented the *rectenna*, which could efficiently convert microwaves to DC power, and demonstrated it with the first wireless-powered aircraft, a model helicopter powered by microwaves beamed from the ground. This technology, however, also had a limited range as it suffered transmission losses and could only operate without obstacles between the transmitter and the receiver.

A major motivation for microwave research in the 1970s and 1980s was to develop a solar power satellite, which would harvest energy from sunlight using solar cells and beam it down as microwaves to huge rectennas on Earth, which in turn would convert the microwaves to electrical energy on the electric power grid. More recently, a focus of research has been the development of wireless-powered drone aircrafts. Yet, microwaves share many of the same limitations that affect radio waves (limited range, transmission losses, absorption by fog, clouds, rain, trees and other physical obstacles).



The Current State of Things

A major issue associated with a wired power system are transmission and distribution losses. The percentage of loss - which is related to the resistance of the wires used in the grid and other lesser factors such as the weather - ranges from 5% (in Switzerland) to almost 60% (in Africa). For this reason, Nikola Tesla had proposed methods of electricity transmission using a wireless electromagnetic induction method.



The basic working principle of wireless power transfer is that two objects entering in resonance by synchronizing frequency and modulation tend to equilibrate their energy, while dissipating relatively little energy to the extraneous off-resonant objects.

This method can be involved in a multitude of applications and is reliable, efficient, low-cost and safe, as it is galvanically isolated (i.e., the output power circuit is electrically and physically isolated from the

input power circuit). However, currently available technology still suffers from high power loss, absorption by tangible obstacles, and non-directionality, and is therefore highly inefficient for long distances.

OUR LOSSLESS WIRELESS TECHNOLOGY (WET)

How it Works

With TWD Industries AG's WET two wireless endpoints synchronize their state (frequency and modulation) to establish a link. Any energy excess is transferred from one side to the other, until both sides are balanced (or one side has cut the link by breaking the synchronization). Modulating the signal allows to transmit data at the same time energy is sent.

In contrast to LTE/5G (and Wi-Fi, Bluetooth, etc.):

- the energy consumption and the CO2 emissions are immensely reduced because there is no need for multitudes of relays;
- the energy source does not broadcast energy all around, rather, the energy is *fetched* by the receiver in a straight line. Acting like a fishing net the link captures synchronized neutrinos, so the receiver gets more energy than it consumes from the energy source. Assuming nothing else is siphoning the energy field by acting as an antenna, the energy gains may be proportional to the length of the link;
- the signal traverses physical objects, such as metal and water, without loss of energy and thus without the need for relays (as there is no absorption and no diffraction);
- latency is much lower than with 5G wireless networks, as there are no relays (each relay injecting 5-10 milliseconds of latency). (*Latency* is the delay between two data packets and is key for the Internet of Things, or *IoT*, the network of physical devices around the world that are now connected to the internet, all collecting and sharing data);
- bandwidth can be achieved at much lower frequencies, due to the ability to transmit in parallel instead of serially. This is done by modulating frequency and wavelength independently, which then changes the transmission speed. The benefits of low frequencies are a much reduced energy consumption, longer ranges, and no detrimental impact on life.
- the range is potentially unlimited, without transmission losses (as there is no diffraction or absorption).

Empirical Evidence

We have made a video that provides empirical evidence of how our WET technology works. The proof-of-concept experiment involves three cables:

- a wall power-plug cable (at 220 volts) powering a 5 Volts off-the-shelf generator;
- a power-supply cable going to the wireless source of energy; and
- a grounding cable between the wireless endpoints, both of which are enclosed in Faraday cages (i.e., enclosure that block electromagnetic fields, in this case, two metal waste basket at the energy source and a metal file box at the receiving end). This is done to show that the energy travels through metal wirelessly and without losses (a feat that radio, micro, and millimeter waves cannot achieve).

Grounding

The two power cables have two lines, one positive (+) and one negative (-), whereas the grounding cable has only one line.

Nikola Tesla's patent also relied on grounding. His 10kW wireless transmission reached 42 km (approximately 27 miles) with grounding. The transmission range he achieved was directly related to the quality of the grounding because, at the time, Tesla did not have the technology to precisely "tune" frequencies and so, without grounding, he would lose the link and break the range.

Grounding makes it easier to establish the link between the endpoints and to keep the link if the endpoints move after the link has been established. Grounding could also be accomplished with water, instead of using a one-line cable.

Our experiment could be done without grounding, but it would then require a lot more work tuning the frequency to establish the link, because the required increments would be much smaller and there would be no visible range of LED lightening or dimming. It would look more like an "on" and "off" experiment, due to the lack of precision of the standard, inexpensive and manually-operated equipment used to conduct the experiment, which could lead the observer to erroneously conclude that the experiment did not work.

In order to make the experiment work without a grounding cable, we would have to either precisely pre-calculate the conditions required to establish the link between the endpoints or use a precise, custom-made and therefore much more expensive tuner that would automatically find the proper conditions for the link to be established.

WET'S VIRTUES AND IMPLICATIONS

WET is environmentally friendly (no emissions), is not capital intensive (no relays) and is very efficient (no transmission losses and very low power consumption)

Governments all over the world are looking for ways to achieve economic growth while improving livelihoods in a sustainable way that both reduces pollution and waste and tackles the climate emergency.

Our WET (1) operates independently from the energy-grid and the public telecom networks, (2) is immune to transmission losses, (3) requires far less energy than conventional methods of transmission, and (4) has a potentially infinite range, without need for batteries, relays or satellites. Further, energy consumers will (5) wirelessly "fetch" wireless energy (possibly from several energy sources), without latency, instead of collecting 360-degree broadcasted electricity.

This would immensely reduce the costs of combustible transport and the energy losses, pollution and greenhouse gas emissions generated by energy grids, telecommunication infrastructure and related manufacturing. After a transition period, pipelines, tankers and energy grids would largely become obsolete, greatly limiting carbon dioxide (CO2) production. A more efficient energy use also would reduce the need for energy extraction and related costs.

Power plants, which are now near towns to minimize the energy waste from transmission, could be placed at any distance from consumers, such that toxic emissions and the hazard coming from the vicinity of a power source would no longer be a threat to mankind and wild life.

Renewal energy sources (solar, hydro, geothermal) would no longer be limited by the distance separating them from the consumers; a severe limitation currently.

There would no longer be need for major physical infrastructure, which heavily depends on the current, voltage, conductors, transformers, and distance, as well as weather conditions (one just needs to look at the impact that an ice storm had on the Texas' power grid in February 2021). The traditional centralized electric grid infrastructure requires significant investment for its maintenance, upgrade and operation, which has been continually driving up the cost of grid power. In 2018, the U.S. Energy Information Administration (*EIA*) projected that grid power prices in the U.S. for all classes of customers, including commercial and industrial, would increase by over 40% through 2026.

The cost of delivering energy would dramatically decrease, allowing for the electrification of developing countries (such as Africa, Asia and India), greater mobility, and much needed enhanced distribution capacity (e.g., for the bustling electric vehicle (EV) industry, which at present is heavily dependent of lithium, a critical mineral in the batteries that power EVs).

We believe that energy plants of all types (coal, oil, gas, nuclear and renewable) would see an immediate increase in revenue as they would no longer need to transport and transform energy and will be able to do so instantly, globally and without waste. Already enhanced by the removal of today's transmission losses, their margins would significantly grow as the "magnifying effect" discovered by Nikola Tesla a century ago (whereby the energy generated by a power supply is magnified by altering the motion of free electrons) would allow energy plants to provide less energy

than requested by end-users. (We believe, by a factor of 3 to 5, but longer distances could lead to even better ratios.)

WET Travels Losslessly Through Metals and Water

Unlike today's wireless technologies, which broadcast a signal serially in all directions and are absorbed by metal and water, WET follows a straight line between synchronized participants, over great distances. Operating without relays, WET can also transmit data with many different receivers in parallel, by modulating frequency and wavelength independently, something that radio waves cannot accomplish.

WET is Secure

WET's "post-quantum" security protects the energy while in transit (against both quantum and classical computers), without exposing it to sabotage or clandestine interception, and even signal detection, blocking or jamming. In contrast to 5G, which can easily be jammed, each WET link is completely independent from other links, even when using the same frequency range, which cannot be saturated or interfered with.

Some years ago, a public outcry was raised by the remote hacking of a few pacemakers and insulin pumps, which placed the lives of the implant holders at risk. The same concerns apply today to connected vehicles, which can be hacked remotely, placing the lives of drivers, passengers, as well as pedestrians, at risk.

The infrastructure of energy grids also is vulnerable to physical damage (from natural disasters, as well as sabotage) and logical damage (from computer malware, and cyber-attacks such as Stuxnet). In February 2021, an ice storm brought Texas' power grid to its knees, leaving parts of the state in the dark for over a week. In May 2021, the Colonial Pipeline, a major fuel pipeline stretching 5,500 miles from Texas to New Jersey delivering 45% of fuel to the Eastern Seaboard, was shut down by a ransomware attack, which sent Americans scrambling for gasoline in the Southeast. (Colonial reportedly paid a \$5 million ransom to restart operations.) A February 2021 IBM report found that the energy industry was the third most targeted sector for such attacks in 2020, behind only finance and manufacturing, up from ninth place in 2019. At the same time, California utilities have been forced to disrupt power on several occasions due to storms or to prevent equipment from setting wildfires. These recent events laid bare the vulnerabilities of the broader energy network, including the electric grid, to both digital attacks and physical issues, and prompted the U.S. administration to make EVs the cornerstone of its environmental program, with \$174 billion of the administration's proposed infrastructure plan devoted to EV incentives and the creation of a nationwide network of 500,000 charging stations. Without infrastructure, however, there would be nothing left to be damaged or compromised.

Thanks to a fully-compliant design letting local governments access the data, each country would be able to know what is taking place on its territory.

Range of Applications

Once WET is implemented on an industrial scale, we believe its applications are potentially limitless, from powering *stationary* receptors of energy, such as appliances, homes and buildings, to powering

moving receptors of energy, such as cars, trains, hand-held devices, airplanes, ships, submarines and satellites, delivering both higher quality service (in terms of speed, latency, coverage, range, and resilience) and reliability, at much reduced deployment and operating costs.

As they fetch energy remotely from power sources, devices can transmit information much faster than with 5G, since they no longer rely on 5G's power-hungry and fragile infrastructure.

The IoT ecosystem would blossom, finally delivering its long-overdue promises.

Some Stats to Define the Opportunity

According to 2019 estimates of the International Energy Agency (*IEA*), electricity transmission losses cost the world up to \$350 billion a year. In a report issued on May 18, 2021 (*Net Zero by 2050: a Roadmap for the Global Energy Sector*), the IEA predicted that pledges by governments to date (even if fully achieved) would fall well short of what is required to bring global energy-related CO2 emissions to net zero by 2050 and give the world an even chance of limiting the global temperature rise to 1.5 °C. In laying out a roadmap for accomplishing those goals, the IEA called it "perhaps the greatest challenge humankind has ever faced". Among other things, the roadmap calls for, effective immediately, no new investments in fossil fuel supply projects, no sales of new internal combustion engine passenger cars by 2035, and an immediate and comprehensive deployment of all available clean and efficient energy technologies, combined with a major global push to accelerate innovation (including annual additions of solar PV and wind power to reach 630 and 390 gigawatts, respectively, by 2030, four times the record level set in 2020). Notably, the IEA report states that, while most of the global reductions in CO2 emissions between now and 2030 in the net zero pathway will come from technologies readily available today, in 2050, almost half the reductions will come from technologies that are currently only at the demonstration or prototype phase.[†]

According to 2019 estimates of the World Bank, 1.2 billion people have no reliable access to electricity and 2.7 billion have no access to clean cooking and heating (mostly in Africa and Asia). The IEA's Net Zero report emphasizes how the clean energy transition is "for and about people" and points out that providing electricity to around 785 million people who have no access at all to it and clean cooking solutions to 2.6 billion people who lack them is an integral part of the roadmap's net zero pathway. With a cost of around \$40 billion a year (equal to around 1% of average annual energy sector investment), this would bring major health benefits through reductions in indoor air pollution, cutting the number of premature deaths by 2.5 million a year.

According to 2015 estimates of the World Health Organization (WHO), air pollution cost Europe \$1.6 trillion a year.

It is believed that India, Asia and Africa will have to invest trillions of dollars over several decades to electrify their land. WET could do that for a fraction of the price and almost instantly, benefiting billions of people.

The combination of dramatically reduced investments and the potentially unlimited transmission reach, translating into lower costs and higher margins, yet with unparalleled coverage and quality of service, could unleash a golden age for the energy and telecommunication industries, including IoT, Med-Tech and Smart-Cities.

[†] "By 2050, the energy world looks completely different. Global energy demand is around 8% smaller than today, but it serves an economy more than twice as big and a population with 2 billion more people. Almost 90% of electricity generation comes from renewable sources, with wind and solar PV together accounting for almost 70%. Most of the remainder comes from nuclear power. Solar is the world's single largest source of total energy supply. Fossil fuels fall from almost four-fifths of total energy supply today to slightly over one-fifth. Fossil fuels that remain are used in goods where the carbon is embodied in the product such as plastics, in facilities fitted with carbon capture, and in sectors where low-emissions technology options are scarce."

CAPITAL RAISE AND USE OF PROCEEDS

We seek CHF 15,000,000 in funding, which will be placed in escrow for the protection of our investors and gradually released over time upon the achievement of milestones that unequivocally prove the viability and virtues of WET, as more fully described below.

We intend to use the bulk of the proceeds from the capital raise to prove, on an significantly and increasingly larger scale than the video we refer to under "Empirical Evidence" above, that we can safely and wirelessly transmit electric power (at increasingly higher voltage), without the need for electric cables or other physical medium, and through metal, water or other physical obstacles, to an energy receptor placed at a significant distance (of up to 100 meters, approximately 110 yards) from the power source.

The mentioned durations for each phase are indicative and assume that no manufacturing and delivery delays will take place due, for example, to subcontractor failures, lock-downs, travel restrictions, or energy grid black-outs.

Stage One Experimentation (9 months)

We will wirelessly transmit power between two static Faraday cages (metal boxes) at a distance of 25 meters (approximately 27 yards). This experiment will show that WET can travel significant distances through a metallic enclosure (blocking radio signals, microwaves, lasers...). We believe that none of our competitors has been able to successfully carry out such a feat. We plan to use approximately CHF 1,500,000 of the escrow proceeds to carry out this experiment, as well as for our working capital needs (e.g., travel expenses, filing fees, legal, accounting and other expert fees and expenses) to carry us through the next experimentation phase.

Stage Two Experimentation (18 months)

Once the Stage One Experimentation is successful, we will wirelessly transmit power from an emitter enclosed in a metal box placed on shore, to a small boat placed up to 100 meters away on a lake or other body of water. This experiment will significantly increase the distance between energy source and receptor and double the physical obstacles through which energy is transmitted wirelessly (i.e., metal and water).

We will demonstrate the lack of transmission losses by measuring the level of electric power at both endpoints. At such a distance, energy transmission through a cable (even a high quality cable, such as network copper cables or fiber) would suffer transmission losses, necessitating the use of repeaters. The experiment will be captured on film, using a drone. We plan to use approximately CHF 3,500,000 of the escrow proceeds to carry out this experiment and for our working capital needs to carry us through the next experimentation phase.

Stage Three Experimentation (18 months)

Once the Stage Two Experimentation is successful, we will further scale up the application of WET by wirelessly linking up a source of energy (such as a hydraulic turbine, solar panel or windmill) to a single stationary remote consumer of energy like a nearby mountain chalet.

This experiment will demonstrate a real-life application with higher voltages and transmission distance.

Stage Four Experimentation (18 months)

Once the Stage Three Experimentation is successful, we will target mobile applications where the energy consumers will no longer stay stationary (i.e.: vehicles).

Stage	Capital Needs (CHF)	Timing (months)	Objective
1	1,500,000	9	25m Faraday cages
2	3,500,000	18	100m cages + water
3	5,000,000	18	Real-life applications (static)
4	5,000,000	18	Real-life applications (mobile)
Total	15,000,000	45	Market sales (technology licensing)

By demonstrating the disruptive power of our technology in more sophisticated real world applications, for example, by using wireless energy to replace electric conductors for tramways, subways, trains, and ski gondola, we plan to convince industry partners to license our technology to make better, more profitable products.

We plan to use the balance of the escrow proceeds to carry out this experiment, for working capital purposes, and to file for a defensive patent, as described below under "Intellectual Property Protection", and for working capital purposes (e.g., travel, filing fees, legal and accounting fees, etc.).

Depending on the outcome of the Stage One Experimentation, we may decide, in agreement with our investors, to skip the Stage Two Experimentation and go directly to the Stage Three Experimentation. Conversely, should we experience difficulties with any experimentation phase such as technical or logistical difficulties or delays, we will discuss those issues with our investors to decide whether the release of additional funds from escrow to continue the experimentation is warranted.

Details of the works involved in the four stages:

a) new prototype platform th	at can evolve to add	features and capacity,
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b) much higher voltages	(real-life applications),
c) reconfigurable antennas	(higher voltages),
d) finer frequency tuning	(peer synchronization),
e) synchronization calculations	(static applications),
f) dynamic synchronization	(mobile applications),
e) massive parallelization	(ultra high-bandwidth/low-latency).

INVESTMENT PHASES

We expect that the scaling up of our technology will occur in phases, each associated with increasing amount of funding.

With a CHF 25 to 50 million budget, we can deliver energy-only products like a way to link a source of energy (hydraulic turbine, solar panels, or windmills) to a single remote consumer of energy (a mountain chalet, desert nomads, a scientific expedition in the arctic or in the jungle).

We believe that a real-life application of our WET will be a powerful incentive for device manufacturers and service providers to adopt our new technology, as they will then face the very tangible prospect of seeing even their very latest technology, such as 5G (a \$6 trillion initial investment), being displaced by ours.

With much more significant funding, CHF 100 to \$300 million, we can link an energy plant to all its remote consumers. In this case, the energy made available remotely would have to be protected against theft, so manufacturing application-specific integrated circuit (ASIC) chips would be required. (A budget of at least CHF 12 million per year for 5-10 years is required to merely get a slot at a foundry. These prices come from signed manufacturing contracts with two of the world's largest foundries).

Depending on the availability of capital, an alternative to manufacturing power and communication equipment would be licensing WET to third parties, such as IoT vendors. In our view, however, this can be a viable alternative for exploiting the technology only after a real-life application has been demonstrated.

THE COMPETITION

Long-range power-transfer experiments typically involve beams of microwaves or lasers tightly focused on a receiver. Yet, solar panels transmitting energy via lasers do not scale well to millions of devices, and break down when traversing fog, clouds, rain and snow (or any more substantial obstacles, such as buildings, mountains, birds, planes, drones and satellites).

Over short distances, wireless charging is now well established (we have mentioned an electric toothbrush being recharged by placing it on an electrically-isolated "contact-less" station; similarly, a smartphone can be recharged by induction without a charging cable).

WiTricity

In 2007, a team of MIT researchers started a business in Watertown, Massachusetts, called WiTricity (short for wireless electricity), which markets near-field charging coils (strictly aligned below the coil attached to cars) on parking places for EVs.

WiTricity uses induction technology, the same technology used for rechargeable electric toothbrushes. Induction power transfer was first used in 1894, when Maurice Hutin and Maurice Le-Blanc proposed an apparatus and method to power an EV. By the early 1900s, 20 clean and silent electric buses in London could travel for 60 km with one charge, swapping batteries every day at lunch time, an operation that took only three minutes. A financial fraud caused the demise of the London Electrobus Company and, with it, of the EV experiment.[‡] The technology was forgotten until 1977, when U.S. patent No. 4031449 "electromagnetically coupled battery charger" was awarded to John Trombly. The induction range is limited to, at most, four to five meters, due to high transmission losses: the signal level of a transmission is 1/4 of the strength at two meters of distance, than it is at a one meter of distance. High-voltage currents make it possible to go a bit further, but at the cost of unbearable energy losses. Furthermore, in enclosed environments (such as buildings) or outdoors (due to trees, mountains, fog, rain and other physical obstacles) absorption and diffraction cause transmission losses to rise even further.

Unlike WiTricity, WET makes lossless, long-range power transfer possible, allowing, for example, moving cars to get their energy wirelessly (without the need for batteries) because it is not affected by physical obstacles (as shown on the video we shared with you, where the endpoints are enclosed in Faraday cages).

WET would solve drivers' frustration with the inconvenience of charging stations and driving range issues affecting EVs. Ditching batteries also would dramatically cut manufacturing costs, improve the safety, habitability and handling of EVs, while allowing for the preservation of rare Earth resources.[§]

Emrod

Emrod, a New Zealand-based startup, is reported to be developing technology capable of shifting large amounts of electricity between any two points that can be joined with line-of-sight relays. According to IEEE Spectrum (the magazine of the Institute of Electrical and Electronics Engineers) Emrod's system is based on: "An array of lasers spaced along the edges of flat-panel receivers that are planned to catch and

[‡] What is this that roareth thus? *The Economist*, Sept. 6th 2007.

[§] See the IEA's 2021 publication entitled *The Role of Critical World Energy Outlook Special Report Minerals in Clean Energy Transitions*, available at: https://iea.blob.core.windows.net/assets/278ae0c8-28b8-402b-b9ab-6e45463c273f/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf.

then pass along the focused energy beam. These lasers are pointed at sensors at the transmitter array so that if a bird in flight, for example, interrupted one of the lasers, the transmitter would pause a portion of the energy beam long enough for the bird to fly through." "Emrod's laboratory prototype currently operates indoors at a distance of just 2 meters and work is under way to build a 40-meter demonstration system."

According to the *Popular Mechanics* magazine: "The system involves shaped microwave beams that pass through relays. Line of sight is important because the technology relies on a clear, contained beam from one point to the next."

Unlike Emrod, WET does not rely on a line of sight. It traverses matter seamlessly (our video shows how two Faraday cages are traversed by a 5 Volt current) without interruption, and does not require either alignment or relays.

Reasonance

A group of Russian scientists, operating under the name Reasonance, claims to have developed a new wireless power transfer technology that combines both magnetic resonance and induction. They claim that they can achieve the same results as their competitors (such as WiTricity) by using lower frequencies, which reduces the damaging effects of electromagnetic fields on living beings. While this addresses some of the problems associated with Wi-Fi and 5G technologies, namely, wasting energy and interfering with the metabolism of living creatures (humans, animals and plants), by their own admission (see Reasonance's website: https://reasonance.tech), the wireless power transfer is limited to "up to one meter" with mildly "aligned coils" and "7-10% energy transfer losses."

Unlike Reasonance, our alignment-free WET can transmit at several tens of meters (without suffering any transmission losses) with weak currents (5 Volts) at lower frequencies and without electronic components, which would be required only to maintain the link between the endpoints when the distance increases further, or if the receiver is moving.

Tesla Motors

On March 8, 2021, Bloomberg News reported that Tesla is making a giant battery to plug into Texas' power grid. With an expected commercial opening date of June 1, 2021, the project is said to have the capacity to store 100 megawatts of energy, enough to power 20,000 homes on a hot day.

Unlike Tesla's batteries, which are extremely expensive, require rare Earth elements, and have a limited lifespan, WET makes it possible to avoid batteries (for devices or vehicles) and to store electricity anywhere on Earth (for example, where mountains make it possible to build dams) without consideration for the distance between the energy source, the storage site, or the location of the energy consumers.

China

The Chinese government has been working on a "maglev" (magnetic levitation) train, which is a system of train transportation that uses a magnet to lift the train up off the tracks, and another magnet to move the elevated train ahead.

Though impressive, maglev is based on traditional induction technology, with all attendant limitations.

The China Electric Power Research Institute has reportedly developed a "10-meter microwave radio transmission prototype which can make 20 meters distance kilowatt-level power transmission come true".

Microwaves suffer transfer losses, are absorbed by clouds, metal and water and are broadcasted continuously, in contrast to WET, which is "fetched" from the energy source by end-users, without losses, even through metal, water and other physical objects.

RISK FACTORS

Investing in our equity involves a high degree of risk. You should carefully consider these risk factors, together with all of the other information included in this Confidential Information Memorandum before you decide to invest in our company. While we believe the risks and uncertainties described below include all material risks currently known by us, it is possible that these may not be the only ones we face. If any of the risks actually occur, our business, financial condition, operating results and prospects could be materially and adversely affected. In that event, the value of our equity could decline, and you could lose part or all of your investment.

Risks Relating to Our Business and Industry

We Are a Startup

To date, we have carried out only research and development activities relating to our wireless technology. We have deployed our WET only experimentally and in a very small scale. We currently have no revenue and a very limited operating history, and do not expect to be profitable for the foreseeable future.

The novel nature of our technology makes it difficult to predict market acceptance and our future revenue or appropriately budgeting for our expenses, and we have limited insight into trends that may emerge and affect our business. You should consider our prospects in light of the risks and uncertainties emerging companies encounter when introducing a new product into a nascent industry.

Market Acceptance

WET is still relatively nascent, and we cannot be sure whether and how long it will take for potential customers to accept our WET. Enterprises may be unwilling to adopt our solution over traditional or competing power sources for any number of reasons, including the perception that our technology is unproven, lack of confidence in our business model, and lack of awareness of our technology and applications (see "Investment Phases" above). Because this is an emerging industry, broad acceptance of our products and services is subject to a high level of uncertainty and risk.

While we expect many businesses (such as power generators and data emitters, such as the IoT) to benefit greatly from adoption of WET, we also expect that a number of businesses and assets will be rendered obsolete and be displaced by WET (such as the infrastructure of the energy grid and telecommunication networks, including high-voltage towers and transformers, and terrestrial and spatial relays). As a result, as is customary with transformational technology, we expect that WET will initially face opposition from incumbents. It is possible that they will see us as a threat and fail to understand that WET will make their businesses significantly more profitable. That is why we believe in a staged application of our technology, from proof of concept, to real life application, to industrial application, each phase requiring significantly more financial resources than the previous one, as we endeavor to convince incumbents of WET's disruptive nature and potential for enormous value creation, for suppliers and consumers alike.

Implementation of Subsequent Investment Phases

Reliance of Third Party Contractors

Once we are up and running, implementation of WET will be dependent on third parties designing and manufacturing the necessary hardware, such as antennas and ASIC chips. These are complex products, which will expose us to the risk that the companies we rely on for design and manufacturing will fail to

fulfill their obligations or experience delays, or the risk that the hardware they manufacture does not comply with our specifications or contains undetected or latent errors or defects.

Any manufacturing defects or other failures of our WET to perform as expected could cause us to incur significant re-engineering costs, divert the attention of our team from product development efforts and significantly and adversely affect customer satisfaction, market acceptance and our business reputation. Furthermore, we may be unable to correct manufacturing defects or other failures of our WET in a manner satisfactory to our customers, which could also adversely affect customer satisfaction, market acceptance and our business reputation.

Field Conditions

As we move into new geographies and deploy new product configurations, we may encounter new and unanticipated field conditions that have an adverse impact on the performance of our technology. If we do encounter such field conditions, we may incur significant re-engineering costs, the attention of our team may be diverted from product development efforts, and customer satisfaction, market acceptance and our business reputation may be adversely impacted.

Fulfillment of Customer Orders

Our products have significant upfront costs. Because we will not recognize revenue on the sales of our product until installation and acceptance, our financial results will be dependent, to a large extent, on the timeliness of the installation of WET. We believe currently that it will take us nine to 12 months to fulfill a customer order for our product. The length of time that will take use to install our technology exposes us to the financial risk of expending significant resources without having the certainty of generating a sale, as well as the risk of cost overruns or other unforeseen expenses in the installation process.

Regulation

Although we will not be regulated as a utility, federal, state and local government statutes and regulations concerning electricity heavily influence the market for our product and services. These statutes and regulations often relate to electricity pricing, net metering, incentives, taxation, and the rules surrounding the interconnection of customer-owned electricity generation for specific technologies. In the United States, governments frequently modify these statutes and regulations. Governments, often acting through state utility or public service commissions, change and adopt different requirements for utilities and rates for commercial customers on a regular basis. Changes, or in some cases a lack of change, in any of the laws, regulations, ordinances or other rules that apply to our installations and new technology could make it more costly for us or our customers to install and operate our WET on particular sites, and in turn could negatively affect our ability to deliver cost savings to customers for the purchase of electricity.

The construction, installation and operation of our WET at a particular site generally will also be subject to oversight and regulation in accordance with national, state and local laws and ordinances relating to building codes, safety, environmental protection and related matters, and typically requires various local and other governmental approvals and permits, including environmental approvals and permits, that vary by jurisdiction. In some cases, these approvals and permits require periodic renewal. It is difficult and costly to track the requirements of every individual authority having jurisdiction over our installations, to design our WET to comply with these varying standards, and to obtain all applicable approvals and permits. We cannot predict whether or when all permits required for a given project will be granted or whether the conditions associated with the permits will be achievable. The denial of a permit or utility connection essential to a project or the imposition of impractical conditions would impair our ability to develop the project. In addition, we cannot predict whether the permitting process will be lengthened due to complexities and appeals. Delay in the review and permitting process for a project can impair or delay our and our customers' abilities to develop that project or increase the cost so substantially that the project is no longer attractive to us or our customers. Furthermore, unforeseen delays in the review and permitting process could delay the timing of the installation of our WET and could therefore adversely affect the timing of the recognition of revenue related to the installation, which could harm our operating results in a particular period.

In addition, the completion of our installations may be dependent upon the availability of and timely connection to the local electric grid. Local utility companies or municipalities may deny our request for connection or impose conditions or limitations to our projects. Any delays in our ability to connect with utilities, delays in the performance of installation-related services or poor performance of installation-related services by our general contractors or sub-contractors will have a material adverse effect on our results and could cause operating results to vary materially from period to period.

Suppliers

The failure of our suppliers to deliver necessary raw materials or other components for our WET in a timely manner could prevent us from delivering our products within required time frames, and could cause installation delays, cancellations, penalty payments and damage to our reputation.

As we advanced on the staged implementation of our technology, we will increasingly be dependent on the availability of microchips required for mass-market WET deployment. See "Investment Phases" above. The widely reported worldwide shortage of semiconductors could limit our ability to source the necessary chips and, in turn, prevent us from delivering our WET to our customers within required timeframes and cause order cancellations, which could result in sales and installation delays, cancellations, penalty payments, or damage to our reputation, any of which could have a material adverse effect on our business and results of operations.

Competition

While we believe that, currently, there is no wireless technology with the disruptive potential of our WET (see "The Competition" above), new technologies may emerge that are not currently available or of which we are not aware that are comparable or better than WET. Those other technologies may have the backing of large, well-capitalized organization with the ability to bring products to market faster and more efficiently than us. Any such development could materially and adversely affect our business and prospects in ways we cannot currently anticipate.

Inability to Manage Growth

If our business is successful, our growth may make it difficult for us to efficiently operate our business, challenging us to effectively manage our capital expenditures and control our costs while we expand our operations to increase our revenue. If we experience significant growth in orders, we will need additional manufacturing capacity and capital intensive equipment. In addition, any growth in the volume of sales of our product may outpace our ability to engage sufficient and experienced personnel to manage the higher number of installations and to engage contractors to complete installations on a timely basis and in accordance with our expectations and standards. Any failure to manage our growth effectively could materially and adversely affect our business, prospects, operating results and financial condition. Our

future operating results depend to a large extent on our ability to manage this expansion and growth successfully.

Patent Protection

As explained below (under "Intellectual Property Protection"), we intend to use a portion of the proceeds from the capital raise to apply for a defensive patent, which will protect the proprietary technology on which WET is based, by preventing others from copying it. The status of patents involves complex legal and factual questions, and the breadth of claims allowed is uncertain. We cannot be certain that our patent application will result in an issued patent or that any of issued patent will afford protection against a competitor. Our failure to protect our intellectual property rights may undermine our competitive position, and litigation to protect our intellectual property rights may be costly. In addition, any patent issued to us may be infringed upon or designed around by others and others may obtain patents that we need to license or design around, either of which would increase costs and may adversely affect our business, prospects, and operating results.

Risks Relating to the Offering

Dilution

The price at which we our equity will be offered in this offering will be substantially higher than the proforms net tangible book value of our equity immediately following the offering based on the total value of our tangible assets less our total liabilities. Therefore, investors in this offering will experience immediate dilution in the price of their equity, equal to such difference (which we are unable to quantify at this time). Additional dilution will derive from additional rounds of financing we may engage in, in the future, as well as from the possible adoption of equity incentive plans.

Use of Proceeds

We will have broad discretion in the application of the net proceeds to us from this offering, including for any of the purposes described under "Use of Proceeds" above and investors will not have the opportunity as part of their investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our failure to apply these funds effectively could harm our business.

Dividends

We have never declared or paid any cash dividends on our capital stock and do not intend to pay any cash dividends in the foreseeable future. We anticipate that we will retain all of our future earnings for use in the development of our business and for general corporate purposes. Any determination to pay dividends in the future will be at the discretion of our board of directors. Accordingly, investors must rely on sales of their Class A common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investments.

INTELLECTUAL PROPERTY PROTECTION

We plan to use a portion of the proceeds to file a "defensive patent" for our proprietary technology that will protect it while we experiment and commercialize it.

By filing a defensive patent application and going through the publication process, we will prevent others from getting a patent on the same subject matter, because our patent application will be prior art against others. A defensive patent also would shield the business against infringement suits by competitors.

Since defensive patents are typically intended to be only prior art against others, there is usually no need to go through the entire prosecution process. Filing a patent application and allowing it to publish accomplishes the defensive purpose of establishing prior art that can be used against others. So there is usually no need to obtain an issued patent. Normally, patent applications are published 18 months after the earliest priority date (i.e., the earliest application filing date, which can be a provisional patent application).

We may, however, at a later time decide to apply for an offensive patent based on this prior art. Such a patent will give us the ability to bring an enforcement action to force an infringer to stop selling the patented thing or pay us royalties.

REGULATION

We do not expect that TWD Industries AG will be subject to any complicated regulatory regime and/or that its operations will require any significant regulatory approvals because, unlike energy-grids or microwaves and millimeter waves, WET:

- does not saturate the frequency band (as wavelength and frequency can be modulated independently, such that each synchronized group is isolated from all others, even if they all use the same frequency); and
- can be delivered as fully-compliant to governmental authorities (in terms of access to data and energy in transit), both security and fiscal reasons.

Furthermore, WET is immune to the century-old exposure that the energy and telecommunication sectors face relating to the dangers of electromagnetic radiation. Over time – as more data and information has become available regarding the damaging effect from long-term exposure to non-ionizing electromagnetic fields, electromagnetic radiation, electromagnetism, and radio waves or noise – the implementation of energy grids and the roll-out of the next generation of mobile communication technology (currently, 5G) have led to the enactment of international safety regulations that protect consumers from such exposure, by limiting distance and exposure time. At the same time, insurers and re-insurers have thus far refused to cover illnesses, injuries and other liabilities resulting from such exposure.

In contrast to currently available energy transmission technologies, we are not aware of any detrimental effect that WET technology has on the environment – regardless of whether energy transmission or telecommunication is involved – because of our exclusive ability to modulate frequency and wavelength independently, and thus to deliver high bandwidth at a low frequency.

MANAGEMENT

Pierre Gauthier

WET is the brainchild of Pierre Gauthier. Pierre is a telecommunication and computer engineer with a knack for remote technologies. He started coding at the age of 11 and never stopped. After obtaining a Telecom & Computer Science degree in Nice, France, in 1992, Pierre went off to Mountain View, California, to work as a software engineer for Software Publishing Corporation (SPC), at the time, the world's fifth largest software publisher.

At the age of 24, Pierre was appointed R&D Director of FMN Holding Group, a French heavy equipment multinational company with 43 affiliated companies. After that, he went on to work in the submarine radars division of Thomson Microsonics (now part of the Thales Group).

In 1998, Pierre founded TWD Industries AG to market *Remote-Anything*, a Desktop-Sharing and Corporate-Network Management Application that he wrote in three months and that, over a decade, was sold in 138 countries via 280 million licenses issued to customers, including governments, banks, insurance companies, R&D centers, universities, and nuclear plants.

Today, TWD Industries' leading product is *Global-WAN*, a "post-quantum" secure communication platform relying on *G-WAN*, a scalable multicore Web application server supporting 18 scripted programming languages. Global-WAN is a fully compliant virtual private network (VPN) based on government-audited, cryptanalytically-unbreakable security that, thanks to wireless energy transmission (WET), aims at operating globally, independently from the energy grid and telecom networks and without any critical infrastructure, such as relays or satellites.

In June 2020 Pierre published *SLIMalloc* (see <u>https://www.researchgate.net/publication/367190325</u>) a computer-science breakthrough automatically *blocking*, documenting and reporting operating system, third-party libraries, and applications dysfunctions and attacks in real-time. Instead of collecting everything to find (after-the-facts) anomalies, SLIMalloc intervenes only to block errors – without overhead and false positives/negatives. "70% of all security bugs are MEMORY safety bugs." (ZDNet)

In January 2023, *SLIMalloc* made the C programming language "*memory-safe*" – preserving 50 years of investments and strategic know-how – shortly after the NSA (U.S. National Security Agency) recommended to use "memory-safe" programming languages instead of C/C++ because:

- 60-70% of all Apple vulnerabilities,
- 70% of all Microsoft vulnerabilities,
- 90% of all Google Android vulnerabilities,

are memory-safety issues.