

CORPORATE ICONS OF THE UAE

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Lessons in leadership

In 2016 Waseem Ashraf Qureshi, alongside Omer Ghauri and Larry "Chip" Seibert, established a company in the US named KiloWatt Labs Inc. (<https://kilowattlabs.com/>) to find a home for Waseem's most loved, innovative and forthcoming products, which eventually became known as Strike Energy Storage, Central Energy Storage and Semi-Conductor Air Conditioning.

In 2015, together with well-respected, Emirati and business entrepreneur Mr. Saleem Al Makrini, Waseem set up Infusion Solar Energy Systems LLC and Infusion Power Industries LLC as vehicles to further scale production and distribution of Strike Energy Storage, Central Energy Storage and his original battery line UPS, called BLE. As of 2019, \$12 million has been raised. Waseem Qureshi's family is operating three companies for him to be part of his strong entrepreneurial achievement with products such as Hybrid Generator, Battery Kit, Electric Vehicle and the Middle East's first Hypercap Cell Manufacturing Plant, becoming in 2020.

WASEEM ASHRAF QURESHI

Director and Founder

Alpha & Waseem General Trading LLC
and WRI Technologies LLC

CEO & Partner

KiloWatt Labs Inc., Infusion Power Industries LLC
and Infusion Energy Solar Systems LLC

KILOWATT LABS

INFUSION SOLAR
ENERGY SYSTEMS LLC

INFUSION POWER
INDUSTRIES LLC

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WRL

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Danube Group has hit unprecedented heights over two generations of leadership



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With nearly 15 years of expertise, LET Design has become one of the UAE's most sought-after lighting consultants

WRL TECHNOLOGIES

AN ENERGY REVOLUTION

Every so often, a technological breakthrough comes along that can change the world. Here's how one company is riding such a wave with its supercapacitor-based energy storage module and energy server

Every so often, a product comes along that the market simply isn't ready for. More than a century ago, when planes were regarded as military machines built for reconnaissance, bombing and aerial battles during the First World War, the idea that one of these could compete with ships as a means of ferrying large numbers of passengers was laughable. However, when the Boeing 377 Stratocruiser took to the skies in 1947, no one was laughing. A more recent example of a product entering a market that wasn't quite ready for it is Google Glass. Launched to much fanfare in 2014, the augmented reality glasses failed – not due to technical faults but because of consumers' privacy concerns. Five years later, the Glass Enterprise Edition is enjoying a new lease on life as a tool being used by workers in Samsung, GE and DHL.

Today, Waseem Ashraf Qureshi, Director and Founder of WRL Technologies, CEO and Partner of Infusion Power Industries LLC, has developed something unparalleled in the world of energy storage management. The world is about to feel a seismic change in energy storage. Waseem's device works across the board and, as his team recently discovered, in electric vehicles too. With the ever-evolving needs of consumers and industries, Waseem now believes the time is right for Nixus, his supercapacitor module, and Centauri energy server to have a big impact on the market and as of 2019 it certainly is. Waseem and his management team confidently say that 2020 is going to be their year. Imagine a battery that can charge in three seconds, lasts 40 years and can be used between -30 and +80 degrees Celsius with no impact on performance.

In recognition of this technology, Waseem was recently awarded the first patent of the decade on Energy Management in the Middle East.



● Saleem Obaid Mubarak Al Makari, Partner, Infusion Solar Energy Systems LLC and Infusion Power Industries LLC

THE EVERYTHING BATTERY

To understand supercap's potential, it's important to first look at the market it will disrupt: Lithium-ion and lead acid batteries. These rechargeable cells

power everything from our children's toys to smartphones, iPads and electric cars. While Waseem's ultimate aim is to bring affordable, sustainable energy to the masses in developing countries,

there are a number of reasons why he had to look beyond lithium-ion for this. "It can't be done using standard chemical batteries without harming the environment in the long run; there are exponential, recurring costs, because lead acid and lithium-ion batteries are formed from a mined natural resource; and the third very important point is: these batteries, which have a significantly shorter lifespan than our supercap-based Sirius modules, normally end up in landfills, causing further damage to the environment."

While lead acid batteries are currently being recycled and the recycling of lithium-ion batteries is being developed, Waseem says that both come with a huge carbon footprint at the manufacturing stage.

"Lithium-ion and lead acid are extremely harmful to dispose of, yet the world – until we came up with our alternative Sirius module using supercap technology – seemed to be completely dependent on lithium-ion or lead acid as a medium for storage."

"It's very nice to make a product with a recyclable sign on it, but hang on a minute – you take that product away after three months (because that's the life of the product), you put it into a facility that melts it down and produces so many carbon emissions, after you've shipped it halfway around the world... is that really sustainable? Are we truly helping the environment or causing it more damage?"

SUPERCAP USE CASES

Sirius can be adapted for a myriad of use cases. "We can adapt very quickly, creating form factors in any shape



or size," explains Waseem. "We're not bound to anything." Streetlights are an example. While they can be a huge collective burden on the power grid, many recently developed residential communities around Dubai have installed solar-equipped lights.

The issue comes into play when you look at the chemical lead acid batteries they're connected to. "The battery starts working at near 100 per cent at the beginning. It works in a curve. Towards the end of the night cycle, say 3am, it begins dimming, which is ridiculous – you need the light at that time."

"Supercaps don't work like that. They work consistently until the end of the power cycle."

Meanwhile, degradation over time is an issue with both lead acid and lithium-ion batteries. In many of these UAE communities, the batteries stopped working about six months after they were installed. "Our supercap can last 40 years." The main difference is the solid-state material built into the supercap.

Another use case is forklift trucks. Most of them are electric,

"Sirius can be adapted for a myriad of use cases. We can adapt very quickly, creating form factors in any shape or size. We're not bound to anything."

WASEEM ADHRAF DURESH

Director and Founder, Aviller & Waseem
General Trading LLC
and WRL Technologies LLC
CEO & Partner, Khowat Labs Inc.
Infuzion Power Industries LLC and
Infuzion Energy Solar Systems LLC

but they have issues. "Lifting equipment such as forklifts can also be equipped with the supercap battery."

"We're doing a research project for a well-known US multinational at the moment where we're looking at how we can replace the lead acid batteries they are using in their forklifts in the US. Lead acid and lithium-ion batteries can't deliver sudden bursts of energy in a short amount of time, which is what factories, plants, industrial equipment and EVs require."

"This is an inherent characteristic of Sirius modules – they can deliver as much or as little energy as you need in one shot, you don't have to replace them every few years, they can run for a longer period of time, and they can power heavier equipment."

"Our organization has developed controls, boards and algorithms that are able to enhance Supercaps and package them into a modular design. These modules can be used in industries such as telecoms, construction, Off-grid and On-grid Housing, Electric Vehicles, Trains and Trams, enhancement of KERS and solar applications, to mention a few."

"Our newest invention, the Digital Generator, is expected to come to market in early 2020. A hybrid diesel generator giving 50-60 per cent diesel savings, where the diesel engine will run for an hour to charge the supercap module bank (which can deliver as much torque as a diesel engine) that will discharge electricity for five to six hours."

"To cap it all off, we are also working with a local biodiesel producer to make the Digital Generator literally carbon free." ■



● The supercapacitor modules can be adapted for electric cars, power grids and hospitals. They can last 40 years, have a 0.9 per cent depth of discharge and can operate in extreme climates.