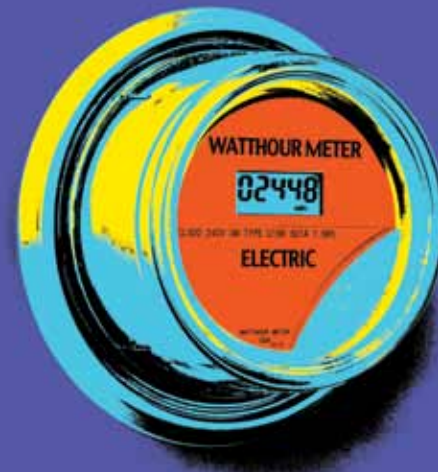
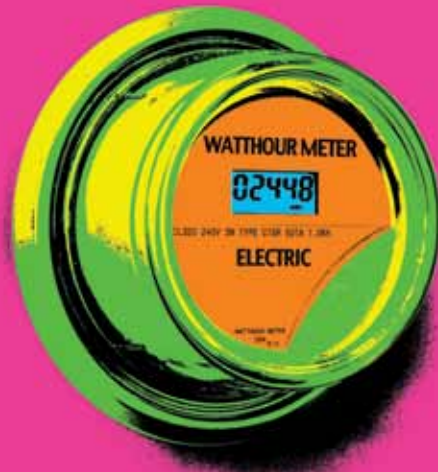
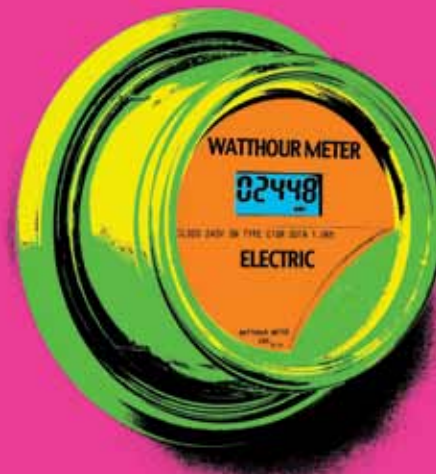


SAFT

international

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SPRING 2016



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“Power 2020

*building closer working
relationships
with customers*

EDITORIAL

The mood at Saft is positive as we progress through 2016. Major orders in China have established us as the world leader in primary cells for smart meters and cemented our position in Asia's booming railway sector. To meet demand, we have invested €5 million in doubling our production capacity in Zhuhai, China.

In addition, long term customers Lockheed Martin and Boeing demonstrated their confidence and helped us mark 50 years in space by renewing long-term agreements.

Saft is renewing its emphasis on customer relationships and innovation through a four-year transformation plan called Power 2020. It started on 1st January with the implementation of a new customer-centric organisation that has four new divisions: Civil Electronics; Industrial Standby; Space & Defence; Transportation, Telecom & Grid.

Power 2020 is organised around 3 major pillars: focus, differentiation and delivery. With more focus on our traditional market segments such as transportation, telecom, space & defence, industrial standby or civil electronics, we will reinforce the leadership positions of both our customers and Saft. Together with you we need to anticipate new applications and technologies that will emerge in the future.

Secondly, you already know that Saft is different from other battery manufacturers because we strive to deliver the best customised and differentiated solutions. Turning to our third and last pillar, delivery, Saft can only thrive through superior performance, high quality and on-time delivery for customers.

In parallel and to serve you even better, together with Saft's senior managers I am meeting personally with our customers. So you can be sure our sales team will take your feedback into account.

To conclude, it was a great honour to receive President Barack Obama at our manufacturing plant in Jacksonville, Florida in late February and to hear his words of support and trust in Saft as a best in class high-tech manufacturing company.

I wish you pleasant reading.

Ghislain Lescuyer

Chairman of the Management Board
Saft Groupe SA

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Saft Corporate Communication,
12 rue Sadi Carnot, 93170 Bagnolet.
Tel: +33 (0)1 49 93 19 18
www.saftbatteries.com
e-mail: karen.hollington@saftbatteries.com

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President Obama visits Jacksonville

President Barack Obama paid a visit to Saft's facility in Jacksonville, Florida in late February. The visit highlighted Saft's role as a high-tech manufacturer and employer.

During his three-hour visit, the President toured the facility, which is one of the most advanced, automated Li-ion battery factories in the world. He also



President Barack Obama greets Tom Alcide, President of Saft America Inc.



delivered a speech for employees and the media.

President Barack Obama said:
"I came here to Saft to show what it means to invest in the future. The future is built by the workers here at Saft and in companies like it all across the country. Because there are few areas where our efforts to build a

new economy have paid off in a bigger way than in how we manage energy – make it cleaner, make it more efficient – help consumers, help businesses, and create jobs. We can see real, tangible evidence of what a new economy looks like. It looks like this facility right here."

■ tom.alcide@saftbatteries.com



Clean energy on the agenda at COP21

Saft was present during the COP21 summit in late 2015 when world leaders signed up to the first universal climate agreement, which aims to keep the global temperature rise well below 2 °C.

As a backdrop to the negotiations, Saft was one of many global leaders in clean technology that came together in exhibitions at Le Bourget and Le Grand Palais in Paris. These informed the negotiations and brought policy makers together with experts from industry. Saft's

messages focused on renewable energy and electric vehicle technology.

The first highlight was Michael Lippert's, Saft's Marketing Manager, introduction to the French Minister of Foreign Affairs and International Development while at the booth of the French 'Think Smartgrids' association. The second highlight was Beatrice Lacout's, Saft Business Development Manager, participation in a high level round table on electric vehicles.

■ michael.lippert@saftbatteries.com ■ beatrice.lacout@saftbatteries.com

Customers central to Power 2020

Glen Bowling answers a few questions about what customers can expect from Saft's Power 2020 transformation plan.



*Glen Bowling,
Group Senior VP Sales*



How will customers benefit from Power 2020?

Saft is using its Power 2020 initiative to go back to its roots as a niche supplier that offers the perfect solution for individual customer needs. Four pillars support the changes and these are: focus, differentiation, delivery and organisation. Ghislain Lescuyer introduces these in more detail in his introduction on page 2, as well as the philosophy behind Power 2020.

What's happened so far?

Members of our executive management team are visiting customers personally to ask about how we can address customers' needs better. These meetings are giving customers a voice at the very highest levels within Saft and demonstrate how important they are.

What will be different?

Saft already differs from other battery manufacturers in terms of technical superiority and business longevity. Power 2020 means we will

focus more closely on the customers who need the very best long-term battery performance. We want to respond to customers fast, supply the batteries they need and support those batteries through lifetime service.

What can we expect, and when?

One thing that we've heard loud and clear from customers is that while they recognise our expertise, they want us to listen more intently to their own specific needs. This will help us deliver exactly what they want.

BECAUSE OUR STRUCTURE WILL REFLECT OUR CUSTOMERS' MARKETS, WE'LL HAVE THE RIGHT PEOPLE AND THE RIGHT CAPABILITIES AT THE RIGHT SITES FOR THE RIGHT TECHNOLOGIES.

In the first half of 2016, we're making some changes to the way that we structure Saft to focus on our customers' markets. Because our structure will reflect our customers' markets, we'll have the right people and the right capabilities at the right sites for the right technologies.

This will make it easier for our team to focus, respond and deliver for customers. ☺☺

■ glen.bowling@saftbatteries.com



Funding for palliative care charity



Saft Groupe became this year a sponsor of a French non-profitable organization "Fonds pour les Soins Palliatifs" through a 3-year donation. The organisation is dedicated to help children and adults living with serious, degenerative or terminal illnesses. Palliative care

is a modern approach to healthcare that assists patients whose quality of life is deteriorating by preserving the patient's dignity regardless of their age, ensuring the patient is not isolated and avoiding unnecessary medical treatment.

■ vannara.huot@saftbatteries.com



Government engagement

Rick Scott, the Governor of Florida, paid a visit to Saft's facility in Jacksonville in October 2015. He used the visit to promote his initiative to improve engagement between industry and education.

It encourages teachers of STEM (Science, Engineering, Technology and Maths) subjects to undertake paid summer work with engineering firms.

■ naomi.silver@saftbatteries.com



Cockeysville opens its doors

Space and defence customers were the focus of a Customer Industry Day at the Cockeysville facility in Maryland, US. The day featured presentations on the latest tech-

nology, an overview of the expanded plant and a mini trade show.

■ nicole.haslip@saftbatteries.com

New for Saft



780 orders
booked for the A350 XWB

80 kg
of weight saved with Li-ion
systems on the A350 XWB

milestone Aviation Li-ion batteries



Airbus has been working in collaboration with Saft since Airbus' origins in the 1970s.

Saft currently provides batteries for all Airbus aircraft and achieved a new milestone in January 2016 with the Entry Into Service of the first A350 XWB equipped with Saft 450VH1 Li-ion batteries. The cutting-edge Li-ion battery on board the A350 XWB is the result of

15 years of Saft research in Li-ion solutions, 10 of which were spent developing aviation-grade Li-ion systems. The Airbus A350 XWB is already a success with more than 780 orders and close to 50 planned deliveries for 2016.

There are four identical and interchangeable

batteries installed in the A350 XWB avionics bay. By using those Li-ion batteries on the A350 XWB, Airbus has reduced weight by more than 80 kg, resulting in a significant reduction in fuel consumption, especially on very long-haul flights. Furthermore, the Li-ion batteries require



less frequent maintenance checks. Indeed, the regular checks, periodical check and general overhaul needed with other types of batteries are now replaced with a single check every two years.

■ jean-marc.thevenoud@saftbatteries.com



New Zhuhai plant to meet growing demand

Saft inaugurated a brand new facility in Zhuhai, China on March 30th to manufacture primary lithium batteries for smart meters and nickel battery systems for the rail industry. Angel Li, Saft's Zhuhai plant General Manager, answers some questions about the new site.



From left to right: Thai Keong WAN (Saft Singapore), JIANG Jian Ping (Zhuhai FTZ), Igal CARMÍ (Saft & Tadiran), Angel LI (Saft Zhuhai), ZHAO Wei Yuan (Zhuhai FTZ), Philippe ULRICH (Saft Hong Kong & Japan), Bertrand FURNO and Pierre MARTIN (French Consulate in Ghangzhou)

60 million cells per year

12,000 m² space

€5 million investment



Angel Li, Saft's Zhuhai plant General Manager

Why has Saft moved its Zhuhai operation?

Last year we had some major contract successes, especially in metering and because we had already filled our existing facility, we needed a new larger site to expand our business and serve customers better.

What does it mean for customers?

Customer service will be enhanced, with greater availability and faster delivery. Customer feedback was positive when we told them about the move and we're very grateful for their patience while we've been running the old site at full capacity.

What does the new site offer?

Our space has grown from 3,600 m² to 12,000 m². This means we will double production capacity of primary lithium cells from 30 million to 60 million per year. Space dedicated to rail batteries has grown five-fold to 2,000 m² and we have ear-marked areas for future growth into the energy storage and electric vehicle markets.

The facility was inaugurated on March 30th and we have already increased capacity of primary lithium cells to 40 million per year. The team will be working hard to ramp up production to 60 million before the end of 2016.

■ angel.li@saftbatteries.com



Major metering success

Distributors Royalty and Sonic have helped Saft win contracts to supply more than 45 million primary lithium batteries for smart utility meters in China. The batteries will power smart

meter installations. Quality is important in metering, where batteries must deliver power reliably over many years in challenging environmental conditions.

■ michael.wang@saftbatteries.com





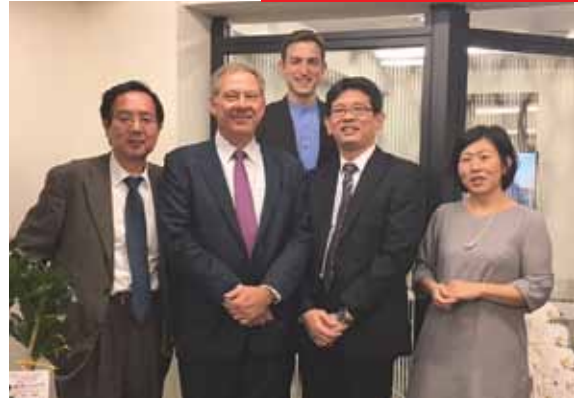
New Japanese subsidiary

Saft has opened a new subsidiary to strengthen ties with customers in Japan in the transportation, telecom and grid, as well as civil electronics markets.

Saft Japan Kabushiki Kaisha (KK) and its new expert sales team made its business debut at the 6th International Smart Grid Expo and Battery Japan 2016 at Tokyo Big Sight in early March.

■ philippe.ulrich@saftbatteries.com

Saft Japan KK's team (left to right): Hiroyuki SOGA, Philippe ULRICH, Thomas EBEL, Takahiro FUJII and Hiroyo OGAWA



Rail success in Asia



CRRC delivering China's first driverless metro

Fifteen driverless trains serving Beijing's new Yanfang line are each being fitted with two Saft battery systems. Train manufacturer CRRC (former CNR) selected Saft's well-proven SRA batteries to supply 45 minutes of emergency backup power for lighting and ventilation.

Yu Qingsong, Deputy General Engineer for CRRC said: "The especially demanding nature of unattended train operation means that we must have total confidence in the performance of all the critical systems on board our metro trains."

■ edward.wong@saftbatteries.com

Helping Bombardier Sifang's trains run on time

Saft is supplying 100 battery systems to Bombardier Sifang (Qingdao) Transportation, one of China's leading manufacturers of rolling stock. The batteries will provide backup power for 20 new "Project 807" passenger trains on China Railway's

(CR's) high-speed railway network.

Low weight is central to the new generation "Project 807" rolling stock. In support of this, Saft's MRX battery systems are several hundred kilograms lighter than alternative systems.

■ wayne.guo@saftbatteries.com



Uninterrupted track inspection in Malaysia

Two track inspection vehicles on the Malaysian Klang Valley Mass Rapid Transit (KVMRT) have been fitted with Saft MRX batteries for essential emergency backup power.

Specialist sub-contractor Matisa is building the specialist inspection vehicles on behalf of Siemens, which is delivering 58 trains that will operate on the new Sungai Buloh to Kajang line. Matisa turned to Saft for 24 V, 160 Ah

battery systems that will provide four hours of power to ensure that track measurements are collected without interruption.

"Saft nickel-based batteries have established an outstanding track record of

meeting strict performance requirements over years of service in railway projects worldwide," said **Roger Grossniklaus of Matisa**.

■ frank.strunz@saftbatteries.com





Yutong partnership with Dietrich Carebus Group

Saft is working in partnership with Dietrich Carebus Group (DCG) to evaluate the potential to equip Yutong electric buses built in China with Saft's Li-ion batteries manufactured in France.

DCG is a specialist in the design, distribution and marketing of buses and coaches in France. It is also the exclusive agent for China's leading bus brand Yutong in several European countries. DCG will install the French batteries on the Chinese buses at its facility in Ingwiller in France.

The goal of the partnership is to assess the feasibility of integrating Saft's Li-ion batteries into Yutong buses to meet the performance and regulatory requirements of the European market.

Pierre Reinhart, President of DCG, said: "Selection of the battery systems is crucial to the success of Yutong's electric buses in Europe."

■ beatrice.lacout@saftbatteries.com

US Government funds stop-start batteries

The United States Advanced Battery Consortium (USABC) has awarded Saft a contract worth more than \$6 million to develop 12 V Li-ion batteries for stop-start vehicle applications. USABC is a collaboration between Chrysler, Ford and General Motors that is funding the project alongside the US Department of Energy. During the 30-month project, Saft

will build on its previous experience of developing stop-start batteries with USABC

"We are pleased to announce the award of this contract to Saft America as part of USABC's broad battery technology research and development programs," said **Steve Zimmer, executive director of the US Council for Automotive Research.**

■ bruce.mcrae@saftbatteries.com



UNITED STATES ADVANCED BATTERY CONSORTIUM

Integration into Rolls Royce system



Saft is supplying a marine-certified Seanergy® high energy air-cooled battery system to Rolls Royce for an innovative Norwegian workboat.

The vessel, named OV Bøkfjord, is currently under construction in Denmark for Kystverket, the Norwegian Coastal Administration. Rolls Royce is supplying a hybrid power system that includes diesel gensets and a Saft Li-ion Super Phosphate (SLFP) battery system integrated into the vessel's automation and Power Management System.

The battery system will play a critical role in meeting peak power demand. For example, when the vessel is using its dynamic positioning system, the Li-ion system will enable the ship to operate using only one diesel engine. By smoothing out the peaks and troughs in demand, the engine will operate at its peak efficiency point. The system will offer the potential for fuel savings of up to 25% as well as lower maintenance requirements for the gensets.

Saft will deliver the battery system with DNV certification on a fast track basis in May 2016 so that the OV Bøkfjord will be ready to start operations during the summer.

■ jayesh.vir@saftbatteries.com



857 kWh

energy storage on board the OV Bøkfjord

25%

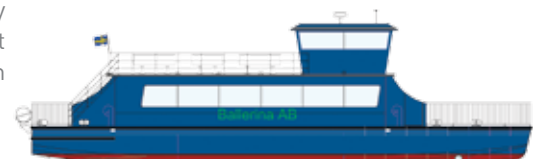
potential fuel savings

Ballerina wins award

Swedish ferry operator Ballerina won Stockholm Council's 2015 Environment Prize in recognition of launching a new all-electric ferryboat. The vessel, named Sjövägen entered operation in 2014. It is equipped with a Saft Li-ion Super Phosphate (SLFP) battery system that enables clean and quiet transport around central Stockholm throughout the day.

■ christer.steen@saftbatteries.com

8
number of round trips per day for Ballerina ferry



Cold temperature package in Alaska

Alaska's Kotzebue Electric Association Inc. (KEA) has taken delivery of a Saft Intensium® Max+ 20M containerized Energy Storage System (ESS) that will be integrated into the cooperative's existing wind-diesel power system. By making wind energy more reliable, the ESS will reduce KEA's reliance on expensive imported diesel fuel.

Saft supplied a 'cold temperature package' because the temperature in Kotzebue can drop to -50°C. The unit features layers of insulation and a system to circulate heating fluid through coils to protect the battery cells from the Arctic climate.

“Incorporating the Saft Intensium® Max+ 20M battery will allow better utilisation of our wind system,” said KEA General Manager and CEO Brad Reeve. “Battery storage is an additional tool we need to increase our cooperative's efficiency and reduce our diesel dependence.”

■ jim.mcdowall@saftbatteries.com



Triumph in Haiti

200 kWh

daily demand for power in Haiti's Champ de Mars

-50°C

lowest temperature in Kotzebue

2,600 MWh

energy produced per year at Langa's Corsica PV plants

Optimising power for Langa



Saft has supplied Intensium® Max energy storage systems (ESSs) for two photovoltaic (PV) farms on the French island of Corsica. The plants, developed by renewable energy operator Langa, will each produce 1,300 MWh per year, with a nominal solar power of 1 MWp and energy storage capacity of 1MWh.

Herve Guérin, founder and CEO of Langa Group said “Energy storage

systems will allow us to integrate energy production into the distribution grid in an optimised way. We were convinced by the solution proposed by Schneider Electric and Saft, two French leaders in their markets. Their expertise in solar energy and energy storage and their competitive offer, along with their local presence have been key in our choice.”

■ aurelie.tornier@saftbatteries.com

• A Saft ESS is supplying power for lighting and wifi in Haiti's Champ de Mars, the grand public square in the country's capital Port-au-Prince.

During the 'Triomphe' project, energy and engineering company Geninov Group delivered a photovoltaic power plant that integrates around 110 kWh rooftop solar panels with an Intensium® Max 20E ESS. The system is Haiti's first photovoltaic plant.

“ We are extremely pleased to work with Saft to provide a critical service to the city of Port-au-Prince and the Haitian people,” said

• **Yves Marthone, Chief Operating Officer of Geninov.**



“Renewable energy technology is one of the most important areas of development for small power networks in remote locations, and we are confident that this project will have an immediate positive impact.”

■ laurent.mahuteau@saftbatteries.com

UK Solar rewards scalability

In November 2015, Saft was named winner of the Energy Storage category in the UK's Solar Awards. Saft won the award on the basis of the scalability of Intensium® Max energy storage systems.



• Bill McKenzie (left) and John Taylor (right), Saft's Sales Managers receiving the award on behalf of Saft's Grid team



SNCF awards

Saft a €4 million contract

Saft has received its largest contract from a European railway operator for a decade. SNCF awarded Saft the contract to replace battery systems on board all of its 200-strong fleet of TER 2N NG (double-decker new generation) trains.

Blowing hot and cold

+50°C

-50

Two recent projects have highlighted the capabilities of Saft rail batteries to withstand extreme climates.

One contract will see 49 Saft battery systems providing backup power for trackside substations on the prestigious Haramain High Speed Railway in Saudi Arabia, where temperatures can fluctuate from freezing to + 50°C. The new line will run between the cities of Medina and Mecca.

damian.sanchez@saftbatteries.com





284 battery systems to be supplied

90 kg weight saving per battery system

15-year life for MRX batteries

The TER 2N NG fleet entered service in 2000 and is based on the Alstom Coradia Duplex electric multiple unit (EMU) platform. Saft's on-board batteries provide backup power for control, safety and communications should mains power be interrupted.

Saft will replace the existing unreliable lead-acid batteries with MRX batteries, which are designed specifically for rail backup. Advantages include reliable performance over a 15-year life and lower weight.

■ pierre-andre.nutte@saftbatteries.com

SPX: world's most powerful nickel battery

Saft launched the world's most powerful nickel battery for mission critical engine starting applications at "Middle East Electricity" in Dubai, early March 2016

This cutting-edge new battery will ensure that standby power is available in case of emergency. Its role is particularly important for mission critical process plants or hospitals, where failure of backup generators can have huge costs to business continuity and human life.

Called SPX, with the X demonstrating extra-high power, the new design delivers the most amperes per Ah capacity of any comparable battery. This ranges from 316 A for 30 seconds for the 25 Ah capacity SPX316 to 3330 A for 30 seconds for the 315 Ah capacity 3330.

It has a high power output and ability to operate normally in temperatures from -20 °C to +50 °C. This means that the SPX will start engines reliably in all conditions over many years. In addition, thanks to its reduced

footprint, the SPX enables smaller installations and lower environmental impact.

The SPX is certified to the IEC 60623 standard for vented nickel-based prismatic rechargeable single cells.

■ mikael.greis@saftbatteries.com



240 seconds extended starting supported by SPX

20 years calendar life

-50 °C to +70 °C

the SPX can withstand extreme temperatures for short periods



At the other extreme, Saft is supplying on-board batteries for backup power on board CAF's Urbos 100 trams that will serve Tallinn, the capital of Estonia. Temperatures can fall as low as - 50 °C so Saft supplied its SRA LT (Low Temperature) batteries.

■ jose-maria.carrasco@saftbatteries.com



BrightSource

More than 50,000 of Saft's Tadiran rechargeable Li-ion battery packs will help solar developer BrightSource Energy Inc. direct the sun's rays at the Ashalim Thermal Solar Power Station in Israel.

The energy packs will provide power to thousands of heliostats. These are individual mirror devices that focus the sun's energy on to a boiler, creating super-heated steam that drives a turbine and generates electricity.

The Tadiran energy packs will drive the heliostat motors and power communications. By using batteries, BrightSource can eliminate cabling and wiring that would otherwise be required.

Igal Carmi, Executive VP of Saft's Civil Electronics Division, commented: *“Awarded by a new client in a new sub-segment of energy harvesting, this order represents a significant commercial breakthrough for Tadiran and highlights the recognition by the industry for the excellence of its batteries.”*

■ pinsky@tadiran-batt.com

50,000

number of heliostats powered by Tadiran batteries

121 MW

power generating capacity of Ashalim Thermal Solar Power Station

Stepping into robotics

3 years

backup for STEP's industrial robots



Chinese high-tech enterprise STEP Electric Corporation is installing Saft primary lithium batteries in its new generation robots.

The batteries will back up the memory in the robots' on-board positioning systems when they are powered down. This enables the robots to continue their work when the power supply is restored.

Saft's LS14500 cells will provide more than 3 years of backup power, which is

more than the anticipated 24,000 hours service life of the robots themselves. The cells are optimised for base currents of a few microamps with periodic pulses of up to 150 mA.

■ michael.wang@saftbatteries.com



Backup for drone command centres

Defence and security specialist Textron Systems has awarded Saft a multi-million dollar follow-on contract for backup batteries for its Universal Ground Control Stations (UGCS). The control stations are command centres for unmanned aerial systems (UASs).

Saft's Li-ion batteries will provide backup power to ensure uninterrupted communication with UASs and the success of critical missions.

“Our UGCS incorporates features and technologies for joint services interoperability, mission flexibility, scalability, and ease of use – making it universally capable for the future force,” said **Textron Systems, Unmanned Systems VP, Wayne Prender**. “That’s why

100 Ah

capacity of battery in Textron Systems' UGCS

-29 to +71°C typical operating temperature range of Li-MnO₂ cells

20 g minimum weight of a single military Li-MnO₂ cell



Wayne Prender, Textron Systems

we look to trusted industry partners like Saft to deliver solutions – especially their ICB – to ensure our soldiers can complete the mission – regardless of its circumstances.”

alex.num@safbatteries.com

Defense Logistics Agency commits up to \$10m to Saft

The US Defense Logistics Agency has engaged Saft in a multi-year contract to supply the US Army, Navy, Air Force and Marine Corps with BA 5372 lithium-manganese dioxide (Li-MnO₂) batteries.

The contract will ensure the ongoing delivery of the batteries, which are used to power portable military equipment such as radios. The US military has been using Saft primary batteries for more than two decades because of their industry-

leading long life, high energy density and low self-discharge rates.

ben.helminen@safbatteries.com





50 years in space

Saft celebrated the 50th anniversary of the launch of its first space battery in February, commemorating CNES's (National French Space Agency) launch of the Low Earth Orbit (LEO) Diapason 1A satellite on 17 February 1966. Although the Diapason 1A mission's duration was initially planned as two years, the Saft battery successfully provided power for six years.

Since then, Saft has established itself as the top supplier of batteries for satellites, space exploration and other space applications.

■ yannick.borthomieu@saftbatteries.com



Saft's Diapason 1A satellite battery



The Diapason 1A satellite



Saft's workshop in Romainville, France in the 60s



Poster for the Aviation trade show in France in 1965

TeLEOS takes energy storage in orbit to 2 MWh



In December 2015, Saft's first VES16 Li-ion space battery systems made a successful launch on board TeLEOS-1, Singapore's first commercial Near Equatorial Orbit (NEqO) earth observation satellite.

With 165 satellites, the launch took Saft's cumulative energy storage capacity in orbit to over 2 MWh.

The VES16 battery was developed at Saft's Poitiers plant in France for LEO applications with the support of CNES, with the aim of reducing the weight of the satellite. The low capacity cell is designed to last more than 60,000 cycles over a calendar life of 12 years with a very high

DOD (depth of discharge) of up to 40%.

“The flight experience gained in their first mission on the TeLEOS-1 satellite is the last key step for the VES16 design as it will provide an important reference for their performance and lifetime advantages,” said **Annie Sennet, Saft's Executive VP for the Space & Defence Division.**

■ david.reulier@saftbatteries.com

50 years

of Saft batteries in space

165 satellites in orbit
with Saft Li-ion batteries

2 MWh
combined capacity of Saft's
batteries in orbit



Flying high with Lockheed Martin and Boeing

Lockheed Martin has appointed Saft as preferred supplier for space-proven Li-ion batteries for telecommunications satellites under a multi-million dollar Long Term Agreement (LTA). The five-year follow-on contract signed in October runs until 2020 and covers high-energy VL48E cells.

Boeing has also solidified its partnership with Saft with a five-year LTA for Li-ion systems for telecommunication satellites in geosynchronous orbit (GEO). The combination of Saft's lightweight cells and Boeing's lightweight battery design will save launch costs.

■ annie.sennet@saftbatteries.com

LEO Constellation for Sierra Nevada

Saft Li-ion batteries are on board 11 new-generation satellites built by Sierra Nevada Corporation (SNC) that were launched into orbit on 21 December 2015 by a SpaceX Falcon 9 rocket.

SNC built the satellites for ORBOMM's Generation 2 (OG2) Low Earth Orbit (LEO) constellation, the only commercial satellite network that is entirely dedicated to machine-to-machine communication. Each

of the satellites is fitted with a Saft MPS battery system, that provides a 28 V supply.

The low weight and high voltage capabilities reduce the battery's weight by 50%. Low thermal power and high energy efficiency of the batteries also enable the installation of smaller solar panels. Together, these factors enable larger payloads on board the satellites.

■ yannick.borthomieu@saftbatteries.com

Autonomy for STERIS smart operating table



Medical
device
certification



Saft has developed specialised Li-ion battery packs for the new generation Gmax™ operating table created by STERIS, a leading global healthcare product supplier. The project takes Saft batteries into the heart of the operating theatre.

STERIS created the Gmax™ to deliver advanced ergonomics, maximise theatre safety and efficiency and promote patient care. The table's design allows for fully powered movement to position the patient ideally for every surgical specialty.

“We viewed the selection of the battery packs as a critical factor in the success of the Gmax™ design

since they have to ensure totally reliable autonomous power over a typical eight-hour shift between recharging operations,” said **Lionel Deltenre, Gmax™ Product Manager in STERIS Marketing Department.** “Saft's MP Integration batteries have proved to be the ideal choice thanks to their compact high quality and safety certified construction that delivers the essential combi-

nation of performance, reliability and long life.”

Engineers at Saft and STERIS worked in close cooperation to develop two MP Integration battery packs to fit inside the table column while providing exceptional power and energy to power full autonomy for an entire 8-hour shift.

■ pascal.hans@saftbatteries.com

In December 2015, Saft's Civil Electronics division achieved ISO 13485 certification at its Poitiers facility for all batteries integrated into medical devices that fall into the US Food and Drug Administration's Class IIA and IIB. These include devices such as surgical tools or monitoring systems that can support or sustain life.

The certification is strongly recommended by the main players in the medical device sector. It demonstrates high quality and enhanced levels of traceability, quality control, training and risk management.

Francois Croise, Plant Quality Manager for Saft said: “Achieving ISO 13485 represents reassurance on reliability and safety for Saft's medical customers and patients.”

■ francois.croise@saftbatteries.com



Green data centres

Switching from conventional lead-acid batteries to Li-ion technology such as Saft's Intensium® Flex has potential to improve the green credentials of data centres.

Many data centres use VRLA (Valve Regulated Lead-Acid) batteries to provide continuous standby power for critical loads. However, opting for Li-ion battery systems can have major benefits in terms of smaller size, higher energy efficiency and consumption of fewer resources.

Space saving

When specifying the battery in a UPS (Uninterruptible Power Supply), engineers first identify a model of battery that will deliver the required power and then calculate the total energy storage capacity required to cover the duration

of outages, usually up to 15 minutes.

Greater energy density, power delivery and ability to withstand ageing means that battery systems based on Li-ion electrochemistry are significantly smaller than VRLA. This represents either a smaller data centre building or extra space for server racks.

Better charging efficiency

Another benefit of Li-ion is its ability to accept fast charging and higher efficiency float charging than lead-acid. The Intensium® Flex has more than 99% re-charge efficiency and its

15 minutes

typical backup duration from Intensium® Flex

20 years

design life from Li-ion UPS

19"

rack mounted format for data centres

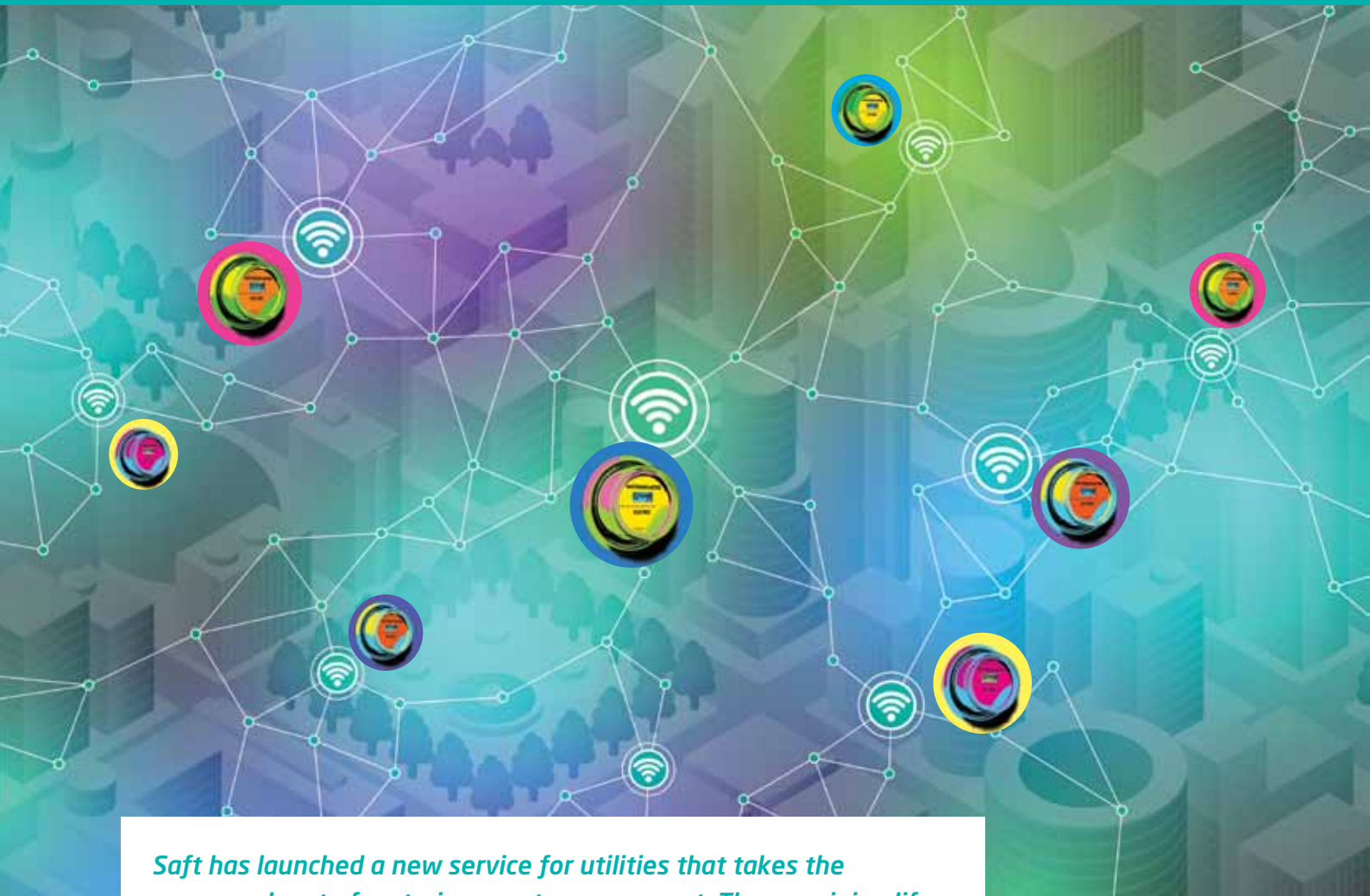
float charge efficiency is comparable to lead-acid. This minimises wasted energy over a lifetime and contributes to reducing total energy consumption.

Life cycle assessment

Finally, Li-ion also performs better in terms of its environmental profile throughout its life cycle. A peer reviewed academic study found that the Intensium® Flex used fewer raw materials in manufacture, operation, recycling and transportation than a comparable lead-acid system over its lifetime.

■ stuart.lansburg@saftbatteries.com

Remaining battery life analysis



Saft has launched a new service for utilities that takes the guesswork out of metering asset management. The remaining life analysis service draws on real-life laboratory testing of metering batteries in service as well as Saft's in-depth knowledge of battery performance in operation. The service is available for batteries from any manufacturer.

The service is enabling utilities to take fully informed decisions on whether to extend the life of a fleet of meters or bring forward planned replacement.

Cecile Joannin, Saft's Marketing Manager for Metering, said: "Saft is the world leading supplier of primary lithium batteries for metering applications, with

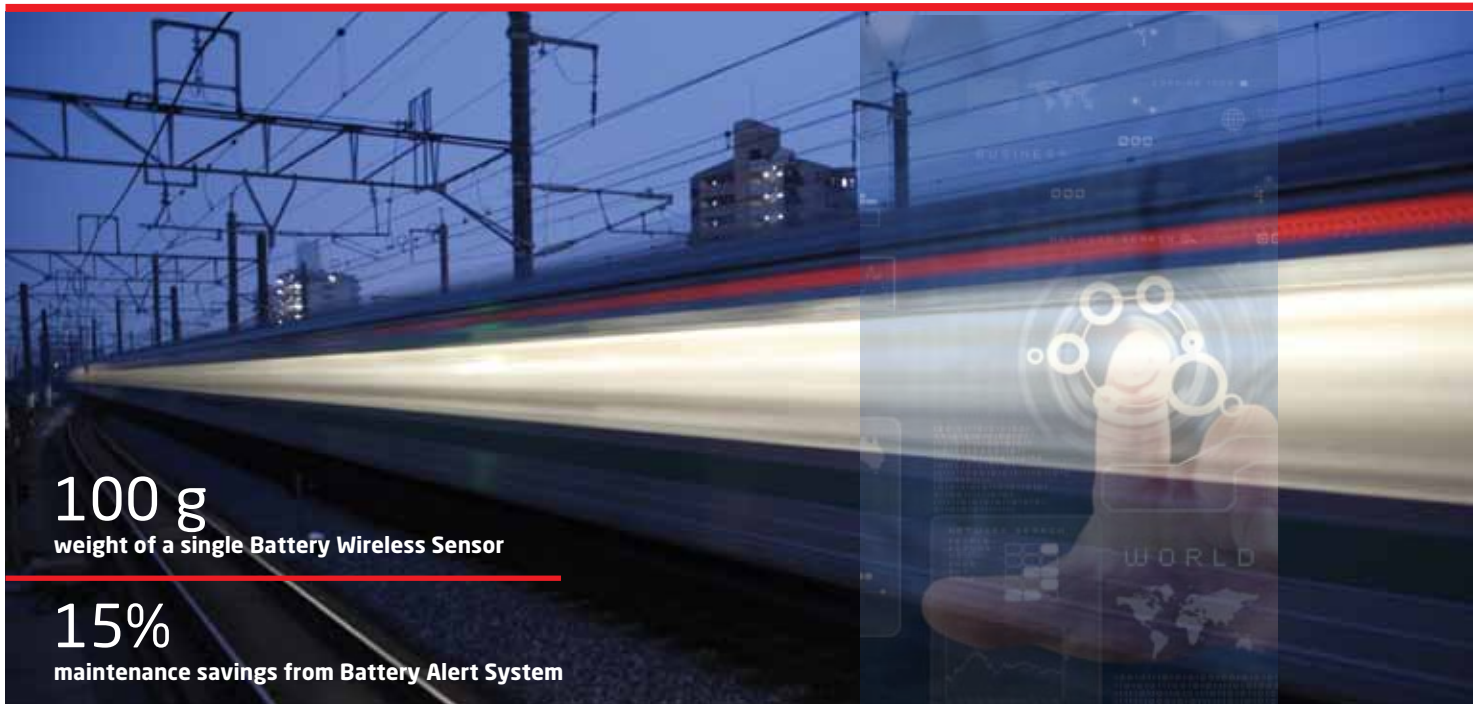
unrivalled experience of over 35 years, based on hundreds of millions of our batteries deployed in the field. This has enabled us to establish a deep understanding of the many design and operational factors that impact battery life."

■ cecile.joannin@saftbatteries.com

35 years

Saft's experience in cells for metering

New eSupervision system for batteries without electronics



100 g

weight of a single Battery Wireless Sensor

15%

maintenance savings from Battery Alert System

A new service from Saft has the potential to reduce the operation and maintenance costs of mission critical backup batteries by enabling operators to switch from corrective to preventive maintenance.

The Battery Alert System service opens up remote monitoring for types of batteries that do not have electronic management systems, such as nickel-based. It is similar to e-monitoring for Li-ion systems.

The service uses smart Battery Wireless Sensors to monitor and evaluate battery status. They measure battery temperature and voltage as well as calculating the State of Charge (SOC) using data from Saft's extensive real-world experience of its installed battery base.

They send a daily message via low

bandwidth communication to confirm normal operation but when the sensor detects abnormal readings it sends an immediate alert to operators.

The Battery Wireless Sensor is small, inexpensive and can be mounted on new or existing battery systems from any manufacturer.

A simple web interface allows operators to review performance over time.

The service has potential to make major maintenance savings for operators of mission critical batteries in the rail, stationary, standby, industrial, telecoms and mobility sectors.

Jean-Philippe Limal, Saft's Service Director, said: *"The service has been designed to minimise costs and optimise reliability. It has massive potential for mission-critical battery installations around the world. Adopting the Battery Alert System has the potential for customers to save up to 15% of direct maintenance costs on batteries and most importantly, optimise the train fleet availability by reducing unplanned downtime and huge associated losses of revenues."*

■ pascal.lavaur@saftbatteries.com


2016 events


Saft will be exhibiting at a wide range of exhibitions, conferences and trade shows. Here are just a few of the events where you can meet and discuss with our experts in the coming months.

May

 **IEEE**
May 2-5; Dallas, TX, USA

 **Battcon**
May 10-12; Boca Raton, FL, USA

 **Asian Utility Week**
May 31-June 1; Bangkok, Thailand

 **CommunicAsia**
May 31- June 3; Singapore

June

 **ap&m Europe**
June 1-2; London, UK

 **7x24**
June 5-8; Boca Raton, FL, USA

 **Eurosatory**
June 13-17; Paris, France

 **Transports Publics**
June 14-16; Paris, France


 **Modern Railways**
June 20-22; Beijing, China

 **Electric & Hybrid Marine World Expo**
June 21-23; Amsterdam, the Netherlands

 **Sensors Expo**
June 22-23; San Jose, CA, USA

 **Metering China**
June 22-24; Hangzhou, China


August

 **Offshore Battery Days**
Aug. 23-25; Oslo, Norway

September

 **The Battery Show**
Sept. 13-15; Novi, MI, USA

 **ISE EXPO**
Sept. 20-22; San Antonio, TX, USA

 **InnoTrans**
Sept. 20-23; Berlin, Germany

 **Gas & Heating**
Sept. 21-23; Beijing, China

October

 **ESPC**
Oct. 3-7; Thessaloniki, Greece

 **MATELEC**
Oct. 25-28; Madrid, Spain

 Americas  Asia  Europe