

# Brand News

Special Report

Success stories of Delta's display innovation and hardware/software development in Europe

Brand People

Build the foundation of trust and take responsibility

An interview with Mr. Victor Cheng, PSBG General Manager

Brand Academy

Academia-industry linkages: Delta nurtures innovative talents by joining hands with universities

Brand Circle

Delta joins the "Digital India" project



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Success stories of Delta's display innovation and hardware/software development in Europe



AUGUST 2015  
**Brand News**



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On July 1<sup>st</sup>, 2015, Digital India, a project initiated by Narendra Modi, the Prime Minister of India, was officially launched in New Delhi. Delta CEO Mr. Ping Cheng, the only Chinese business representative invited to this event, gave a speech to the tens of thousands of Indian business elites present. The event was broadcast live by major local TV channels, as well as streamed globally through websites. Mr. Cheng was on the stage with the representatives from India's ten major enterprises, working collectively to promote India's digital services. This event demonstrated the accomplishments of the Delta brand in India. Delta has been diligently developing its market in India for over twenty years. It became one of the leading providers of telecom power systems and is actively expanding its markets in display, industrial automation, and renewable energies. More information about Delta's investment strategies and plans in India can be found in the "Brand Circle".

Delta's success in regional development can also be exemplified by the extraordinary performances of its display solutions in Europe. Delta has installed an impressive LED wall display at the prestigious, 100-year-old Stamford Bridge Stadium, home of the world-class soccer team, Chelsea Football Club. With maximum brightness of up to 6,000 lumens, the wall display that surrounds the entire stadium provides HD images to more than 40,000 fans at the stadium as well as more than 100 million TV viewers around the world each week. In addition, the Vivitek team has created a spectacular show for the annual light festival in Barcelona by using eight high-brightness projectors and edge-blending technology. The show fully demonstrated Delta's competitive advantages in innovative technology and hardware/software development. Please refer to our "Special Report" to get additional first-hand information.

In the last issue, we reported Delta's acquisition of Eltek, a leading Norwegian telecom power systems provider. In the short term, the telecom power business of Delta will appear in the market as "Dual Brand" to enhance our global strategy. The new acquisition is of great importance for the development of Delta PSBG. In the current issue of "Brand People", we interviewed Mr. Victor Cheng, GM of PSBG, who shared his management strategies as well as his "Delta Experience" over the past twenty years.

The 2<sup>nd</sup> "Delta Cup Automation Design Competition", sponsored by Delta, has recently been successfully held in Wujiang. More than last year, the competition attracted 198 teams from 83 schools in Taiwan and China, developing energy-saving solutions by integrating Delta's automation products and systems. Through the industrial/academic cooperation programs, Delta has been continuously cultivating new talents for green innovation. As a result, Delta received the "China Best Corporate University Award". Please read about our various cooperation achievements in "Brand Academy" and don't miss any exciting news in this issue of "Delta Brand News".

Shan-Shan Guo,  
Brand Management Office



# Success stories of Delta's display innovation and hardware/software development in Europe



• Delta's LED walls installed at Chelsea Football Club's stadium at Stamford Bridge

< Text by Delta EMEA, DSBU >

Recently, DSBU's excellent display products and integrated technology made many spotlights in EMEA region. For products ranging from LED walls and advanced projections to Distributive Vision Control System, with applications ranging from the Chelsea football field in London and the outdoor projection art for Ignis Fatuus in Barcelona to the application of undersea science exploration by Bremen University from Germany, these success cases in Europe through partnership from DSBU and Vivitek with local system integrators proved that Delta is not only a leader in professional display technology but a provider of customized solutions that meet specific requirements from customers. We will take you to see how DSBU managed to succeed in EMEA.

## Delta's pitch-side LED wall display solution at Chelsea Football Club's stadium

In order to deliver high quality TV advertising to sponsors and worldwide fans around the football field, UEFA demands a high specification of the LED perimeter board. Until now, UEFA would always bring their own, temporary perimeter board, but will from now on, charge the clubs a hefty sum for each game they have to bring it. The world famous Chelsea F.C., from London, plays the Champions League most years, and was facing a big problem with these new regulations regarding the perimeter board, as imposed by UEFA.

Their stadium at Stamford Bridge, has limitations to the height of the perimeter board due to the seats being close to the pitch and the pitch being raised up compared to the first rows of seats. An 800 mm high board is the maximum they can have without losing unrestricted view for first rows of seats. However, UEFA requires a minimum height of 900 mm.

Together with our UK partner Visual Technology Ltd (VTL), Delta has developed a modular perimeter board in order to meet UEFA's regulations as well as the requirements for Premier League games. The solution is equipped with a high level of redundancy, including automatic failover between redundant data sources, which makes this a leading edge solution in perimeter boards. The Delta perimeter board was certified by UEFA.

Chris Gleeson, Group Facility Manager at Chelsea F.C., said, "We are delighted to work with VTL and Delta. Their flexibility and commitment in delivering a pitch-side LED display solution capable of fulfilling our specific needs and the regulatory requirements has been key to the success of this project. Our sponsors, the 40,000+ fans supporting us directly at Stamford Bridge and our worldwide fan base, widely considered to exceed 100 million, will be delighted at the extraordinary image quality delivered from our LED perimeter advertising".

## Vivitek projectors in exciting visual art installation that brings Roman Barcelona back to life!

High brightness and versatility are combined with imagination in a new installation of Vivitek D5110W projectors in Barcelona, Spain. A key part of Ignis Fatuus, a light art installation designed to commemorate the Roman history of the city, eight of the projectors to create edge-blended images that provide drama and excitement, and the show a key highlight of LLUM BCN, an annual light festival in Barcelona.

The installation was situated outside in an open space below ground level and gave viewers an exciting multimedia light show using historical



• Vivitek D5110W projectors shined at the annual light festival in Barcelona

Roman remains as a structural backdrop. Fausto Morales Gil of Slidemedia was delighted with the Vivitek projectors: 'When we were developing the ideas that would become Ignis Fatuus we knew we would need a projector that could perform well in demanding conditions. Firstly the installation was outdoors and also we wanted to create dramatic effects to evoke the historical Roman themes of the show. With its high brightness and excellent resolution, the Vivitek was the perfect model for this striking visual installation.'

Combining high performance and rich functionality, the Vivitek D5110W offers a range of features that make it the ideal projector choice for the professional installation market. With the installer in mind, the D5110W features horizontal and vertical lens shift as well as a centered lens for easy installation and maintenance. The projector also features with three interchangeable lens options for flexible positioning to accord with the varying screen sizes or projection distance requirements found in installation projects, and a comprehensive range of connectivity options for ease of integration and system design.

Please click here for video <https://vimeo.com/119841521>

## Delta's Distributive Vision Control System (DVCS) used for underwater exploration

High-quality sampling and high-quality images of the sea floor is the basis of a variety of research projects at the University of Bremen's MARUM program, which carries out worldwide expeditions in the oceans using scientific drilling ships and platforms. In order to conduct deep-sea drilling in a cost-effective manner, MARUM has developed the sea floor drill rig MeBo, which is capable of sampling soft sediments and hard rocks down to 80 m at the sea floor and capture video in water depths up to to 2,000 m.

Delta's DVCS is used for video management and control of customer PAL cameras installed on MEBO. Camera signal and other telemetry are transmitted through optical fiber cable placed in main cable. Operators in control room manage MEBO drilling operations and videos are shown on 2 PCs LCDs in container control room.

Furthermore, the DVCS server can communicate with more than 10,000 processors. With the DVCS manager, image resolution, text information and window position can be controlled at will. Additionally, the SRIS (Super Resolution Image Software) solution of the DVCS is another highlight as it is designed to handle super-resolution images with high performance even under harsh seawater conditions and can support resolutions up to 102400x7680. All of these advanced features and benefits have provided the MARUM program with high-definition, super-resolution videos and displays that has increased their knowledge of the sea floor that will be useful for future investigations.



• Delta's DVCS enables the operators in control room to manage the MEBO drilling

## Delta joins the "Digital India" project

< Text by Corporate Communications >

Delta India announced it will increase its presence in India with further investment in electronics manufacturing at the grand launch of Digital India held on July 1<sup>st</sup>, 2015. Digital India, organized by the Ministry of Information Technology, saw the presence of the Prime Minister of India, the Honourable Narendra Modi, DET's Chairman Mr. Ng Kong Meng (James), Delta's CEO Mr. Ping Cheng and Delta India's Managing Director Mr. Dalip Sharma. Over 10,000 industry representatives also attended this event. Delta India is looking to invest about US\$500 million over the next 10 years, helping to generate employment for India's multi-skilled talents with the expected creation of over 20,000 new jobs.

Mr. Ping Cheng, CEO of Delta Electronics, delivered a speech at the grand launch of Digital India. "Delta has been the world's number one power supply manufacturing company since 2002. We also build power infrastructure for data centres and major transportation projects and we are strong in industrial automation for smart manufacturing. Delta actively invests in renewable energy to foster a sustainable future for all mankind. On the strength of our technology, Delta is devoted to providing innovative, clean and energy-efficient solutions for a better tomorrow." Mr. Ping Cheng also pointed out that with a presence of more than a decade in India, Delta India has become the country's largest local telecommunications power systems provider. Delta's accomplishments in India have gone beyond the company's expectations, and it believes that India will continue to hold huge potential for Delta Group.

The objective of Digital India is to generate innovative ideas and practical solutions to realize the Honourable Prime Minister Narendra Modi's vision of a digital India. It aims to prepare India for a knowledge-based future and create opportunities for all citizens by harnessing digital technologies. His vision is to empower every citizen with access to digital services, knowledge and information.



1 Mr. Narendra Modi, Primer Minister of India, greets the audience at the launch ceremony of Digital India along with representatives of 12 major corporations, including Mr. Ping Cheng (5<sup>th</sup> from right)

2 Mr. Ping Cheng addressed the audience at the event which helps Delta's awareness towards the Indian market



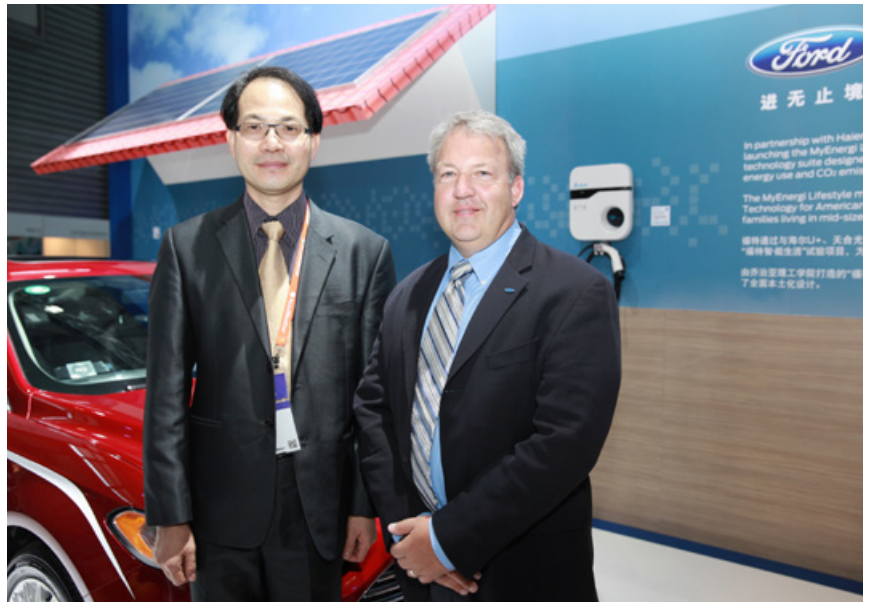
## Delta partnered with Ford Motors to showcase EV charging solution at CES Asia

< Text by Shanghai Public Affairs Department >

At the first CES Asia show held in Shanghai in the end of May, Delta partnered with Ford Motors, Haier, and Tianhe Opto-energy to jointly announce introduction of the "Ford Smart Life" program developed under a joint partnership by the four companies to the market in China, which aimed at reducing waste and spending on energy of families in China by offering a comprehensive solution. In this program, Delta provided its smart EV charging solution and displayed its wall-mounted high-efficiency chargers on the exhibition floor that enabled visitors to experience the performance, safety, and intelligence of Delta's EV charging solution intuitively onsite.

The wall-mounted AC charger showcased at CES Asia this time was used by demonstrator families from Beijing and Shanghai in charging their Ford Fusion hybrid power-plugged vehicles at home. Featuring a sleek and stylish design, it passed the CQC/SRRC certification by utilizing a dust- and waterproof (IP55), as well as a tamper-proof (IK08) design, making it sturdy and durable. It also features protections on voltage and temperature to fully ensure safety and reliability of the product. At the same time, the charger features a built-in RFID card reader to enable easy identification of users for the charger. The Ethernet communication function inside the charger enables integration with the management system for the charger, delivering features in member service, charging, and energy management.

Delta has been devoting itself to development and promotion for EV charging solutions since 2011, with worldwide cases of success including: setup of Taiwan's first full-spec EV charging station and charging stations around Sun Moon Lake, EV charging stations at Hong Kong International Airport, cooperation with MEA power company to build Thailand's first quick charging station, the quick charging station developed under the project by Japan's Tohoku University to experiment its hybrid power system, Norway's Arctic Roads project for quick charging network, etc. It also took part in US DoE's project for research of an intelligent EV charging system with introduction of its next-generation smart EV charger and the management system for the charging station. Delta's current worldwide shipment of AC/DC charging posts has surpassed 15,000 units. It is also taking part in China's project for "mass-scale setup of charging posts", where it will work with its partners to promote full deployment for the charging posts.



• Herman Chang (left), President of Delta ECBD, photographed together with Mr. Mike Tinske (right), Ford Global Director in vehicle electrification and infrastructure, in front of Delta EV charger

## Delta builds Taiwan's largest single-screen, full-color LED outdoor display for Hualien Baseball Stadium

< Text by DSBU >

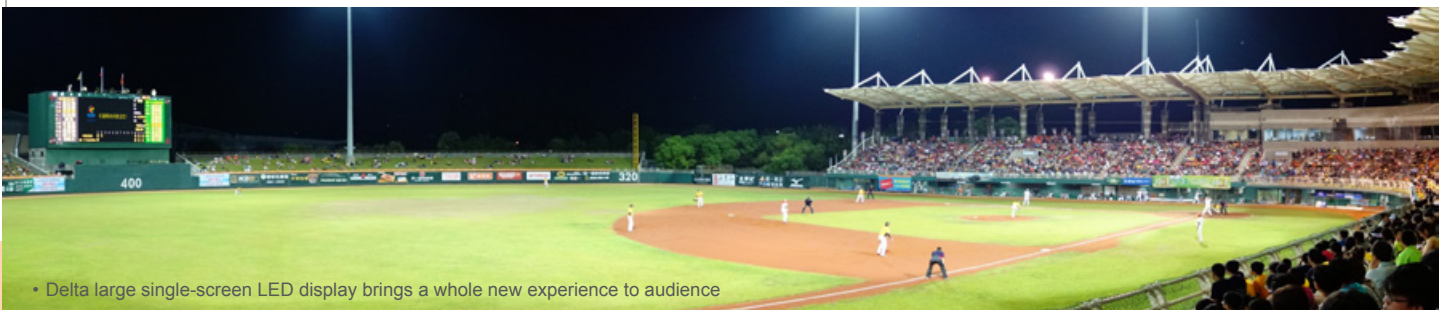
The Hualien County Government has been a strong promoter of local sports in recent years. It also provides subsidies for teams participating in outside competitions. These initiatives reflect the county government's strong support and promotion of sports.

The China Trust Brothers and the 7-Eleven Lions were scheduled to play two games at Hualien County Baseball Stadium in July. Fu Kun-chi, County Magistrate, invited Delta DSS (Display System Solution) team to install a giant high-definition LED display measuring 20.16m wide and 7.68m tall at the stadium. Equipped with the latest green energy technology, the optimized LED hardware and remote management systems provided the best visual effects and most reliable services for the event. Hualien County Baseball Stadium was instantly transformed into one of the shining stars for baseball games.

During game day, baseball fans filled the stadium. The excitement of the game kept the fans cheering for their teams, and the non-stop beating drums echoed like thunder. With the giant LED display, fans were able to enjoy close-up live images and spectacular instant replays of their favorite players. Every exciting moment, as well as the players' impressive skills were on full display, the entire stadium was going absolutely wild! As for the LED display, the scoreboard operator used Delta's programmable logic controller (PLC) to remotely display team rosters and current scores through picture-in-picture. With the addition of a radar gun, fans were not only able to see the current players and pitch count on the big screen, the actual pitch speeds were also displayed almost instantaneously. A video customization service was provided as well, allowing the main display to broadcast live feeds of the audience and interact with the crowd. Team or business advertisements were shown between innings and during intermissions.

The Hualien Baseball Stadium is the first baseball stadium in Taiwan to adopt a single-screen, full-color LED display with an integrated scoreboard. The display not only has the largest display area and highest resolution, but also has a waterproof-rating of IP65. Delta has leveraged its high-definition 16mm pitch LED display technology with industry-leading brightness of up to 6,000 nits, 4000:1 contrast ratio and its innovative software capabilities to realize a highly customizable solution that enables a fantastic broadcast image quality. Both live broadcast and viewed from afar, every detail remains crystal clear. The display brightness can also be adjusted according to ambient light conditions in order to save energy.

The Hualien County Government's policy of encouraging international tourism and promoting "International Metropolis, Tourism Hualien" is starting to gain international attention. For baseball fans, the picturesque setting of the stadium, as well as the modern visual entertainment system will undoubtedly make every trip to the county baseball stadium a fulfilling and exciting experience! Please click here for video <https://www.youtube.com/watch?v=SL1yN3QhGCA>



• Delta large single-screen LED display brings a whole new experience to audience

## Delta video wall solution installed at National Transmission Asset Management Centre, India

< Text by Delta India >

Delta is proud to be associated with POWER GRID CORPORATION OF INDIA LIMITED (PGCIL) for equipping its one-of-a-kind facility to NTAMC (National Transmission Asset Management Centre) in Manesar, India.

PGCIL is among the leading electric utilities that have always equipped their control rooms with the latest equipments. PGCIL recognized that a display wall would enable its operators at NTAMC to have a much clearer view at any given moment.

The significance of NTAMC is that all the 186 substations across the country are unmanned and have to be monitored from a single location i.e. at NTAMC Manesar. Integration of these substations with the central location is characterized by a fool-proof fibre optic communication system; this communication system is also augmented by HD cameras installed at all the substations to capture videos for 24/7 operations. Delta installed 5 sets of 70" LED-lit Video wall in 4x3 configurations inside NTAMC's control room which are used to monitor all these feeds; the solution helped NTAMC achieve its visualization demands ensuring all operations progress effectively and effortlessly.



• Delta video wall solution enables effective operation in India NTANC control room

## Delta launches new DC charging station and supports community-based, sustainable education programs

< Text by Delta Australia >

Delta is proud to launch Melbourne's fastest DC quick charging station, available now for public use at its very own Australian head office in Notting Hill, Melbourne.

The 50kW quick DC charger takes less than 30 minutes for passenger EVs to fully recharge, and is currently the largest and fastest DC charger available for public use in Melbourne. With CHAdeMO & SAE Combo connections, Delta's DC Charger is fully compatible with the most popular EV models, including Tesla and BMW.

Drivers are asked to make a donation to CERES Park in return for the use of charging facilities, and can even get a free coffee while they wait (available 9:00am – 5:00pm, Monday – Friday).



• Delta's quick DC charger is the fastest charging station in Melbourne, it takes less than 30 minutes to fully recharge EVs

## Delta DSBU successfully serves government's need

< Text by DGC >

Recently, the DLP large-screen digital display system at Changle People's Court in Shandong Province was successfully deployed for use. This system was made up of Delta's 60-inch DLP display unit with a scale of 2x5 featuring a high LED-based luminance and intelligence, as well as an unique double CPU design that enhanced the system's capability in data handling to make the operation of its optics engine more stable with a more smooth and seamless processing of images. Under assistance from this system, a host of tasks could be performed for the court, including daily meetings, video conferences, academic reporting, public hearing, etc.

To fulfill the court's requirement for multiple windows, Delta's DLP video wall offers multiple displays and flexibility in adjustment. Meanwhile, by helping the customer resolve its issues in heat dissipation and viewing angle in a location under a limited space, the negligible seams rendered an outstanding consistency for the screen, winning a positive recognition from the court.

Another case worth of sharing was the cooperation with the City of Jinjiang in Fujian Province. The command center from the Bureau of Public Safety for the city has a need to conduct full-scale monitoring on safety for key units, traffic interchanges, public venues, residential areas, locations for large events, and areas where accidents took place frequently. Along with videos from monitoring of roads by traffic police and firefighting departments, the monitoring videos were all integrated on the same platform so that related real-time information needed for display on the main screen at the command center would offer the real-time status and safety-related information for direct viewing by commanding police officers.

As the conventional type of single large-screen video wall is not able to work its best in the entire command platform for the police, Delta utilized its many years of experience in integrating the large-screen system and industry application for users by offering a full large-screen video wall solution comprised of LCD display units and an image control system that makes up a 55-inch 3x4 large-screen video wall solution. In addition to advantages in high luminance and reliability, the powerful image-processing capability realized a display based on multiple systems, multiple sources of information, multiple windows, and high resolution that substantially improved the efficiency of command and fulfilled the city's requirements for an infrastructure item that helps to maintain public safety.



• Delta DLP video wall fulfills Changle People's Court's requirement for multiple windows display

## Delta's UPS wins favors from Wasu Media and China Merchants Bank

< Text by DGC >

Delta has been working closely with Wasu Media, a well-known new media operator in China. After being selected into the company's annual purchase list in 2014 for low-power UPS, Delta also saw its DPS Series UPS being selected for use by the service room at Qingshanhu data center, where it earned a positive reputation from the media company for its reliable and stable performance. In a recent bid tender from its Baimahu data center, Delta was selected again for the excellent performance of its DPS Series UPS.

Almost all of the center's operating workload was supplied by UPS power, placing insurance of the UPS operation under the safest mode is the core for the safety of the power supply system in the center. The Delta DPS Series UPS 400kVA that was selected for the data center this time supports up to 8 units connected in series and offers a total power up to 4 MW that satisfies power expansion or N+X redundancy and meets requirements from large-size or super-large data centers on power. In addition to high power output, the requirement from the center on green energy-efficiency has gradually become clear. The DPS Series of products are capable of fulfilling the market requirements on these two criteria based on its characteristics of "high performance under lighter load" that enables it to save a substantial amount of operating costs.

Worth of cheering is that China Merchants Bank announced the result of projects selected for low-power UPS products for 2015-2016, where Delta's N, RT, and EH Series UPS products passed strict and selective testing processes for the successful selection based on its technological leadership, service, and advantage in applications. This was the first time Delta was selected by the bank in their group purchase for central power products. It was also the first time Delta was selected by a financial institute for their group purchase and served a symbolic meaning.

Established in 1987, China Merchants Bank was ranked the sixth in banks from inland regions of China. Its robust network system and reliable operation of its businesses are rooted on its high-performance, reliable, and easy-to-use infrastructure. Delta's UPS products feature high usability, environmentally friendly, and intelligent management to offer an excellent and reliable environment for use of power in key equipment and industry application. It won favor from the bank by fully satisfying its requirements in technological leadership and high product quality proposed for its UPS products.



• Delta's N, RT, EH Series of UPS products win favor from China Merchants Bank

## DET signs MOU with three renowned universities to enhance education and training

< Text by DET >

In March, May and June, 2015, Delta signed the Memorandum of Understanding (MOU) with the Faculty of Engineering at King Mongkut's University of Technology North Bangkok (KMUTNB), the Faculty of Engineering at King Mongkut's Institute of Technology Ladkrabang (KMITL) and the Faculty of Engineering at King Mongkut's University Technology Thonburi (KMUTT) respectively. The signing of the MOUs were led by Mr. Dick Hsieh, the President of Delta Electronics (Thailand) PCL.

"I hope from today, we will start to not just actively learn from each other but also expose the students to the real industrial world of product research and development which they have yet to experience. You will learn new things. Schools and enterprises are totally different. While we are doing something, you're studying something. So I hope that your 'studying something' can match our 'doing something' which will then bring about better results and innovations for both Delta and the institutions." said Mr. Dick Hsieh during the MOU signing ceremony at KMITL.

Mr. Dick Hsieh's words aptly sums up the long term impact these programs aim to achieve for Thailand's next generation of Engineers.



• DET signed the Memorandum of Understanding with the Faculty of Engineering at King Mongkut's University Technology Thonburi (KMUTT).

## Delta launches CliQ M - The slimmest CliQ DIN rail power supply

< Text by DET >

Delta is introducing one of the slimmest DIN rail industrial power supplies in its class, the CliQ M DIN rail power supply series. To fulfill the demands in maritime applications, the product is designed according to major industrial and maritime safety standards. Other features include compliance with harmonic current IEC/EN 61000-3-2, class A.

### Highlights & Features

- Universal AC input voltage range
- High power density in corrosion resistant aluminium casing
- Power Boost of 150% for 5 seconds
- Advanced Power Boost (APB)– Prevents system shutdown due to faulty load on a multiple loads connection
- Conforms to harmonic current IEC/EN 61000-3-2, Class A
- Built-in DC OK contact
- Conformal coating on PCBAs to protect against common dust and chemical pollutants



• Delta introduced the slimmest DIN rail industrial power supplies in its class

## Exhibition highlights in EMEA

< Text by Delta EMEA >

From June 10<sup>th</sup> to June 12<sup>th</sup>, Delta attended Intersolar Europe and the collocated electrical energy storage (ees) exhibition at Messe München, presenting its own energy storage solutions with two new innovative products: an AC-coupled product known as the Flex E3 and a DC-coupled model named the Hybrid E5. Also on display were the complete lines of solar inverters from the 260 W nano micro inverter all the way up to the compact and powerful 50 kVA commercial inverter, as well as the SOLIVIA Monitoring solution. With the introduction of new energy storage systems, powerfully compact high efficiency solar inverters and monitoring, Delta is providing solutions that help everyone extend the use of their solar energy from home users to business owners and meet their energy goals in a smart and eco-friendly way.

Based on the major trends coming out of Intersolar, such as self-consumption, smart energy management, energy storage and large MW-size PV plants, Delta is well positioned to offer a wide range of solutions for all of these topics now and in the future. This should further increase growth opportunities for Delta in the solar industry.

Delta also participated Elfak 2015. "In the Nordics, if you don't participate at Elfack, you don't exist". It's the largest exhibition for electrical components, products and services, took place from May 6<sup>th</sup> to May 8<sup>th</sup>. Among the exhibitors were ABB, Ensto, Alstom, Schneider and Siemens. Most exhibitors were from Sweden, the Nordic and Balti States.

We had achieved the goals to inform the visitors about the capabilities of Delta; find VAR for UPS and promote the UPS products directly to end-customers; in addition, see what is going on in the market and try to analyze the situation in the different segments.

Moreover, Delta Industrial Automation exhibited for the first time independently at SPS Italia in Parma, on May 12<sup>th</sup> to May 14<sup>th</sup>. Showcased at SPS Italy, were Delta wide range of products as well as several solutions including: energy saving solutions, beverage production solutions and the gantry control solution.



1 Delta showcased its innovative energy storage solutions at Intersolar 2015



2 Delta demonstrated UPS products to end-users at Elfak 2015

## Delta demonstrates water processing technology at OzWater' 15

< Text by Delta Australia >

Delta exhibited its innovative, state-of-the-art water processing, treatment and power quality solutions at the OzWater' 15 Expo in Adelaide earlier this month.

As the water treatment industry faces new challenges in the growing complexity of the automation process and system structure, Delta's experience in providing integrated water treatment solutions can greatly optimise plant efficiency and reliability. Besides, Delta's Power Quality technology headlined the showcase, which featured a live demonstration of the Active Power Filter APF2000 Series.

Delta hopes that the integrated industrial water treatment solutions it featured at the event will inspire Australia's industry sector to adopt efficient and cost-saving technologies for optimised control processing and integrated energy management.



• Delta exhibited its water processing, treatment and power quality solutions at the OzWater' 15 Expo in Adelaide, Australia

## Delta participates in International Data Centre Design conference

< Text by MCISBU/ DGC >

Delta participated in the third International DATA CENTER DESIGN & ENGINEERING Conference held by IKS-Holding publishing company in Russia. This event is one of the major datacenter conferences in Moscow, taking place from 2011.

This year there were approximately 400 visitors, including key professionals in IT field, such as CIOs, IT managers, data center architects. The conference covered the key challenges of data center engineering systems design, development and maintenance. Delta introduced the company's main lines of activity in the field of data center technologies, and spoke in detail about Delta InfraSuite – infrastructure solutions for data centers.

Besides, the world's renowned summit for data centers, the 2015 DatacenterDynamics (abbreviated as DCD Converged), was held from June 11<sup>th</sup>-12<sup>th</sup> in Shanghai. For the development of enterprise-class data centers in China in the era of internet+, attending guests from the industry and specialists shared about solutions for data centers of this era. As pointed out by Mr. Yanhe Zhang, a technical specialist from Delta Greentech, the advent of internet+ era is also changing the structure of the bottom-level data center while changing the mode of application in upper level. For acquiring the characteristics of integration, dexterity, high-performance, and high usability in this internet+ era, Delta offered a solution for the internet+ data center featuring "modular structure to grow with needs", "energy-conservation for a green efficiency", and "intelligent management for a convenient operation". Delta also presented its data center exhibition vehicle that had been on show tours across the country. Delta's leading green data center infrastructure solution showcased in this vehicle also received major attentions from the attending guests.



• Delta promoted InfraSuite solutions in the International DATA CENTER DESIGN & ENGINEERING Conference in Russia

## "Set out in the year of goat for a prosperous future together" – 2015 distributor meeting held at Delta Dongguan plant

< Text by China Sales and Marketing Division >

From June 4<sup>th</sup> - 6<sup>th</sup>, 2015, nearly 95 Delta's distributors from China and EMEA came together to meet in Delta Dongguan plant and attend the "Set out in the year of goat for a prosperous future together - the 2015 distributor meeting".

In addition to welcoming the guests and expressing gratitude for their attendance, Mr. Simon Wang, General Manager of Delta's business development and marketing in China, also specially thanked the long-term trust and support for Delta from the distributors that had outstanding performance and contribution in 2014. He also hoped that through the presentation by Delta colleagues, the distributors would have a better understanding of the new market and new application for a better knowledge of Delta's future plan for its products in the market.

The guests also toured Delta's plants as well as its R&D center, to learn about Delta's professional production and management procedures, as well as the newest equipment for a national-level laboratory, from which they were deeply impressed by Delta's pursuit of high quality for its products and its spirit for pursuit of excellence.



• Distributors from all over the world holding active discussions during the meeting

## 2015 technology seminar for Delta ventilation held at Tonglihu Hotel

< Text by China Sales and Marketing Division >

On May 23<sup>th</sup>, Delta hosted a technological seminar under the topic of "Delta opening an era for DC ventilation fans" for its ventilation fans in 2015 at Tonglihu Hotel in Wujiang, China. More than 110 senior-level HVAC designers from Suzhou area attended this seminar. They also visited the MTS (molding, tooling, and stamping) facilities, manufacturing plant for its precision fans, laboratory and research center, and the show room in Delta's Wujiang plant.

On the day of the event, Mr. Peter Lin, Delta's Marketing Director in China, held an introduction session on the Delta Group, as well as Delta's worldwide achievement and solutions in green buildings, for these designers from all areas of Suzhou touring the plant. Delta's colleagues for research of ventilation fans also introduced features, advantages, and benefits of their fans and warming fans, as well as the strict and robust design, testing, and verification processes, followed by onsite display and demonstration of their energy-efficient performances.

Through this seminar, Delta's ventilation team was able to establish a closer partnership with these senior designers. Together, we expect this partnership will work together to introduce concepts for design of green buildings and adopt smart ventilation and warming fans to improve in-door air quality and become energy-efficient.



• Delta's high-performance and energy-efficient ventilation fans left a deep impression on the attending HVAC designers

## Miscellaneous news of showcases by Delta Greentech

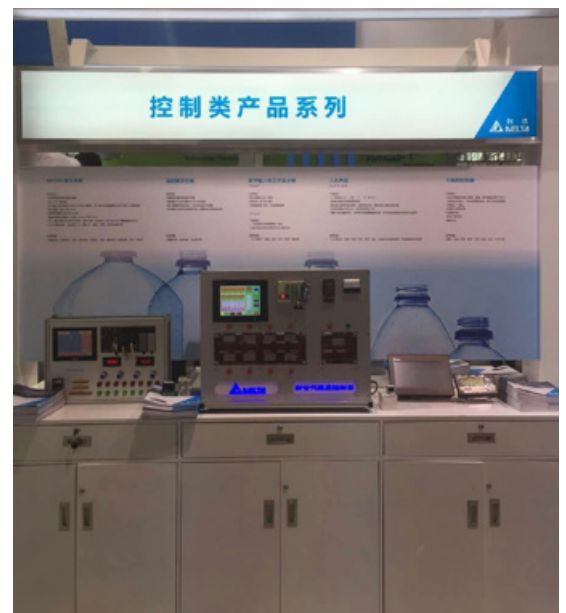
< Text by DGC >

Recently, the 2015 nation-wide summit forum with a topic of "intelligence, innovation, high performance, and coordination" for automated spinning technology came to a successful stop. In the report with a topic of "building an intelligent and transparent textile factor", Mr. Dawei Huang, a senior engineer from Delta Greentech, had an in-depth but easy-to-understand analysis and discussion on how Delta's MES system managed to help textile companies to optimize and transform from "manufacturing" to "intelligent manufacturing" by integrating MES with information factory and cloud computing for a real-time synchronization of information to cloud servers. Users have access to real-time status of the factory from any location by entering functional variables and names. How does MES interact with ERP? How does EMI system realize transparent and information-based production, as well as a visualized management of factory? The integrated information solution for the factory offered by Delta perfectly solved the issues above. By sharing application cases in the actual factory, Delta managed to fully reduce costs of operation for the textile industry and increase efficiency of production.

Besides, in CHINAPLAS 2015 taken place this May, Delta showcased its comprehensive intelligent and energy-efficient solution for rubber making industries. Delta's HES high-performance energy-efficient hybrid servo system is a special system developed for rubber making industries by integrating drives, motor, and hydraulics technologies. Its more efficient and secure automated pickup arm system has replaced conventional manual operations and combined PLC processors and HMI units in one HMC controller for an integrated display and control with simplicity and high performance, making it a choice of many enterprises. Whereas, specially designed by Delta for the market for processing and temperature control, DT3 temperature controller is easy to operate with more powerful features. All the solutions above are high-efficiency, low energy consumption, secure, and useful automation systems that are well liked by the customers with its practical and low-toned features.

On the other hand, Delta recently offered its IoT monitoring solution for print press equipment to a large print press manufacturer in Jiangxi, China. In this solution, the SCADA + 3G IoT architecture was employed with application of DIAView, Delta's newest SCADA configuration software, and its DX2100 Series 3G routers. DIAView offers a remote interface that enables viewing of equipment operation so that usage of the end users will be within a reasonable monitoring range for the manufacturers and the risk in selling between manufacturers and distributors could be reduced. The cloud platform for the 3G router enables connection of onsite equipment and remote control rooms, making maintenance and monitoring for the equipment much easier.

This project represents a successful implementation in integration of 3G cloud platform with Delta's IA products, which enables easy remote network monitoring, saves the hassle of frequent errands, and substantially reduces costs the company to maintain the equipment. According to estimates, the later phase of maintenance will see at least 80% of reduction in its cost.



• Delta showcased DT3 temperature controller at CHINAPLAS 2015

## The event of "Discover Delta Blue and pass it among everybody" ignites passions for summer in June

< Text by DGC >

To let our colleagues better know and apply the concept of the "Delta Blue", we specially hosted a series of promotional events based on the topic of "Discover Delta Blue and pass it among everybody" that lasted for a month starting this past June and received positive feedbacks. From activities to get to know it, discover it, to various amazing applications and fun activities, the Delta Blue for sure became the main character during the entire event.

During the trivia session, as many as 500 colleagues participated with enthusiasm and they got to learn more about significance of the Delta Blue from the trivia questions. Meanwhile, the "Challenge of Vision" activity was cleverly combined with Weixin to give more strength to the event for a better promotional effect utilizing media.



- "Discover Delta Blue" garnered enthusiasm from colleagues of Delta Greentech

## 2014 Delta CSR Report Officially Online

< Text by Corporate Communications >

The 2014 Delta Corporate Social Responsibility Report (CSR report) has been finalized and officially posted online. The CSR report was validated by a third-party verification agency to comply in accordance with the GRI G4 guidelines "Core Option" and AA1000 Type I Moderate assurance standard disclosures. 2014 achievements include:

- Corporate Governance: group revenues over 7.5 billion USD, market value over 500 billion NTD, and R&D investment ratio over 6.5%.
- Environmental Protection: Delta's energy-saving products assisted customers in saving 14.8 billion kWh of electricity over the past four years, Delta's global green buildings saved 13 million kWh of electricity, and major production sites reduced the consumption of electricity by 50% per output value.
- Social Contributions: Over 15 million attendances for participation in Delta's environmental and education exhibitions, over 3.8 million visits to Delta's Low Carbon Lifestyle Blog, and over 50,000 students have received Delta's energy education course.

Delta's mission has long been: "To provide innovative, clean and energy-efficient solutions for a better tomorrow" and it is the core of Delta CSR. Our management team has organized a CSR committee to ensure Delta's strategic plans for CSR and to supervise overall execution.

Delta's CSR efforts have been recognized by the worldwide organizations. In 2014 Delta was selected for the Carbon Disclosure Project (CDP) - Climate Performance Leading Index (CPLI), and we are the only corporation to be so selected from the greater China area. Delta has also been included in the Dow Jones Sustainability Index (DJSI) - World Index for four consecutive years and was honored with Channel NewsAsia's 2015 Green Luminary Award.

With rapid changes in global operations and future development in regions, Delta continues to fulfill our corporate citizenship as we promote regional CSR activities, assist mankind in facing the crisis of climate change, and provide more intelligent and environmental lifestyles for future generations.



2014 台達集團企業社會責任報告書



- The 2014 CSR report features a photo of the "Run for Water, Water for Run" exhibition on the cover page

## Delta UPS products receives awards in China and India

< Text by DGC/ Delta India >

In the recent announcement event for "the 11<sup>th</sup> user satisfaction survey in 2015 for its UPS and the related power systems" that was held together by Association of Computer Users in China, Chinese Institute of Electronics in Beijing, Alliance of green data centers in China, "Applications of UPS" magazine publisher, and jifang360, Delta received the awards in "brand of user satisfaction" and "innovation in technology" for 2014 with its excellent UPS products and its solution for power supply.

Delta's various series of UPS products feature high efficiency, low volume, low noise, and the ability to be recycled. Made of materials compliant with the RoHS standard, they feature ultra-wide range of voltage input, ultra-high input power factor, and ultra-low input current harmonics. The excellent quality of these products has been proven through numerous market trials after many years. Receipt of the award this time represented a high recognition from both the industry and committee on the Delta brand and its UPS products, carrying out more effects in enhancing influence of the Delta brand for its UPS products and data center infrastructure solutions to expand into more markets.

Here's another good news from India. Delta Power Solutions has received an award in the most energy efficient UPS Series category from NCN for the Delta Ultron HPH Series 20/30/40kVA. The Ultron HPH Series was awarded as one of the world's most energy efficient products for FY 2014.

This was the third consecutive year NCN chose Delta as the most energy efficient UPS brand through an annual survey implemented by Roy meditative in India.

Held annually, the NCN Awards honors IT brands that are trusted and highly ranked by CIOs nationwide. This year, 200 senior government officials, SI's, and IT company managers converged to share best practices, get the latest technology updates from vendors, and celebrate the awards. The award identifies companies throughout India for their outstanding commitment to innovation and energy efficiency. This is a well-known and prestigious award in India's IT channel segment. The award has helped Delta gain greater appreciation among the IT channel community.



• Delta Ultron HPH awarded most energy efficient UPS by NCN

# Build the foundation of trust and take responsibility

## An interview with Mr. Victor Cheng, PSBG General Manager

< Text by Brand Management Office >

On April 9<sup>th</sup>, the leading Norway based telecom power company, Eltek, officially joined the Delta family. With Eltek on board, the telecom power business of Delta will appear in the market as "Dual Brand" to enhance our global strategy, pooling together the competitive advantage and resources of the two companies. The acquisition of Eltek is very significant for the business development of Power System Business Group. In this issue, we interviewed Victor Cheng, the General Manager of PSBG, to share his management strategies.

In the past few months, Mr. Cheng travelled from Taipei to Norway several times for the acquisition of Eltek. From the initial preparation to the communication and coordination works later on, he was personally involved in every step, keeping track of the progress to ensure the entire process went smoothly. Nevertheless, the next challenge is just about to begin.

"I hope one plus one won't be less than two." Mr. Cheng immediately pointed out his expectation for Delta's PSBG after the acquisition. "Eltek has been pretty active in Europe, with many marketing events and very nimble in its approach. In contrast, Delta, consistent with its corporate culture, is relatively low key and emphasizes building long term partnership with customers. To minimize the short-term impact on the market, Delta decides to maintain "Dual Brand" to the market, and to carefully plan the further strategic development of the acquisition.

### Building the foundation of trust through rapid communication

Under the dual-brand tactics, the PSBG's Telecom Power Solution Business Unit (TPSBU) and Eltek started docking closely. Mr. Cheng especially affirms the contribution of the BU manager Mr. Kelvin Huang during this period. "He personally hosted the integration meetings on a regular basis to actually understand the process of each stage, and seek to optimize resource allocation of the two parties. We aim not only to maintain existing customers, but also to approach new customers and gain additional revenue."



• PSBG General Manager, Mr. Victor Cheng

## Trust is the key to good communication and collaboration

"In the process of merging the two companies, we will inevitably encounter problems of different cultures, mindsets and approaches. It takes time to build trust. In 2003 when the Swiss company, Ascom's Power System business group, merged with Delta, it also took us a long time to connect and bond with them through continuous efforts from both parties for mutual understanding, and finally we have now reached the consensus of One Delta". Sounding earnest and firm, Mr. Cheng said, "The same approach will work for Eltek. We'll start slowly to strengthen our communication among regions and business units. However, we must be careful and discreet with our approach. Avoid using sensitive languages and tones when sending email or during telephone conversations. In this way we can promote the integration of the two companies and reduce misunderstanding."



• To enhance the cross-company communication, Delta's top management team express their warm greetings in a video to welcome Eltek colleagues to the Delta Family

## Taking responsibility and encourage team member to never stop trying

Emphasizing the importance of "trust", Mr. Cheng's management philosophy actually came from his own more than 20 years of experiences at Delta.

"I worked at the Display Solution Business Unit (DSBU) for nearly a decade, spent twelve years at the DNI, and joined PSBG a little more than a year ago. These business units all have their distinct industries and products. I respect, rely on each team's professional competence, and strive for a high degree of trust between my colleagues and myself. In this way, they can deliver information thoroughly, whether positive or negative, without having to hide it fearing of getting into trouble."

Mr. Cheng explains further that the foundation of team trust mainly comes from the managers having the courage to take responsibility.

"Once the person in charge authorizes his colleague to execute a certain resolution, he must be responsible for the outcome. If the result is not ideal, he should assist them find a solution. I often use this as a motto for myself, and encourage my team to try, never afraid of failures; hesitation is not helpful to the development of enterprise."

For more than a year, as the leader of the PSBG, in addition to progressively building trust between business units, Mr. Cheng also set the goal to balance the business development among the various BGs.

## Put Eltek service platform in good use integrated into Delta products

After Eltek's business join Delta Telecom Power Solution, the operation base, server, and platform in America, Europe, Africa, and other regions will all expand. Mr. Cheng aims not just to gain market share, but, more importantly, to integrate Eltek's resources for maximum potential. It would then generate the ultimate value for the entire Delta business groups.

Among them, the beneficial unit also includes the MCISBU.



• Victor Cheng introduced Delta Data Center solution at the roadshow truck in Beijing, the first stop of its national tour, early this year

MCISBU is one of the major Delta business units; its main products include UPS and Data Center Infrastructure Solutions. Facing the competition from numerous global brands such as Eaton, Schneider, and Emerson, Mr. Cheng admits, Delta still has a lot to do if it wants to achieve a breakthrough in this area.

"Brand management does need a lot of time investment. In recent years, the MCISBU has started from China and Europe to reach out global markets through various activities, and has accomplished some preliminary results. Delta has also seized the opportunity of the rising India markets to promote its brand; I believe these efforts are absolutely necessary and worthwhile in the long-term. On the business side, we can continue in several ways: first of all, we must complete the product line to enhance the competitiveness of Delta; second, cultivate the markets deeply and build a continuous and expanding development. And third, use Eltek's perfect service platform to slowly introduce more of Delta's other products, such as those from the Datacenter Infrastructure Solution, and increase its overall sale." Mr. Cheng anticipates the MCISBU will mature within the next five to ten years, and becomes an exemplar of Delta brand.

## Conform to the overall trend and innovative energy businesses

In the past, the PSBG business focused more on IT power supply. As the overall trend shifts, the future momentum is inseparable from "reusable energy", and this indicates the New Business Departments of PSBG.

"If the market is mature, there is no need to challenge the existing competitors; rather we should invest on those areas that have not yet been immensely developed. I believe it is crucial to take the overall market trend into consideration when developing Delta's core technologies. As an example, the Electric Vehicle Charging Solution Business Department was established early by Delta for the EV market and has now made respectable achievements. The head of the EVCS team Mr. Herman Chang, has a lot to do with this, he finished several large global projects in a short period of time, and let Delta gradually become the leading company in the field of EV charging solution.

Currently, Delta and ABB are seen as the global leading companies for smart electric vehicle charging devices. In addition to collaborations with well-known vehicle companies, recent success cases by Delta's being included in a project for the U.S. Department of Energy (DOE) on smart EV Charging system and an exhibition of their advances in Detroit. In Europe, the Norway government constructed the Ishavsveien electric motor high way using Delta's smart EV charging stations; and Thailand and Japan are both building fast charging stations. These are all very meaningful pointers.

In recent years, the integrated tradeshow events Delta participated have all presented the smart EV Charging solution, and always become the center of attention. This year, in order to highlight Delta's products and technical abilities, Brand Management Office will launch a brand new series of advertisements on several of Delta's key BGBUs. EV charging tools will be one of them.



• Delta installed EV charging station on intelligent grid in MGM Grand hotel in Detroit. Victor Cheng (2<sup>nd</sup> right in the front) and Herman Chang (2<sup>nd</sup> right in the back), GM of EVCSBD, participated in the launch event

## Retain Delta's corporate culture and grow together with the team

As for the result of the PSBG so far, Mr. Cheng said modestly that there are still a lot for him to learn. The accomplishments of a team are certainly not from an individual but rather the outcome of joint efforts. For instance, the material management team has helped PSBG to run with a very competitive cost structure to boost its operation performance. With this management philosophy, Mr. Cheng hopes the whole team will grow together and flourish within the spirit of "team trust". This is, after all, one of the core corporate cultures and values we cherish.

# Academia-industry linkages: Delta nurtures innovative talents by joining hands with universities



• The 2<sup>nd</sup> Delta Cup Automation Design Competition successfully held in Wujiang

< Text by DGC >

The 2<sup>nd</sup> Delta Cup Automation Design Competition, sponsored by Delta, took place at the end of July in Wujiang. The competition, since starting in December 2014, has attracted cross-strait registration of 198 teams from 83 universities with higher-than-expected participating passion. Near 60 teams eventually stood out and became selected finalists. Delta's Founder and Honorary Chairman Mr. Bruce Cheng also participated, together with Delta China's Executive Vice President Mr. Daryl Liao, IABG GM Mr. Simon Chang, and DGC Vice Chairman Mr. Jimmy Yiin.



## Automation design competition promotes the Delta brand

China has a growing demand for talents in automation, as she advances towards the age of "intellectual manufacturing". Delta's 1<sup>st</sup> Automation Design Competition, which features the theme of "Discovering Talent for Energy-efficiency", has successfully attracted the attention of the institutes in the field of automation from both Taiwan and China. From conception, incubation to birth, the inauguration took a long time to develop and prepare. It is a result of Delta's IABG and DGC's effort, and has elevated the Delta brand to a different level.



• Mr. Cheng shared how he founded Delta during the forum with students

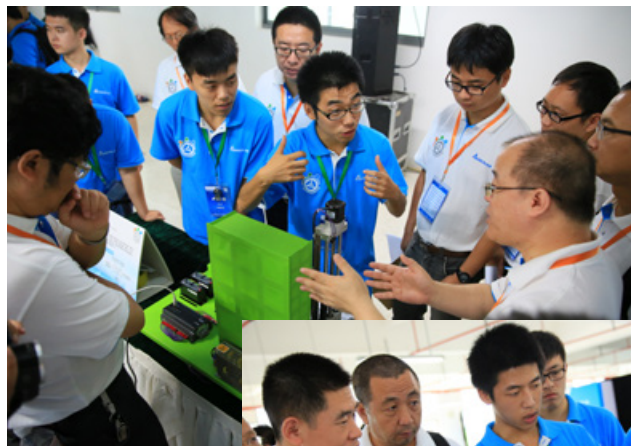
The second competition focused on "control", in order to inspire student's ability to innovate based on the theme "Finding Control Talent". With more teams enlisted than last year, Delta also drummed up DET's interest to follow suit. DET invited faculty members from Thailand and India on a trip to Wujiang to watch and learn about knowledge in planning related events in the future. Mr. Bruce Cheng also shared his story of how he founded Delta and the company's growth, which inspired the students a lot.

From 2011 to 2014, Delta has increased the number of trained technical talents from nearly 500 to more than 5,000 people, and targets to grow the talent base to 10,000 in 2020. As the 2014 annual "China's Best Corporate University", the company has earned well-deserved recognition for its efforts in talent cultivation.

Delta has been collaborating with universities for years. While other schools and enterprises carve out their areas of concentration in popular fields, Delta focuses on advancing ahead of policies and industries, with fields of application covering across the automation, power electronics, green buildings, environmental laws, benefitting tens of thousands of teachers and students. Since 2000, Delta has foreseen the importance of power electronics in energy conservation. It has been actively promoting innovation and development of power electronics and power transmission disciplines. Given that environmental laws can be a powerful driving force for environmental protection, it continues to provide research grants and cross-strait forums since 2005, involving 1,000 or more faculty and students in environmental law studies. Seeing the role that Green buildings and renewable energy can play in energy sustainability for the country, the company also diverted interest into the field of green



• Faculty members from Thailand and India also participated in the event to watch and learn



• Students went all out in Delta's 2<sup>nd</sup> Automation Design Competition

building technology. Delta marks 5 years as the title sponsor of the Delta Cup International Solar Building Design Competition. By financing and transferring award-winning proposals to three entities of green buildings, it implements the idea of "Racing to Learn", as well as demonstrates the approach for cultivating the applications of renewable energy and green architects.

## Cooperative laboratories to put automation into practice

In 2010, Delta and Nanjing Institute of Technology joined hands to establish the first Delta automation laboratory. So far, Delta has completed 27 of such laboratories, comprised of the industrial automation laboratories and the system application laboratories. In these automation labs, Delta provides not only PLC, HMI, inverters and servers, but also the latest 4.0 industrial products and systems for teachers and students. It is nurturing technical talents in manufacturing and service for the future automation industry. Delta engineers also teach in school. They provide teachers and students with their on-job experience when dealing with real cases, and build a platform for industrial-academic communication and interaction.

## Starting talent cultivation with teaching materials

Textbooks are another focus on Delta's talent training. With industrial application experience from industry and academic experts, Delta has been working with school teachers on reference materials of product applications. They use vivid illustration to enable more people to learn knowledge and accumulate experience in the automation industry.

To reach the goal of industrial-academic cooperation, Delta continues with the three pronged approach of "internet of things +", "Made in China 2025" and "energy-saving innovation". The company seeks to nurture more green innovation talents in the age of intelligence, information and energy preservation as a leading talent provider in the industry.



- Delta built cooperative laboratories with the Nanjing Institute of Technology and 20 other universities, and conducted in-depth communication with these varsities

< Text by Sammy Sun/ Corporate Marketing Services >

## The future of intelligent mobility and its impact on transportation

Frost & Sullivan research indicated that incidences can be reduced 15%-33% and can save \$5.6 billion annual costs in intelligent mobility market by means of real-time traffic-related data, building block technology, and new commuting models.

There are three key regions which working on intelligent mobility market: Europe, North America, and Japan. Especially Japan is leading the market. Japanese mobility solution is composed of vehicle energy storage and supply system, low carbon social systems, and vehicle-home connectivity.

Although smart mobility has tremendous positive influence, there are several challenges need to be overcome: lack of collaboration between mobility sector, government infrastructure and automotive industry, liability to product and system, and lack of clarity in regulatory framework. Moreover, the need for AI still has technical issues to interpret complex scenarios.

## Sensors technologies that will have the highest impact in 2015

Top 10 technologies in sensors and control cluster which raised by IoT application will have high impact in the future days. These 10 technologies include Drones, Smart Sensors, Biosensors, Energy Harvesting, M2M Communications, Sensor Fusion, Touchless Sensing, Printed Sensors, Optoelectronics Sensors, and 3D Image Sensors. Frost & Sullivan report shows that Sensor Fusion, Touchless Sensing, and Drone are the top three markets with compound annual growth rate 37%, 31 %, and 28% to 2020.

M2M, drone, and wearable device bring up critical factors such as energy storage, stable wireless connectivity. Geared toward IoT, control and sensor innovations concentrate on the smart sensor application to fit future trend and try to enhance integration of energy harvesting technologies or wireless connectivity at present. Those new innovations may lead business model transformation. Therefore increase usages of sensor largely benefit consumer electronics, automotive applications, and advanced drones and then drive their growth in five years.

## How to begin integrating wearable devices into smart city governments

Wearable devices should not only enhance its' service but should motivate users to use them as well. Therefore, research institute, Gartner, suggests that wearable device maker can integrate apps and software into government infrastructure, especially established systems, to improve service delivery, efficiency and sustainability to extend wearable devices application domain. In other words, wearable devices can switch from only device-focused to combining them with other databases and service delivery channels.

Gartner pointed out a major challenge in smart city applications and services will be the reach and detail of citizen information to be utilized in the context of privacy and the regulatory framework. Moreover, government agencies will require massive storage and IT processing capabilities after data accumulation, and may rely partially on a secure and flexible cloud-based infrastructure and service delivery mechanism.





## Eco Diary

# A 14 NTD electricity bill stimulates more thoughts on savings

< Text by Wim Chang/ DEF >

If you ever heard that a family of four living in Freiburg, Germany received a 14 NTD electricity bill, your instinct will tell you that they might have installed solar power devices in their house, and have made some profit from it. If you heard another family of four living in Lancaster City, California also received a 14 NTD electricity bill, you can easily assume that this family might have signed the "demand response" electricity price contract. Or maybe they installed the residential energy storage system; otherwise the bill would not have been this cheap. If we move the scene to Japan, with the same 14 NTD electricity bill, we can almost certainly guess that this family might have installed a natural gas fueled battery, and the gas pipeline in every household delivers most of their electricity.

In Taiwan, I have just received a 14 NTD electricity bill, which is also the first bill I received in six months. But my family has neither installed a solar power roof nor signed the "demand response" electricity price contract, and the gas company has no fuel cells to offer me. This is mainly because the fuel cost dropped internationally last year, instead of using the price difference on other electricity-saving investment, the electricity company gave every household an 800 NTD red envelope to spend on their future bill.

Although I wish the power company could take advantages of the price difference to invest on improving facilities, since the policy has been set, I decided to set the 800 NTD as a target, which is to save as much electricity under the condition of not affecting our living quality. So after six months, the only electricity bill I have to pay for cost me only 14 NTD.

But as we are entering summer, the electricity-saving methods in the past, whether it is to switch to LED lights, install heat pump water heaters, switch off the main power every time we leave the house, lower the lighting, etc., most of the possible improvements have already all been made. In addition to starting thinking about installing a residential energy storage system, and purchasing mobile green energy facilities, or other electricity-saving tips, it will probably be to purchase a new refrigerator.

In fact, for a long time, the small refrigerator in my house was left unplugged. Of course there are several preconditions, including we rarely cook at home, there are convenient stores nearby, and my wife can stand life without a refrigerator. But for the past six months, my wife has rapidly stated that she can no longer tolerate living in a civilized city without a working refrigerator; so I decided to buy an electricity-saving refrigerator.

The main reason I left my refrigerator unplugged is because I worried about its electricity consumption. Now, the larger electricity-efficient refrigerator consumes an average of 1kW of electricity per day, which is acceptable. However, I still use a few tactics to make my refrigerator more electricity efficient.

Refrigerators consume electricity mainly because of the compressor when it operates, so if the refrigerator has good insulation, the compressor can easily operate and reach a cooling point, while maintaining the low temperature for a long time, which naturally lowers the electricity consumption. Some refrigerators now even remember the owner's habits and run the compressor according to its owner's daily schedule, so it doesn't need to run when it is not in use.

However, it is not easy to maintain the low temperature when more than half of the refrigerator is empty, like the one in my house. Therefore, I will fill up plastic bottles with tap water and pack the remaining space of the refrigerator with those, so the water becomes a medium, when the compressor is not running; it can play the role of "ice crystals" and let the refrigerator extends its cooling time.

Some new designs taught me another method to help the refrigerator become more electricity-efficient. The Japanese refrigerators now have added each separator with acrylic sheet as cover, some users may find it troublesome, but this is also one of the electricity-efficient designs, because when you open the refrigerator to get food, the cold air in another separator will not dissipate immediately.

With this concept, I accordingly took plastic wrap to seal up each separator, and then lift it up when needed. This also prevents the cold air from leaking, and easily saves electricity.

In addition to managing the cold air in the refrigerator to save electricity, heat management is also possible. If the refrigerator is placed in the air conditioning areas, it is radiating while the air conditioner is cooling. Therefore, if possible, we should keep refrigerator with oven and toaster in areas that do not need air conditioning. But if there really isn't enough space, you can only make good use of this heat-energy, basically during the rainy season, some of my shirts hang next to the refrigerator to dry.

Although it is a rare opportunity for me to encounter a 14 NTD bill again, at least I can continue to maintain the good habit of saving electricity with my refrigerator in order to get through the summer of 2015.

- Wim's refrigerator: well utilize the plastic bottles with tap water and plastic wrap to keep the refrigerator cool, it's not only electricity-saving but also environmental friendly





• Delta will attend the UN conference on climate change to be held in Paris at the end of this year as an NGO

< Text by Michael Hsieh/ DEF >

## 《Forwarding COP21》

# Each country needs to show determination at the end of the year climate conference

In view of the end of the year United Nations climate conference in Paris, the governments need to make a brand new carbon reduction testament. On June 15<sup>th</sup>, the International Energy Agency (IEA) published the "World Energy Outlook Special Report on Energy and Climate Change" in London, with four essential elements in the new testament that cannot be missed: limiting the global emissions to reach its peak in 2020, reviewing the carbon reduction effect every five years, effectively promoting the "carbon budget", and regularly checking and announcing the national energy sector fossil fuel emissions in every country.

The IEA recommends limiting the global greenhouse gas emissions to reach their peak in 2020, which is also the consensus of the scientists. However, regarding the current proposed emission reduction national plan, the IEA estimates that global emissions will continue to rise until at least 2030, and the temperature is bound to rise more than 2°C ; therefore, there is a need for more active policies. The report also recommends that countries should gradually cut old and inefficient coal power plants, and increase investment in renewable energy by US\$130 billion to prevent carbon emissions from rising after 2020.

The head of the climate and energy initiatives of World Conservation Foundation, Samantha Smith, said: "with the IEA analysis, in fact, the scientific community and civic groups have launched initiatives for a long time already. States must immediately cut emissions to prevent us from facing a more dangerous situation. But commitments and subsequent plans submitted by counties so far are not adequate to cope with climate change."

Again on June 15<sup>th</sup>, Taiwan legislature passed the third reading of the "Greenhouse Gas Reduction and Management Act". This is Taiwan's first segment on greenhouse gas emissions management, which gathered dust in parliament for nearly a decade before being released.

This belated "Greenhouse Gas Reduction and Management Act" legalized our country's carbon reduction targets; the text concluded that in 2050, the greenhouse gas emissions in



Taiwan will be fifty percent below the emissions in 2005. Targeted into law, first, is to proclaim determination, and second, to follow the target when implementing, as well as to set a more specific strategy at each stage.

The bill aims to enforce or encourage each source of greenhouse gas emissions in Taiwan to reduce carbon emissions, so it requires the government to propose the "National Program of Action in Response to Climate Change" and "Greenhouse Gas Reduction Promote Program". The ministries will also propose the "Greenhouse Gas Regulatory Action Program" and set their mid-term carbon reduction targets to arrange the working and test phase. As for the large emission sources, such as companies and power plants, the process must go through inventory, register on the national greenhouse gas Sign-On Platform, and the inspection agency shall verify this information. For those that did not login truthfully, in extreme cases may need to stop operations, stop working or even shut down.

In this bill there is a large section on "total control" and "trading system." This is what we call "carbon trading." Businesses of large emissions will now have to attain carbon emission quota by way of gratis, auction or rationing. If the amount of emissions exceeds the limit for the quota allocated, they will have to purchase these carbon emission rights. This will produce a certain market mechanism to allow for a carbon pricing scheme; this in turn will drive manufacturers to actively cut their greenhouse gas emissions.

Nuclear distribution and trading involves many issues on equity; this will lead to a lot of controversy, especially regarding the free allocated carbon rights, which leads to an increased unjust system. The competent authority still needs to put forward certain rules in order to carry out future implementation of carbon trading. It is expected that we will have a pilot scheme within 10 years.

At UNFCCC's (United Nations Framework Convention on Climate Change) COP 21 conference to take place at the end of this year for countries that have entered into an agreement on terms for battling climate change, the goal is to devise an international regulatory agreement that replaces the Kyoto Protocol. Through international cooperation, the global temperature rise is expected to be kept to a level that will not exterminate humankind. However, whether this agreement will be passed relies on the political determination of major countries in the world to work together with private sectors and enterprises. During the COP21 of this year, Delta Foundation is planning to launch an exhibition in the downtown area of Paris, the hosting city, to display the green buildings that Delta has built and sponsored construction throughout many years. The aim is to disseminate Delta's ideals for sustainability and achievements in energy-efficiency. Stay tuned!



## Marine of the seas – the "Royal Caribbean Cruise" vacation

< Text by Liang Wang/ DGC >

As they say, one must go on a cruise ship vacation once in a lifetime, and anything else comes second. After much consideration, in order to get away from the city for a breath of fresh air, and given our love for the ocean, the marketing colleagues chose to go on the Royal Caribbean cruise for a "playing and sailing while cleaning the lungs" eco trip to Jeju Island.

Just a few hours after we had set off, we felt the freshness of the sea and the serenity of the mind. When on board, we only used reusable glass cups, dishes, cutlery, etc. Even though there was a buffet restaurant on each floor, we only chose the food that suits us best to avoid producing extra waste. In Jeju island, every time a bus faces a red light or stops at the platform, it will shut down its engine, this is meant to protect the environment by not letting the car exhaust cause excess damage, even if the car will have a shorter life expectancy. We can see that they have put a lot of effort and cost into environmental protection.

### A variety of activities on the cruise

The Youngsters Sea Adventure Club on the Royal Caribbean has different themes according to children's age, so that children in different grades can find friends and groups around the same age on the cruise, and enjoy their cruise vacation in a wonderful club. It was very extravagant to spend US\$40 on a pleasant morning, but a total of 3 cartoon characters came out during breakfast and they were the lion, hippo and penguin from Madagascar; the children were very happy, and they also enjoyed excellent service!

Something worth mentioning is that as soon as you get on board you will see numerous DreamWorks characters appear in different corners. You can take pictures with Kung Fu Panda and also embrace Puss in Boots. Of course, there is Alex the lion who crossed over the sea to New York, and the kind-hearted green ogre Shrek. Whether or not you are a fan of DreamWorks, its cartoon characters will jump off the big screen and have close contact with everyone!

My favorite is the variety of entertainment shows on the cruise, especially the "Ice World" figure skating show which, we were told that each person could only see it once; only the super cruise has this fantastic figure skating show so this is definitely the highlight of this trip!

There were a total of six Jacuzzis on board, an open-air swimming pool on the top floor, and 3 seawater pools. We leaned against the mast, feeling satisfied with the sea breeze blowing on our face. You can swim, sunbathe or watch movies in the Jacuzzi on the large screen on the deck.



• Rock climbing on the cruise gives you a chance to challenge yourself



• The Super Cruise exclusive figure skating show

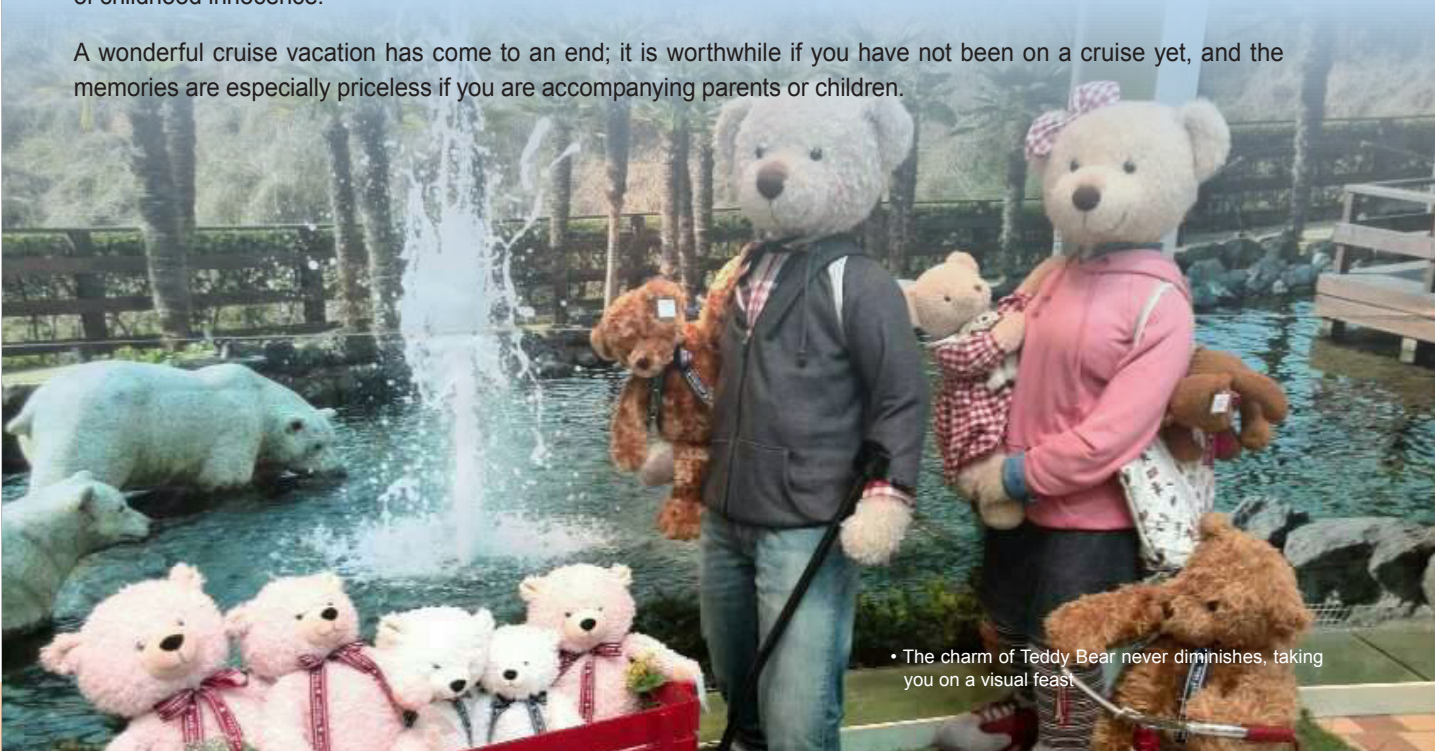
A glimpse at the casino shows that apparently the setting of the Mariner Casino was learned from the casinos in Macao. The casino is a place of probability theory; the players never earn more than the casino owners: 10 bet and nine lost, definitely a timeless truth. We played a few games to satisfy the urge to gamble!

There were also free rock climbing ventures on the cruise; as soon as the venture started I quickly lined up with the kids, and soon each of us received a pair of rock climbing shoes and a helmet. After becoming equipped we returned to the queue and waited for our turn. Soon it was the kids' and my turn. I started feeling a bit nervous, but soon all I could think of was simply to try my best to climb up. The wall's prominent parts were not easy to climb at all, but after some effort and a determined will, I eventually reached 200 feet.

## The Teddy Bear Museum brings you back to the era of innocence

After the cruise, we went to the Jeju Island Teddy Bear Museum, which is the world's largest teddy bear theme museum. The transition of a simple plush toy into a collectible artwork passes on the long tradition of teddy culture. Here, a collection of limited edition teddy bears came from around the world; the first-class teddy bear design and exquisite production technology lets you experience a visual feast; at the same time it is as if we are back in the era of childhood innocence.

A wonderful cruise vacation has come to an end; it is worthwhile if you have not been on a cruise yet, and the memories are especially priceless if you are accompanying parents or children.



• The charm of Teddy Bear never diminishes, taking you on a visual feast