DELTA BRAND NEWS

Vol. 37
February 2018
DELTA BRAND NEWS

Germany shopping center incorporates 2.2MW rooftop PV system

DELTA BRAND NEWS

CONTENTS

DELTA BRAND NEWS Vol. 37

Delta Brand News Bi-Monthly December 1, 2011 founded
Publisher / Ping Cheng
Editor in Chief / Shan-Shan Guo
Editorial Board / Zoe Cherng, Charlie Pai, Jack Lin, Jesse Chou, Sonia Wang, Wim Chang, Yi-Wen Wang
Editor / Maggie Hsia, Sandy Chien, Shalom Hung, Paul Lin, Zoe Sun, Glen Liao, Annie Cheng

FROM THE EDITOR

With the arrival of year 2018, our Brand News Bi-Monthly will be seven years old. We are glad to receive a record number of responses to our annual questionnaire at the end of last year, and they are filled with valuable suggestions from more than 7,000 of our co-workers all over the world. We will stick to our original aims, and introduce Delta from various perspectives to the readers.

In the just-ended CommonWealth Economic Forum which I attended, I tried to deconstruct the city into the elements of building, transportation and people, sharing Delta's practical experiences and constructive ideas of sustainable cities. Building and transportation are the two major aspects of global carbon reduction. Be it electric cars running on the road, or automated air-conditioning and lighting system of office buildings, Delta will persist in its mission of providing innovative, clean and energy-efficient solutions for a better tomorrow, and offer constant and crucial support with its innovative technologies.

In line with Delta's organizational restructuring in 2017, Brand News Bi-Monthly also made some adjustments in content and columns for the new year, so as to give everyone a rich and good reading experience. We have resumed the column "Brand People", and will be interviewing newly appointed business unit heads to share their current development and future plans. In this issue, we have a special interview with the general manager of BABG, Mr. Bill Lo, where he shares with us the strategies for building automation, and what he has learnt from his past work experience. In the column "About DSM", we are delighted to have the first-hand information from the SMSBD director, Mr. Lear Li, who gives us insights into Delta's smart manufacturing and plans for entering the market. We also have fresh news about QD23, the 23th Quality Diagnostic Activities held in late December last year at Dongguan and Wujiang plants.

The "Special Report" in this issue presents Delta's successful application of solar inverters in a shopping center in Germany. During the roof remodeling, stable and reliable power supply was ensured, and the solar energy generated helps to recover the huge reconstruction investment cost of the project with the benefits gained from power acquisition by the government. In the future, solar power stations will continue to provide clean energy for city grids and reduce carbon emissions. This is a brilliant article not to be missed.

"Brand Circle" column continues to present successful cases and important events from around the world. Delta's UPS system enables Australia's Adelaide Airport to increase electrical load, and IA, for the first time, incorporates the concept of automation into the glutinous rice ball machine, bringing great benefits to clients. Delta Controls, LOYTEC and VIVOTEK keep working together, making a name for Delta in exhibitions such as Japan Smart Building EXPO, AHR, etc. Delta's video facilities, not only helps the Dongyue Group to build a fluorine silicon industrial park worth hundred billion dollars in Shandong, but also assists Weiwuying, the National Kaohsiung Center for the Arts, to create the largest light sculpture show in Asia. And there are more exciting contents worth your time to read in this issue.

Beginning this year, in order to bring Brand News Bi-Monthly closer to everyone, "Delta Green Life" column is open for employees to post articles. We welcome any sharing of low-carbon life experiences from you.

Brand Management Office

Shan Shan Guo

Delta string inverters were installed in a 2.2 MW solar plant at a shopping center in Nordhorn, Germany, by the companies Wopereis and Prinz Sonnentechnik

Germany shopping center incorporates 2.2MW rooftop PV system

Text by Delta EMEA

In the early spring of 2016, the owner of the Nordhorn shopping center faced a problem that many other owners with older commercial buildings encounter. The commercial site, which houses a major supermarket and many smaller shops, was plagued with a leaky and asbestos-laden roof. The enormous surface area of the rooftop meant that the renovation work would be very costly. To offset this huge outlay, the owner came upon the obvious idea to combine renovation of the roof structure with the installation of a solar PV system. The solar energy generated by the rooftop PV plant could be sold back to the grid and the FiT revenue would help to pay off this large investment.

An important requirement of the supermarket tenant was that their business operations were not hindered by the roof renovation measures. To connect a new solar system to the existing grid connection point at the site, would mean the exchange of old electrical equipment and a minimum of two weeks emergency power supply would be needed for this to happen. Constructing a completely new grid connection for the new photovoltaic rooftop system was determined to be the best way to avoid interruption of business.

Two firms were selected to complete the project. Prinz Solartechnik, with 25 years in renewable energy, was selected to plan the complete solar system up to the grid connection point. Wopereis Group, with expertise in steel rooftop systems, was selected for the planning and construction of the roof and solar system.

Nordhorn shopping center rooftop with saddle roof close-up view

In March 2016, the project construction began. The original gable roof was replaced with similarly designed steel structure which could be erected quickly. The building rooftop consists of 7 saddle roofs positioned in rows that are orientated to the northwest and southeast, respectively, and the tilt angle set at 11 degrees. Due to the different orientation of the two halves of the gable roof, the optimum solar irradiation for energy harvest is reached at different times of day.

It was therefore, ideal to use solar inverters with 2 maximum power point trackers (MPPT's), whereby each MPPT could work independently at different times of day to provide optimized power from each roof surface. When compared to a flat rooftop, the saddle roof has the added advantage that additional solar modules could be incorporated in the design due to the larger surface area of the gable roofs.

The RPI M50A and M30A solar inverters from Delta were selected for the project by Prinz Sonnentechnik because they offered the two MPP tracker feature and also because Prinz had used the Delta units for several years before so had a good experience with them. 34 RPI M50As and 6 RPI M30As were installed in the system. 8,461 Talesun solar modules with 260 watts each were also incorporated in the system.

Thanks to the compact design of the M50A and M30A string inverters, the installation takes up a relatively small space compared to large central inverters. The comparably low weight of 74 kilos for the M50A makes it easy to mount on the wall. Because the inverters are wall-mounted, they do not take up valuable space and can be easily accessed at all times.

Delta RPI M50A inverter with 55kVA output power

The inverters' high level of efficiency of up to 98.6 percent is important for maximum energy yield, where each tenth of a percentage point counts in the inverter market. The robust aluminum chassis with protection degree IP65 protects internal electronics from moisture due to rain or snow. Replaceable AC and DC-side type II surge arresters have already been integrated into the inverters, which saves up to 40% on systems accessories.

The planning and simulation modelling of the rooftop PV system by Delta partner, Prinz Sonnentechnik, was essential to create the optimum PV solution for the shopping center owner. Prinz was able to determine with a few usage scenarios, that a saddle roof with the installation of the Delta inverters featuring 2 MPPTs would yield a better output than utilizing inverters on a flat roof design. Also, it was determined that self-consumption of the solar energy was not the best use of the PV plant energy in this situation due to the low electricity prices already negotiated by the major supermarket tenant.

However, feeding the solar generated power into the grid in exchange for EEG (Renewable Energy Sources Act) compensation had more potential than internal energy consumption. It was important that the solar plant was put into operation in 2016 to gain a feed-in tariff advantage. In 2017, the EEG amendment prescribed that installations with over 750 kilowatts of power must participate in tenders from the Federal Grid Agency in order to receive any EEG feed-in compensation.

On December 29, 2016, the rooftop system with 2.2 MWAC power was connected up to the grid. The remuneration via a feed-in tariff ensures the rooftop investment will be paid off in the future. The environmental benefits are also clear, this PV plant will provide clean energy to the grid for years to come with a reduction in carbon emissions. Delta's cooperation with Prinz Sonnentechnik was very good, and the firm is proud of its contribution to help halt climate change and contribute to worldwide energy savings with its highly efficient solar inverters.

Nordhorn, Germany map location and satellite view

Bill Lo, President of the BABG, cooperates with team to welcome OPTEX CEO TORU KAMIMURA (right 3) and KEIZO KATOU (left 3)

Finding business opportunity from demand with client-orientation

An interview with Bill Lo, President of BABG

Text by Brand Management Office

Last April, Delta announced organizational adjustment to focus on "Power Electronics", "Automation", and "Infrastructure" as three main business categories to offer total solutions geared towards clients and the market. In accordance with the new direction, the Brand News restarted the "Brand People" column to help us better understand the company's strategic development. Newly appointed heads of BU/BG will be interviewed to share current developments and future plans.

In this issue, we will speak with Bill Lo, President of the BABG, asking him about the relevant strategies for building automation, and his learnings and growth throughout his career.

Enhancing Integration & Collaboration


Bill Lo, President of BABG

"BABG is a relatively young business group compared to other BGs." Less than 3 months in his newly appointed position, Bill holds praise and expectations for this business group. "Each body of this 3+3+1 team has its own unique features. In order to rapidly execute the company's strategies and achieve its goals, it is vital to integrate sales, operations, and technology, and form a collaborative battlefront in the least amount of time, so that the beneficial effect of this collaboration can be produced."

In this 3+3+1 team, the first 3 refers to some of the departments developed from NBD: the BASBD and RAMBD, in charge of building automation, security, property management services, and engineering, and the DHVACBD, in charge of central air conditioning and indoor air quality monitoring services. The second 3 refers to LOYTEC, Delta Controls, and Vivotek, which have recently acquired some quality companies of years of experience and comprehensive sales channels in building control management systems and digital security surveillance; these companies allow Delta to obtain key fundamental automation technologies such as integration for air conditioning, lighting control, smart digital security surveillance, and access control. The 1 refers to LTBU, which is in charge of lighting equipment development. The 3+3+1 team consists of the software and hardware products and services of equipment, control, and management platform in the building automation industry. Along with the experience of energy-conserving green buildings and power consumption monitoring, Delta is creating a solid foundation for its unique building solution.

How to manage the 3+3+1 team? Having participated in several strategic transitions in the company and experienced in the mid- to long-term corporate strategic planning, execution, and leadership development, Billshared his thoughts on the integration between different departments and cultures. "Team integration starts with mutual understanding. It's a process of merging cultures and methods of operation." In terms of technology, everyone has their own expertise and follows the existing paths of their work division. In terms of sales, we are oriented towards clients, using the strength of each body accumulated over the years to co-create business opportunities. In terms of culture, we try to think from one another's point-of-view, properly delegate ownership and leadership responsibilities to fully utilize our talent, and complement each other to achieve the overall success.

Stepping onto the international stage with Asia as our base

Bill has had many years of solution sales experience, and he shared the sales development opportunities and strategies of each region. Delta Controls focuses on North America, LOYTEC aims for Europe, and Delta Group is dedicated to the Asia market, which together forms the very 3 engines for a steady growth. "In America, Delta Controls will be the center taking full advantage of the existing HVAC channels, introducing product combinations with products from other BGs, and planning to increase contents of solutions with the Group's support to expand the sales channel for security or lighting products. In Europe, LOYTEC already has a solid hold on the German language markets, and has developed a total solution combining DALI lighting control systems and LTBU products. Its huge potential is foreseeable, too." In addition to maintaining the channel management methods of each of the acquired brands, Billobviously feels there will be a multiplied effect on sales when Delta-related products and solutions join the picture. Furthermore, Europe and America are shifting from building control towards room control related applications. This is a notable trend, and both LOYTEC and Delta Controls have been working on strategies to follow.

Asia will definitely be the next key region to expand sales for BABG. Delta Headquarters is located in Asia, and by taking this advantage, Bill is actively integrating Delta's sales platform resources to develop key accounts. He also expects his team to continue to develop high value-added solutions based on clients' feedback. He also requires his team to closely follow the market trends, particularly the local policies so as to accelerate sales development. He took Taiwan and Japan markets as examples of the inevitable trend in building renovations. The goal of the team, he looks forward to, will be to use Delta building solutions to diagnose existing old buildings, add value to and further enhance current equipment, and even provide customized services, while complying with government incentive measures and local city development plans to become a benchmark program for promotion. This type of client-oriented and consultation-style sales, will be one of the value-added services BABG is aiming to provide in the future.

In the important China market, many new building constructions being carried out in accordance with the economy or policy plans are still on-going. The key for Delta to stand out is to focus on specific market opportunities and differentiate from competitors. Currently, the main markets that BABG is dedicated to are chain hotels, supermarkets, hospitals, public buildings, and office buildings.

Creating brand value by client-orientation

Siemens, Schneider, Johnson Controls, Honeywell, and other internationally renowned corporations have always been the benchmark for competition for BABG. "These companies are the widely recognized rock stars in the industry. We hope that we will join their ranks in market share one day." And how would that be done? "Integrate technology development and solutions, and start from creating value for clients. Those are the competitive edge that Delta BABG must possess."

"What is the most important value we hold for clients? What pain points can we discover for them, and how do we resolve the problems for them? How do we find out clients' true demands more efficiently?" Billgenerously shared his insights: "We must make a lot of effort to understand clients to find out business opportunities during our interactions, and then we can create a solution that resonates with them. Build a long-term relationship with clients. Do not end your relationship with them at the completion of a task or a certain project."

When reminiscing about his exciting career, he said: "My clients taught me the most." He encourages his team to act as the company's representative when they are outside the company, demonstrating their confidence to resolve clients' problems, solving their problems as if they were our own. Under the leadership of President Bill Lo, BABG will become a client first and client-oriented building automation solution brand to create maximum value for our clients.

Bill Lo, President of BABG(1st from right), Calvin, the LTBU director (3rd from right) with our customers

Mr. Bruce Cheng taking a tour at the IABG DSM product line

Reinforce consolidation and initiate Delta smart manufacturing blueprint

Text by BMO

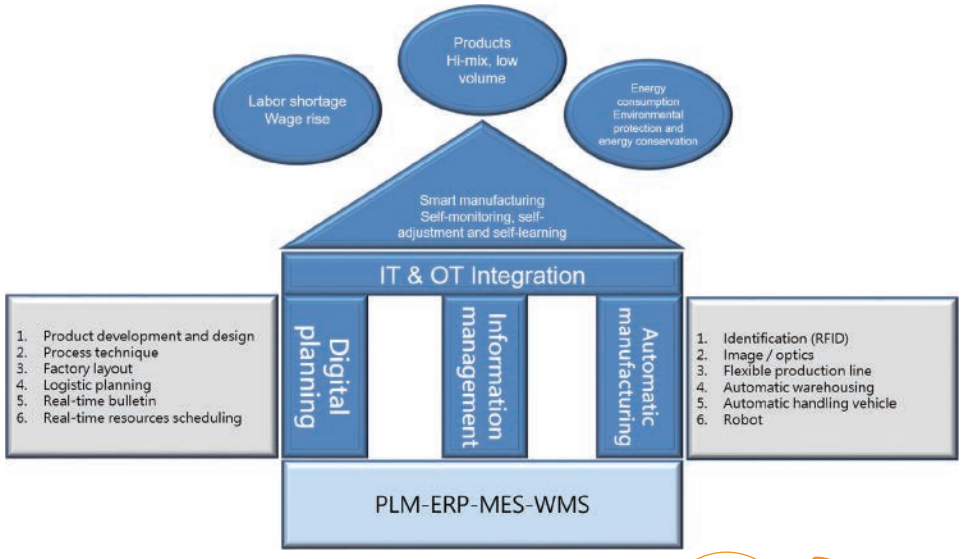
To cope with the strategy and development direction of Delta's active layout of industrial automation, we started the special column "Smart Manufacturing Topic" last year to share Delta's capacity and progress in the field with our colleagues from different perspectives. The Smart Manufacturing Solutions BD was established in 2017 to take charge of expanding and promoting Delta's smart manufacturing business. From this year on, we will start from the viewpoint of business unit to make you understand Delta's potential in the field of smart manufacturing by means of sharing more excellent cases. We obtain the firsthand information of Lear Li, the SMSBD director, to analyze the connotation of Delta's smart manufacturing and plan to enter market. Moreover, the 23th Quality Diagnosis Meeting (QD23) was held in Dongguan and Wujiang Plant in late December last year and we have wonderful live reports.

Smart Manufacturing for Resolving "Manpower" Issue

Besides the hi-mix, low-volume customer demands, shortened product life cycle, shortage of raw materials and rise of cost, the common challenges faced by global manufacturing industry presently also comprise the serious shortage of labor force caused by the reduction of demographic dividend. To cope with these challenges, governments and enterprises around the world not only make technical exploration on the topic of Industry 4.0, but expect it to become the strategic policy of the new-generation manufacturing industry. Automation equipment and assembly has been continuously introduced in the past years. Moreover, the flourishing development of industrial IoT-related technologies also promotes big data collection and data analysis, so that artificial intelligence is widely applied in the continuous optimization of production. Nowadays, the production mode which integrates operational technology (OT) and information technology (IT) has extended to the full life cycle management of product R&D, design, manufacturing and sales service and realized the dynamic response to customer demand. In the past, the production line determined the form of products, but the product will decide the appearance of the production line in the future. Smart manufacturing becomes the key for an enterprise to provide more flexible production and more rapidly cope with consumption pattern change and lower manpower demand.

Self-monitoring, Self-adjustment and Self-learning

"Opportunities are just where the demands are". Delta Smart Manufacturing reinforces consolidation on the basis of main information system backbone such as PLM-ERP-MES-WMS and comprehensively integrates the production technique, manufacturing process and management indexes within the enterprise by means of digital planning (IT) and automatic manufacturing (OT), so as to realize digital enterprise, which starts to analyze personnel, equipment, products, environment and big data generating during the production, automatically establishes intelligent production mode with artificial intelligence by means of knowledge base and expert base, such as optimum conditions of production resources and autonomous feedback between equipment, optimizes production technique and business flow and creates smart manufacturing solutions capable of self-monitoring, self-adjustment and self-learning.



Smart Manufacturing Architecture

Cyber Physical System from top to bottom

Refer to the smart manufacturing hierarchy system described by the International Society of Automation (ISA), which is as follows from top to bottom:

Level-0 is the physical device layer, namely the production or detection machine in the factory.

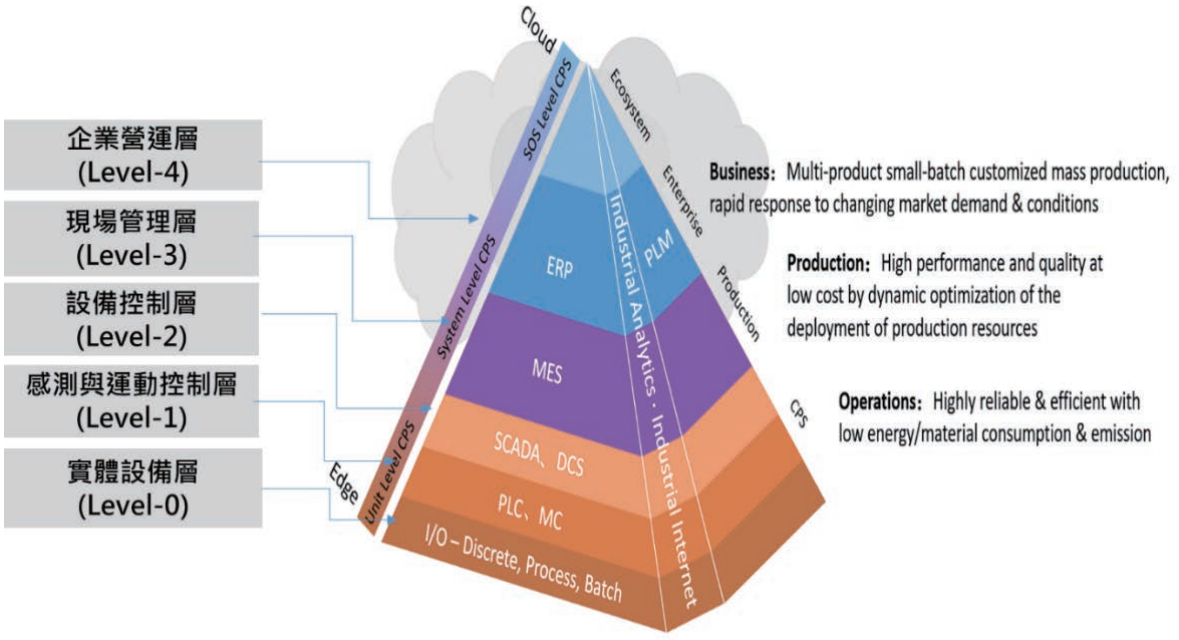
Level-1 is the sensing and motion control layer, such as PLC, Robot, SCARA, visual sense and sensor.

Level-2 is the equipment control layer, such as SCADA and DCS (Distributed Control System).

Level-3 is the site management layer, such as MES (Manufacturing Execution System).

Level-4 is the business operation layer, such as ERP / PLM.

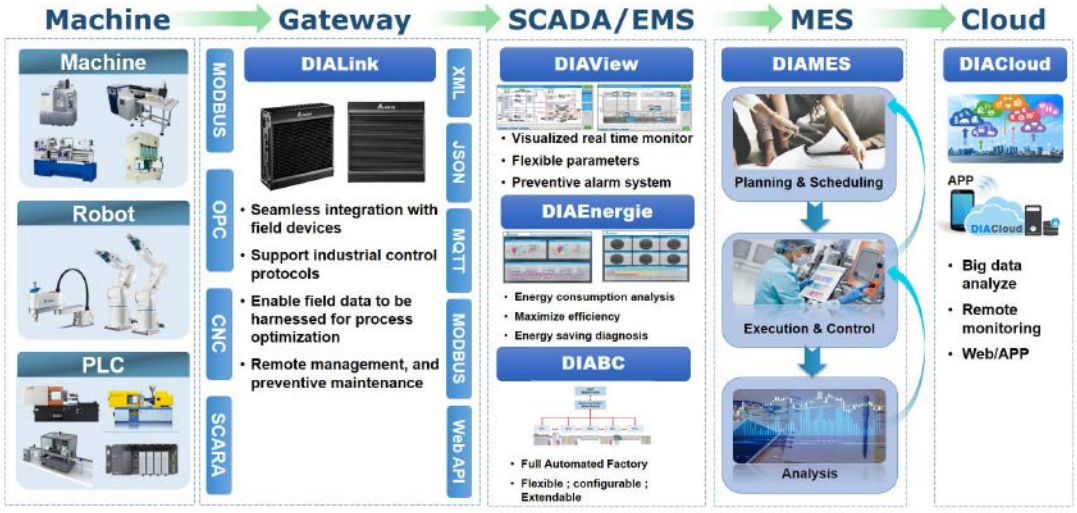
At present, Delta has comprehensive products or integration solutions for different layers.



ISA Smart Manufacturing Hierarchy System

Smart manufacturing emphasizes the integration of industrialization with informatization, which means that in addition to the provision of complete functions, products of aforesaid layers can interconnect with different layers by means of networking and timely data collection. To cope with the changes from the demand side (customers) and supply side (raw materials or machines), it can adopt real-time provisioning and optimum production as the total solution to make products value-added. Therefore, the vertical integration among products at different layers is more important.

In the past, the greatest difficulty encountered by the manufacturing industry came from numerous models of machines and controllers and different communication protocols. In view of this, how to integrate the communication among different machines and equipment and make customers more easily obtain equipment information by means of standard protocols and simple configuration to realize the first step of smart manufacturing becomes very important. In terms of the integration of physical device layer with motion control layer, DIALink is used as the gateway of information collection and conversion to capture the machine (e.g., CNC, PLC and Robot) information immediately, which is converted into common data format and then provided to DIAView system at the equipment monitoring layer for real-time monitoring of production site (SCADA), so as to make the equipment and production data between production lines transparent and visualized and feed back the real-time production performance. Concerning fully automatic production line and workshop planning, DIABC (Block controller) plays an intermediary role in real-time provisioning of WMS/MES resources and horizontal interconnection among equipment inside the production line, so as to realize lean production. The production system of cyber physical system is the total solution corresponding to smart manufacturing demands when facing customers.



Industrial Interconnection and Cyber Physical System

Take Advantage of Early Layout, Enjoy Success within Five Years

The 23th Quality Diagnosis Meeting was held in Dongguan and Wujiang Plant in late December last year, which summarized the work effectiveness of quality diagnosis in the past five years and guaranteed the consistency of the whole process connected from NPI (New Product Introduction) to GTC (Go To Customer) and TQA (Total Quality Assurance). Take Wujiang ICT/EIS Plant and IABG Plant as the example. NPI, GTC and TQA processes have their own characteristics and the cooperative series connection of NPI and GTC brings its maximum superiority into full play. The R&D team participates in the market operation to fully understand customer demands, application environment and analysis for competitive products and segment the products. TQA activity is constantly improved and enhanced, so as to challenge the objective of both the testing and manufacturing achieving 100% yield rate on the basis of DSM steadiness.

Dongguan plant 2 general product manager introducing MPBG's second generation production line

Man-machine Coordination and Plan Optimal Production Disposition with A Machine Instead of Human

The quality diagnosis meeting in Southern China checks and accepts the achievements of Delta Smart Manufacturing (DSM), works on TQA (Total Quality Assurance) diagnosis and emphasizes on viewing DSM Smart single-machine level, continuously enhancing automatic demonstration line and perfecting TQA system.

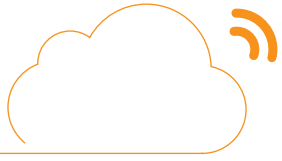
After one year's effort, the number of automatic demonstration lines in Southern China has risen to several dozens, with nearly one thousand Smart single machines deployed, which saves a lot of direct manpower. After continuous improvement, the pause interval has exceeded the basic requirements of 2 hours and the production line balance has been improved constantly. At present, it has started to plan the connection among all software systems of the whole automatic production line ranging from smart monitoring to production management, warehousing management and task assignment, emphasizing the important role of RD in Design For Automation. In the face of the change of the macro-environment, the production mode of low labor cost will be adopted in the future and smart manufacturing is the only way for factories.

Introducing the improvement on the Wujiang plant SMT Feeder

Assist Customers in Diagnosing Factory Problems

Besides the internal promotion of smart manufacturing, Delta will send teams to customers' factories in the form of consultancy service according to their actual demands, investigate the current situation of the production line, understand existing equipment, technologies and process flow, diagnose the material management and existing software management platform and prepare the analysis report. Moreover, it will propose improvement suggestions on the bottleneck problems encountered by enterprises presently and even future planning and partially transform the pain points and problems of the factories or production lines by means of experts' interpretation and analysis, thus activating existing equipment and saving unnecessary extra expenses.

To promote the upgrading of enterprise smart devices and facilitate manufacturing-related construction, Suzhou City in China plans to implement Smart Manufacturing "Ten, Hundred and Thousand" Project, namely selecting 100 out of 1000 factories in Suzhou to provide smart manufacturing consultancy and diagnosis service and 10 out of these 100 factories to introduce smart manufacturing. It is aimed to foster over 300 emerging industry enterprises with the annual revenue more than 1 billion dollars in 2020 and build ten major high-end industry clusters with the annual output exceeding 100 billion dollars. Delta will provide the selected enterprises with consultancy, diagnosis, smart manufacturing solutions and import service according to its own professional expertise. There will be more case reports to be shared with you later.



Delta invited to share its experience with a sustainable city in CWEF

Text by BMO

Delta CBO and foundation CEO Guo Shan-Shan invited to the "Opportunities and Challenges of Growing Asian Cities" forum to share about Delta's experience in creating sustainable cities

On-stage discussions between Guo Shan-Shan (left 1), Taoyuan City Mayor Cheng Wen-Tsan, AECOM's Asia Pacific Region President Qiao Quan-Sheng, and other experts

Delta CBO and foundation CEO Guo Shan-Shan attended the "Opportunities and Challenges of Growing Asian Cities" forum held during the 2018 CommonWealth Economic Forum (CWEF) by invitation. Guo shared how sustainable cities are built with new technologies and the Delta experience with more than 500 industry elites and opinion leaders under the topic "Innovative Technology for Sustainable Cities".

Guo indicated that cities are clusters of "buildings, transportation, and people". A city dweller is either active in a building or on a way to a building. Therefore, the two keys to global carbon reduction are buildings and transportation. Delta's mission is "To provide innovative, clean, and energy-efficient solutions for a better tomorrow", to apply core technology in energy management, and create efficient power-conservation solutions used widely in every aspect of the life of city dwellers. Take the living circle in a day for example: In the office building, Delta provides power-saving air conditioning, lighting, elevators, and other systems, which are managed through integrated building automation solutions. On the roads, Delta provides electric vehicle charging solutions, light-weight air conditioning for electric buses, and power-saving smart LED street lights. In the home living, Delta provides air exchange systems, air quality solutions, and power storage systems.

The on-stage discussions between CBO Guo Shan-Shan, Taoyuan City Mayor Cheng Wen-Tsan, Chunghwa Telecom President Hsieh Chi-Mau, AECOM's Asia- Pacific Region President Qiao Quan-Sheng, and other experts were met with enthusiastic response and engaging questions from the audience. Guo Shan-Shan added that Delta hopes to bring positive influence on policies such as the movement to include elevator power conservation into the energy conservation manual. Taoyuan City Mayor Cheng Wen-Tsan commended the remote control function of Delta's smart streetlights, which offered convenience for the city government and saved operation costs.

Delta's 2018 China channel vendor summit holds in Hong Kong

Text by DGC

More than 200 people including Delta's senior mangers and channels from DGC summarized the channel work done in 2017 and discussed the plans for 2018

"Working together with sincerity and dedication to take Delta to a new level"— Delta's 2018 China channel vendor summit was held in Hong Kong from January 8 to January 9. More than 200 people attended the summit, including Chairman Yancey Hai, chief brand officer and executive director of the Delta Electronics Foundation Ms. Guo Shan-shan, spokesperson and senior director of corporate communications Mr. Jesse Chou, Managing Director of Delta Greentech Mr. Donald W.J. Yu, general manager of the IMSBU Dr. David Tsai, general manager of Delta Greentech IABU Mr. Chen Min-ren, department representatives and channel vendor representatives, to summarize the channel work done in 2017 and discuss the plans for 2018.

Mr. Yancey Hai pointed out that, Delta's industrial automation businesses developed extremely quickly in 2017. With the support and effort from the channels, Delta's industrial automation businesses increased quite dramatically in the China region. Delta reorganized the organization structure in 2017 and has been taking power electronics, automation, and infrastructure as the three main business scopes. Ms. Guo Shan-shan said, "2017 was an important year as Delta underwent brand transformation. The new organization structure relies on market segmentation, which helps Delta to continue understanding the world's industrial growth momentum. In the fast-changing international market, Delta offers more efficient and energy-saving solutions to clients and consumers, and allows people to better understand the brand in order to introduce the overall synergy."

Mr. Donald W.J. Yu stated in his speech that Delta has developed energy infrastructure, internet communication infrastructure, video display and control, building automation, and industrial automation so well in China market that Delta is able to customize the above and provide comprehensive pre-sales service and reliable aftersales service. Also, Delta is able to provide industrial users highly-efficient and reliable products, techniques, and energy-saving solutions.

Mr. Chen Min-ren explained the development strategies of Delta's industrial automation in China region. In 2018, Delta will work with the channel vendors to understand and guide client's needs to provide smart manufacturing solutions from smart equipment, smart production line, smart logistics to smart production and smart factory to help industrial smart transformation.

There was an awards ceremony in the Summit. More than 10 corporations received annual outstanding performance awards and excellent contribution awards given to their products.

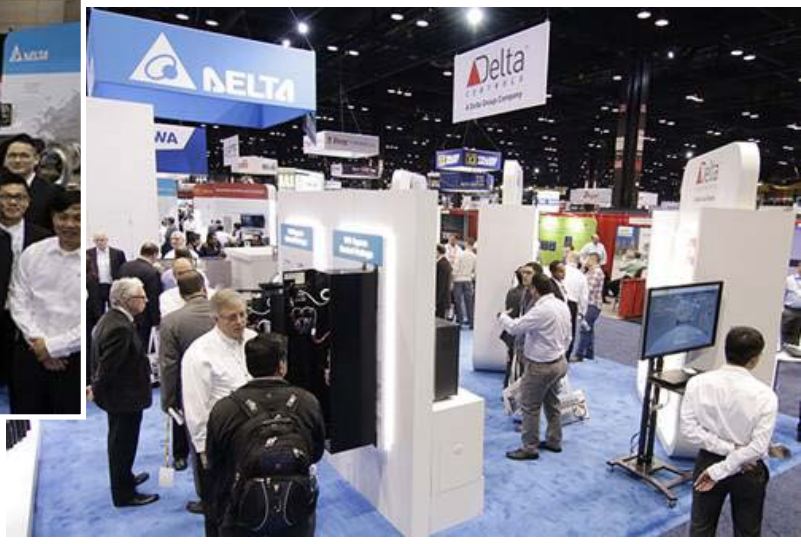
Chairman Mr. Yancey Hai pointed out that, Delta's industrial automation businesses developed extremely quickly in 2017 with the support and effort from the channels. He hoped to work with the channel vendors to take Delta to a new level through the summit

Delta participates in AHR 2018

Text by Corporate Communications

From January 22 to 24, Delta is showcasing its portfolio of smart building automation and HVAC solutions at the AHR Expo 2018, a prominent tradeshow in the USA for the HVAC industry. Our booth this year features Delta and its subsidiaries Delta Controls and LOYTEC in one single showcase, together. Delta's building automation solutions, which are compatible with all open protocols used in building control (BACnet, LonMark, KNX, DALI, Modbus, etc.), facilitate comprehensive building control in a wide range of sectors (commercial, education, healthcare and more). Furthermore, Delta's complete offering to boost energy savings in HVAC systems include IoT-enabled industrial automation HVAC devices, the fan/pump vector control drive CP2000 series, as well as the high-performance EC fans, which are capable of achieving energy savings of up to 30% compared to traditional AC fans. Delta's products are designed for high reliability, and ease of installation and use, ensuring the lowest cost of ownership. At this year's AHR, our booth has enjoyed an extraordinary number of visitors, especially professionals from the HVAC sector.

Group photo at Delta AHR 2018 booth



At this year's AHR, our booth has enjoyed an extraordinary number of visitors, especially professionals from the HVAC sector

"Delta always strives to deliver the best customer solution for energy efficient buildings. Our concept of a Delta Building is defined as one that takes advantage of the latest technologies in energy efficiency and renewable energy combined with an enhanced building occupant experience," said M.S. Huang, President of Delta Americas. "Our building automation and HVAC solutions are a vital component of this goal. Delta offers an extensive offering of products such as a complete suite of building automation controls, variable frequency drives, and DC fans to name just a few."

Around the world, Delta has established a proven track record in deploying energy-saving building automation and HVAC solutions. For instance, our HVAC and building automation solutions are applied in Delta's LEED Platinum-certified green building in Fremont, Ca., to enable 90 percent annual energy savings when compared to traditional buildings. In addition, the DALI lighting control system installed at Manchester Airport in the United Kingdom contributes significantly to the overall annual energy savings of 89 percent in its lighting infrastructure.

Key highlights at Delta's booth this year include: Building Management & Control, Industrial Automation for HVAC, Electronically Commutated (EC) Fans & Blowers, Breez Bathroom Exhaust Fans, Cabinet Thermal Solutions and UNO Indoor Environment Quality Service Solution.

Delta Showcases Building Automation Solutions at Japan Smart Building EXPO

Text by BASBD

On December 13, Delta displayed their newest generation of full IP IoT building management and control platform at the Japan Build 2017 – The 2nd Smart Building EXPO. The platform is built on an automation server made by its subsidiary brand LOYTEC, providing smart management for lighting, security, and global building energy, and automatic room management in compliance with the latest building energy conservation regulations in Europe. It is compatible with more than ten wired/wireless communication protocols, and is equipped with powerful integration capacity. With digital control, cloud service, and big data analysis, it reduces building operation costs, creates a comfortable living space, and optimizes energy consumption. It is the perfect tool to connect systems, upgrading building management efficiency by adopting the idea of IoT.

Delta showcases the latest building automation solutions at Japan Smart Building EXPO. Group photo of the team with President of Delta Japan (DEJ), C.H. Ko (3rd from the right), Delta CBO Guo Shan-Shan (2nd from the right), and Head of DEJ Building Automation Solutions Business Group, Hiroshi Kamada (first on the right)

Bill Lo, Delta's Building Automation Business Group President, indicated that Delta has reinforced its software and hardware to expand its building solution: Internally, it keeps investing in cutting-edge technology research and development; externally, it executes strategic mergers and acquisitions. Delta's subsidiary VIVOTEK, supplements the smart buildings and smart cities with its security solutions, completing the blueprint of power-conservation, health-keeping, and safe buildings which Delta has been working on for years.

At Japan Build 2017, Delta exhibited many new high performance automated building products, including the standard total lighting solution DALI 2.0, which offers higher compatibility and more additional functions in comparison with the existing DALI 1.0. Other Delta's remarkable products were also on display, such as the high-bay luminaire HBD series with industry-leading light effect up to 170 lm/W, the IoT- and cloud-based indoor environment solution UNO, and VIVOTEK's security solutions.

Delta building automation solutions

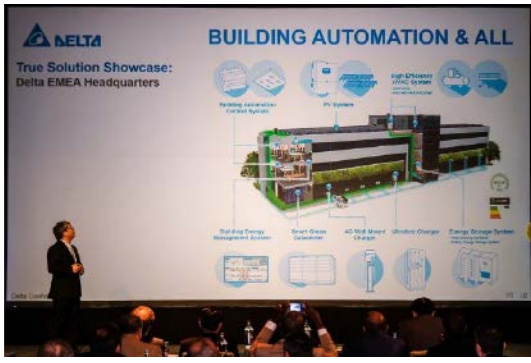
Delta offers a variety of building automation solutions, including a trans-regional, trans-building global energy management system (Delta Energy Online), building management and control system, smart lighting, distributed air conditioning that saves energy and provides comfort, smart security, and integration services, all together form the flexible, expandable, and highly compatible IP-based building management surveillance platform which by IoT technology integrates all kinds of facilities of a building, such as A/C, lighting, energy, water supply and drainage, elevator control, power, and gate surveillance control. The various options of solutions enable a wide range of applications for buildings of different sizes and types according to customer needs, improving operation efficiency, power conservation, and safety, and increasing the living comfort and convenience of maintenance and management.

Delta EMEA Partner Event 2017 & 30th Anniversary

Text by EMEA

Delta EMEA held its 2017 Partner Event from 3 to 6 December in the lovely venue "Huis ter Duin" hotel in Noordwijk, the Netherlands. More than 150 channel and system integration partners from around 55 countries all across Europe, the Middle East & Africa region joined to further strengthen their long-term collaboration with Delta.

We focused on Delta group progression, Delta EMEA outlook, and the latest Delta business category of "Infrastructure Solutions" which cover ICT Infrastructure and Energy Infrastructure solutions on Day 1. On Day 2, we focused on the business category of "Automation Solutions" which include Industrial Automation and Building Automation solutions along with visiting the real solution showcase of Delta EMEA headquarters, Hoofddorp office.



The keynote presentations were offered by Yancey Hai, Chairman; Victor Cheng, Senior Vice-President & GM of ICTBG & EISBG and Jackie Chang, EMEA GM

Our EMEA partners also had the opportunity to learn about Delta's first smart green building in EMEA. We visited and guided our EMEA partners in a tour throughout our office in Hoofddorp, a retrofit green building capable of saving up to 45% annual energy consumption through our Solar Inverter Solutions, Power Conversion Systems, Energy Storage Systems, Smart Building Automation Solutions, LED Lighting Solutions, Vivitek Display Solutions, Surveillance Solutions, as well as our EV Charging Solutions.

Beside tours for Delta different solutions, we also took this opportunity to showcase Delta EMEA Headquarters showroom and our COP21 and COP23 Green Building exhibition to our elite partners.

The partners were invited to have a green building tour at EMEA Headquarters

To see a complete impression of the Partner event, please watch our video here: https://youtu.be/ZBViw4jDapM
Or visit our event website: http://partnerevent17.delta-emea.com/

Delta Automatic Rice Ball Machine Solution Excels in Production of Chinese Holiday Dish

Text by IABG

The Lantern Festival is the first full moon of the year that symbolizes a grateful wish for a whole new start of the year. Chinese families light lanterns and cook rice balls on Lantern Festival, and traditional rice balls are made with a hand-kneading or hand-shaking process. Even with semi-automatic production, the processes require workers to lift and place materials from one production line to another.

Automatic rice ball making machines are ideal equipment for manufacturing rice ball products. In general, the automatic processes for making rice balls include two major techniques: "shaping" and "placing". For the shaping technique, there are several sub-steps to follow: feeding, kneading, mixing, stuffing, and rolling. The placing process into a single production line with multiple procedures to achieve a high-efficiency and stable rice ball production line.

The AC servo drives precisely position two set of axes for the following placing and packaging by conveyors

To construct a comprehensive rice ball production line, this solution is equipped with the High Performance PLC DVP-EH3 Series as the master controller that allows operators to set up and give commands through the Widescreen HMI DOP-B Series. This achieves for all procedures used for rice ball shaping and placing techniques.

When raw materials fed into the production line, the High Performance PLC DVP-EH3 Series gives commands to the Sensorless Vector Control Compact Drive VFD-EL Series via RS-485 communication protocols to drive two sets of mixing machines that squeeze out the dough or meat stuffing. When the semi-finished products are rolled into round shapes by the machine, the finished rice ball products are precisely placed onto a tray.

After actual application, Delta's automatic rice ball making machine solution provides the human machine interface monitoring, single production line integrates multiple processes, one-stop solution benefits to customers, and plays a role in preserving the ancient rice ball tradition for today's modern society.

Delta automation products adopt powerful hardware and software to fulfill flexible industry applications

Delta creates Asia's largest theater light sculpting show of 2017 for Kaohsiung's WeiWuYing Center

Text by DSBU

Asia's largest 3D light sculpting show created on the outer wall of 224 meters in length and 37 meters in height at Kaohsiung's Wei-Wu-Ying Center

With a long-time excellent reputation in advanced outdoor projection show, Delta's audio-visual team and Wonders of Art International were jointly invited by Preparatory Office of the WeiWuYing Center for the Arts to create "The First Seeds" light sculpting show on the outer wall that exclusively showcased the center.

This was Asia's largest audio-visual light sculpting show on the theater wall for 2017, with five days of light sculpting performance starting at 7PM every day from November 22 to 26 that combined large outdoor light sculpting projection and live interactive performances. For designated projection, the premium projection equipment from Delta's audio-visual team was used in conjunction with the professional multimedia consoles that connected 18 of 20,000 lumen theater-grade projectors through seamless welding technology to create the longest single-building wall projection with a length up to 224 meters, which was equivalent to the width of 18 movie theaters.

Once a military site, Wei-Wu-Ying area was designated as an art and cultural center by Executive Yuan in 2005, making it Asia's largest performance art venue. With high anticipation from people in southern Taiwan, Ministry of Cultural Affairs finally announced its inauguration in 2019. The show this time was moved to the outdoor arena of Wei-Wu-Ying, where audiences could see the outdoor light sculpting projection that combined music, dances, and theatrical performances for the first time with Asia's largest theatrical multimedia light sculpting projection, bringing the audiences into mysterious wonderland of arts in the banyan woods of WeiWuYing Park.

Delta laser DLP helps Dongyue Group create a hundred-billion-grade fluorosilicone park

Text by DGC

Delta's laser DLP large screen display system was successfully used with Shangdong's Dongyue Group, Asia's largest fluorosilicone production base, providing a reliable visualized monitoring display platform for its newly-built comprehensive management system and helping the group create a hundred-million-grade fluorosilicone park.

For the group's requirement in its comprehensive management system, Delta created three sets of large-screen splice display system made of 56 blocks of 67-inch single screens that can effectively integrate the group's IT-based systems, such as energy management system (EMS), manufacturing execution system (MES), factory energy management system (FEMS), and ERP system, into an inter-connected and inter-linked overall display.

In Delta's fourth-generation lighting (laser) DLP display unit, the projector core utilizes the dual-CPU design to ensure stable operation of the optical engine, as well as the speed of image processing and quality. The self-illuminated fluorescence color wheel and a unique high-performance vacuum heat pipe cooling technology is used for the lighting, with a life up to 60,000-80,000 hours that offers significant saving on later-phase maintenance cost. The projector core features built-in auto-balance adjustment system for brightness and color that can instantly detect strength and color of the light source, and can automatically control and adjust the brightness and color of all cores. There has been more than 100 cases of success with customers' DLP projects.

Delta created three sets of DLP large splice screen display system made of 56 single-screen 67-inch screen blocks for Dongyue Group

Delta provides scalable modular UPS solution for Adelaide Airport

Text by MCISBU

Situated approximately 6km west to the city center, Adelaide Airport is currently the fastest growing capital city airport for international services in Australia. To keep up with its rapid growth Adelaide Airport has upgraded two of its communication rooms.

Adelaide Airport applied Delta's UPS system to upgrade its operating scale

Delta's DPH Modular Uninterruptable Power Supply (UPS) system was installed at the southern communications room as part of the upgrade. This is the first time this type of system has been deployed in the Australian and South Pacific region.

The built-in redundancy of the Modulon DPH Series UPS guarantees a continued power supply for mission critical applications, and the fully fault-tolerant design offers self-redundancy for the control mechanism, cooling and power modules. Mean time to repair (MTTR) is close to zero, due to hot-swappable functionality for all critical components. In the event of failure by the main module, full control logic enables the system to self-synchronize and switch to the backup, for a seamless transition with no disruption to operations.

In the northern communications room a core switch cabinet solution was installed, which included two units of Delta RT 10kVA/9kW rackmount UPS to dual power rails with external bypass modules. Beneficially, these units are capable of twelve minutes uptime at 9kW and provides redundancy for dual corded equipment up to 4.5kW.

With these modifications and customizations, the new Adelaide Airport communications room is running at 30% capacity, allowing the capability to load more over time as the airport continues to grow.

Delta micro modular datacenter solution provides a reliable platform for smart campuses

Text by DGC

Delta Micro Modular Datacenter Solution

Delta announced its partnership with Xianhua Experimental School in Jinzhai County to create a data center infrastructure solution that features high level of system integration and excellent scalability. By providing a reliable platform, it satisfies requirements for operation such as multimedia teaching, campus service, campus management, comprehensive security, campus announcement system, etc.

Catering to the school's overall planning and construction requirements, Delta offered users its MDC Micro Modular data center that can be quickly deployed to small-size server rooms, integrating the power supply with the consolidated monitoring system, cabinet system, and cooling system to offer users a solution with high cost effectiveness.

In area of energy-saving, the series uses the cabinet as a carrier of the server room to form an environment that fulfills safe operation of the equipment. The air flow inhibition system can effectively isolate mingling of hot and cold air, significantly saving spending on electricity.

Meanwhile, the micro module datacenter features mobile-App-based smart management mode, through which logistics personnel can learn about system operation at any time anywhere to reduce complexity in work. The cabinet also features door guarding as a standard feature which also safeguarded reliability of important data such as multimedia teaching materials for the school and campus security recordings.

Delta's Power solution is the choice of the largest airport in South Korea

Text by MCISBU

Delta's DPH series

The largest airport in South Korea chose Delta's modular UPS to safeguard its immigration office data center and to ensure its continuous, highly efficient mission critical operations. The cutting-edge design and the scalability of the UPS were the key factors in choosing suppliers.

Delta's power solution with its "pay as you go" modular design allows customers to meet their power consumption requirements without tying up valuable capital. It provides best-in-class power performance and leading AC-AC efficiency of up to 96.5% to save on energy costs.

Delta's Power solution is the "power behind competitiveness" that provides an unsurpassed advantage to top-tier global clients for achieving a highly efficient and reliable data center.

Delta participates 2018 International Builders' Show

Text by DPC

The Delta Breez team attended the 2018 International Builders' Show in Orlando, FL, introducing many new bathroom ventilation fans and three new product lines with first to market functionalities and features.

"As the largest annual light construction show in the world with more than 70,000 visitors, the International Builders' Show has been one of our top national trade shows in North America," said Kai Wang, Delta Breez's Product Manager. "We had the opportunity to meet with builders from around the world to introduce Delta Breez, and promote our new energy-saving vent fan and indoor air quality products to our current business partners."

The most notable addition is BreezIntegrity line; this series expansion marks a revolution of economical series of ventilation fans. The BreezIntegrity touts an extremely small housing size-7-1/2" X 7-1/4" to ease troublesome retrofits; it's designed for new construction or remodels for contractors and consumers alike. All models within this series are ENERGY STAR qualified.

Furthermore, Delta will showcase three new product lines: Ceiling Fan, Air Purifier, and Air Mover. The product line extensions are meant to improve overall indoor air quality by leveraging Delta Breez core advantage – Brushless DC motor technology providing the benefits of superior reliability, energy efficiency, and quiet operation.

Delta team at IBS 2018

Introduction of VIVOTEK, a subsidiary of Delta

Text by BABG

VIVOTEK spares no effort in brand investment, participating in major international security monitoring exhibitions and hosting distributor conferences to establish brand cohesiveness

Delta Group's new member VIVOTEK was established in February 2000, and is an international leading brand in safety and monitoring. The brand mark, VIVOTEK BUILT WITH RELIABILITY , is formed by 4 words: VI represents Video, VO represents Voice, the little circle inside O represents Communication, and TEK represents Technology. VIVOTEK strives to be a leader multimedia communication.

The Eyes of Internet of Things

In recent years, VIVOTEK has developed comprehensive security monitoring solutions, including full range of web cameras, network switches, digital image storage systems, and image management software, satisfying user requirements in the vertical markets.

Sound industrial ecology

VIVOTEK was listed in Taiwan Stock Exchange in 2011. It has successively set up offices and subsidiaries in California, U.S., in 2008, Netherlands in 2013, India in 2014, Dubai of Middle East in 2015, Mexico in 2016, and Tokyo, Japan, in 2017. In line with global strategic planning, it emphasizes on long-term partnership and aims to establish a sound industrial ecology.

Quality and environmental friendly mission

VIVOTEK solutions bear the responsibilities of the safety of international community and people, as well as environmental sustainability. In terms of product quality, it has obtained various international standards, including ISO 9001 International Quality Management System certification and TL9000 Quality Management System for the Telecommunications Industry, has successively implemented ISO 14001 Environmental Management System certification, IECQ QC08000 Hazardous Substance Management System, and RoHS Restriction of Hazardous Substances, and completed ISO 14064 Greenhouse Gas Inventories and Verification in 2014, fulfilling the responsibilities of a citizen of the earth.

In October 2017, Delta Group completed acquisition of 49.2% of the shares in VIVOTEK, making it an important component of its smart buildings. Both parties are currently carrying out technology integration, and will work closely in international exhibitions in 2018.

Delta showcased its building automation solution in Intersec Dubai 2018 with Vivotek Inc

Text by BABG

Delta showcased its building automation solution in Intersec Dubai 2018 with Vivotek Inc., with the main emphases including:

Delta showcased its building automation solution in Intersec Dubai 2018 with Vivotek Inc

- Information Security Protection: Vivotek Inc has established a strategic alliance for information security with Trend Micro Inc., the world's leading brand for information security solutions. Together they launched the first web camera in industry that strengthens information security and allows the users to be more protected in terms of Internet security.
- Smart Product: The latest 1200-pixel fisheye camera was showcased. The fisheye camera can detect density of the crowd in a specific area, which allows the user to avoid a certain area being over-crowded. It can be used in optimizing region management.
- 180° Panoramic Protection: The product series with 180° panoramic protection was exhibited. The biggest advantage of the series is that the installation time and the total number of cameras needed are reduced, making it applicable in monitoring large areas.
- Delta's Building Automation: The building management and control system launched by Delta and LOYTEC is an IP-based IoT platform. Through the controller that is compatible with all building protocols, the buildings' sub-control systems can be integrated with the IP directly to connect the supplier's management systems, such as office automation, hotel management, and logistics management, to improve quality and efficiency of building management.

Delta receives prized Funkschau Readers' Choice Award for innovative Modulon DPH 500kVA UPS

Text by MCIS

Funkschau readers have chosen an UPS from Delta for the second year in a row. Delta earned third place in the highly anticipated Funkschau Readers' Choice Awards this year in the UPS systems and power distribution units (PDU) category. The award was presented on October 12, 2017 at the Seehaus in Munich, Germany.

Capabilities of the new Delta 500kVA UPS

The architecture of this line of UPS allows individual modules to be swapped without shutting down the system. That makes the devices much faster to deploy and reduces service times by 50% compared to conventional UPS devices. Hot swapability makes the Modulon DPH 500kVA ideal for applications that require the highest availability, such as Tier IV data centers. The new model also boasts impressive energy efficiency numbers, achieving AC-AC efficiencies of up to 96.5% during normal operations and 99% in eco-mode.

Delta DPH 500kVA UPS was chosen by Funkschau Readers

The award ceremony

Trade and technical publisher WEKA invited the top ranking participants from all 20 categories to the award ceremony. The Delta 500kVA UPS earning the recognition of Funkschau readers is a testament to their trust in the Delta brand and the quality of Delta's products.

Natalie Ziebolz (on the right; Funkschau) presents trophy for the Delta DPH 500kVA (3rd place UPS) to Astrid Hennevogl-Kaulhausen from Delta Electronics

Delta attends "Cross-Strait University Informatization Construction" forum

Text by DGC

The product development director of DGC, Li Nan, delivered a keynote speech

The "Cross-Strait University Informatization Construction" Forum hosted by DatacenterDynamics was held during DCD Hyperscale China 2017 in Beijing. Delta attended the event by invitation to introduce the company's excellent solutions for the cloud computing era and potential value to education.

With the development of university informatization construction and the increase in the high-density computing, and the significant improvement of IT equipment performance, various issues also occur for the data center infrastructure and operation environment. In response to various challenges in cloud computing and the progress of virtualization for university data centers, Delta provides the innovative MDC series data center solution, to resolve hot spot issues with simple structures, ensure system reliability, and realize rapid deployment.

Delta MDC satisfies the demands of micro to super large data center machine rooms by adopting a modular data center design concept through 3 series: Micro Datacenter, Dynamic Datacenter, and Cloud Datacenter.

At the same time, the 3 series of Delta MDC help users conserve energy by offering smart management and operation, dynamic energy management, and dynamic PUE control of the overall data center operation, realizing instant monitoring and analysis of PUE.

Delta presents innovative concepts and achievements at WIMS

Text by DGC

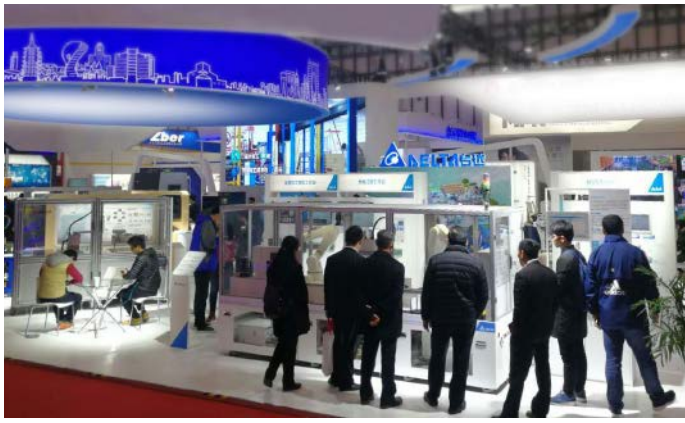
During December 6-8, the 2017 World Intelligent Manufacturing Summit was held in Nanjing. Delta unveiled its smart manufacturing blueprint, in line with the "Manufacturing Transformation Featured in Collaboration and Innovation", to once again present the brand new "Smart Manufacturing Demonstration Line". The production line consists of 3 units of robots which form a workstation, connecting the surrounding equipment, a manufacturing execution system (MES) ordering system, and a Production Management & Visualization Platform (DIAMMP). It produces gifts engraved with the names of guests, and demonstrates the smart manufacturing of small-volume large-variety and mixed-line production.

Other highlights of the Delta exhibition include:

MES Smart Manufacturing Solution: User issues an order from the cloud information level, and after the factory receives the order, MES shall assign a process, and deliver the command to the host controllers of various production equipment, meanwhile recording, tracking, and analyzing all the production processes and equipment operation.

Factory Energy Saving & Monitoring Solution: It displays equipment operation status with graphs and data on SCADA, and efficiently monitors and controls the factory system equipment and manages the energy with Delta DIAEnergie energy management system.

Smart Equipment Solution: The all-in-one smart equipment includes a smart metal processing station, smart plastic processing station, a smart packing station, and a smart assembly and inspection station.



Delta unveils smart manufacturing blueprint at WIMS 2017 with "Smart manufacturing demonstration line"

Delta wins "2017 China Award of Corporate CSR Excellence" from Xinhua Net

Text by DGC

The tenth "China CSR Welfare Ceremony" held by Xinhua Net was hosted at Beijing Qinghua University, where Delta was honored with "2017 China Award of Corporate CSR Excellence". Delta's achievement from its long-term dedication to environment friendliness and energy efficiency received unanimous recognition from the evaluation committee.

Delta honored with "2017 China Award of Corporate CSR Excellence"

Working closely related to the 17 goals of sustainable development announced by UN in 2015, Delta's high-performance energy-efficient products and solutions have cumulatively saved 20.8 billion degrees of electricity for its customers in the past 7 years. In the past 10 some years, it constructed 25 factories and green buildings donated by educations sectors worldwide. Its Shanghai operation center recently received the highest platinum certification by LEED-EB (for current buildings). Compared to buildings of similar geographical setting worldwide, it offers up to 60% and 46% of savings in electricity and water.

In response to the commitment to reduce carbon emissions worldwide, Delta also proposed a commitment for corporate self-initiation that seeks 30% of further reduction on overall density of power use in 2020, on top of the basis of 50% of reduction in major points of operation between 2009 and 2014. In addition, Delta also has partnership programs in place with institutes of higher education and research agencies, including the "education program for power electronics" with ten schools including Qinghua University since 2000, the "DGC Scholar of Environment Laws" and "DGC Award for Young Scholars of Environment Laws" set up in 2011, and "Delta Cup Contest in College Automation Design" held since 2014 to nurture talents in smart manufacturing.

Delta honored as "2017 China's most influential green corporate brand"

Text by DGC

Delta awarded as "2017 China's most influential green corporate brand"

The "fourth China green development and ecological construction summit" was held by Xinhua Net in Beijing on December 15. With the corporate mission of "providing innovative, clean, and energy-efficient solutions for a better tomorrow", Delta was awarded as "2017 China's most influential green corporate brand" at the summit and made an entry in "2017 China Report on Exemplary Case in Green Development".

Upholding the commitment of "Smarter, Greener, Together" for its brand, Delta has been dedicated to providing innovative and leading energy-efficient solutions for its customers. Delta's brand value has been making great leaps and has been selected as one of Taiwan top 20 international brands for the seventh year. Delta's brand value reached 250 million USD[1] in 2017, which is 11% in rise compared to 2016, making it the only corporation with double-digit growth for five years in a roll.

To respond to rapid changes in the markets worldwide, accelerate growth of the new venture and solution business, Delta has listed the areas of "power electronics", "automation", and "infrastructure" as the areas defined for its new major businesses, as it continues to offer its customers and consumers more energy-efficient and high-performance green solutions that will lead the corporation on continuous growth in business.

Delta has also been actively participating major international initiatives on reducing carbon emissions. During the 2015 COP21 UN summit in Paris on climate change, it also held many peripheral meetings and hosted "Green Footprint - Delta Green Building Show" in Grand Palais which was later moved to Beijing, Taipei, and Kaohsiung. In COP23, Delta was invited by ICLEI to voice out its calls during the peripheral meetings. It also took the initiative to propose a further 30% reduction in overall density of power use by 2020, on top of the 50% reduction for its major points of operation between 2009 and 2014, with range of management extended to newly-built plants, office buildings, and data centers.

[1] According to the international brand appraisal agency, Interbrand

Delta receives "Best of the Year" honor in audio-vision industry for four years in a roll

Text by DGC

Delta has been honored "corporation of the year" for four years in a roll with its world-leading vision products and solutions

Delta's industry-exclusive "4K laser DLP display unit" honored with "product of the year" award

Held by media platform InfoAV China, 2017's "Best of the Year" list for IT-based audio-vision industry was revealed. Delta has been honored with "corporation of the year" for four years in a roll. Whereas, its industry-exclusive "4K laser DLP display unit" received the "product of the year" honor.

Officially launched in 2017, Delta's 4K resolution laser DLP display unit is the only product with ultra-thin box look and 4K display quality in the industry. It employs the latest pure-laser lighting technology, design with matrix redundancy laser module, and Delta's self-made fluorescent color wheel, making it the only product in DLP area that made an entry in the list this time.

With continuous development and innovation in areas of visual display and control technology, Delta possesses core technology ranging from DLP display technology to image control system that enabled it to create world's leading product and solution in areas of engineering projection, DLP splicing, LCD splicing, LED splicing, image display control, smart monitoring, and visualized management, which further proved the influence of the Delta brand in international and domestic markets.

Delta honored as "2017's top-ten most innovative corporation for inverters in photovoltaic industry"

Text by DGC

2017 Photovoltaic Innovation Conference (PVIC2017) was held in Shanghai, where the 2017 "PVTOP50" award ceremony was held for the top 50 innovative corporations in photovoltaics industry. Delta was honored as "2017's top-ten most innovative corporation for inverters in photovoltaics industry" and "top fifty corporations of innovativeness".

Delta's full series of inverter products all feature aluminum alloy casing, IP65 level of protection, and IP68 level of smart fans. The special heat-dissipating ventilation filtration net on the outdoor IP65 centralized inverter offers the ability for active maintenance to reduce cost in later phase.

Delta's 1000Kw centralized outdoor inverter solution with IP65 level of protection offers advantages in safeguard against dust, moisture, and corrosion by salty-vapor. The system has been widely used on: roof-top power generation system for businesses and corporations, fishery PV power generation system, water-top floating power generation system, power generation system for subsided coal mining areas, hillside power generation system, etc.

Delta's new-generation RPI-M88 string inverter features 200~1000VDC of working voltage range that prevents power loss caused by frequent shutdowns under rainy weather while increasing the amount of power generated. Utilizing an IP68 level heat-dissipating fan, with its components over-matched up to 110kW and using a non-AC combiner box design solution, it will be able to maximize LCOE (levelized cost of electricity) profits for the system.

With topics at the "PVIC conference" closely wrapped around market hotspots, Delta will also uphold to the spirit of continuous innovation and produce good products to benefit users and industries!

Delta honored as "2017's top-ten most innovative corporation for inverters in photovoltaic industry" and "top fifty corporations of innovativeness"

Delta's two building automation brands won "2017 TOP 10 Building Automation Brands"

Text by DGC

"2017 Intelligent Building Brand Awards" announces that Delta's two major building automation brands —LOYTEC and Delta Controls, with their leading smart building solutions and outstanding market performance, won "2017 TOP 10 Building Automation Brands", becoming the biggest winners of this year's award.

Intelligent Building Brand Awards announces that Delta's two major building automation brands won "2017 TOP 10 Building Automation Brands"

According to Mr. Donald Yu, Managing Director of DGC, responding to the rapid development of smart building market, Delta makes use of its own product development and technological innovation, and establishes a series of comprehensive energy-saving solutions for smart buildings, providing a safer, more comfortable, highly efficient, reliable, green and energy-saving building environment for customers. This award represents the high recognition customers have on Delta. With further integration of brands and businesses such as LOYTEC, Delta Controls, VIVOTEK, etc., Delta's building automation is sure to reach a new height.

LOYTEC has high level of capabilities in integration of building management and control. Through establishment of comprehensive user-oriented smart building solutions like building management platform (BMS), building automation system (BA), smart lighting system, energy efficiency statistics system, office automation system, touch screen, building network infrastructure, etc., it helps customers in attaining the win-win goal of building energy efficiency and user comfort.

Delta Controls specializes in developing building automation products on BACnet communication protocol, and has a leading edge in heating, ventilation and air-conditioning applications. As of now, Delta Controls has successfully implemented more than 2000 building automation projects in China market, including health, hotel, transportation, super high-rise buildings, etc.

Delta Electronics Wins Rising Star Award at SET Sustainability Awards 2017

Text by DET

Delta Electronics (Thailand) PCL. was awarded the Rising Star Award at the SET Sustainability Awards 2017 ceremony. This is the first time Delta is placed in the category for listed companies with market capitalization higher than 100,000 million baht. The annual event was organized by the Stock Exchange of Thailand's (SET) and held in SET's Conference Hall. Mrs. Kesara Manchusree, President of SET, presented the Rising Star Award to Mr. Hsieh Shen-yen, President of Delta Electronics, and Thailand Sustainability Investment Award 2017 (THSI) to Mr. K.K. Chong, Senior Director of Sustainability Development.

This is the third consecutive year Delta is selected for SET Thailand Sustainability Investment Award

Group photo of Delta SD team

This is the third year Delta is selected as one of the outstanding companies from SET's listed companies for the Thailand Sustainability Investment Award. The list of 65 selected companies represents a selection of organizations that have shown excellent stock performance and exemplary business practices base on the key principles of Sustainable Development (SD) which include environmental, social and governance (ESG) aspects.

The selection process uses SET's sustainability assessment system to provide a reliable decision-making reference for investors who are looking for long-term returns from companies with strong fundamentals based on SD practices.

Delta India Electronics

PEOPLE

Building a leading brand – Delta India Electronics

Text by Delta India Electronics

Delta started its operation in India in 2003 through acquiring Ascom, with its corporate office in Gurgaon. It's a 100% subsidiary of Delta Electronics Thailand.

We started our operation through Telecom Power Business Unit. In recent years we have focused our business on EV Charging Infrastructure, Large Solar Central Inverters, Energy Storage Solutions, Railways (Traction Propulsion, PQCE), Power Quality Equipment. In 2008, we established our first manufacturing plant in Rudrapur which is a Gold Rated green building. In its more than a decade existence in India, we have achieved market leadership in Telecom Power Solutions, Solar String Inverters, Display Solutions and Industrial Automations Solutions. Presently, Delta has a pan-India presence with 10 branch offices, 2 R&D centres and 3 manufacturing plants and more than 100 channel partners. Besides India we are also catering to the international markets of Nepal, Srilanka, Bangladesh etc.

A defining moment for Delta India was when our global CEO Mr. Ping Cheng was invited to join the Digital India launching ceremony inaugurated by the Prime Minister of India and other industry dignitaries. Delta announced that it would 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.

Today Delta India has more than 1000 employees working in various capacities. Our strength in its inherent culture which promotes openness, empathy and supporting each other when dealing across functions. Individually we are given fair degree of freedom to make decisions in the larger interest of customers and the organization. While offering solution to our customers, we are encouraged to be innovative and deliver the services with 'a sense of urgency' without compromising the quality in any which way.

Gurgaon office glass façade

Gurgaon office interior

Mr. Rahul Malik / HoD - Commercials & Logistics, Delta India

It has been a long journey with Delta. I joined Ascom on 1st Jan 1999 as a young engineer. I was excited to join a multi-national company, as my previous job was in a small Indian company. The working style and culture was very different in a Swiss company as compared to my past experience.

At the time I joined Ascom, it was a very small office with few employees and hence we had to do several tasks at the same time. The decision making was fast and the pressures were high as the company was looking to grow but the market was very tough. At that time there was only one main business, one office and a small assembly area. I was made responsible for the commercial & logistics in the company.

In year 2003 Delta acquired Ascom and then came a phase of uncertainty. I had never been through such an M&A activity and integration process. Moreover, the Swiss culture was also different from the Asian culture. However, this was the best think that happened to Delta India because this acquisition brought immense growth to India organization.

Soon the phase of uncertainty was followed by a transformation phase, as Delta India got strengthened in its Telecom Business through product and management support from TPS BU and we experienced a big growth. Other Delta businesses were also launched in the India market MCIS (2005), DSBU (2006), IA (2006), PVI (2009), Wind (2013), Several Regional Business. There were several changes in the organization like opening several regional offices, new factories in 3 locations, R&D Centers etc.

I was suddenly exposed to a massive growth is several areas and tremendous increase of my job scope. I had to learn several new areas, legal requirements, handling a large multi-location teams, increased logistics and multi-location warehouses etc. I had to personally upgrade my knowledge and went through several trainings. Through cross working with several BU's and multi-functional teams, I learnt a lot of good practices from several colleagues. I learnt a lot about organization, personnel and management skills, KPI management, review management and team motivational skills.

Mr. Rahul Malik

I have spent 19 years at Delta India and I am the oldest and a proud employee of Delta India. I am certain that I will contribute my balance career life at Delta. I have learnt a lot here and I want to give my best back to this great organization. Delta has made me a better human being, good professional and a good mentor to the next generation of young Delta soldiers. I feel I am really lucky to be at Delta and thank Delta management to create such a vibrant organization that is full of energy and yet so humble with a beautiful culture that is the biggest strength of this organization.

I wish this great company – All the very best for the future and thank the management to have me as a small part of this big & beautiful organization.

Mr. Robin Roy / MCIS, Delta India

I joined Delta in the beginning of 2009, to be exact on 2nd January 2009. This was the sixth organization of my career spanning more than thirty years now and already in the tenth year of serving Delta. Primary function is of product management for MCIS (Mission Critical Infrastructure Solution), catering mainly for UPS, Harmonic Filters and power & cooling solutions in Data centers.

The year I joined were the formative years of MCIS business getting established in India. Our then business leader for this line of business, Mr. Deepak Sharma had the vision that product management should understand the Indian market well in terms of product requirement, take correct price position for the available products against competition and scout for new products and solutions that would help acquire market share for Delta.

Another important aspect of the product manager function was to provide technical support to sales & field application team during pre-sales stage for order acquisition and operations & service post-sales, for smooth execution of orders acquired, a mission which is accomplished with a fair degree of success. Today the team of product management has specialized by product lines offered with in MCIS.

Working in Delta has been quite different compared to my earlier assignments in MNCs like Siemens & Eaton and home grown organization like Tritronics & Autometers.

Delta does not have a very rigid organization structure like most MNCs with a fair degree of freedom to perform your function. Easy access to top management and functional heads in support functions, extended support from your peers and seniors in Taiwan made it extremely helpful in discharging your responsibilities and duties well.

Mr. Robin Roy

Unlike home grown organization, Delta invest a lot in resources like good office and factory infrastructure, tools and instruments, manpower in specialized support functions, well established processes and procedures and highly 'customer centric approach' and good HR policies, makes it an ideal workplace.

Delta is surely poised to become a significant player not only in MCIS line of business but in all other business lines it promotes and engages in India today. Proud to be part of Delta family and hope to contribute significantly in its journey of success, in the years ahead.

Delta DRM-24V960W1PN

PRODUCT

Delta New 960W DIN Rail Power Supply Slim Design With Maritime Approval

Text by DET

Delta Electronics has added a new 24V/40A output to the CliQ M series of DIN rail power supply. The CliQ M series has the highest power density among the CliQ family and is also the first series in the CliQ family to feature Advanced Power Boost (APB). APB works to protect the system by ensuring continuous operation when a large inrush current is detected due to faulty load on a multiple load connection. The DRM-24V960W1PN allows remote shut-down using an external switch or voltage as well as adjustment of the output voltage. With a protected microcontroller inside the power supply, it acquires and stores operating data during the life of the power supply, which can be used for troubleshooting analysis.

Like the rest of the other models in the CliQ M series, it includes major international approvals such as maritime approval (environmental category: C, EMC 2), IEC/EN 61558-2-16 (safety of power supplies), IEC/EN 61010-1 (electrical equipment for measurement, control) and UL 508 (Industrial Control Equipment); Conforms to harmonic current IEC/EN 61000-3-2, Class A. All models are fully compliant with RoHS Directive 2011/65/EU for environmental protection.

Highlights & Features:

- Universal AC input voltage range
- Built-in active PFC with up to 95.5% efficiency
- Full power from -25°C to +60°C @ 5,000m (16,400 ft.)
- Power Boost of 150% up to 7 seconds
- Advanced Power Boost (APB) – Prevents system shutdown due to faulty load on a multiple loads connection
- DNV GL and ABS approvals for maritime applications
- Built-in DC OK Contact and LED indicator for DC OK/ Overload
- Conformal coating on PCBAs to protect against common dust and chemical pollutants
- Current sharing for parallel connection / Output Voltage remote adjustment / Internal Data Logging for troubleshooting

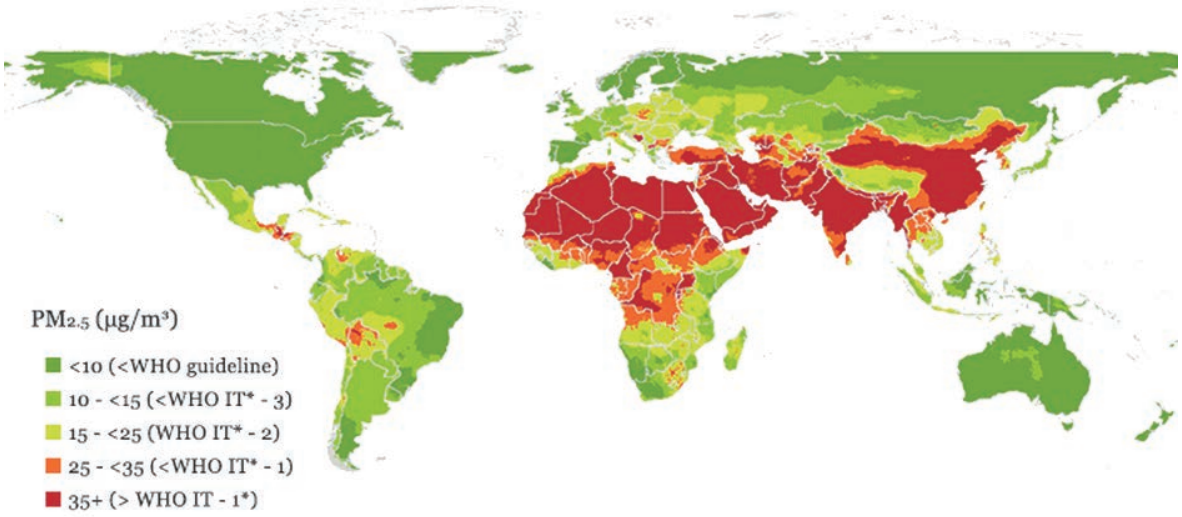
Image provided by / Evan Kao

The smog is back!
Get the facts right this time

Text by Evan Kao / Project Director of DEF

According to a report made by Copernicus Climate Change Service, the earth's average surface temperature in 2017 was 14.7°C (approximately 1.2°C higher than the Industrial Age's), the second warmest year after 2016, which shows that the winter was not that cold as it seemed. However, every autumn and winter, the lingering problem of air pollution in Taiwan always dominates the headlines, and there is no exception this time, especially when a big election for mayors of cities and counties is coming at the end of 2018. How to reduce and control air pollution, and how to resolve public complaints, become the highest priority for the competent authorities and local leaders.

But getting back to our main topic, do you know what causes Taiwan's air pollution? Is there anything that Delta can help with? And what can a citizen do for it?



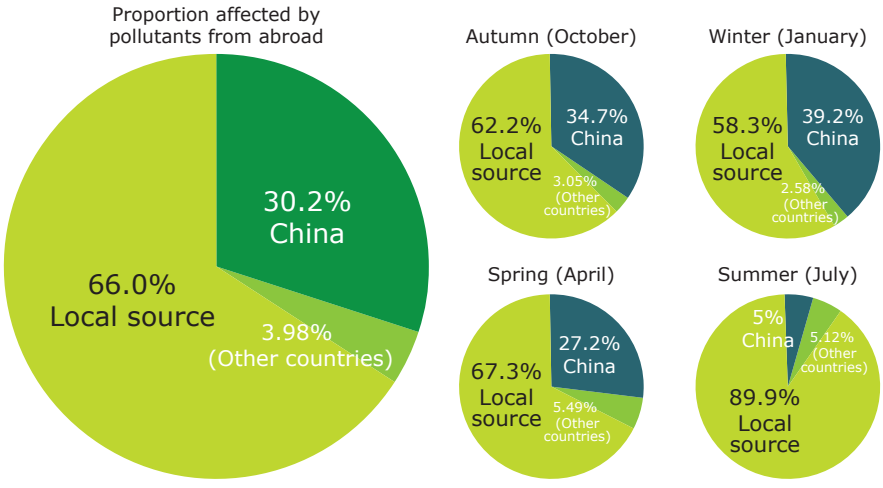
The world's PM2.5 data map as published in the report. Dark red indicates the highest and dark green indicates the lowest
(Image provided by: DW)

30% determined by fate, 70% by hard work

Well, the title is a title of a famous Taiwanese song, but we are not bringing it up for singing. It comes from the information supported by official organizations and scientific evidence, and it proved true when we uncovered the mystery of Taiwan's air pollution.

Proportion of Taiwan's PM2.5 concentration affected by pollutants from abroad

About 1/3 is caused by pollutants from abroad. The proportion changes with seasons, and the northeast monsoon during autumn and winter is the main driver.



Information source: Research results of "The Project of Consolidating the System of Air Quality Model (Second Year)" by Distinguished Professor, Chang, Ken-Hui, National Yunlin University of Science and Technology, delegated by the Environmental Protection Administration (EPA) in 2016
Note: Estimated based on emissions inventory (version TEDS 8.1), base year 2010

One third of Taiwan's air pollutants come from abroad, and China is the main contributor
(Image provided by: Environmental Protection Administration)

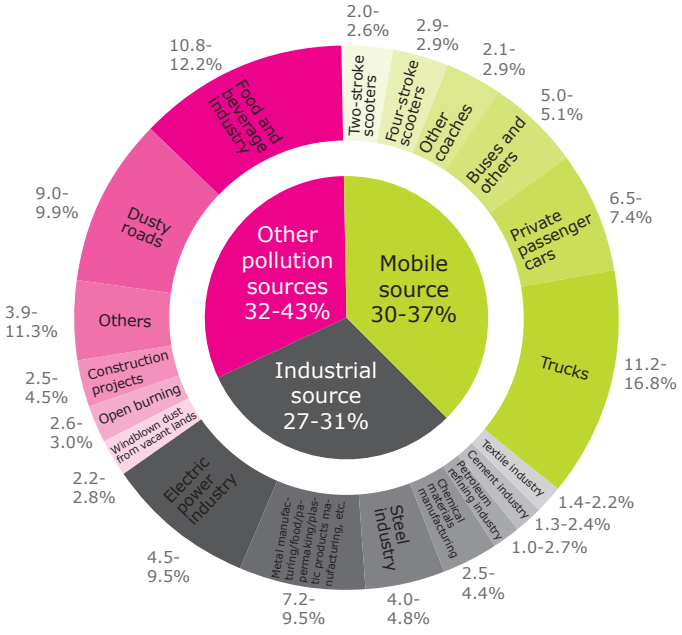
Overwhelmed with the pollution issue recently, Environmental Protection Administration (EPA) had delegated researchers to study and track Taiwan's air pollution sources. The results show that about 1/3 of the pollutants are transmitted from abroad (outside Taiwan), with approximately 40% contributed by neighboring China during autumn and winter, the periods of the worst air quality. It is not surprising that some officials recently pointed out that China is the source of Taiwan's lingering air pollution problem. Though it seems like that they were trying to shirk their responsibilities, they did not criticize without grounds.

However, pointing finger at China for everything has little effect in preventing air pollution. The geographical environment of Asia-Pacific region where Taiwan is situated experiences northeast monsoon during autumn and winter. This is how nature operates and is beyond the control of human beings. In early 2015, after CCTV journalist, Chai Jing, released the documentary, "Under the Dome", the Chinese government has been more active than most countries, speeding up to put effort in smog control and energy transformation.

This suggests that the remaining 2/3 local pollution source is contributed by Taiwan, and something needs to be done for its own part.

Ratio analysis of local PM2.5 sources

With the varied sources, controlling a single pollution source is unable to produce comprehensive results.



The main sources of the remaining 2/3 local pollution are transport, industry and energy
(Image provided by: EPA)

Based on the official data, sources of Taiwan air pollution are from three main areas: transportation, industry, and others (food and beverage, construction projects, open burning, etc.) By looking at a single specific source, the main contributors are truck (11.2 - 16.8%), food and beverage industry (10.8 - 12.2%), dusty roads (9.0 - 9.9%), electric power industry (4.5 - 9.9%), private passenger cars (6.5 - 7.4%), etc.

In view of this, the government has recently speeded up the passing of the draft amendment of Air Pollution Control Act, and implemented a series of response measures, mostly focusing on transportation and specific industries (power plants, industrial areas, and state-owned enterprises). Some local governments also introduced discounted public transport, and the Executive Yuan even declared the vision of fully abolishing fuel vehicles (official cars by 2030, scooters by 2035, and motorcars by 2040) by 2040, sparkling a heated debate.

Start with energy-saving, focusing on building and transport

Finally, let's return to the earth surface from the cloud. What can the humble ordinary people do when faced with smog, an environmental pollution that is so closed but invisible and untouchable? We can't just put on a mask or stay home for all day long.

In fact, there are a lot of things that we could do, starting with the most basic energy-saving principle, a philosophy which Delta always emphasizes.

Scientific evidences repeatedly show that many types of air pollutants come from our daily energy sources, especially fossil fuels such as coal, petroleum, natural gas, etc. This is why besides China, more and more countries are promoting similar policies such as phasing out coals, reducing the proportion of thermal power generation, and using less fossil fuel to keep warm. Yet in Taiwan, nearly 80% electricity still relies on thermal energy every year. If we could reduce unnecessary energy consumption, and use less electricity, we could help Taiwan speed up energy transformation process of phasing out thermal power and increasing the proportion of renewable energy.

Also, changing our daily mode of transport is just as important. By using more public transportation (public buses, trains, or MRT), we could reduce the use of private transportation (like scooters and motor cars). This could resolve the problem of traffic congestion and traffic accidents, as well as help improve the environment. If one is not used to the crowded public transportation, the emerging sharing economy and matching APP which promotes ride-sharing, could also reduce air pollutants caused by vehicles. For short-distance movement, the most environmental-friendly option is to walk or cycle.

Making use of public transportation can reduce air pollution
(Image provided by: Delta Electronics Foundation)

Besides transportation, building is also important. Delta's green buildings, which it has been promoting for years, emphasize energy-saving, carbon-reduction and eco-friendliness. It also helps to improve living comfort and indoor air quality.

For Taiwan's warm and humid subtropical climate, past green buildings emphasize natural ventilation by opening the windows and drawing the outdoor air to reduce indoor heat and the need of air-conditioning. However, with the arrival of the smog season, opening the windows will only draw polluted air, forcing the public to purchase air purifiers, which have become standard home appliances in Taiwan nowadays. However, this is just a superficial solution.

In fact, since 1990, Germany has been promoting the concept of "passive house" ("Passivhaus" in Germany). It reduces power consumption of buildings and requires carbon dioxide concentration to be controlled at below 1000 ppm. Hence, many European and American houses are installed with "fresh air ventilation system", which draws fresh air and exhausts polluted air so as to maintain constant indoor temperature and good air quality.

Besides helping energy conservation and carbon reduction, green buildings also make use of the heat exchange system to maintain indoor air quality (Image provided by: Evan Kao)

A similar air pollution control device can be implemented in normal houses too. For example, Delta Electronics Foundation's staff, Zhang Yang-Gan, modified a 30-year-old building at Tianmu last year. His breathable main gate design incorporates the restored window screens and iron gate. He ditched the original single-sided daylighting configuration, restoring the ventilation path, and installing energy-saving "DC ventilation fan" (A normal exhaust fan consumes 20–50W of power, while the Delta product consumes only 3-4W.) in the bathroom for drawing moist air. The active and passive designs complement each other, creating a "one in, one out" indoor ventilation path, exhausting indoor volatile organic compounds, as well as reducing reliance on air-conditioning through natural ventilation during spring and autumn.

Whenever the humid and cold air pollution season approaches the northern side, insulated airtight windows have to be closed. In such case, he used a total heat exchanger to filter outdoor air and then draw it in. Together with an air purifier and indoor planting for air purification, the total heat exchanger can improve indoor air quality, and prevent carbon dioxide concentration from shooting up causing drossiness, and substantial loss of indoor heat. Results from this winter's first cold current, for example, show that when the outdoor temperature drops to less than 10°C, the indoor temperature can still be maintained at around 17 to 18°C without turning on the heater, and may even rise up to around 20°C when his kids start running around in the house.

At the end of the day, to tackle the tricky air pollution problem, everyone can play a part in terms of energy-saving aspect, in areas like transportation, building, etc. Blaming nature and China is of no help.

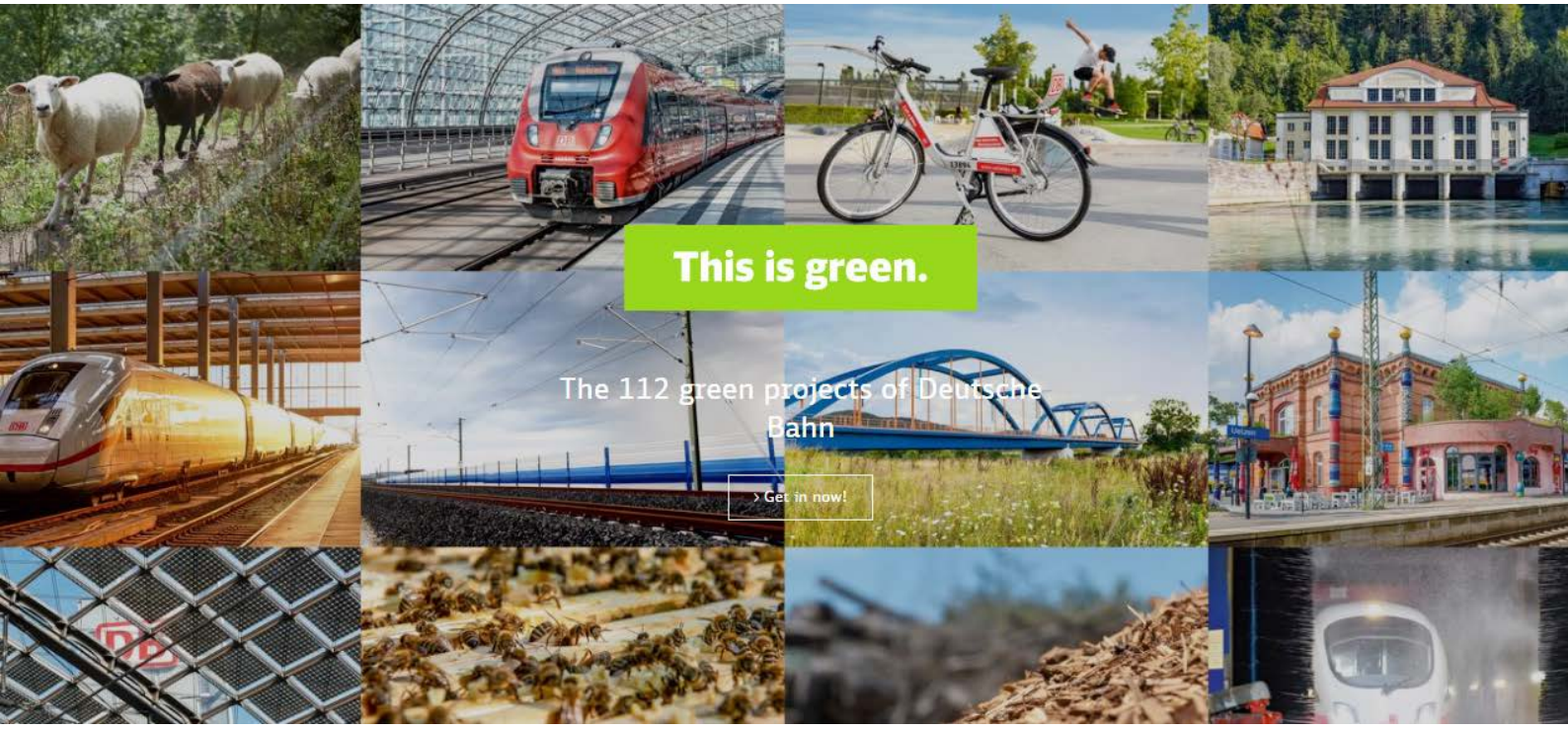
Air pollution control tools /

Taiwan Air Quality Monitoring Network, Environmental Protection: http://taqm.epa.gov.tw

i-Environment website: http://ienv.epa.gov.tw

Environment Info Push APP：https://www.epa.gov.tw/ct.asp?xItem=29172&ctNode=33321&mp=epa

Taiwan Power Company's website: http://www.taipower.com.tw/content/new_info/new_info-e71.aspx?LinkID=24



COP23 Special: A Guide to "Low-Carbon Transport" in Germany

Text by Tino Wang / DEF Climate and Energy Project Officer

Due to the continuously growing issue of air pollution, how to execute the reduction of mobile- source pollution from various vehicles has become an ongoing topic. In the end of 2017, I traveled with my coworkers of Delta Electronics Foundation to Bonn, Germany, to attend COP23 (the 23rd Conference of the Parties of 2017 United Nations Climate Change Conference). During our daily trip between our accommodation in Cologne and the UN conference, we experienced many wonders of the local public transportation system, and learned a little about how Germany reduced its "carbon footprint" in transport.

One sticker, free public transportation

As COP23 is an environmental conservation conference known for its fight against climate change, and the host organization has made a lot of effort to reduce the carbon footprint produced by nearly 20,000 participants from all around the world. The conference was held in Bonn, located in West Germany close to the Netherlands and Belgium. In order to encourage participants to use public transport, the local government of the state of North Rhine-Westphalia provided each of them a free ticket, which is called the VRS ticket.

Public bicycles in Bonn, free to use with a downloaded app

Germany deployed many electric and hybrid buses from other cities to support the low-carbon transportation during COP23

The ticket is actually just a small sticker on the back of the conference name tag. But with this tiny label, during the two-week conference, you can take any public transportation for free between Bonn and Cologne: a bus, a regional train (similar to an EMU), the subway (MRT), or a streetcar (light rail). You can even use the regional public bicycles for free by simply downloading a specific app. Anyone who has traveled in Europe knows that the transportation cost in Germany is rather high. Hence, if you use the VRS ticket every day for 2 weeks, you will save a lot.

In addition to the regional public transportation mentioned above, the German government also deployed many electric and hybrid buses from nearby cities as clean shuttles exclusively for COP23 to cover some fixed routes, such as from the train station to the city center and conference venue.

In comparison with the New Taipei City's electric bus 710 I have taken, the interior of the COP23's clean shuttle looks similar, except that it does not have two huge battery poles as 710 does. I wonder if the huge batteries are hidden under the bus or made much smaller because the technology in Germany is more advanced.

Drive less, get a cheap early-bird ticket for more than 70% off

After the conference ended, I was setting off on the last long-distance journey from Cologne to Frankfurt airport. There are two ways to get to the airport, either by taking a long-distance bus, or a train. I chose the latter, which is faster, and there are some tips that I would like to share.

Generally, the InterCityExpress (ICE) tickets sold by the German railway company Deutsche Bahn AG (DB) are all very expensive. A ticket purchased at the station on the day of departure can cost over 70 euros (more than NT $2,500). However, if you purchase a ticket as early as possible, you might have a chance to get it at the cheapest price of 19.9 euros (about NT $720)! Yes, that's right, less than 30% of the original price. This particular measure was meant to encourage passengers to plan their trips early on, and reduce long-distance driving. It saves time and money, and help with carbon reduction for our planet.

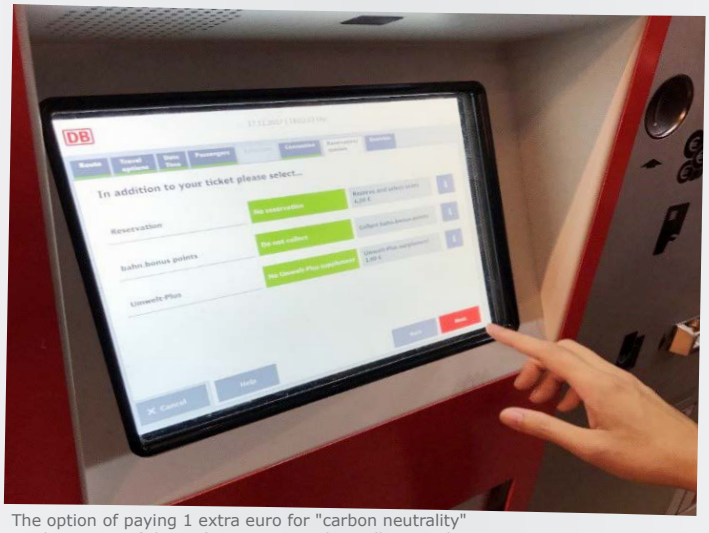
One thing to keep in mind is that in Germany, train tickets are sold as the transport ticket (with the right to board only) and the seated tickets, and the train carriages have different classes (such as first class or second class). All the initial purchases are tickets of "unseated" prices. A seated ticket costs extra 3 euros (about NT $108). Those who are worried about purchasing wrong tickets should avoid the automatic ticket selling machine, and go to the counter where there are clerks to assist you.

Pay a little more for the earth to offset the carbon footprint of transportation

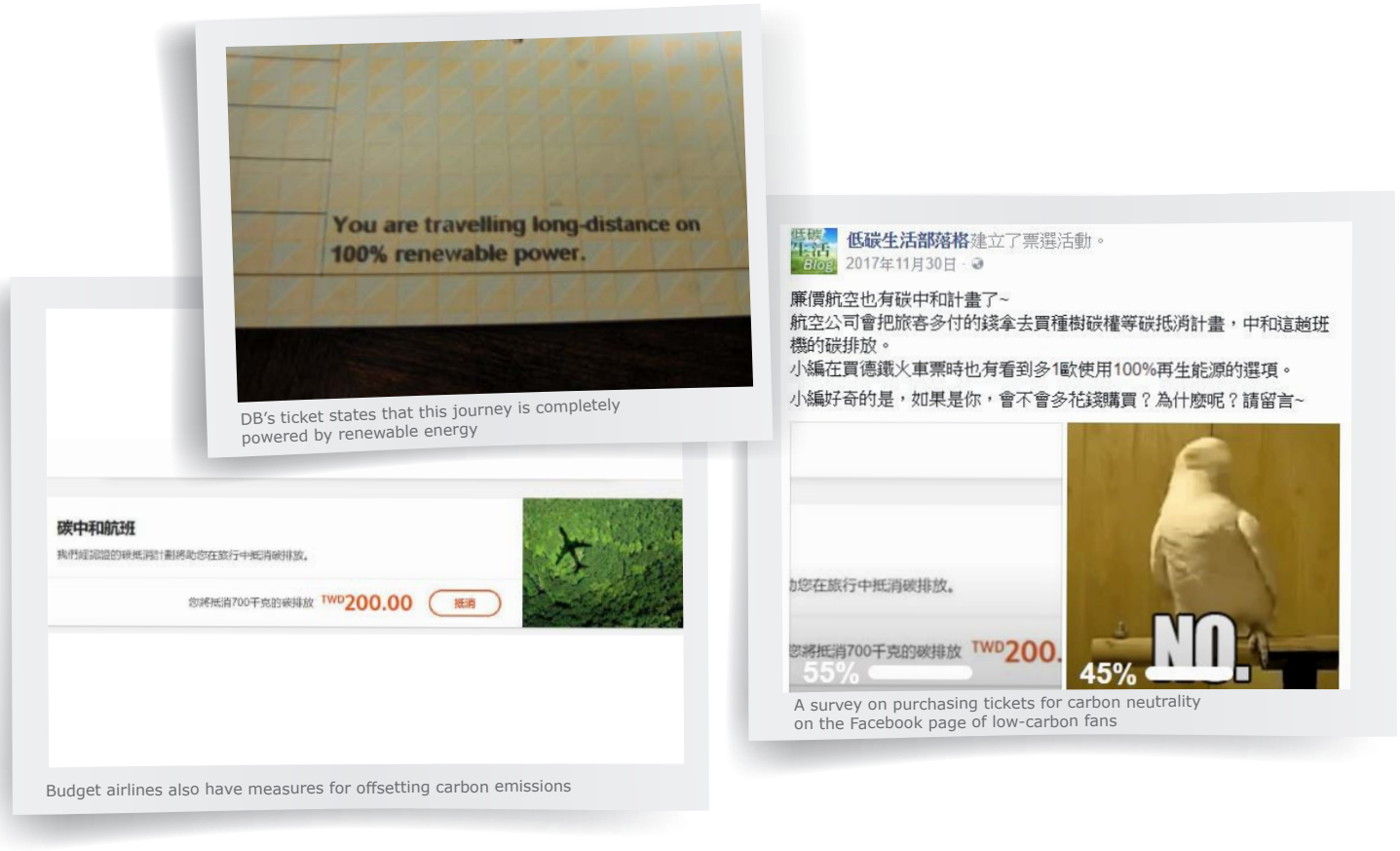
One thing interesting is that when purchasing a long-distance train ticket on the automatic selling machine, an option of Umwelt-Plus (Environment-Plus) will pop up, stating that by spending an extra euro, you can help DB to use 100% renewable energy. It is similar to "Carbon Neutral", a measure adopted by some budge airlines I have seen before. The idea is that about 700 kg of carbon dioxide will be produced from the flight, and passengers can pay extra NT $200 to help the airline to plant trees, offsetting the emissions.

This made me quite curious about how many people are willing to pay more to offset their transport carbon footprint? Therefore, I set up a survey on the Facebook page of low-carbon fans, asking how many of them would pay more for carbon neutrality. Surprisingly, over half (55%) of the responders said yes.

Of course there were many opponents as well. Some people thought that they simply did not want to pay more (to save money), some criticized DB for frequent delays (complaining their service quality), and some answered that they required a full disclosure of the corporation's carbon information before making the contribution (worrying about being deceived).



The option of paying 1 extra euro for "carbon neutrality" on the screen of the DB's automatic ticket selling machine



DB's ticket states that this journey is completely powered by renewable energy

Budget airlines also have measures for offsetting carbon emissions

A survey on purchasing tickets for carbon neutrality on the Facebook page of low-carbon fans

During my trip on ICE for over an hour, I found a current issue of DB's magazine. It has a special report for climate, particularly created for COP23. In addition to various environmental advertisement, DB also designed a folded page called "This is green" to reflect on their 112 green action projects carried out over the past 100 years, including carbon neutrality project, concept of power-saving driving, mobile tickets (paper-less tickets), electricity regeneration by brakes, ridesharing promotion, eco-stations, eco-conservation, and green electricity. If the transport industry of our country would like to promote green transportation, they certainly can learn a lot from DB.


DELTA
BRAND
NEWS


DELTA
Smarter. Greener. Together.