香港電器工程商會
HONG KONG ELECTRICAL CONTRACTORS' ASSOCIATION
1976

會員通訊
十月 - 十二月
NEWSLETTER
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Smart Grid at Power Assets Holdings

Ir Raymond Choi and Ir Alex Lee
The Hongkong Electric Co., Ltd. (A Subsidiary of Power Assets Holdings Ltd.)

1. What is the Smart Grid?

The latest major trend in the electricity industry is the Smart Grid, which has become a very broad term for modernization of the power grid to cater for the changing needs of generation, transmission and distribution. Its definition is elusive and that's because it is more of a vision about grid evolution combining the traditional grid with ICT automation and control to achieve different goals for every utility.

According to the US Department of Energy, "Smart Grid" generally refers to a class of technology people are using to bring utility electricity delivery systems into the 21st century, using computer-based remote control and automation. These systems are made possible by two-way communication technology and computer processing that has been used for decades in other industries.

In Europe, the Smart Grid European Technology Platform (facilitated by the European Commission) defines the Smart Grid as an electricity network that can intelligently integrate the actions of all users connected to it – generators, consumers and those that do both – in order to efficiently deliver sustainable, economic and secure electricity supplies.

There are still more definitions all of which are similarly broad in an attempt to cover the many different aspects that make up the Smart Grid.

2. Popular Smart Grid Applications

Instead of defining it, maybe it is easier to list some of the more popular Smart Grid applications as follows:

- Smart Metering – Where feature-rich electronic meters connected with communications lead to better customer services, equipment monitoring and outage management. It can also be used as a tool by customers to improve their energy efficiency. This is the most popular component in many Smart Grid projects worldwide.

- Grid Automation and Self-Healing – Autonomous operation of grid equipment to prevent and shorten duration of outages.

- Condition Monitoring – Used to detect deterioration and abnormalities in grid equipment early on so that maintenance can be arranged to improve reliability.

- Electric Vehicle (EV) Support – For monitoring and management of charging.

- Integration of Renewable Energy Generation – For more efficient and effective control and monitoring of power system and power quality.

- Power Flow Control – For balancing energy flow on the network to avoid bottlenecks.

- Other high profile areas include Energy Storage, Home Energy Management and Smart Buildings.

香港電器工程商會理事會全體成員在十月八日 開會前向國慶夜南丫四號海難死者默哀，並向死傷者及其家人致深切慰問
The HKECA Executive Committee extends the deepest sympathy and condolences to the victims of the tragic marine accident as well as the friends and families who had lost their loved ones. A tribute was held prior to the Ex-Co Meeting on 8 October 2012.

3. Smart Grid Features at HK Electric

Since 1890, HK Electric has been responsible for the generation, transmission and distribution of electricity to Hong Kong and Lamma Islands. HK Electric, a subsidiary of Power Assets Holdings Limited, has over half a million customers mostly concentrated on the northern side of HK Island. Our customers have been enjoying world-class supply reliability rating of over 99.999% since 1997. Such a reliability performance is predicated upon a strong asset base and the result of a prudent and reliability-centered approach to design and management of the grid assets.

The following highlights some of the smart features implemented at HK Electric:

- Grid Automation and Control

Starting with the adoption of SCADA for primary substations/ transmission network back in the 1970's, this eventually led to Distribution Automation for all substations by the early 1990's.

Combined with our Energy Management System (EMS) and Distribution Management System (DMS), grid automation and control is available down to the 22kV/11kV level while monitoring is down to the 380V level at the distribution substations
These efforts in Grid Automation and Control have resulted in the following monitoring and control capabilities in our distribution substations:

- ✓ *MV switchgear status, monitoring alarm and control*
- ✓ *Transformer LV on-line loading/temperature and alarm monitoring*
- ✓ *LV distribution panel outgoing current per phase and neutral*
- ✓ *Substation auxiliaries control including ventilation fan status and current plus remote on/off, room temperature, flooding alarms, CCTV and security alarms in strategic substations*

These initiatives are a major contributing factor to our excellent supply reliability.

- Condition Monitoring

Besides portable condition monitoring equipment, HK Electric has also deployed the following remote online monitoring techniques:

- ✓ *Online Total Combustible Gas (TCG) Monitoring and Dissolved Gas Analysis (DGA) for Transformers*
- ✓ *Online Partial Discharge (PD) monitoring and non-intrusive external sensors for Switchgear*
- ✓ *Real-time Distributed Temperature Sensing (DTS) system for Transmission Cables*

These technologies help with our asset optimization and also our reliability.

- Smart Metering

Recognizing that Smart Metering with remote connection would bring operational and customer service benefits, HK Electric started deploying various types of Smart Meters back in 1994.

Our Smart Meters have the capability to record and store interval energy consumption data and then communicate this information with our data centre at the office. Events and alarms are also reported including power outages, voltage phase failures, power quality data and battery reminders. With the Meter's own software, we can even access the meter's electrical information (e.g. Voltage, Current, Power Factor, Phase Rotation, etc.) from our office in near real-time.

Smart Metering allows us to provide better customer services and improves our monitoring of metering systems. Our customers also benefit from the data with which they can use to improve their consumption pattern and energy efficiency.
Smart Metering can also be used to reduce visits to locations with safety concerns and access difficulty.

In deploying Smart Metering or other Smart Grid related technologies, it is vitally important that cyber security is addressed in order to prevent unauthorized access to the network. A well designed Smart Grid platform will have security embedded throughout its architecture including the hardware, the software as well as network-level transactions. It should also be upgradeable as the utility's needs evolve over time.

4. Developments at Operations Overseas

Our associates Citipower and Powercor are distribution companies in Australia that supply over 900,000 customers in the state of Victoria. By 2013, they expect to complete their deployment of over 1.1 million Smart Meters in compliance with a mandate from the Victorian Government. These meters together with their Advanced Metering Infrastructure (AMI) will empower energy consumers to better manage their energy consumption as well as facilitate remote connection/disconnection.

In the UK, the regulator OFGEM established a Low Carbon Networks (LCN) fund that encourages companies to test and anticipate how the networks will need to change now, so that they can be ready for the transformation to a low-carbon future. The fund runs from 2010 to 2015. Our associate, UK Power Networks, is a distribution network operator which serves 8 million households in the UK and has so far been successful with two winning bids for the LCN fund.

The first is Low Carbon London which focuses on modernization of the network to serve a low carbon city. The project covers key areas such as Distributed Generation, EV's, Smart Meters, Demand Side Management and Wind Twinning (matching energy demand to wind generation).
Another winning project is Flexible Plug & Play which explores ways for cost effective connection of renewable generation to the distribution network.

5. Conclusion

Smart Grid has become the go-to term for grid modernization. However, every utility is unique with different drivers and needs for grid development which in turn leads to different approaches to the Smart Grid. For HK Electric, smart features such as Grid Automation, Condition Monitoring and Smart Metering have proven to be essential to grid operations and customer services.

Smart Grid type implementations are also on-going within Power Assets' companies overseas bringing the latest technologies to our customers while working towards reducing carbon for a better environment.

Striving for excellence with the Smart Grid is a never-ending journey.

電能實業智能電網的發展

蔡偉民工程師及李鴻亨工程師
香港電燈有限公司 (電能實業有限公司附屬公司)

智能電網是現代供電行業發展的新趨勢。發展的大方向是把傳統電網自動化，以達致營運者的各種目標。香港電燈有限公司「港燈」從 1890 年起便負責香港島和南丫島的發電、輸電以及配電，並為超過 50 萬客戶提供有效率及可靠的電力供應。港燈的供電可靠程度，自 1997 年起至今一直維持於 99.999% 水平。這個卓越的成績乃建基於審慎的設計概念和有效的管理。港燈相信智能電網的發展能夠進一步加強系統自動化，提升供電可靠性、提高能源效益及實現減碳。

港燈自 70 年代起便在主要電站和輸電網採用 SCADA 系統，及後更引進了配電網路自動化。透過能源管理系統與配電管理系統，港燈電網的自動化和控制範圍已覆蓋至整個 22 千伏特和 11 千伏特電力網路。在輸配電設備的狀態監測方面，港燈不單採用了便攜式的狀態監測儀器，更採用了遙距實時監測技術，從而更有效地掌握系統上重要設備的營運狀態，及早檢測出現不正常的狀況，以防止及減少故障的發生，進一步提升電力的穩定性。在電力計量方面，港燈早在 1994 年便引入了不同類型的智能電表。它們不單能夠記錄並儲存有關客戶用電的數據，更能與港燈的數據中心連線，通報電表的不正常情況，以便跟進。透過電表的內含軟件， 港燈的職員可隨時在辦公室讀取電表的實時數據。客戶亦能透過那些用電數據優化現有用電模式，提高能源效率。智能電表同時減低了抄表員進出有潛在危險地方的風險，解決抄表員難以進入地點抄表的問題。

在海外，電能實業的聯營公司亦積極發展智能電網，以最新的技術提升客户服務，保護環境，實現減碳。CitiPower and Powercor Australia 在維多利亞州為超過 90 萬客戶提供電力。他們在 2013 年前會完成安裝及使用超過 110 萬隻智能電表。結合先進的讀表基礎建設，這些智能電表可以幫助客戶更好地管理用電模式，亦可為客戶遙距接電和斷電，提升服務及節省人力開支。在英國，英國能源行業監管機構天然氣和電力市場辦公室設立了 "低碳網絡" ，計劃以鼓勵和贊助各行業減碳。UK Power Networks 在英國為超過 800 萬住戶提供電力。它在兩個低碳項目中贏得" 低碳網絡" 的贊助。其中一個項目名為 "Low Carbon London" ，主要集中在對分散式發電、電動車、智能電表、需求管理和風能上網等範疇作出優化。另一項目名為 "Flexible Plug & Play" ，旨在探索合乎成本效益的方式把可再生能源發電上網。

到東莞市測試低壓配電櫃測試中心及恆威電器金屬製品廠作技術交流訪問

何彬興

於 2012 年 9 月 8 日清早，天氣良好，我們考察團一行 36 眾，出發逕往訪問位於中國東莞市的 Intertek『天祥集團』。旅程沿途暢順，一團人準時到達了目的地。 得到 Intertek 協辦，作為東道主的 CNCE，迅速把我們領進了一個會議廳，由助理總裁苗本健先生給我們講解了公司的發展詳情。

國家中低壓輸配電設備質量監督中心 (CNCE) 是由廣東產品質量監督檢驗研究院 (GQI) 組建國家級輸配電電器質檢機構，中心佔地 10 acres， 短路試驗能力達到 450V/280kA，是目前全國短路試驗能力最大的低壓電器實驗室，並且具備完善的電力變壓器 和中壓 (MV) 開關櫃檢驗能力，短路容量為 250 MVA。2013 年將建成短路容量為 3500MVA, 進行電器高壓絕緣試驗達到 220kV。CNCE 裝備高精尖的檢測技術設備一批，按照 ISO/ICE 17025 要求，竭誠為國內外客戶提供優良所謂的檢驗技術服務。

透過它們廣濶的並擁有 1,000 間，都有認証的跨國化驗所網絡，Intertek 迅速地提供了一系列的專業和有效能的產品測試，產品檢驗和認証解決方案等等，其中 GQI 是受到信託的一個例子。全部產品的測試，都是由 Intertek 監察師親自處理，認可，確保百份百符合相關的標準，全以顧客的需求為依歸。至於業務發展方面，一切均交由 "Frieda Luo" 羅科女士和她的班子去主理。
作簡單介紹後，主人家旋即引帶我們參觀了廠內的測試設施，還即

場示範了配電櫃帶電的測試情況。由於這是個無破壞性的測試，可觀性不高，這是意料中的事，但我們也對整個廠房的測試功能，得了個好的了解，也算是個不錯的收獲。

隨後我們拍了一個合照，然後應了主人家的邀請，走進了八喜酒樓，享受了一頓豐富的午飧。席間，我們就未來產品測試的發展，繼續交流，，互抒已見，談個不停，氣氛是蠻融洽的。

Technical Visit To Asta Type Testing Centre and WEW In Dongguan

Ho Pun Hing

On a fine early morning of 8th September, 2012, a delegation of 36 members set out to visit Intertek in Dongguan in China. It was a smooth journey and we arrived at our destination on schedule. The host, CNCE, quickly ushered us to the conference room. Mr. Miao Ben Jian, CNCE Assistant Director, gave us a presentation on the development of China National Quality Supervision and Testing Centre for Mid-low voltage transmission and distribution equipment(CNCE) which is a national level quality testing organization for power transmission and distribution equipment, which is set up by Guangdong Testing Institute of Product Quality Supervision (GQI). The centre covers an area of about 10 acres with an office space of 18,500 square metres. Its short circuit capacity is up to 450V/280kA, which is the maximal short-circuit testing capacity in low voltage electrical product laboratories nationwide and it has well developed testing capacities, short circuit capacity to 250MVA, for power transformers and medium voltage switchgears. By 2013 its short circuit capacity will be expanded to 350MVA and HV insulation testing for 220kV. CNCE is well equipped with the requisite high grade and advanced testing equipment with a quality assurance system in accordance with ISO/IEC17025 and is committed to provide excellent testing and technical services to customers home and abroad.

Intertek offers fast, expert and efficient product testing, inspection and certification solutions through their extensive global network of 1,000 accredited laboratories with GQI being one of them entrusted. All product testing will be witnessed by Intertek observers for full compliance with the relevant standards as requested by customers. However, all business development is being handled by Ms Frieda Luo and her supporting staff.

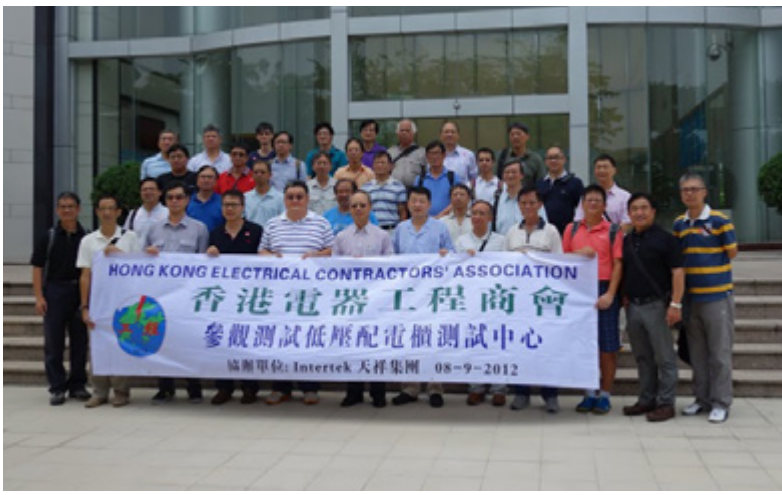
After the briefing session, the host then took us around their plant testing facilities and demonstrated to us live testing of a switchboard. Being not a non-destructive test, not much was to our eyes but we did get a good comprehension of their testing capabilities. After a group photo taken, the host treated us with a sumptuous lunch at a restaurant during which we continued to exchange our views on future development of products testing.

After waving good-bye to our hosts, we left GQI for WEW Electricity & Metal Works Ltd. nearby at Dongguan. Inside the show room, Mr. Kalok Ng, a young and energetic executive, gave us an account of the development of the firm. With over 40 years of working experience since first established in 1968, the firm is now able to manufacture and supply to customers with satisfaction a wide range of quality products such as cable trunking, cable tray, cable ladder, U channels, T5/T8 luminaries, lighting batten, emergency lights, etc. During the plant tour members were impressed with the manufacture of the metal products .Though the machines are not fitted with fancy cutting edge technology, they do represent the historic integration of craftsmanship, hydraulic presses and folding machines that are capable to produce new products that are pleasant and useful for their intended purpose.

跟主人家揮手道別後，大夥兒離開了 GQI，轉程至位於東莞市附近的『恆威電器金屬製品廠』"WEW Electricity &Metal Works"。 進了陳列室，有一位年青能幹的吳家樂先生，就着恆威的發展歷程，如數家珍般，侃侃而談，闡述了一番。

據他說，恆威有限公司創立於 1968 年，至今運作了凡 40 餘載，是個難能可貴的經歷。今天來說吧，恆威已有能力生產和供應一系列高質素的優質產品，比方線槽、橋架、梯架、U 槽、T5/T8 各式灯具、照明底板和緊急照明等等，全部均獲用家好評。

在溜覽廠房過程中，團員對金屬產品的製造，留下深刻的印像。生產的機器雖然沒有尖端科技的裝備，也能看得出內中蘊藏着的一絲傳統性的揉合，這是個工匠的工藝和機械『如液壓衝床與摺床』的揉合。都能夠製造出新的產品，既舒適，又實用，和本來的生產主意，混合得天衣無縫！



2012 年永遠會長方宏浩盃羽毛球賽

2012 年永遠會長方宏浩盃羽毛球賽首次移師港島小西灣體育館舉行，經過 5 日激烈的比賽，本年度羽毛球精英已順利產生。在此多謝永遠會長方先生的慷慨支持，以下是各項比賽勝出名單。

2012 Badminton Competition – The Life President Martin Fong Cup

The 2012 Life President Martin Fong Cup Badminton Competition was sucessfuly held at Siu Sai Wan Sports Centre. Thanks for our sponsor Mr. Martin Fong . Result of the game as follows:

	冠軍	亞軍	季軍
男子雙打	郭己桓　李永堂 施耐德電氣 (香港) 有限公司	周振東　羅穆源 先達系統有限公司	陳志雄　黃兆倫 先達系統有限公司
女子雙打	李靜愛　陳小鳳 香港通用電器有限公司	楊咏梅　陳凱怡 喜利得 (香港) 有限公司	高修美　鄒慧薇 順成電業有限公司
男女子混合雙打	李永堂　陳曉君 施耐德電氣 (香港) 有限公司	劉惠軒　李靜愛 香港通用電器有限公司	陳劍峰　林靜怡 兆寶工程有限公司
男子單打	陳劍峰 兆寶工程有限公司	周振東 先達系統有限公司	黃兆倫 先達系統有限公司
女子單打	陳曉君 施耐德電氣 (香港) 有限公司	何佩賢 榮港電器有限公司	林靜怡 兆寶工程有限公司

三會聯合慶祝六十三週年國慶

【港九電業總會】、【香港電器業進出口商會】及本會於 2012 年 9 月 28 日 (星期五) 在名都酒樓 聯合舉辦慶祝中華人民共和國成立六十三周年晚會。延開 62 席

Joint Celebration Dinner on PRC's 63rd Anniversary

The 63thd PRC Anniversary Celebration Dinner jointly organised by the Hong Kong & Kowloon Electric Trade Association, Hong Kong E.P.M. Importers and Exporters Association Ltd. and HKECA was held on 28th September 2012 at Queensway Metropol Restaurant

註冊電業工程人員持續進修計劃課程

2012 年 8 月 2 日主辦 : 冊電業工程人員持續進修課程
單元一 : 法例及安全規定，由商會理事蔡勤文主講
單元二 : 技術知識 :- 『綠色建築的全面照明控制解決方案』由路創電子公司蘇逸恆先生主講。

CPD Seminar for REW

CPD Seminar for REW was held on August 2 ,2012 at HKECA office : Topics were:-
Module 1 Legislative and Safety Requirements speaker Mr. KM Choi from HKECA
Module 2 Technical Knowledge :-Total Light Control Solutions for Green Buildings
Speaker Mr. Steve So from Lutron GL Ltd .

即將舉辦之活動 Upcoming Events

第 20 屆理事選票已寄出給有投票權之會員 請於 11 月 30 日或之前填妥選票寄回商會
20th Executive Committee voting ticket been mailed to all eligible members. Please return completed voted ticket to HKECA by mail on or before 30 November 2012.

日期 Date	活動 Events	地點 Venue
2012 年 10 月 7 日 (星期日) 7th October 2012 (Sunday)	大帽山、賞蝶園遊 Hong Kong Butterfly Garden Tour	大帽山川龍 , 城門水塘賞蝶園 Tai Mo Shan Chuen Lung/Butterfly Paradise
2012 年 11 月 6 日 (星期二) 6th November 2012 (Tuesday)	2012 年度會員大會暨高爾夫球隊成立 10 周年聚餐 2012 Members AGM Gum Golf Team 10th Anniversary	香港灣仔喜萬年酒樓 Asiania Restaurant , Wanchai Hong Kong
2012 年 11 月 11 日 (星期日) 11th November 2012 (Sunday)	地質公園西貢火山岩園區東壩及白腊探索遊 Hong Kong Geopark Guided Tour	西貢地質公園 National Geopark Sai Kung
2012 年 11 月 13 日 (星期二) 13 rd November 2012 (Tuesday)	新一代以太網應用方案 New Generation of Ethernet Solutions	商會會址 HKECA office
2012 年 11 月 17 及 24 日 (星期六) 17th & 24th November 2012 (Sunday)	中華廠商聯合會〈工商體育邀請賽〉 2012 CMA Sport day	分別維多利亞公園及跑馬地黃泥涌體育館 Victorial Park/Wong Nai Chung Sports Centre
2012 年 11 月 19 日 (星期一) 19th November 2012 (Monday)	2012 年 電力規例研討會 The Annual Technical Seminar ,2012	荃灣大會堂演奏廳 Tsuen Wan Town Hall Auditorium.
2012 年 12 月 2 日 (星期日) 2nd December 2012 (Sunday)	2012《機電安全健步嘉年華》 2012 E&M Safety Walk and Carnival Fair	大欖涌燒烤樂園 , 屯門 Tai Lam Chung BBQ Tuen Mun
2012 年 12 月 9 日 (星期日) 9th December 2012 (Sunday)	VTC 30 周年步行籌款 / 同樂日 VTC 30th Anniversary Walkathon/ Carnival	由沙田 IVE 出發終點馬鞍山運動場 From IVE Sha Tin to Ma On Shan Sports Ground

會員動態 Member's New's

香港電器工程商會 7/2012 - 9/2012 年度新會員名單

入會日期 Join Date	會籍 Membership Status	申請會員名稱 Applicant Name	代表人 Representative
8/2012	贊助會員 Associate Member	明盛工程 (發展) 有限公司 Main's Engineering (Development) Ltd.	張伯駒先生 Mr. CHEUNG, Pak Kui
9/2012	普通會員 Ordinary Member	雅迪工程有限公司 Air Technology Engineering Co.,Ltd.	鄺恒鋒先生 Mr. Alexander KWONG

高球專線 Golfers' Link

2012 CCG 高爾夫球會盃賽事 2012 CCG Cup

2012 CCG 高爾夫球會盃賽事

今年 CCG 盃於八月二十四日深圳正中高爾夫球場舉行。在此多謝 CCG 公司的慷慨贊助。當日比賽高手林立，戰情十分激烈。經一番角逐後，優勝者名單公佈如下及謹此對得獎者祝賀。

2012 CCG Cup

CCG Cup has been held successfully on 24 August 2012 at Shenzhen Genzon Golf Club. We would like to express our appreciation to CCG Cable Terminations Far East Ltd. for his kind sponsorship and our member for joining the competition. Prize list are as follows and congratulate to all the winners.

正中高爾夫球會

冠軍	潘盛洪先生
亞軍	林樂基先生
季軍	郭錫君先生
最低杆	鄭海文先生
最佳前九	王家禮先生
最佳後九	鄭海文先生
最近洞獎 : 第 6 洞	郭錫君先生
最近洞獎 : 第 9 洞	林俊傑先生
最近洞獎 : 第 13 洞	周鑑輝先生
最近洞獎 : 第 16 洞	陳競夫先生
最遠發球獎 : 第 5 洞	馬振邦先生
最遠發球獎 : 第 14 洞	鄭海文先生
嘉賓組冠軍	Gordon YU

Shenzhen Genzon Golf Club, China

CHAMPION	Mr. POON Shing Hung
1ST RUNNER UP	Mr. LAM Lok Lei
2nd RUNNER UP	Mr. Kwok Sheck Kwan
BEST GROSS	Mr. CHENG Hoi Man
Best Front Nine	Mr. WONG Ka Lai
Best Back Nine	Mr. CHENG Hoi Man
Close to Pin #6	Mr. Kwok Sheck Kwan
Close to Pin #9	Mr. CK LAM
Close to Pin #13	Mr. Chow Kam Fai
Close to Pin #16	Mr. Chan King Ful
Longest Drive #5	Mr. MA Chun Pong
Longest Drive #14	Mr. CHENG Hoi Man
Guest Winner	Mr. Gordon YU

2012 年高爾夫球 - 永遠會長盃高德賢盃

冠軍	潘盛洪先生
亞軍	馬振邦先生
季軍	林樂基先生
殿軍	許純光先生
第五名	謝偉童先生
最低杆數	陳　強先生

2012 Golf Life President George Ko Cup

2012 Champion	Mr. POON Shing Hung
2012 First Runner-up	Mr. MA Chun Pong
2012 Second Runner-up	Mr. LAM Lok Lei
2012 Third Runner-up	Mr. Gary HUI
2012 Forth Runner- up	Mr. TSE Wai Tung
2012 Best Gross	Mr. CHAN Keung

The Siemens answer: With world class solutions in energy, infrastructure, industry and healthcare, Siemens and Hong Kong are creating the future.

Hong Kong has always been something special, extreme population density, extreme challenges, extreme geography, extreme stresses and strains, but somehow not just making everything work, but making everything great. Siemens has always been here: offering solutions to fit this most unique of places. Transportation, healthcare, building technologies, power, automation and control: Hong Kong works because of its infrastructure. And its infrastructure works in large part because of solutions provided by Siemens.

Answers for Hong Kong.

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