

**Session 3.12:
Emerging Practices in Sustainable Built Environment**

Sustainability Strategies in Towngas Headquarters Building

Ir Nelson Lo

Property Management Manager

The Hong Kong and China Gas Company Ltd.

6 June 2017



Organisers:



International Co-owners:



Sustainable Buildings
and Climate Initiative
Promoting Policies and Practices for Sustainability



Agenda

1. Video
2. Vision, Mission and Achievements
3. History of Towngas Headquarters Building
4. Sustainability Strategies



Organisers:



International Co-owners:



Vision, Mission and Achievements



Organisers:

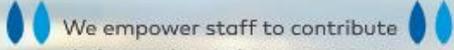


International Co-owners:

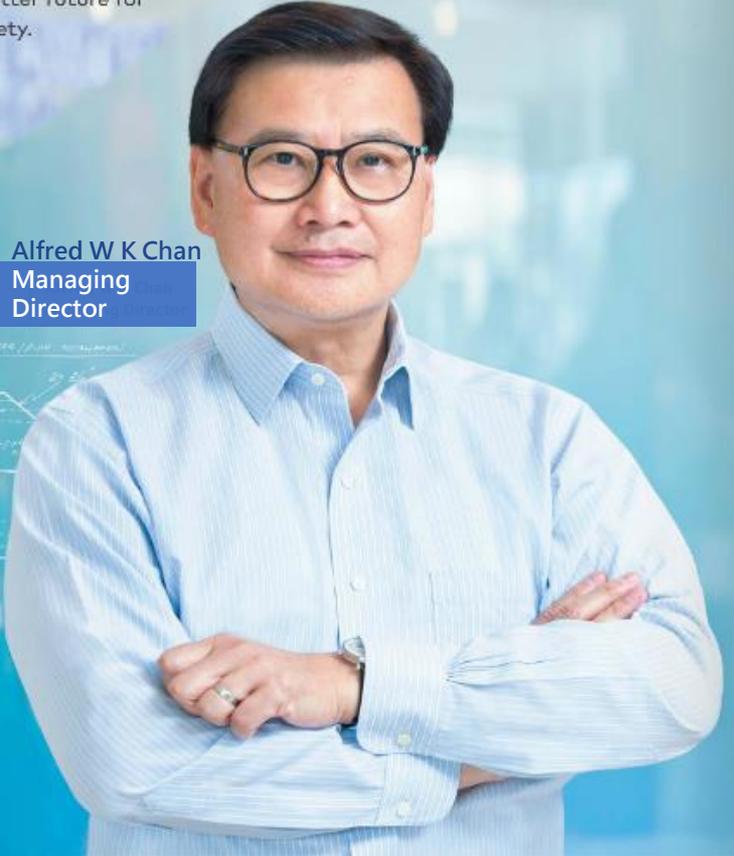


Vision and Mission

1 MANAGING DIRECTOR'S MESSAGE


 We empower staff to contribute their creative endeavours to our development and engage our stakeholders to drive a sustained joint effort that engenders a better future for society.

Alfred W K Chan
 Managing Director



Vision

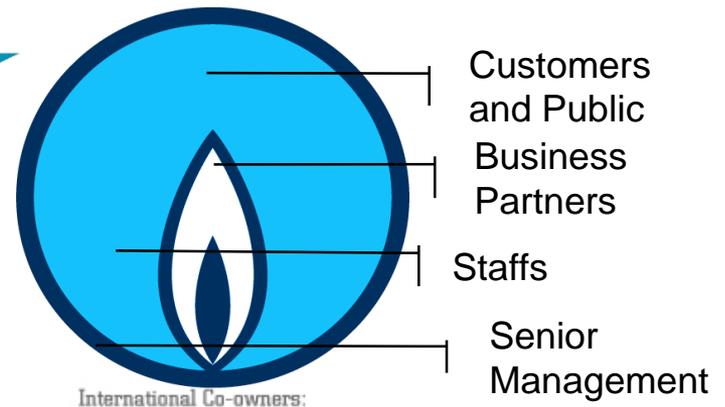
To be Asia's leading energy supplier and service provider, with an environmentally friendly focus.

Mission

To provide our customers with a safe, reliable supply of energy and the caring, competent and efficient service they expect, while working to preserve, protect and improve our environment.



低碳能源 清新空氣
Greening up your life



Major Environmental Achievements

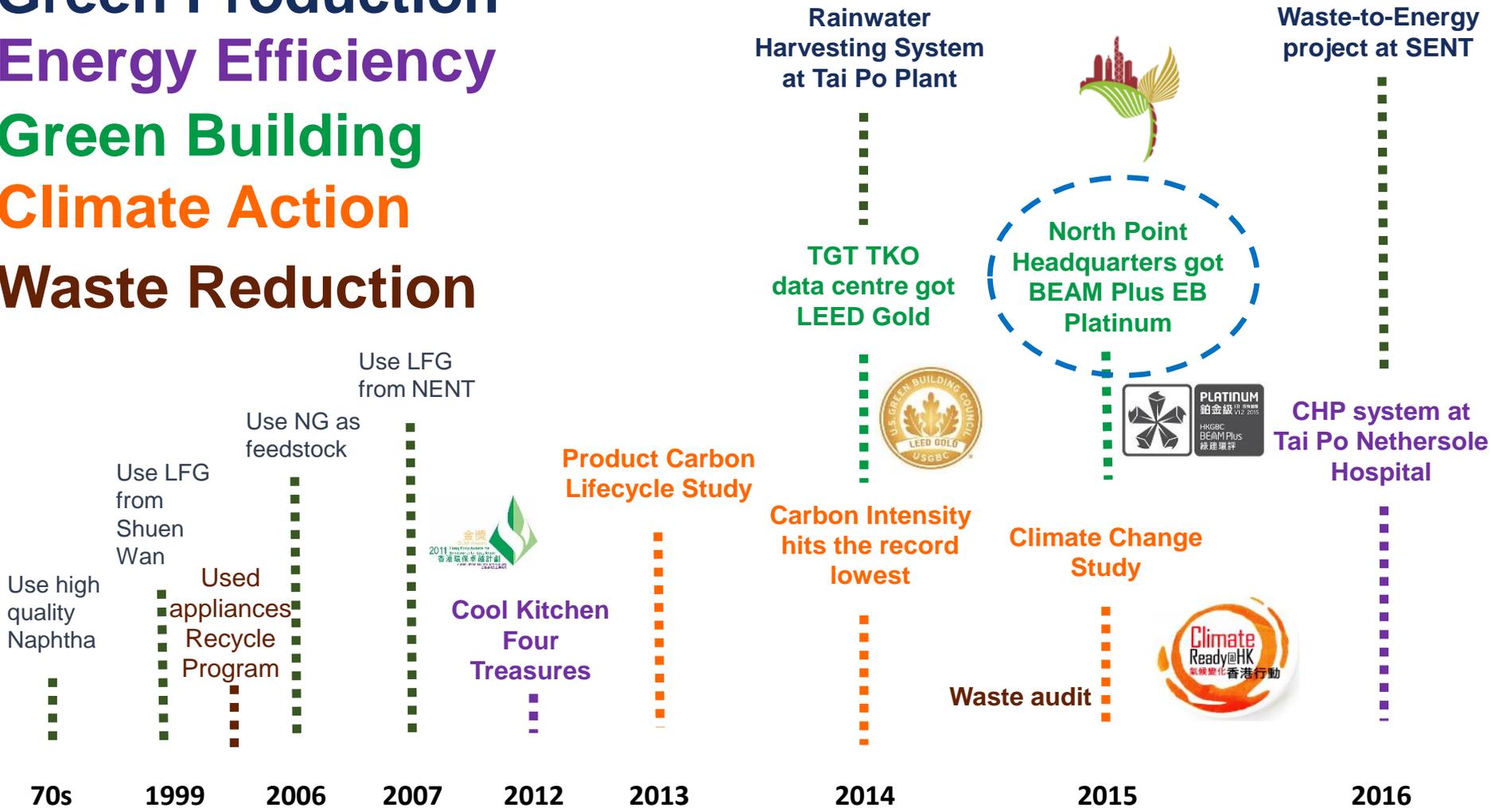
Green Production

Energy Efficiency

Green Building

Climate Action

Waste Reduction



Organisers:



International Co-owners:



History of Towngas Headquarters Building



Organisers:



International Co-owners:



Sustainable Buildings
and Climate Initiative
Promoting Policies and Practices for Sustainability



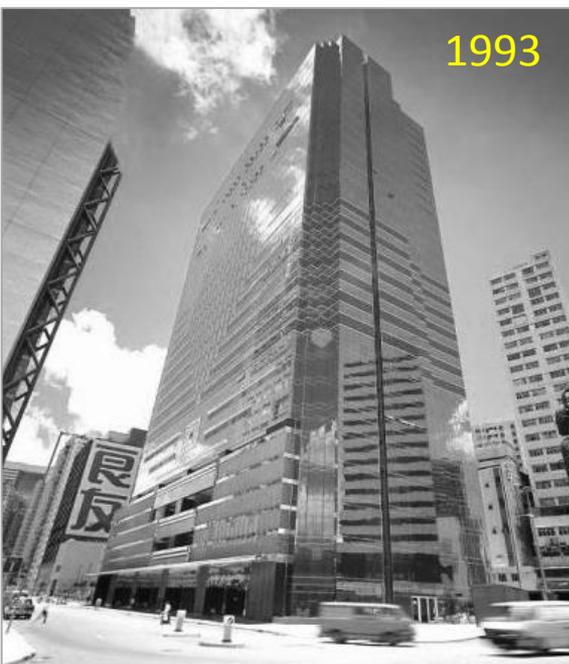


1980s



1987

History of Towngas Headquarters



1993



2008



Today



Towngas Headquarters Building Information

Address : 363, Java Road, North Point

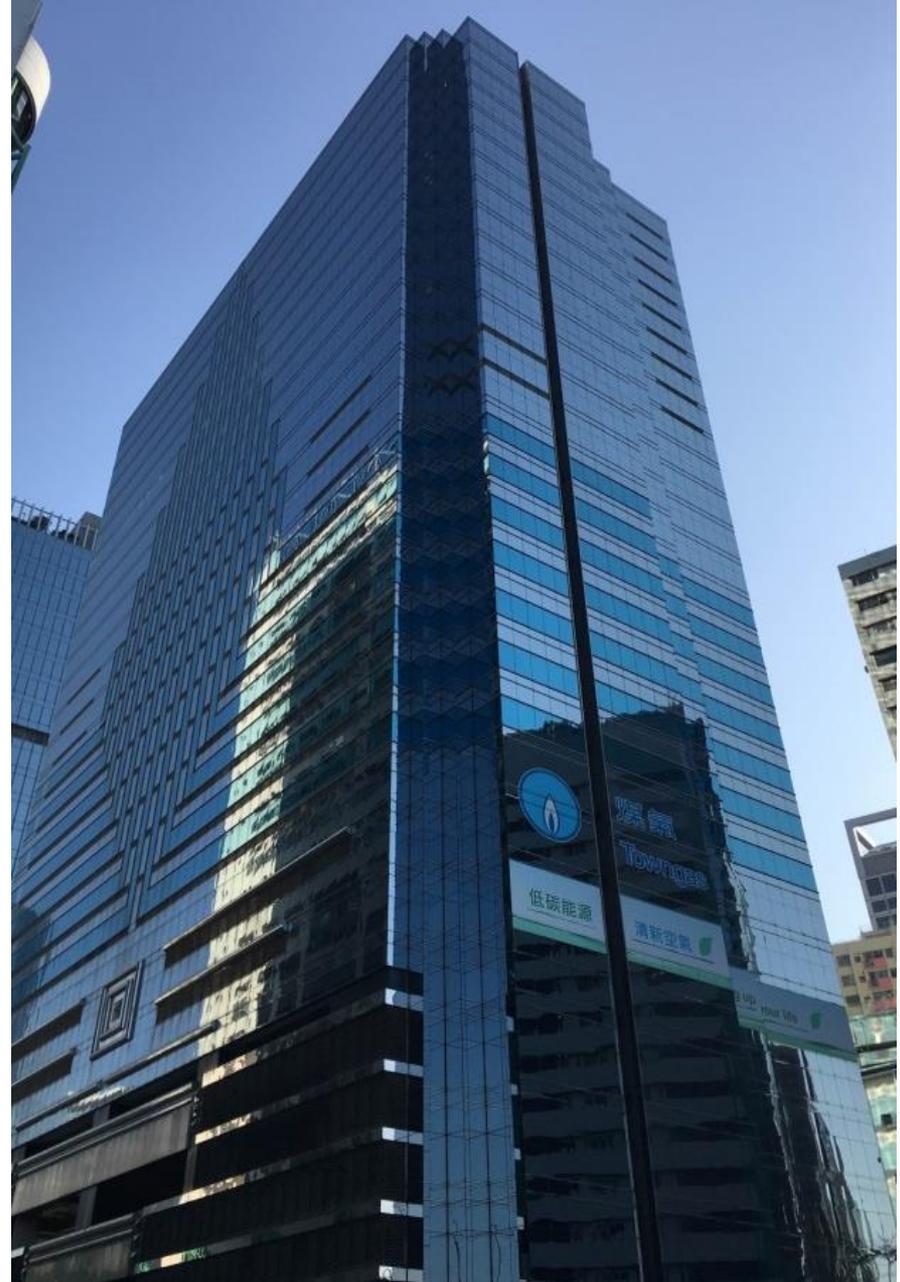
Date of Occupation : Year 1993

No. of Floor : 27

Gross Floor Area : 38,793 sq. m

Use :

- Service Areas
- Carpark
- Godown
- Office Areas





OUR TARGETS

Sustain our Company / Headquarters growth with **best practices of green buildings**

OUR ACTIONS

Partake in HKSAR initiatives for climate changes / energy saving plan



Towngas Headquarters Green Building Certification Road Map

Our Next 5-Year Plan

| | 1993 | 1999 | 2005 | 2010 | 2015 | 2020 |
|--------------------|------|---|---|---|--|--|
| Date of Occupation | | | | | | |
| | | HK-BEAM Version 2/96R Excellent Rating | HK-BEAM Version 5/03 Platinum Rating | HK-BEAM Version 5/04 Platinum Rating | BEAM Plus Version 1.2 Platinum Rating | Anticipated BEAM Plus Version 2.0 Platinum Rating |



HK-BEAM Society
香港環保建築協會

EXCELLENT



**PLATINUM
STANDARD**



PLATINUM
鉑金級 EB 既有建築 V1.2 2015

HKGBC
BEAM Plus
綠建環評



PLATINUM
鉑金級 EB 既有建築 V2.0

HKGBC
BEAM Plus
綠建環評

**Anticipated in
Year 2020**



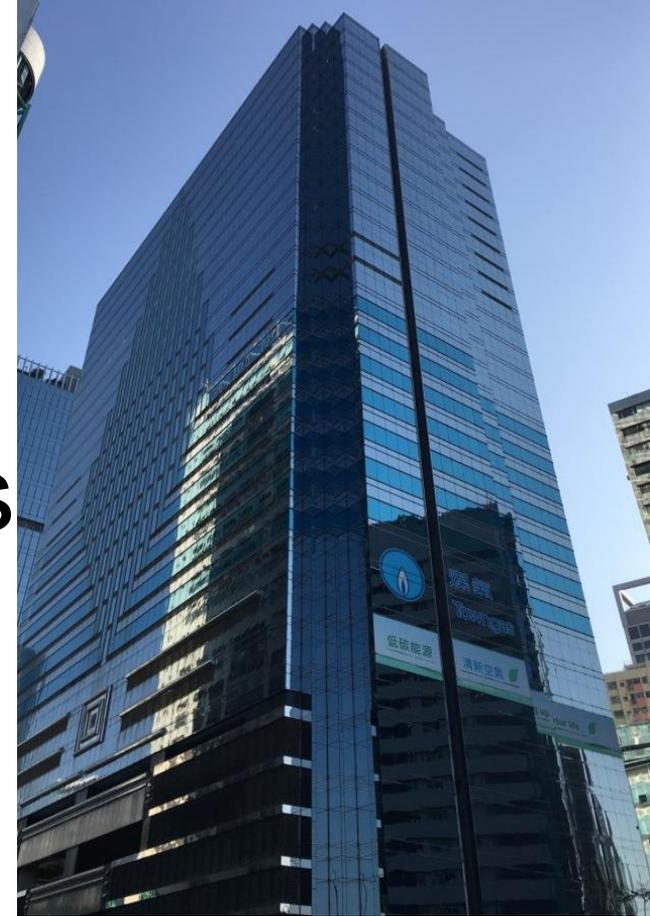
Organisers:



International Co-owners:



Sustainability Strategies



1st non-residential building in Hong Kong achieved the highest level of recognition under the BEAM Plus Version 1.2 Final Assessment for Existing Buildings



Organisers:



International Co-owners:



BEAM Plus Score

Site Aspects (SA)



Water Use (WU)



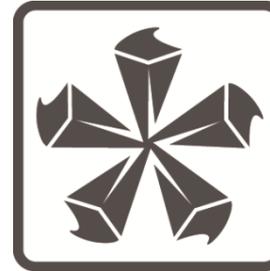
Materials Aspects (MA)



Energy Use (EU)



Indoor Environmental Quality (IEQ)



PLATINUM

鉑金級 EB 既有建築 V1.2 2015

HKGBC
BEAM Plus
綠建環評

Existing Buildings V1.2
Final Platinum

Total Score: **87.4**

| Category | Applicable Credits | Achieved Credits | % of Achieved Credits | Weighting Factor | Weighted Achieved Credits |
|---------------|--------------------|------------------|-----------------------|------------------|---------------------------|
| SA | 17.0 | 17.0 | 100% | 18% | 18.0 |
| MA | 11.0 | 7.0 | 64% | 12% | 7.6 |
| EU | 27.5 | 25.3 | 92% | 30% | 27.6 |
| WU | 6.0 | 4.0 | 67% | 15% | 10.0 |
| IEQ | 19.6 | 14.3 | 73% | 25% | 18.2 |
| IA | 1 + 5 Bonus | 6.0 | | 100% | 6.0 |
| Overall Score | | | | | 87.4 |



Organisers:





Energy Use (EU)



Water-cooled oil free centrifugal chiller



Cooling tower with variable speed condensing fans



Enclosure for oil free centrifugal chiller



Organisers:

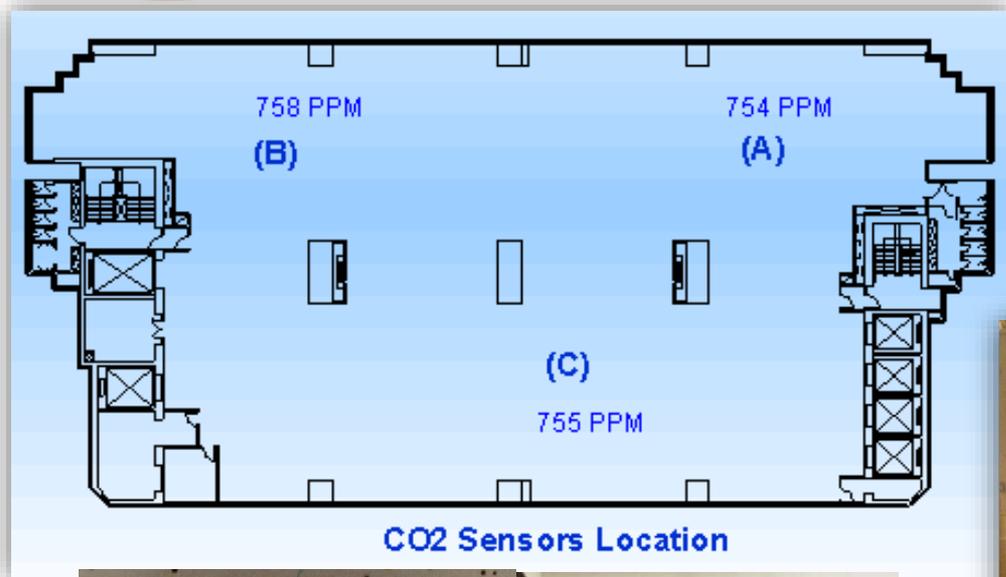


International Co-owners:

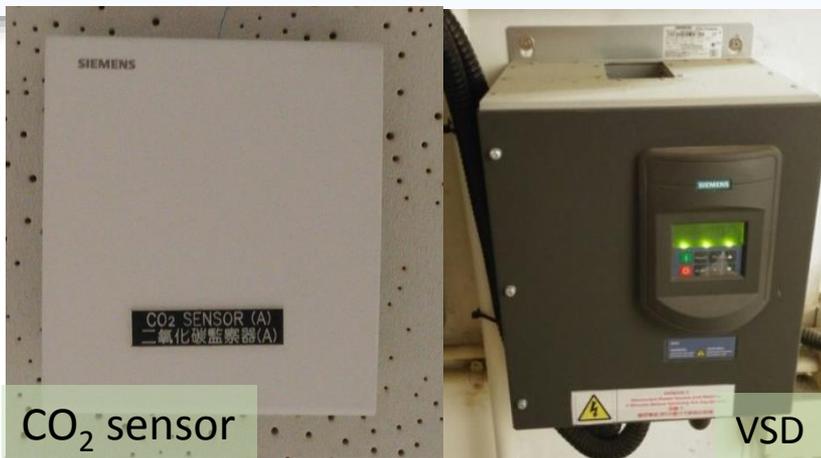




Energy Use (EU)



| SYSTEM CONTROL | |
|------------------------------|-------------------------------------|
| PAU BMS Main On /Off Control | ● |
| Local Selector Status | VFD |
| Fault Alarm | NORMAL |
| Supply Temperature Set Point | 18.0 C |
| CO2 Set Point | 750 PPM |





Energy Use (EU)



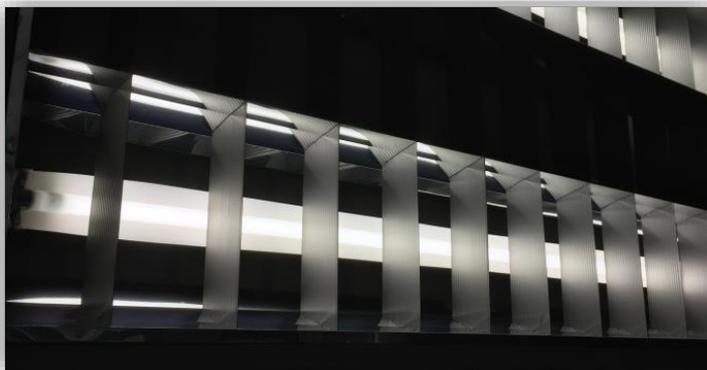
Sunlight collectors



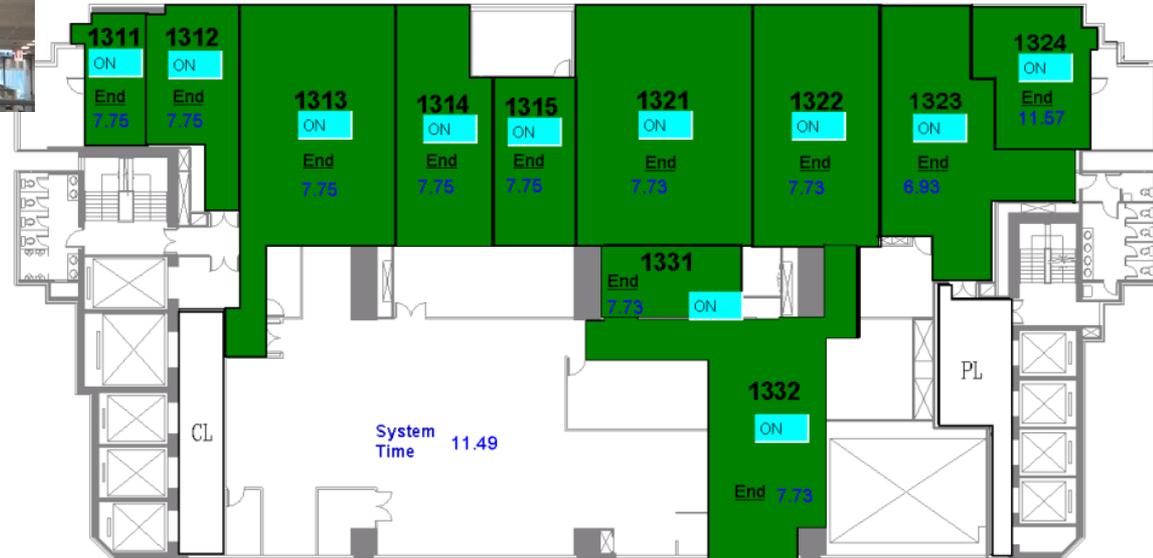
Motion Sensor



Reduced Lighting tube



Nano reflector



13/F LIGHTING ZONE CONTROL LAYOUT

Lighting control through BMS

Floor Lighting Control



Organisers:



International Co-owners:

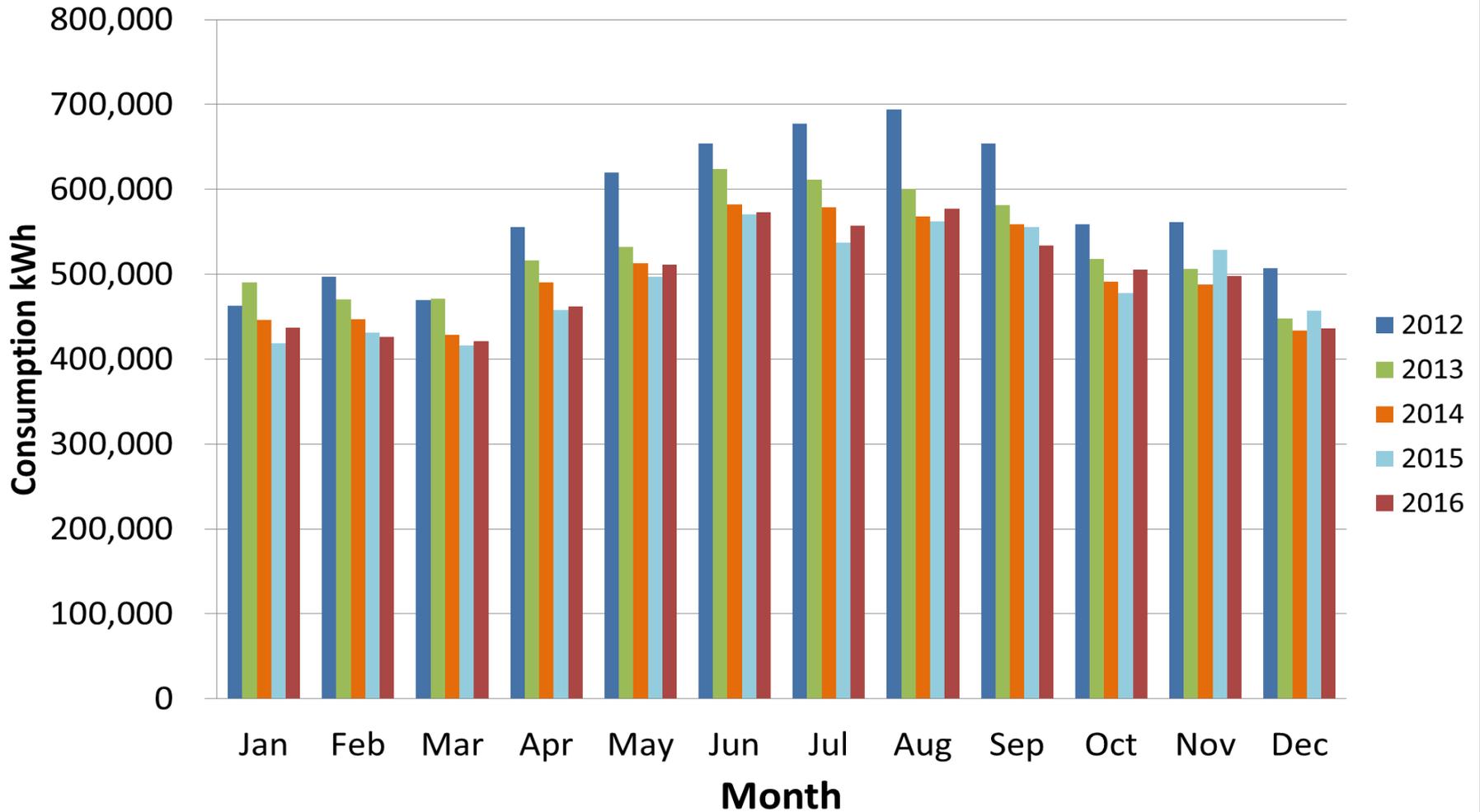




Energy Use (EU)

Energy Cloud Platform (Building Energy Consumption)

Electricity Consumption at NPB

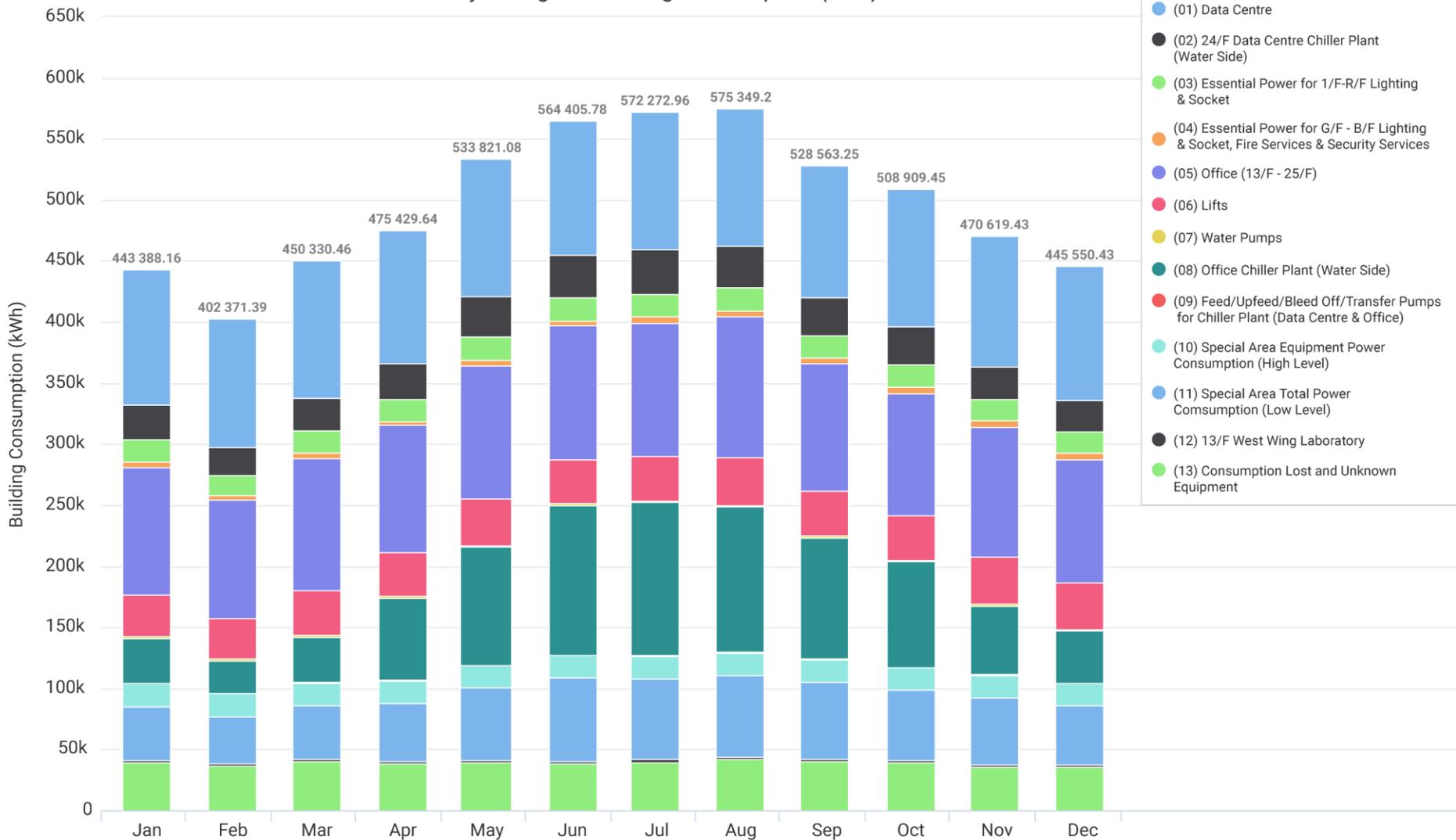




Energy Use (EU)

Energy Cloud Platform (Building Energy Consumption Profile)

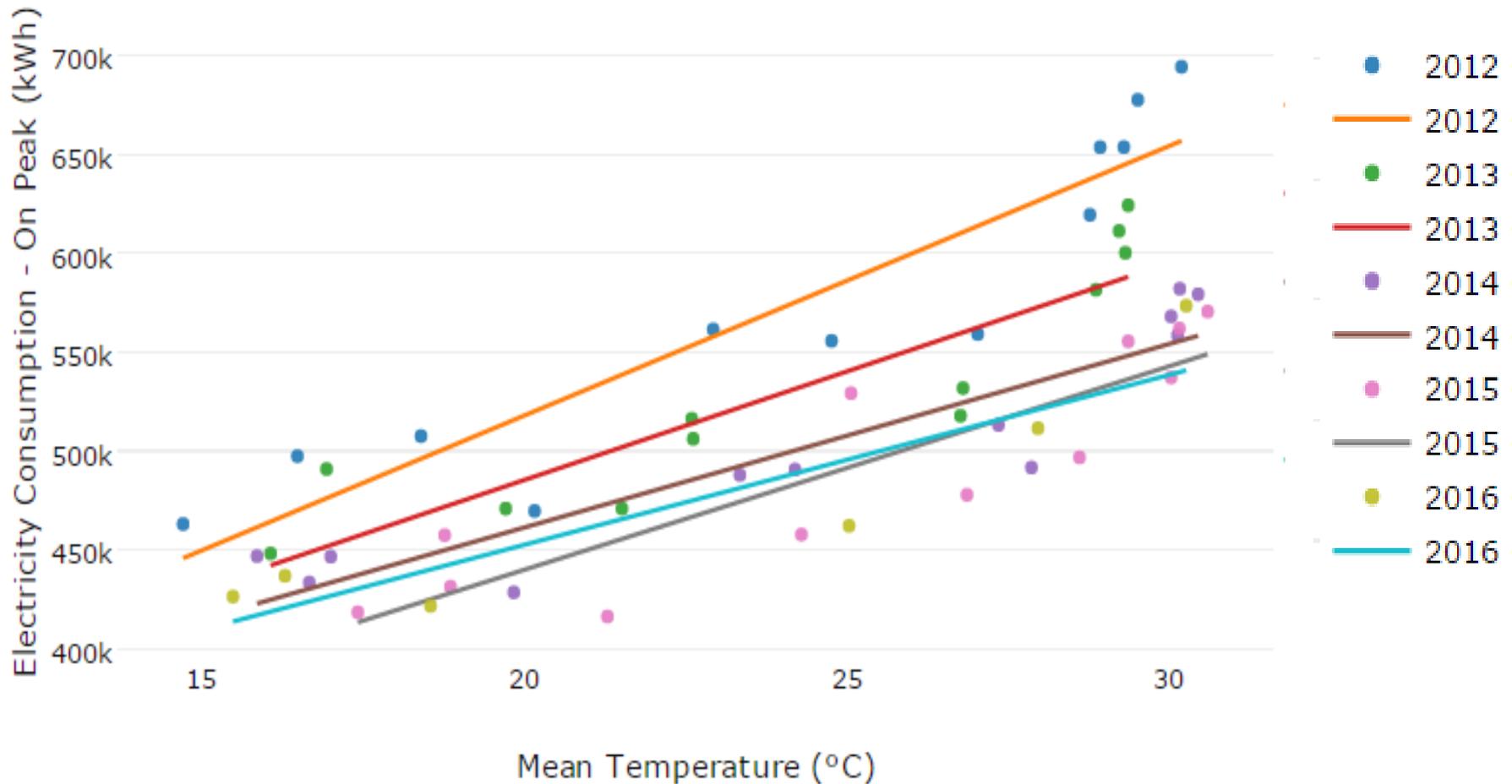
2016 Monthly Change of Building Consumption (kWh)





Energy Use (EU)

Energy Cloud Platform (Chiller Plant Thermal Line)





Energy Use (EU)

HKQAA
HONG KONG QUALITY ASSURANCE AGENCY
香港品質保證機構

Confidential

Carbon Audit

The Hong Kong and China Gas Company Limited –
Headquarter in North Point, HKSAR

Verification of Greenhouse Gases Emissions Inventory 2014

For and on behalf of
Hong Kong Quality Assurance Agency

Verification Team:


Mr. WK Wong
Date: 12 March 2015

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ISSUE NO. : 3
ISSUE DATE : SEPTEMBER 2015
PROJECT NO. : 1218

TOWN GAS HEADQUARTERS 363
AVA ROAD, NORTH POINT,
HONG KONG

ENERGY AUDIT REPORT

COMMERCIAL-IN-CONFIDENCE

Prepared By:
Allied Environmental Consultants Ltd.

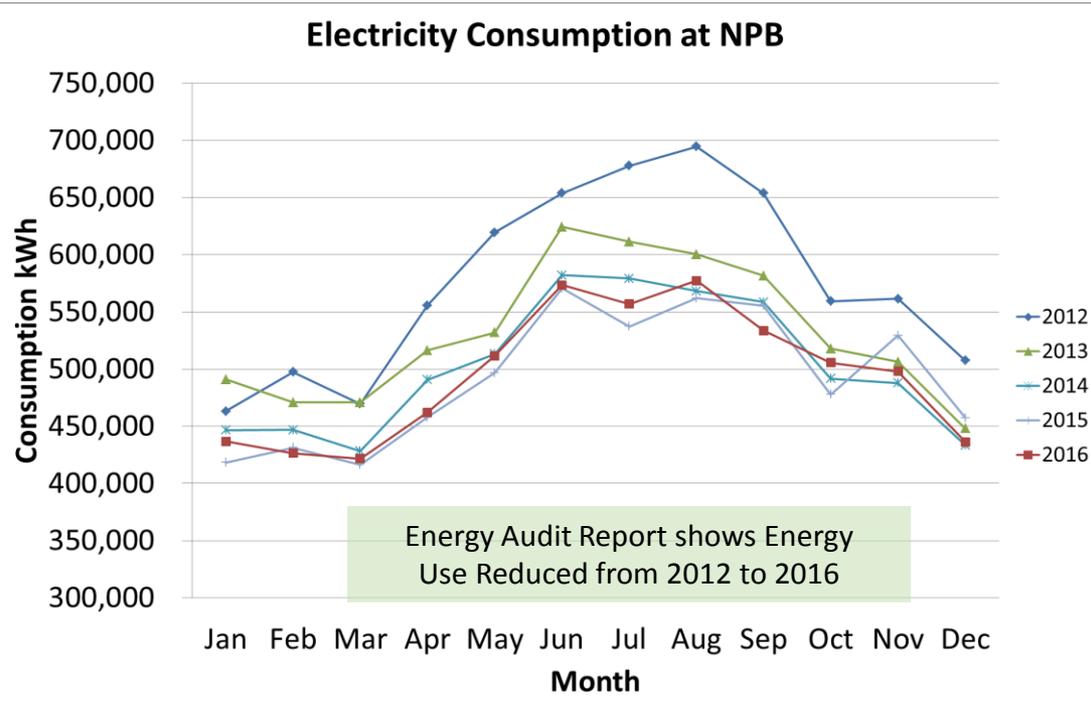
Checked:
Timothy W.H. Sze
MEng (Building) BEAM Pro

Approved:

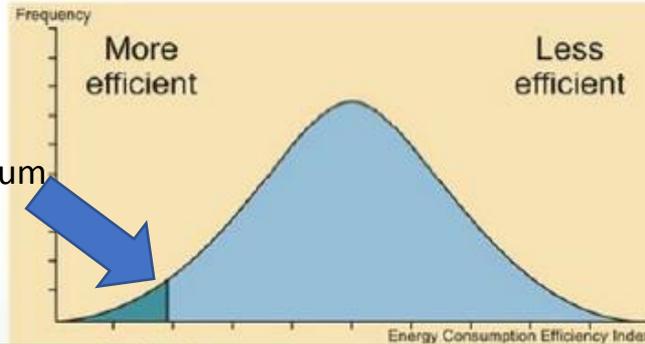
James W.H. Wong
BSc (Mech), CEng, PhD, RPE, MRIM, MACE
MBA (ACSB), MIREM, MIRECOA, MIRECISA
MBA (CAAD) (2002)

This report has been prepared by Allied Environmental Consultants Limited with all reasonable skill, care and diligence within the terms of the Agreement with the client, incorporating our General Terms and Conditions of Business and relying on the accuracy of the information provided to us by agreement with the client.
We do not accept responsibility for the client and others in respect of any matters outside the scope of the above.
This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

Energy Audit



Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Month



683
MJ/m²/annum

Energy Consumption
Efficiency Index

Benchmark Result (From EMSD)
Better than 90% of sampled
subjects buildings



Organisers:





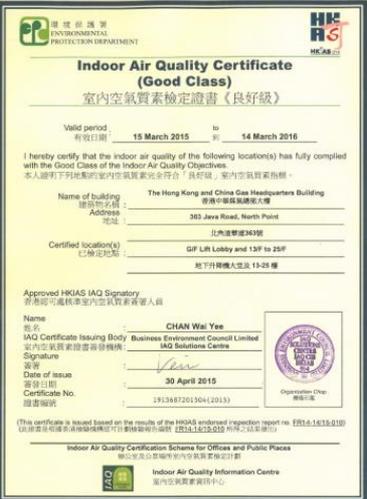
Indoor Environmental Quality (IEQ)



Pest Control



Individual Exhaust



IAQ Certificate



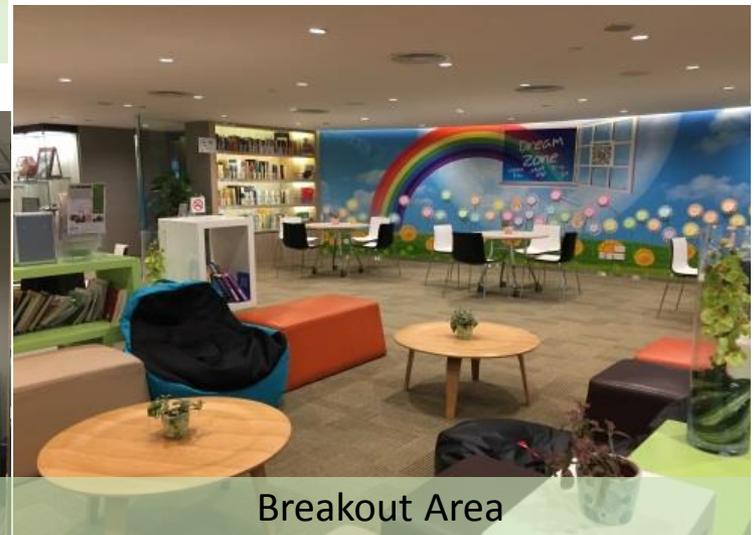
Fitness Corner



Mother Care Room



Clinic



Breakout Area





Site Aspects (SA)



Towngas

The Hong Kong and China Gas Company Limited

14 August 2015

BEAM Society Limited
1/F Jockey Club Environmental Building
77 Tat Chee Avenue
Kowloon Tong, Hong Kong

Dear Sir/ Madam,

**BEAM PLUS CERTIFICATION
FOR THE TOWNGAS HEADQUARTERS 363 JAVA ROAD, NORTH POINT, HONG KONG
RENEWAL COMMITMENT OF OHSAS 18001**

Regarding our BEAM Plus for Existing Buildings (Version 1.2) certification for the Towngas Headquarters 363 Java Road, North Point, Hong Kong (Project No. 2014-498EB(N)), we herein commit that the Hong Kong and China Gas Company Limited will renew the OHSAS 18001 certificate for the Hong Kong and China Gas Company Limited located at 363 Java Road, North Point, Hong Kong by the effective date on 3rd June 2017.

Yours faithfully,

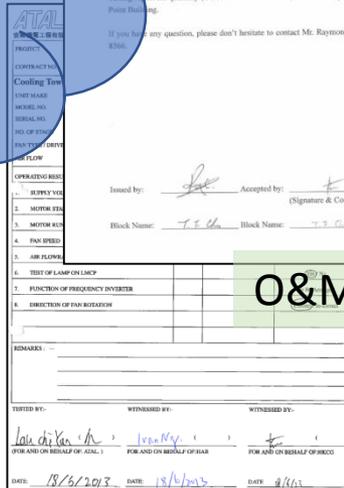
Alfred W. K. Chan

Alfred W. K. CHAN
Managing Director

MD's commitment

Our ref: CAD/PMS/EXT/15/043

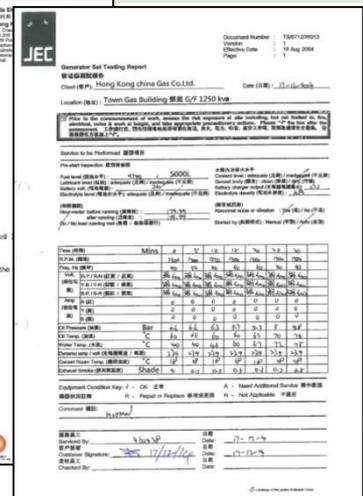
**MD
commitment to
renew
OHSAS18001**



O&M Record



OHSAS 18001 Certificate



International Co-owners:



Site Aspects (SA)

The Hong Kong and China Gas Company Limited

Towngas Headquarters
363 Java Road, North Point, Hong Kong

Green Cleaning Plan

September 2014

Green Cleaning Plan

The Hong Kong and China Gas Company Limited

Towngas Headquarters
363 Java Road, North Point, Hong Kong

Environmentally Purchasing Plan

January 2014

Environmental Purchasing Plan



GREEN SEAL

Environmental Certification

Presented to
ECO CONCEPTS, INC.

Green Seal, Inc. certifies that the following products comply with or exceed Green Seal's Environmental Standard for General-Purpose, Bathroom, Glass, and Carpet Cleaners Used for Industrial and Institutional Purposes (GS-37) and are licensed to use the Green Seal Certification Mark:

GREEN CONCEPTS All Purpose Cleaner & Degreaser 1 • GREEN CONCEPTS High Performance Carpet Spray 5 • GREEN CONCEPTS Carpet Extraction Cleaner 6 • GREEN CONCEPTS High Performance Cleaner Degreaser 13 • GREEN CONCEPTS Tile, Grout & Restroom Cleaner 25 • GREEN CONCEPTS Glass & Window Cleaner 27 • GREEN CONCEPTS Neutral Floor & Hard Surface Cleaner 40

(Specific pack sizes listed in certification letter)

Certified this 21st day of June, 2006.

Mark T. [Signature]
Mark T.

Material Safety Data Sheet

| MATERIAL SAFETY DATA SHEET | |
|--|--|
| 1. IDENTIFICATION OF THE SUBSTANCE/Preparation AND THE COMPANY | |
| 1.1 <u>Product Identification</u> | AEROSPRAY WITHOUT ETHYLENE GLYCOL |
| 1.2 <u>Application and Use</u> | SPRAY AEROWATER Fire Fighting |
| 1.3 <u>Supplier</u> | Shanghai Kidde Fire Fighting Company Limited No. 999 Baoqi Road, Baoshan City Industrial Park, Shanghai 200444, China Tel: (8621) 36307198 Fax: (8621) 36307199 Email :SKFF-admin@mail.online.sh.cn |
| <u>Emergency Telephone Number</u> | As Above |

Green Seal Certificate





Water Use (WU)

The Hong Kong and China Gas Company Limited – North Point Building
Water Conservation Plan

Foreword

Public awareness regarding the importance of protecting the environment in Hong Kong has risen tremendously over the past decade. Environmental considerations are now key drivers not only for the HKSAR Government but also for companies who care about preserving the environment for future generation. Our Company's commitment to work towards a sustainable development is achieved by continuous improvement on energy saving measures, high-efficient building services system, enhanced building operation, green procurement etc. and also on the water conservation measures.

Water is a valuable and scarce resource. Although there is sufficient water resource in Hong Kong, the competing demand for water is common in other places around the world. The responsibility for water conservation rests with us all.

Our Company has been introducing measures that promote the efficient use of water and its conservation by all water users. The water conservation measures/ strategies take a holistic approach to water use efficiency and conservation. The strategy builds on existing programmes and projects, and addresses the needs in the North Point Headquarters Building (NPB). The strategy aims to achieve a broader awareness and commitment to water conservation and a greater recognition of the scarcity around the world and value of water in our local society. In this Plan, we have offered a vision, and identified principles for water conservation and several strategies and associated specific actions which will be undertaken and reviewed by our task group regularly and continually.

Water Conservation Plan endorsed by MD

Alfred W. K. Chan
Managing Director



Water Conservation Plan

- Establish water conservation plan
- Conduct water survey regularly
- Conduct regular maintenance and inspection
- Encourage colleagues to save water through education program

The Hong Kong and China Gas Company Limited – North Point Building
Water Conservation Plan

APPENDIX A- WATER USAGE LOG SHEET

Assessed Building: _____ Month: _____
 Year: _____
 Type of Water Used: Potable water
 Recorded by: _____

| Day of Month | Water Consumption | | | | | | | | Others, Please Specify: |
|--------------|---|---------------------------------------|------------------------|-------------|-----------------|------------------------|-------------|-----------------|-------------------------|
| | Potable Water at Toilet (m ³) | Cooling Tower Water (m ³) | Irrigation (L) | | | Cleansing (L) | | | |
| | By Meter | By Meter | Fixture Flowrate (L/s) | On Time (s) | Consumption (L) | Fixture Flowrate (L/s) | On Time (s) | Consumption (L) | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

Water Survey Regularly





Water Use (WU)



Fresh Water Reduction

↓ **11%**

Grade 1 Water Fixtures



Low Flow Water Fixtures



Low Flow Urinal

SGS

Test Report No. HKEET1410001842ES Date: Nov 03, 2014 Page 1 of 2

HUNG HING BUILDING SERVICES ENGINEERING COMPANY LIMITED
UNIT B, 22/F, PHASE 1, KINGSFORD IND. BUILDING, 25-32 KWAI HEI STREET, KWAI CHUNG, N.T., HK

SGS CASE No. : HKES14100001766

Report on sampling and laboratory testing of the collected samples from 363 Java Road, North Point, Hong Kong identified as Drinking Water.

1. Sample Identification

| Sample No. Assigned by SGS | Sampling Location | Date & Time of Commencing Sampling |
|----------------------------|---|------------------------------------|
| W1410136 | B/F Male Changing Room | Oct 10, 2014 1340 |
| W1410137 | B/F CW (General) R.C. Sump Tank | Oct 10, 2014 1350 |
| W1410138 | G/F Pantry | Oct 10, 2014 1400 |
| W1410139 | 11/F Male Toilet | Oct 10, 2014 1410 |
| W1410140 | 11/F Disable Toilet | Oct 10, 2014 1420 |
| W1410141 | 14/F CW (General) Fibre Glass Intermediate Break Tank | Oct 10, 2014 1430 |
| W1410142 | 15/F Connection to Tea Urn / Pantry | Oct 10, 2014 1440 |
| W1410143 | R/F CW (General) R.C. Sump Tank | Oct 10, 2014 1450 |

Sampling : Conducted by SGS
Quantity of Each Sample and Preservation Employed : 1 x 250ml in a sterilized plastic bottle, 1 x 500ml in a plastic bottle, 1 x 250ml in a plastic bottle with 2ml 6N HNO₃ added to pH < 2 and 1 x 250ml in an amber glass bottle
Sample Delivery : By SGS on Oct 10, 2014 under refrigerated condition
Sample Receiving Date : Oct 10, 2014
Testing Period : Oct 10, 2014 - Oct 24, 2014

2. Test Method and Testing Results

Please refer to the following page(s).

Signed for and on behalf of
SGS Hong Kong Ltd.

Freda Lai
Freda Lai
Section Manager

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SGS Hong Kong Ltd. Laboratory: 10, 4/F, 5/F & 6/F, 38-4, 39-11, 39, On Wu Centre, 25 Lai Yu Road, Tsim Sha Tsui, Hong Kong. www.sgshk.com.hk
Office: 5/F & 6/F, Manhattan Centre, 8 West District Road, Kowloon, Hong Kong. Tel: 3533 2288 4467 Fax: 3533 2288 2218. e: sgshk@sgs.com.hk
Member of the SGS Group (ISS 94)

Water Quality Test

Reduction of Effluent Discharge

↓ **50%**

Below BEAM Plus Baseline



Organisers:



International Co-owners:





Material Aspect (MA)

Towngas Headquarters 363 Java Road, North Point, Hong Kong
2014-498EB(C)

Waste Management System at Towngas Headquarters

1. Background

Towngas is dedicated to develop and implement an environmentally responsive waste management system in Towngas Headquarters at 363 Java Road, North Point, Hong Kong. This report describes the entire waste management system implemented in the project building and illustrates the current hardware associated with the management system.

2. Current Waste Management Strategies

Various strategies are developed to enhance efficiency of waste management and encourage building users to adopt good waste disposal behaviors.

- **Compliance with all current relevant regulations:**

All current regulations regarding waste management have to be completely complied with. All building users including outsourcing contractors are obligated to conform to the relevant regulations.

- **Adequate waste handling facilities:**

Refuse storage and recovery chamber with adequate size is provided at GF of the building. Besides, different types of recycling bins are provided at pantries, print rooms, photo-copying areas and office areas to collect recyclables including paper, metals, plastics, glass etc. High availability of recycling facilities allows building users to conduct waste sorting and recycling easily. Location plans of the waste handling facilities are shown in *Annex A*.

- **Diverse recycling campaigns:**

Apart from the permanent recycling facilities mentioned above, some recycling campaigns are carried out to collect other materials such as batteries, clothes, CDs, red packets etc. Examples of recycling campaigns in year 2014 are shown in *Annex B*.

- **Continuous effort to Wastewise Scheme:**

Wastewise Label has been achieved since 2002 and Towngas now commits their continuous effort to the 13th consecutive cycle achievement. By joining the scheme, the company can effectively set waste reduction target and review achievement on a yearly basis. The extracted page of the list of Wastewise Label Awardees is given in *Annex E*.

- **Cleaning contractor:**

The cleaning contractor, *SWAN Hygiene Services Limited (SWAN)*, is employed for waste handling in the building. Given waste management guidelines from Towngas, SWAN is responsible for collecting, sorting, recycling and disposal of the waste generated in the building every day. They are also obligated to report waste handling procedures and waste stream information to Towngas on monthly basis for inspection. Brief description of waste management procedures conducted by SWAN is stated in *Annex C*.

- **Corporate waste management sub-committee:**

Waste Management Sub-committee is established to review and monitor the in-house waste management



Recycling Campaign

Waste Management System



Cleaning Campaign



International Co-owners:



Other Sustainability Strategies



Condensate for planter irrigation



Condensate water for car cleaning



4/F condensate water storage tank



R/F rainwater storage tank

Other Sustainability Strategies



Green Roof Activities for staff



Farming opportunities



Organic food



Electric Car

Energy Use / GHG Emission / Waste Reduction



CO2 Emissions

Reduction:

46%

Reduction of **1,050 tons CO₂** per year compared with BEAM Plus Baseline

= annual absorption of CO₂ by approx. **45,600 Trees**



Water

Reduction:

40%

Saving **2,000 m³** of water per year

= **2,000,000 bottles of 1L drinking water**



Power

Reduction:

46%

Energy consumption savings of **1.5 GWh** per year compared with BEAM Plus Baseline

= 24-hr operation of **1,500 number of 100W Incandescent Lamp** for a year



Resources

Recycled Rate

>50%

Recycled **82 tons of waste in Year 2016**

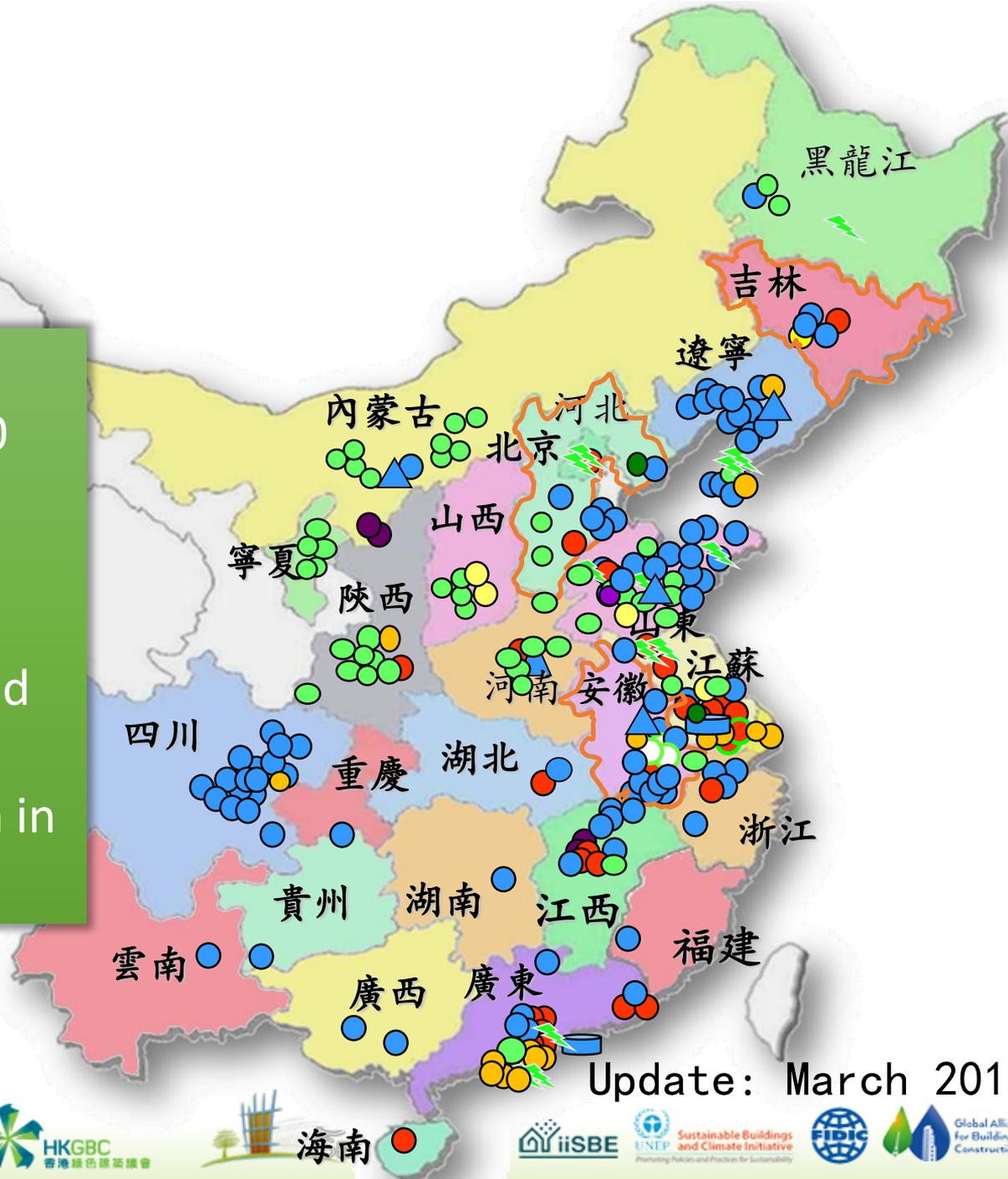
= 27 nos. 3-Ton truck at full loading

Organisers:

International Co-owners:

Next Step

- Prepare BEAM Plus Existing Building V2.0 certificate
- Promote Corporate Green Building Strategies in Mainland
- Implement Energy Management System in HK & Mainland



Update: March 2017



Thank you



Organisers:



International Co-owners:



Sustainable Buildings and Climate Initiative
Promoting Policies and Practices for Sustainability



Global Alliance
for Buildings and
Construction