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
Agenda

1. Video
2. Vision, Mission and Achievements
3. History of Towngas Headquarters Building
4. Sustainability Strategies
Vision, Mission and Achievements
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 清新空气
Greening up your life

Customers and Public Business Partners
Stiffs
Senior Management
International Co-owners:
# Major Environmental Achievements

## Green Production
- **Use high quality Naphtha**
- **Use LFG from NENT**
- **Use LFG from Shuen Wan**
- **Use NG as feedstock**

## Energy Efficiency
- **Climate Change Study**
- **Product Carbon Lifecycle Study**
- **Carbon Intensity hits the record lowest**

## Green Building
- **Rainwater Harvesting System at Tai Po Plant**
- **North Point Headquarters got BEAM Plus EB Platinum**
- **TGT TKO data centre got LEED Gold**

## Energy Efficiency
- **Waste-to-Energy project at SENT**
- **CHP system at Tai Po Nethersole Hospital**

## Climate Action
- **Cool Kitchen Four Treasures**
- **Recycle Program**
- **Waste audit**
- **Use LFG from NENT**
- **Use LFG from Shuen Wan**

## Waste Reduction
- **Use NG as feedstock**
- **Use high quality Naphtha**
- **Used appliances Recycle Program**
- **Waste audit**

## Timeline
- **1999**
- **2006**
- **2007**
- **2012**
- **2013**
- **2014**
- **2015**
- **2016**
History of Towngas Headquarters Building
History of Towngas Headquarters

1980s

1987

1993

Today

2008
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

<table>
<thead>
<tr>
<th>Year</th>
<th>Certification Version</th>
<th>Rating</th>
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<tbody>
<tr>
<td>1993</td>
<td>HK-BEAM Version 2/96R</td>
<td>Excellent Rating</td>
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<tr>
<td>1999</td>
<td>HK-BEAM Version 5/03</td>
<td>Platinum Rating</td>
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<td>2005</td>
<td>HK-BEAM Version 5/04</td>
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<tr>
<td>2010</td>
<td>BEAM Plus Version 1.2</td>
<td>Platinum Rating</td>
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<tr>
<td>2015</td>
<td>Anticipated BEAM Plus Version 2.0</td>
<td>Platinum Rating</td>
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**Date of Occupation**

- 1993
- 1999
- 2005
- 2010
- 2015
- 2020

**Anticipated in Year 2020**
Sustainability Strategies

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

Existing Buildings V1.2
Final Platinum

Total Score: 87.4

<table>
<thead>
<tr>
<th>Category</th>
<th>Applicable Credits</th>
<th>Achieved Credits</th>
<th>% of Achieved Credits</th>
<th>Weighting Factor</th>
<th>Weighted Achieved Credits</th>
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<td>SA</td>
<td>17.0</td>
<td>17.0</td>
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<td>18%</td>
<td>18.0</td>
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<tr>
<td>MA</td>
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<td>7.0</td>
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<td>12%</td>
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<td>EU</td>
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<td>92%</td>
<td>30%</td>
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<td>WU</td>
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<td>67%</td>
<td>15%</td>
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<tr>
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<td>25%</td>
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<tr>
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<td>100%</td>
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<td>6.0</td>
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<tr>
<td>Overall Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>87.4</td>
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</tbody>
</table>
Energy Use (EU)

- Cooling tower with variable speed condensing fans
- Enclosure for oil free centrifugal chiller
- Water-cooled oil free centrifugal chiller
Energy Use (EU)

- **CO₂ Sensors Location**
  - (B) 758 PPM
  - (A) 754 PPM
  - (C) 755 PPM

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

- **CO₂ Sensor**
- **VSD**
- **PAU**
Energy Use (EU)

- Sunlight collectors
- Motion Sensor
- Reduced Lighting tube
- Nano reflector

Lighting control through BMS
Energy Use (EU)

Energy Cloud Platform (Building Energy Consumption)
Energy Use (EU)

Energy Cloud Platform (Chiller Plant Thermal Line)
Energy Use (EU)

Carbon Audit

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

Verification of Greenhouse Gases Emissions Inventory 2014

Energy Audit Report shows Energy Use Reduced from 2012 to 2016

Benchmark Result (From EMSD)

Better than 90% of sampled subjects buildings

Energy Consumption Index

683 MJ/m²/annum

Energy Consumption Efficiency Index

Electricity Consumption at NPB

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

Month
Indoor Environmental Quality (IEQ)

- Pest Control
- Individual Exhaust
- IAQ Certificate
- Mother Care Room
- Clinic
- Breakout Area
- Fitness Corner
Site Aspects (SA)

MD’s commitment

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 JAYA 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 Jaya Road, North Point, Hong Kong (Effective Date: 5 December 2014 – 49EB(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 Jaya Road, North Point, Hong Kong by the certificate date on 5th December 2017.

Yours faithfully,

Alfred W. K. CHAN
Managing Director

MD commitment to renew OHSAS18001

OHSAS 18001 Certificate

O&M Record
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

The Hong Kong and China Gas Company Limited
Towngas Headquarters
363 Java Road, North Point, Hong Kong

Environmentally Purchasing Plan
January 2014

Material Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY

1.1 Product Identification
AEROSPRAY WITHOUT ETHYLENE GLYCOL

1.2 Application and Use
SPRAY AEKROWATER
Fire Fighting

1.3 Supplier
Shanghai Kidde Fire Fighting Company Limited
No. 699 Hong Yuan, Baoan City Senxin Park, Shangle 304444, China
Tel: (021) 56307196
Fax: (021) 56307195
Email: SKFF-admin@mail.online.sh.cn

Emergency Telephone Number
As Above

Green Seal Certificate

Green Seal Products
The Hong Kong and China Gas Company Limited – North Point Building

Water Conservation Plan

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

APPENDIX A - WATER USAGE LOG SHEET

<table>
<thead>
<tr>
<th>Day of Month</th>
<th>Possible Water at Meter (m³)</th>
<th>Cooling Tower (m³)</th>
<th>Irrigation (L)</th>
<th>Cleansing (L)</th>
<th>Others, Please Specify</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By Meter</td>
<td>By Meter</td>
<td>Flow Rate (L/s)</td>
<td>On Time (h)</td>
<td>Consumption (L)</td>
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<tr>
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<tr>
<td>7</td>
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</table>

Water Survey Regularly

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 generations. 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 a common problem in other places around the world. The responsibility for water conservation rests with us all.

Our Company has been introducing measures to promote the efficient use of water and its conservation by all water users. The water consumption 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.

Alfred W. K. Chan
Managing Director
Water Use (WU)

Fresh Water Reduction ▼ 11%

Grade 1 Water Fixtures

Low Flow Water Fixtures

Low Flow Urinal

Water Quality Test

Reduction of Effluent Discharge ▼ 50%

Below BEAM Plus Baseline
Material Aspect (MA)

Waste Management System

1. Background

Towngas is dedicated to develop and implement an environmentally responsive waste management system in Towngas Headquarters at 163 Jern 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 obliged 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 premises, print room, photo-copying zones 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.

- Various recycling campaigns:
  Apart from the permanent permanent recycling facility mentioned above, some recycling campaigns are carried out to collect other non-recyclable waste to household, clothes, CDs, and packets etc. Examples of recycling campaigns in year 2014 are shown in Annex B.

- Continuous effort at Wasteville Scheme:
  Wasteville Label has been achieved since 2002 and Towngas now commits their continuous effort to the 15th consecutive cycle achievement. By joining the scheme, the company can effectively set waste reduction targets and review achievements on a yearly basis. The extracted page of the list of Wasteville Label Awardees is given in Annex E.

- Cleaning contract:
  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, storing, recycling and disposal of the waste processed in the building every day. They are also obliged to report waste handling procedures and waste stream information to Towngas at monthly basis for inspection. Brief description of waste management procedures conducted by SWAN is stated in Annex C.

- Various waste management sub-committees:
  Waste Management Sub-committee is established to review and monitor the in-house waste management.
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
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