

# **PROJECT CLEAN AIR CHARTER PHASE II**

## **Certification Scheme for Clean Air Charter**

### **Final Report**

**For**

**Hong Kong Aero Engine Services Limited (HAESL)**



**Prepared by**



**February 2009**

## 1. INTRODUCTION

Hong Kong Aero Engine Services Ltd. (HAESL) is a joint venture company of Rolls-Royce, HAECO and SIA Engineering Company. It formed in January 1997 and has capability to perform Repair and Overhaul of Rolls-Royce engines including engine strip and build, module change and repair, piece part repair and engine test cell.

There are 900 staffs in total where almost 700 of them are working in workshops and the others will be working in office. The HAESL development is divided into 5 phases and Phase 5 work will be completed by mid 2010.

This report outlines the findings of the Business Environment Council (BEC) from a walk through audit and interview with Mr. Kenneth Cheung, Sustainable Development Officer of HAESL, Mr. Tommy Ho, Head of Section TKO Facilities Department of HAECO and Mr. Phil Healey, Managing Director of the Active Energy Management.

From the pre-audit questionnaire completed by HAESL, it was determined that HAESL fits into Group C category of the certification scheme, showing that the organization has comprehensive management systems and means in place to identify and verify the implementation of energy efficiency / emission reduction programmes that are in compliance with the Clean Air Charter.

The site visit was conducted at the HAESL plant in Tseung Kwan O Industrial Estate and led by Mr Benny Au and Ms Dorothy Lam on 2<sup>nd</sup> December 2008. The purpose of this audit was to verify HAESL's commitments to the Clean Air Charter.

## 2. OBSERVATIONS AND COMPLIANCE

Based on the site meeting, HAESL programmes and practices on reducing air emission were reviewed. In general, a systematic approach on addressing the Clean Air Charter's commitments have been implemented as follows:

- HAESL has Sustainable Development Policy, Environmental, Health and Safety Policy addressing energy conservation and pollution prevention where the Environmental, Health and Safety Steering Group is chaired by the Director and General Manager. Objective and Targets on reduction in air emission and energy consumption are determined annually.
- In 2008, the electricity usage per direct chargeable man hour target is 15.4kWh and Towngas usage kWh per meal produced target is 1.38kWh. The reduction target for aviation fuel is 1.1%.
- Training is provided to all staffs. Each department will nominate staffs to attend the environmental course in-house on a quarterly basis.
- Quarterly cash offer for suggestions on energy savings measures in company newsletter

Regarding the six commitments of the Clean Air Charter, the table below summarizing the achievements of HAESL:

Commitment	Action done
1) Operate to a recognized world class standard, or the standards established by the Hong Kong / Guangdong governments on emissions of air pollutants, even if it is not a requirement to do so here. (Relevant to industrial operations, power plants and business with direct emissions)	<ul style="list-style-type: none"> <li>◆ The major emission sources are combustion of aviation fuel for engine test cell, electricity and town gas.</li> <li>◆ The major air pollutant generated are TVOC, CO<sub>2</sub>, NO<sub>x</sub>, CO and hydrocarbon.</li> <li>◆ Aspects identification has been completed by Swire EHS database and the daily operation will follow standards from EPD and Swire recommendations.</li> <li>◆ No legal non-conformance has been received so far.</li> </ul>

<p>2) Use continuous emissions monitors (CEMs) at significant sources, e.g. large and medium plants. (Relevant to large / medium industrial operations and power plants)</p>	<ul style="list-style-type: none"> <li>◆ Periodic emission check is conducted. Energy consumption is recorded in a monthly basis.</li> <li>◆ As indicated by HAESL, no continuous emissions monitor is requested under the Air Pollution Control Ordinance, thus, this is not applicable to the scope of HAESL operation as far as the Charter commitments concerned.</li> </ul>
<p>3) Publish information on energy and fuel use, as well as total emissions of air pollutants annually and timely, if emissions are significant.</p>	<ul style="list-style-type: none"> <li>◆ Energy and fuel consumption data are provided to Rolls Royce for internal benchmarking purpose. In addition, these data has been reported to Swire Group on a monthly basis.</li> <li>◆ There is an energy consumption display panel in the workshop indicating the maximum demand and the monthly consumption data in MWh.</li> </ul> <div data-bbox="711 827 1433 1367" data-label="Image"> </div> <ul style="list-style-type: none"> <li>◆ In 2007, their chargeable man hour increased by 8.74% but the electricity consumption per chargeable man hour decreased by 3.45% and the total CO<sub>2</sub> per chargeable man hour decreased by 1%. Towngas used solely for preparing meals in the canteen and the gas consumption decreased by 5.47% per meal.</li> <li>◆ As provided by AEM, the electricity consumption in 2008 is 457.2 kWh/m<sup>2</sup>, which is 2.5% less than 2007 figure (469.2 kWh/m<sup>2</sup>).</li> <li>◆ The annual energy and fuel consumption data will be issued through HAESL's annual CSR report.</li> </ul>

4) Undertake to adopt energy-efficient measures in their operations.



There are a number of energy saving measures applied in HAESL after signing the Clean Air Charter endorsement in 2006 including:

- ◆ BMS was upgraded to facilitate enhanced breakdown accuracy for monthly reports including temperature controls, automation of air-conditioning fan inverter drivers, demand controlled fresh air and improved sub metering / energy reporting capability.
- ◆ Install solar heating and heat pump for hot water preheat



- ◆ Installed a 0.5kW wind turbine for trial



	<ul style="list-style-type: none"><li>◆ The second water-cooled chiller was installed in May 2007 and saved \$200,000 electricity cost in the first summer.</li><li>◆ Three heat pipes are installed in 2008 for pre-treating fresh air.</li></ul>  <ul style="list-style-type: none"><li>◆ Minimize lighting consumption by using Helux T5 general lights in general areas and high intensity PLL fluorescent lights in working areas (each saves 1,800 kg of CO<sub>2</sub>/yr)</li></ul> 
<p>5) Identify and encourage business-relevant measures to be taken on days when air pollution is high.</p>	<ul style="list-style-type: none"><li>◆ When air pollution is high, HAESL will consider sending notice to the staffs encouraging them to use public transport and to avoid further deterioration of air quality.</li><li>◆ Prohibit delivery vehicles from engine idling within their premises. Regular checking will be conducted when the outdoor air pollution rate is high.</li></ul>

6) Share air quality expertise in business with others.	<ul style="list-style-type: none"><li>◆ Periodic exchange of ideas with other group companies within Swire Group.</li><li>◆ Environmental achievements have been communicated through newsletter and HAESL's annual CSR report.</li></ul>

### 3. CONCLUSION

HAESL's has demonstrated their commitments towards the Clean Air Charter's commitments and is recommended to be certified under the Clean Air Charter.