BAHWAN ENGINEERING COMPANY LLC

Nomination for Oman Green Awards 2010

Category – Green Footprint Award

ATTACHMENT - 1

Bahwan Engineering Group

Oman ◆ Dubai ◆ Abu Dhabi

The Flagship of Suhail Bahwan Group

For nearly three decades, Bahwan Engineering Group has been associated with nation-building projects, ushering change in Oman. Our core values of Synergy, Excellence and Commitment have enabled us to successfully execute numerous projects to exacting standards.

FACTS

- ✓ Nearly 65% of the Electricity in a Building is consumed by air-conditioning
- ✓ Nearly 75 - 80 % of this energy is consumed by the Central Cooling Equipment – the Chillers.
- ✓ This means that nearly 50% of the total energy consumption in a building is on account of the chillers.
- ✓ A reduction of 15 to 20% on this account will result in 8 to 10% reduction in total energy consumption of a building.

FACTS

- ✓ BEC represents Carrier in Sultanate of Oman for Air-conditioning Equipment/ Systems.
- ✓ BEC and Carrier are committed to meaningful reduction of Carbon Footprint.
- ✓ Carrier has been developing lower carbon foot print equipment worldwide
- ✓ BEC, in Oman, has been in the forefront of spreading knowledge about these equipments and making consultants/ clients aware about the benefits of using energy efficient equipment, thereby reducing their carbon footprint.

FACTS

- ✓ Carrier Developed 30XA series air cooled screw chillers operating on environmentally sound refrigerant R134a in the year 2005
- ✓ BEC has sold 191 such chillers in the Sultanate of Oman since 2006 – the total installed capacity of these chillers is 44829 KW – total power consumption being 65438 KW.

FACT

30XA Air Cooled Screw Chillers help in ***reducing*** the power consumption and hence ***lowering the carbon footprint*** of buildings where these are installed.

MEASURING SUCCESS

- ✓ Carrier 30XA series air cooled screw chillers consume ***15 to 20% lower*** power compared to similar chillers available from other manufacturers – *Please refer Attachment – 2*, which explains how this reduction is achieved.

- ✓ Use of these chillers compared to alternate chillers available helps reduce power consumption at peak load to the extent of ***11452 KW*** (calculated based on an average of 17.5%)

MEASURING SUCCESS

- ✓ Based on an annualized average of 2000 Hours operation at peak load, the total power savings by using these chillers would be ***22.90 Million KWH*** – *Please refer Attachment – 3*, which explains the calculation.

- ✓ Considering an average 20 year life expectancy for these chillers, the total savings achieved at current Chiller population level would be a staggering ***458 Million KWH.***

- ✓ On an average 70 such chillers are being sold every year on various projects in Oman – savings achieved through these chillers in future can be estimated by extrapolation.

MEASURING SUCCESS

- ✓ Based on an annualized average of 2000 Hours operation at peak load, the total power savings by using these chillers would be ***22.90 Million KWH*** – *Please refer Attachment – 3*, which explains the calculation.

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MEASURING SUCCESS

- ✓ The reduced power consumption of air-conditioning systems using these chillers means reduced need for power generation equipment at the power plant side – further reducing the carbon footprint.

- ✓ In addition to the direct reduction in carbon footprint, lower power consumption of these chillers results in ***further reduction in carbon footprint*** of facilities manufacturing components such as..

  - ➢ Power cables
  - ➢ Other electrical components.
  - ➢ Transformers/ sub-stations
  - ➢ Standby Generator Sets

MEASURING SUCCESS

- ✓ Carrier 30XA series chillers help further in reduction of Environmental Impact of Air-conditioning equipment due to Reduced Refrigerant Charge - *Please refer Attachment – 2.*

- ✓ BEC has been in the forefront of maintaining Air-conditioning systems efficiently so that they continue to operate optimally throughout their life cycle.

- ✓ BEC has set up localized Service Centres in various places within the Capital area of Muscat as well as Cities in Oman such as Salalah, Sohar, Sur, Nizwa, etc., to name a few. This helps in reducing the environment impact by lesser travelling resulting in lesser fuel usage.

MEASURING SUCCESS

- ✓ In addition to the Energy Efficient Carrier Products, BEC Group has been promoting use of other Energy Saving Products such as

  - ➢ Heat Recovery Wheels (BryAir),
  - ➢ Heat Pipes (SPC), Air and
  - ➢ Water Ozone Systems (Ruks),

which help in reducing the requirement of outside air/load on air-conditioning system due to outside air. This results in lower Installed capacity of Air-conditioning systems and lower power consumption.