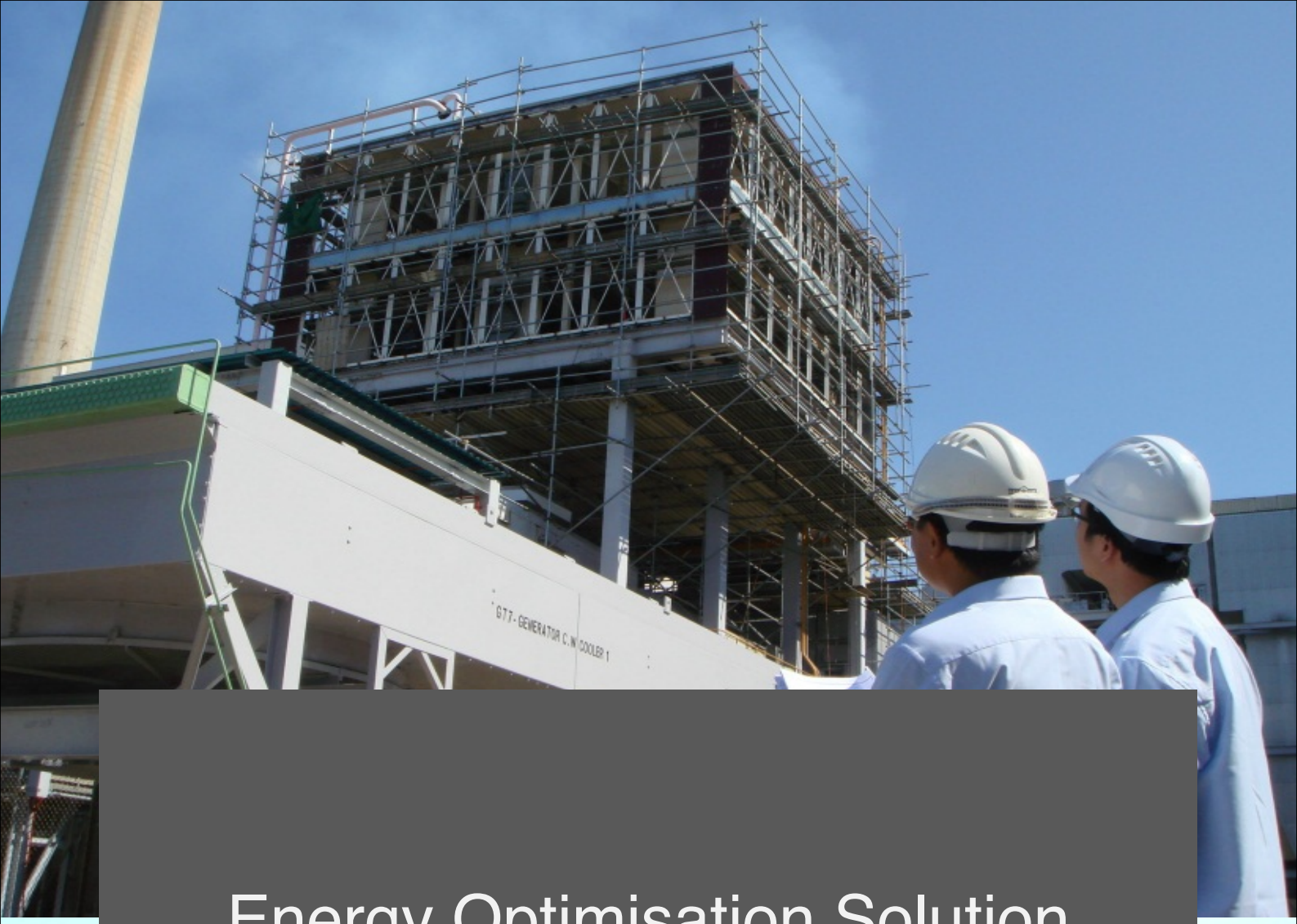

Energy Optimisation Solution

Optimisation Control Algorithms for HVAC System
to enhance the system efficiency and lower the energy cost

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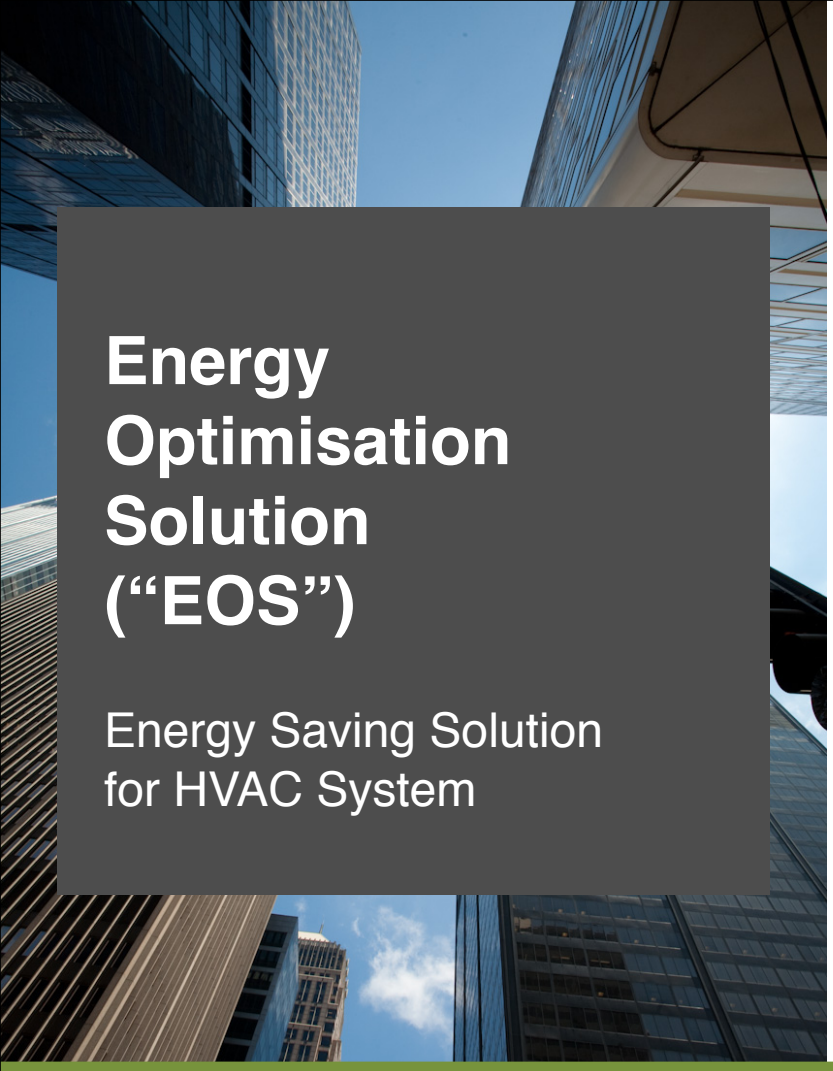
Scan the below QR Code:

RGT Website

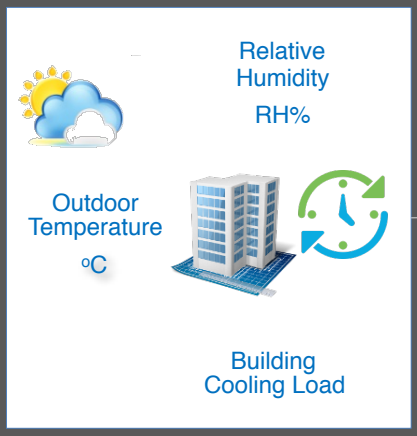
AI-EOS Catalogue



Energy Optimisation Solution (“EOS”)

Energy Saving Solution for HVAC System

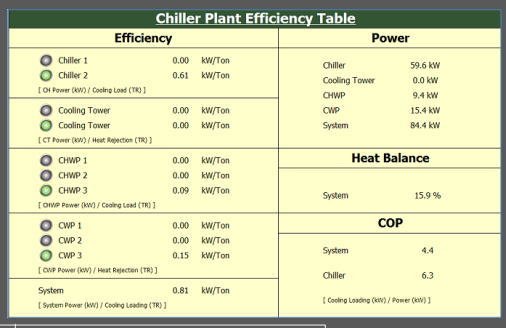
EOS is based on a core set of control algorithms with Artificial Intelligence (AI) to provide the most economical operation condition of the HVAC System and making the operating devices to achieve an overall Coefficient of Performance (COP) as high as possible while fulfilling the building cooling load demand.

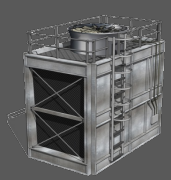


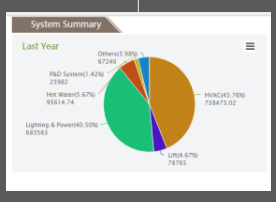
EOS Server & Optimal Control Algorithms

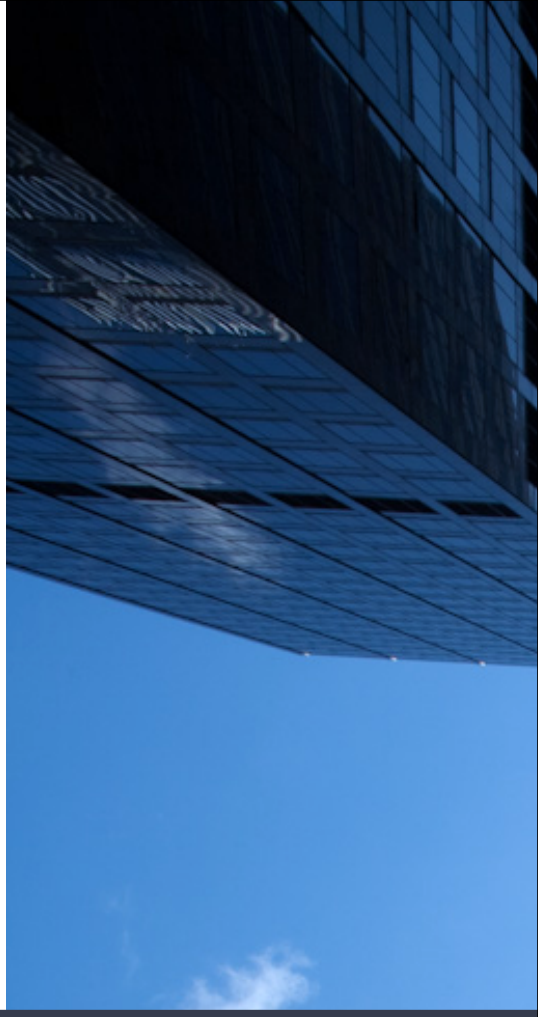
Output

- Parameter
- Combinations
- Optimal Set-point









A holistic control strategy shall be applied subject to the various HVAC System configuration. EOS control algorithm for central chiller plant shall be applicable as below :

1	Optimal Chiller Sequence Control
2	Optimal Control of Water/Air Cooled Cooling System
3	Global Optimization of Cooling Tower Systems
4	Optimization of Supply Chilled Water Temperature
5	Optimal Water Pump Speed & Sequence Control
6	AHU / PAU Optimization Control

Energy Optimisation Solution (EOS), AI based system

- **Continuously search for energy saving opportunities**
  - **Real-time monitoring and responding** on building loads and ambient conditions
  - Live load, status (every sec.), ambient temp. (every sec.), Set-point review (15-min)
- **Automatically convert opportunities into successful energy saving outcomes**
  - Execution of EOS algorithms to successfully achieve **optimal set-point & system configurations**

RGT EOS services include :

- RCx HVAC Plant & system evaluation for identifying the energy saving potentials and saving targets
- Design, install and T&C of Energy Optimisation System
- Modify, upgrade or replace the existing CCMS including system console, network controller, DDC & field equipment for implementation of EOS control algorithms
- Provision of meter devices and power analysis software for energy consumption monitoring
- 12-month performance monitoring and system fine-tuning

Development of Energy Optimisation Systems (EOS)

Energy Optimisation Solution (EOS) has been implemented in Holiday Inn Express Hong Kong SoHo since 2013 and the result is an overall energy saving of **27.6%** to the chiller system.

After the successful application in the hotel, RGT has embarked on other projects, to enhance building efficiency for different government departments and private sectors.

Mode	BMS	EOS	AI EOS
24-hr Total HVAC System Energy (kWh)	1607	1382	1302
Average System COP	3.5	3.64	3.68

* Data from test preformed on Nov 2018

The World's Greenest Hotel since 2012

Yau Lee Group's latest hotel project, **Holiday Inn Express Hong Kong SoHo**, has become the world's first high rise building since 2012. Different innovative construction and energy optimisation technologies, including 4-day fast track construction cycle, 5D Building Information Modelling, 22 energy efficient hardware and 8 software co-developed by specialised experts in different fields.

As a result, the hotel achieved energy efficiency by reducing the hotel's total annual energy consumption by 2 million kWh (about 58.5% less than the average consumption rate among the local hotels and 54.8% less than that in the US) as well as the reduction of water consumption and Co2 emission by 5.7% and 70% respectively.

Holiday Inn Express Hong Kong SoHo is the World's first high rise building (Hotel) achieved four platinum or equivalent of green awards –

(1) Hong Kong BEAM Plus (Hong Kong Building Environmental Assessment Method),

(2) US LEED (Leadership in Energy and Environmental Design) ,

(3) BCA Green Mark by The Building and Construction Authority, Singapore

(4) Three Star of China Green Building Council received other green building awards.

SUCCESSFUL STORY

REC Mechanical & Electrical Engineering (Shanghai) Company Limited, a subsidiary of Yau Lee Group

The intelligent & green office in Shanghai is the first business premises in China achieved Platinum Rating under BEAM Plus Interiors (BI) Accreditation. Its energy consumption is lower than the benchmark of EMSD by 70%.

The renovation project transforms the existing office to a green work space through an integrated approach includes sustainable design, green construction, environmental friendly operation and maintenance. Various sustainable building components and E&M features were adopted in the office in order to meeting the energy efficiency requirements, some highlighted as below:

- Intelligent Fan Coil Unit – iFCU™
- High efficiency lighting luminaries – Nanoflex®
- Real time energy monitoring system - PowerBox™
- Smart card reader system (in control with individual A/C and lighting zone and iBMS)

Green Solutions Exhibits in other Projects

REC Green Technologies ("RGT") and REC Green Energy Solutions ("RGE") have successfully saved over 4M kWh of energy for clients since establishment.

REC Green Technologies Co Ltd. ("RGT") and REC Green Energy Solutions Co., Ltd. ("RGE") are established by Yau Lee Group to provide the sustainable system design for the Holiday Inn Express Hong Kong SoHo. Its leading-edge energy-efficient systems and environmentally friendly products have been proven to be remarkably effective that the company is able to take into its portfolio quite some product brands.

RGT offers a series of power conserving solutions and products which deliver reliable performance, such as – Intelligent DC Fan Coil Unit (DC Motor), PowerBox™ on-line Energy Monitoring Solutions, Integrated Building Management System ("iBMS"), Energy Optimisation Solution ("EOS") for HVAC System and Nanoflex® – Lighting Fixtures, Reflectors & Solutions.

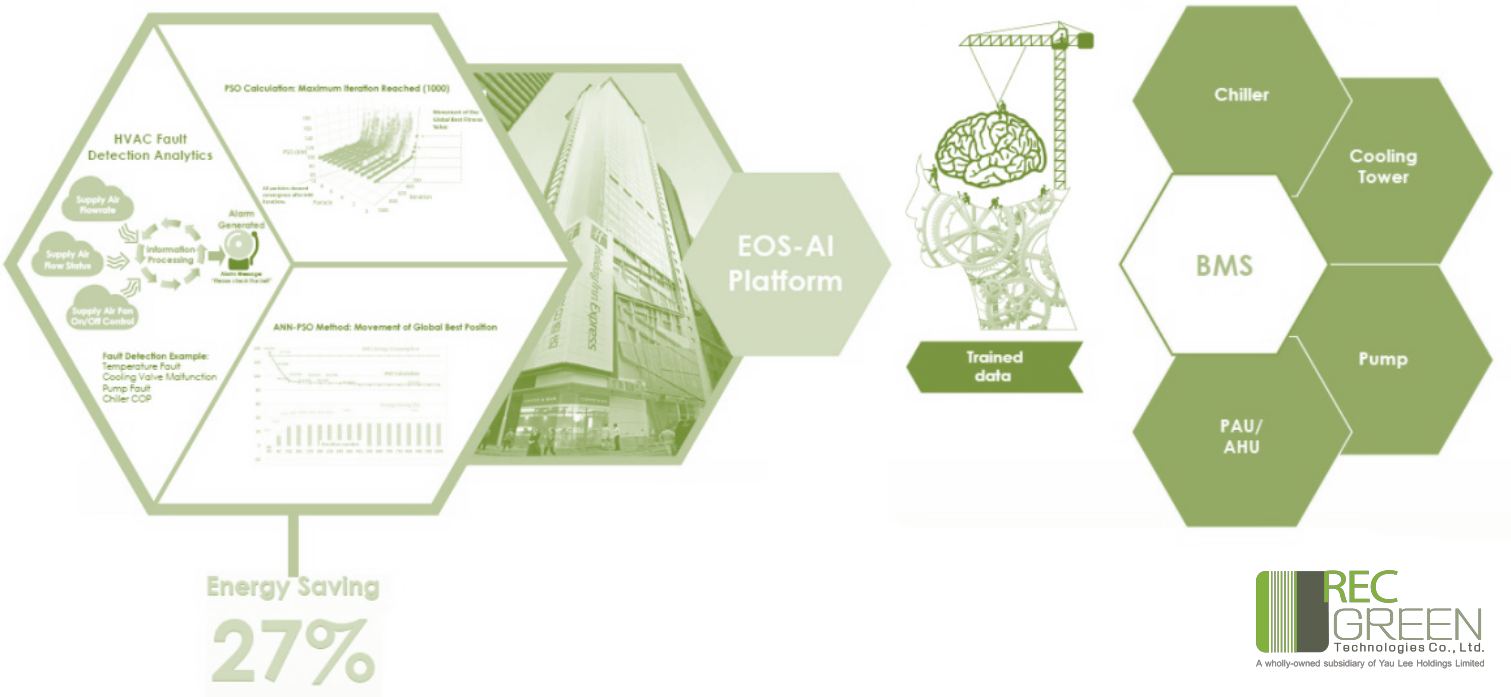
"RGE" was founded to research and develop energy-efficient solutions to take RGT to the next level with new solutions aiming at accelerating the pace of smart and green building development.

Energy Saving

Performance Monitoring

AI Optimization

EOS-AI uses Big Data techniques to drive optimal HVAC performance



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