



# Success Case of ESCO Project

**Thai Yamaha Motor Co.,Ltd  
-Guaranteed Saving Programme-**



**YAMAHA**



*Air Compressor Demand Management System*

# Speakers



- **Mr. Phongstorn Ermongkonchai**  
**Chief of Corporate Planning and Administration**  
**Thai Yamaha Motor Co.,Ltd**  
Tel: 027408000  
Email: phongstorn@yamaha-motor.co.th

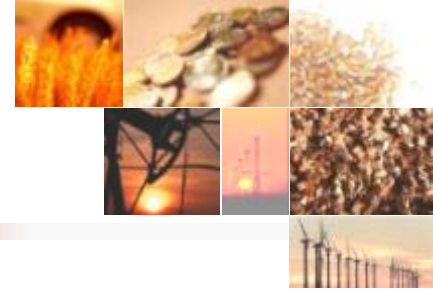


- **Mr. Arthit Vechakij**  
**Managing Director**  
**Excellent Energy International Co.,Ltd**  
Tel: 02- 2013466  
Email: arthit@eei.co.th



- **Mr. Kran Rakchareon**  
**Manager**  
**Compressed Air Management Co.,Ltd**  
Tel: 027471922, 027473682  
Email: kran@airmanagement.co.th

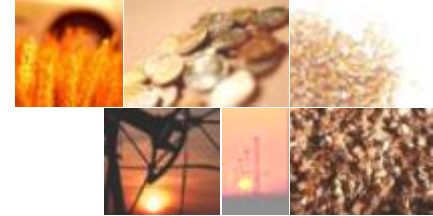
# Agenda



- **Project Brief**
- **Measurement and Verification (M&V)**





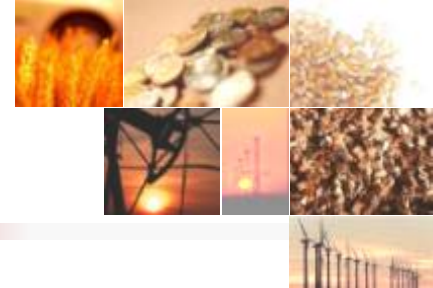


### Project Background

Under the CO2 reduction program, which is aimed to reduce energy consumption and CO2 Emission of TYM plant by approximately 10%. Therefore TYM Management has required of engaging EEI for Energy Management Consulting and engagement with Performance Guaranteed Service which start from development to implementation phase. For reimbursement phase will be operated under EEI supervision and also guaranteed return on investment.

### Energy Conservation Measure (ECM)

1. **Compressed air system improvement by installation of Air Compressor Demand Management System (ADMS).**
2. Improvement of **lighting in production areas by replacement of 400-watt mercury vapor.**
3. Improvement of **lighting in production areas by replacement of existing fluorescent luminaries.**
4. Installation of **air conditioning controller.**



**Company Name**

**THAI YAMAHA MOTOR CO., LTD.**

**Business**

Manufacture and sales of motorcycles and spare parts. Import and sales of products from Yamaha Motor Global network, such as Complete-Built-Unit motorcycles, water vehicles, outboard engines, multi-purpose engines and others. Export of locally assembled motorcycles and parts.

**Founded**

March 12, 1964

**Capital**

1,820 million baht

**Employees**

3,100 (as of October 2009)

**Sales**

28,532 million baht (as of 2008)

**Production Capacity**

404,000 units/year

**Head office**

Samutprakarn, Thailand

**Accreditation**

ISO 9001:2000      ISO 14001  
 TLS 8001:2003      OHSAS 18001:2007  
 CSR-DIW (September 2009)

NEW **FINO** *into*  
AUTOMATIZ



# YAMAHA CORPORATE SOCIAL RESPONSIBILITY

## CSR

### 1. Social Contribution

#### Activities through Business

- Improving product safety
- Developing environment – friendly products
- Developing products that contribute to healthier life
- Supporting development...etc.

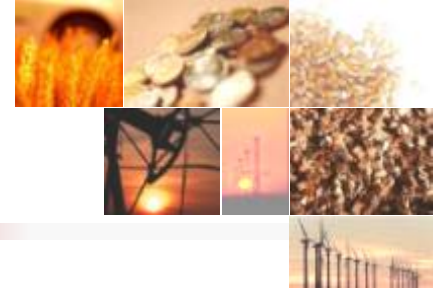
### 2. Social Contribution

#### Activities outside Business

- Traffic safety promotion.
- Sports promotion
- Environmental conservation
- Supporting research / study...etc.

### 3. Social Responsible Actions Pursued throughout the Group

- Product assurance
- Employment and labor
- Risk management...etc.
- Environmental conservation activities
- Compliance



## Equipment

### 1. Assembly Lines

- Engine
- Body

**Total 6 Lines**  
3 Lines  
3 Lines

### 2. Painting Lines

- Aluminum Paint
- Body Steel Paint
- Body Plastic Paint

**Total 8 Lines**  
1 Line  
3 Lines  
4 Lines

### 3. Plating Lines

Copper/Chrome/ ED Coating/Chromate

**Total 4 Lines (1 Line Each)**

### 4. Heat Treatment Furnace

**Total 6 Furnaces**

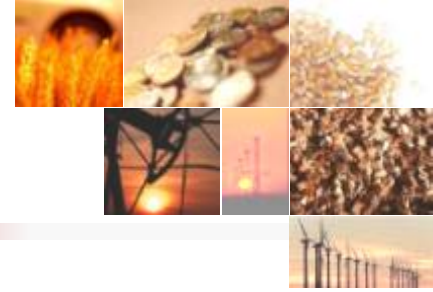
### 5. Machinery

**Total 613 Units**

## Management System

1. Integrated Production Control System ( G-PYMAC)
2. CAD/CAM Total 18 Station
3. Cost and Performance Analysis Support System (COMPASS)
4. Global Order Processing System ( G-OP)

# About EEI



## Excellent Energy International Co., Ltd. (EEI) is:

- ✓ A well-known **ESCO (Energy Service Company)** in Thailand established since 1999 with the registered capital of 25 MB
- ✓ An ESCO who **offers guaranteed-payback** on EE/RE/AE\* projects
- ✓ One of a few ESCO in Thailand who can **structures B.O.O.T. investment** on EE/RE/AE projects for Client

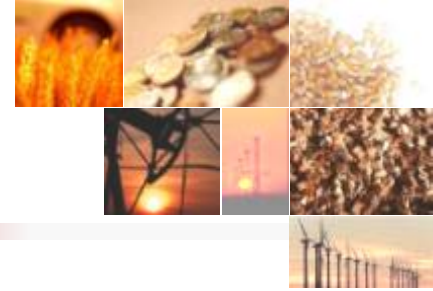
**The first one, and only ESCO in Thailand who successfully implemented Thailand ESCO Pilot Project with excellent base of support from the Thai Government & the World Bank.**

- ✓ Achieved reputation for being the most highly regarded ESCO in Thailand by government organization, financial institute, and industry expert in locale and global
- ✓ An ESCO with almost **6,000 MB project portfolio** distributed over Cogeneration system, Biogas system, Renewable Energy, Energy Management System (EMS), Heat Recovery and Commercial Building projects

*\*Energy Efficiency/ Renewable Energy/ Alternative Energy*



# About CMC



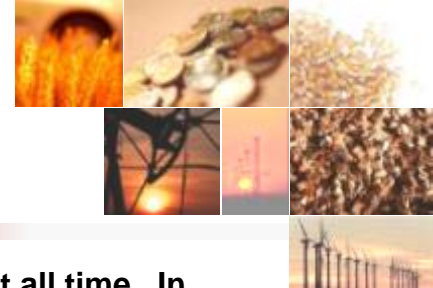
## Compressed Air Management Co., Ltd. :

- **Compressed Air Management Co., Ltd.** was established in the year 2002 by a team of experts with over 20 years of experience in the field of compressed air system.
- The company mission is to enable and help the customers have the right compressed air system in their plant that will function at optimum efficiency automatically signifying better cost control.

**COMPRESSED AIR MANAGEMENT AS THE NAME SIGNIFIES IS A ONE STOP SOLUTION PROVIDER FOR ALL COMPRESSED AIR SYSTEM RELATED ISSUES IRRESPECTIVE OF AIR COMPRESSOR BRAND, SIZE AND INDUSTRY.**

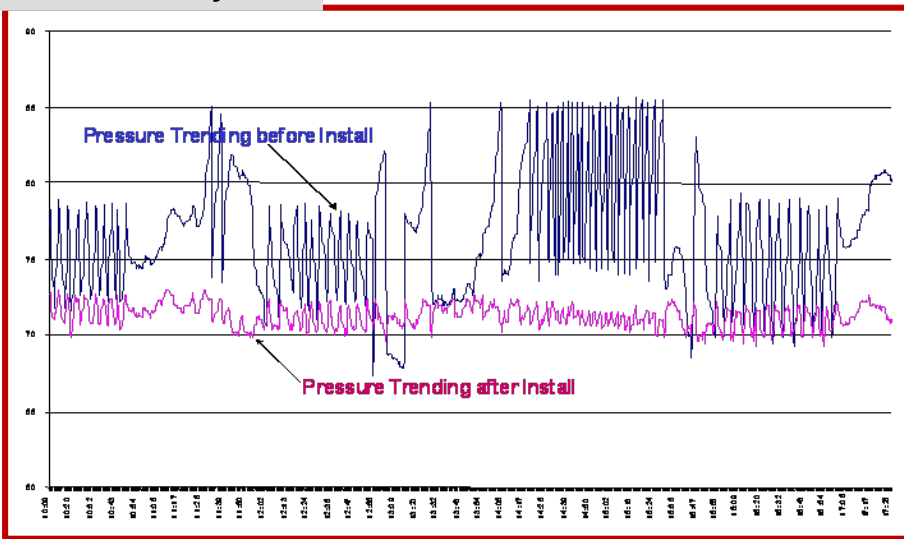
- **Compressed Air Management Co., Ltd.** , has supported various institutes and organizations in their endeavor to conserve energy costs.
- Given the strong goodwill that we enjoy in the marketplace as **pioneers for energy conservation in the field of compressed air**, we have established a strong alliance with ESCO for this aspect of energy conservation that is very critical in helping reduction of plant costs on the whole.
- In this effort we have collaborated and joined hands with EEI towards pushing this concept more effectively and widely in the industrial organizations.

# Air Compressor Demand Management System (ADMS) is...

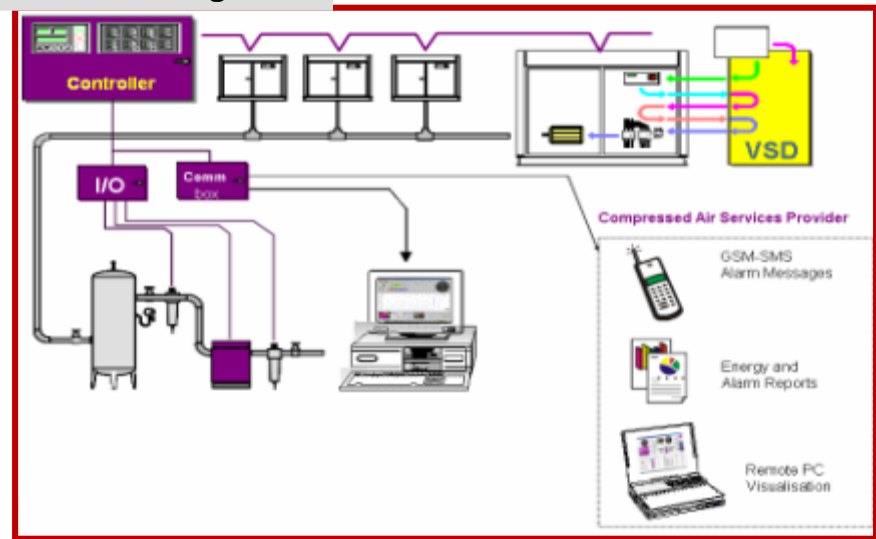


The ADMS can exactly match the compressed air production output to the user requirement at all time. In addition the ADMS can regulate system pressure at the optimal level close to the

Air Pressure System



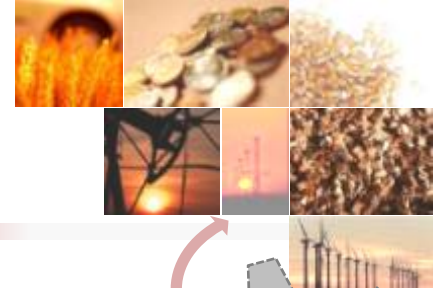
ADMS's Diagram



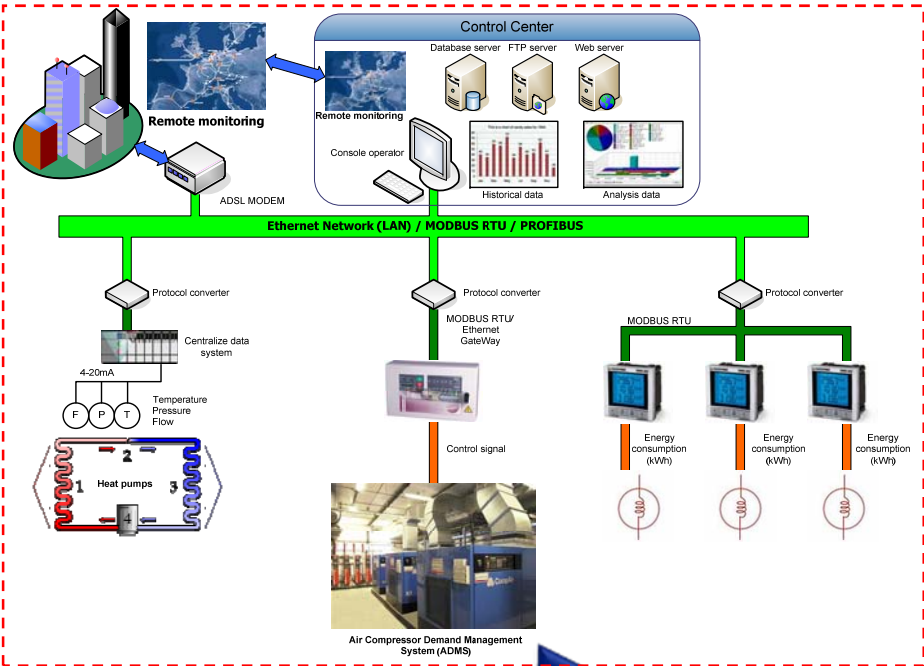
## Advantages of ADMS installation

- Able to manage maximize the **utilization of compressed air** with minimal energy.
- **Reduce the effect of leakage of compressed air** which in turns will reduce energy loss.
- **Able to be installed with all** brands of **air compressor**.
- **Installation** can be accomplish **without stoppage of production** of compressed air.
- Has multiple functions that can **be selected to best suit specific working condition**.
- **Able to monitor** the usage of air compressor by computer monitor





## ✓ Air Compressor Demand Management System (ADMS)



**CO<sub>2</sub> reduction  
452.41 Ton CO<sub>2</sub>/year.**



Project Investment Cost	=	4.66 MB
Energy Cost Savings	=	2.80 MB/Year
Payback Period	=	1.67 Years
IRR 10 Years	=	62.25 %
CO2 reduction	=	452.41 Ton CO <sub>2</sub> /yr
Start Savings	=	November 2008
End of Contract Period	=	June 2010

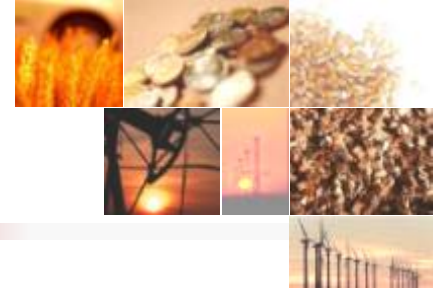
### Air Compressor Demand Management Controller



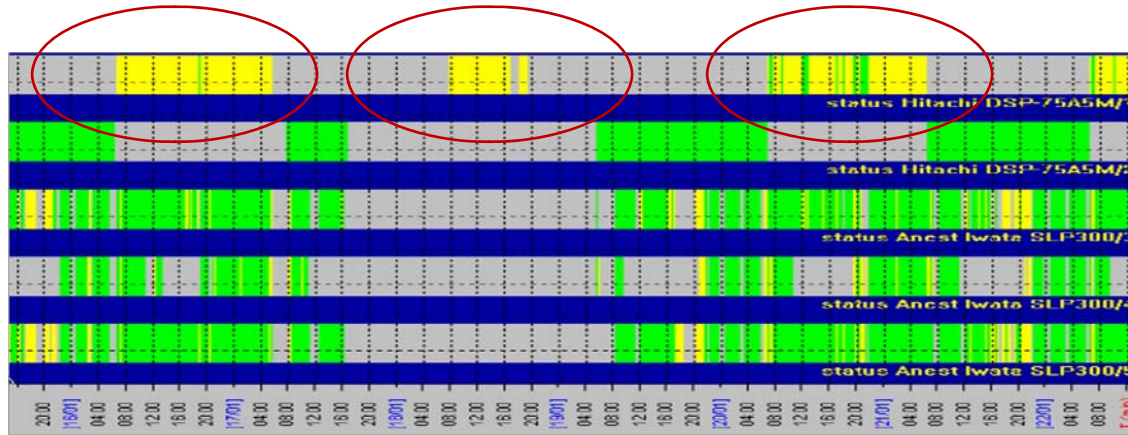
### Solution Detail:

Installation of ADMS to optimize the operation of load/unload air compressors and the performance of compressed air systems.

# Measurement and Verification (M&V)



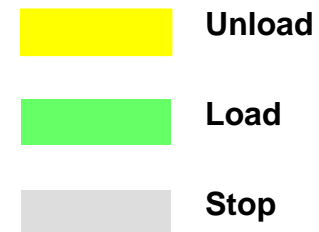
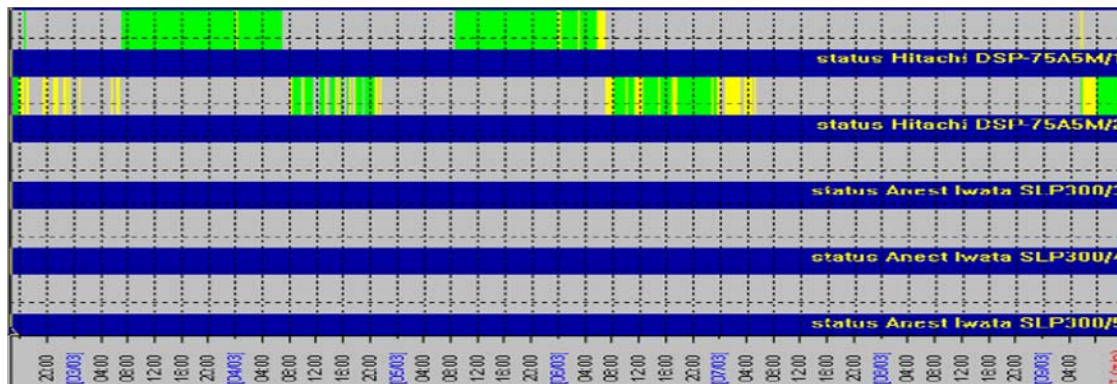
Air compressor operation log before installation – GH lines



## ADMS's benefit

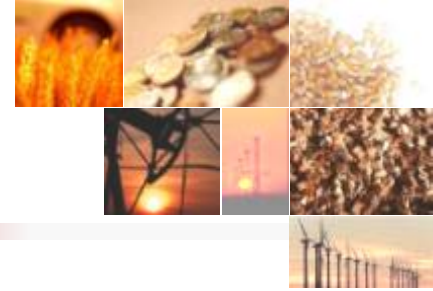
- Manage load/unload operation of air compressors
- Optimize the performance of compressed air system
- Reduce the effect of leakage of compressed air

Air compressor operation log after installation – GH lines





# Thank You



<http://www.eei.co.th/>

Tel. +662-201-3466-7 / Fax. +662-201-3465