

Process Management

Network Power

Climate Technologies

Appliance Solutions

**When the stakes are high**

Industrial Automation

Motor Technologies

Professional Tools

Storage Solutions



**EMERSON™**

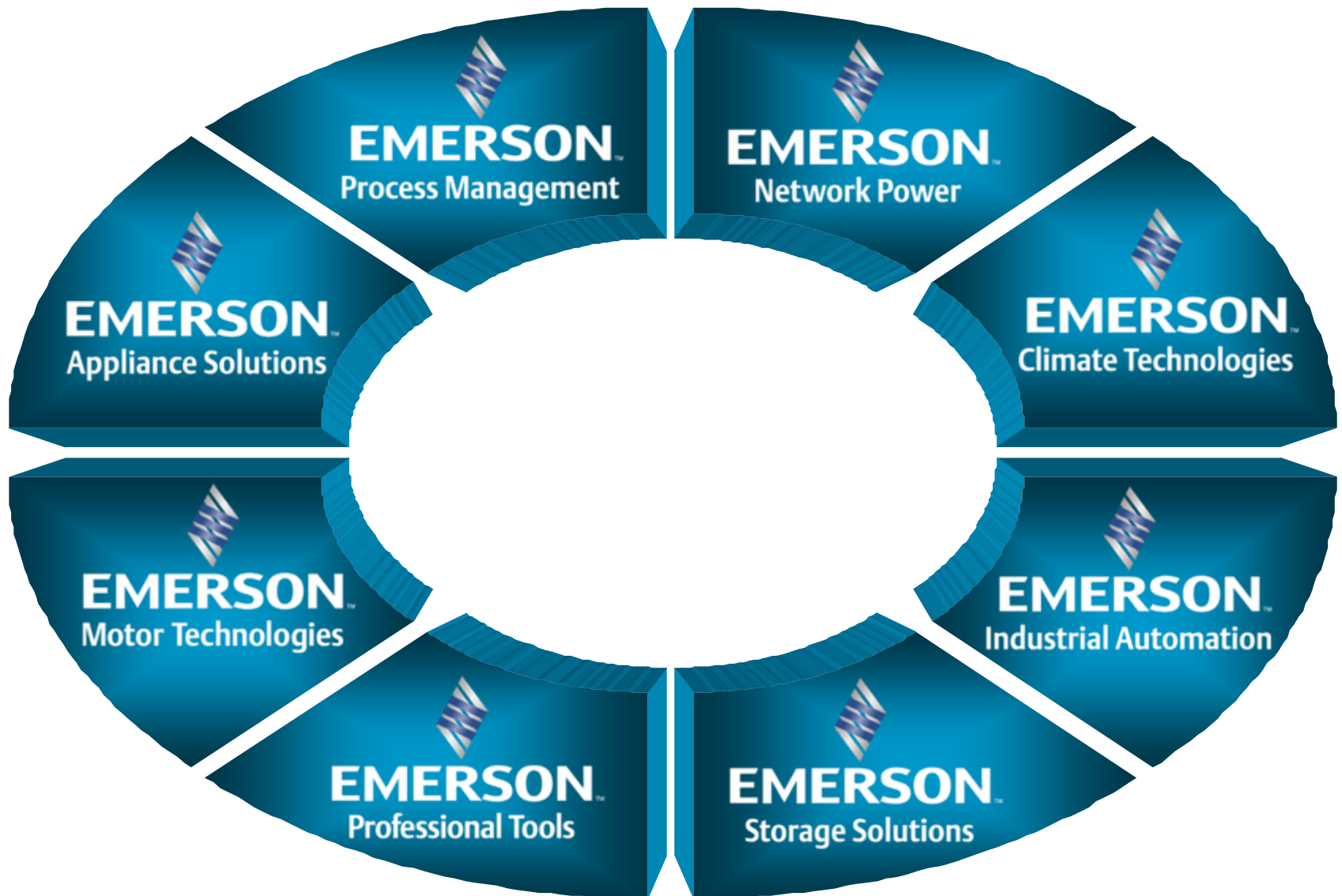
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**CONSIDER IT SOLVED™**

# Emerson: \$13.8 Billion In Revenues With Over 60 Divisions



# *Emerson Business Units*



# Global Market and Technology Leadership



**EMERSON**  
Process Management

- #1 Control Valves
- #1 Measurement Devices
- #2 Systems & Solutions



**EMERSON**  
Climate Technologies

- #1 Compressors
- #1 Controls
- #2 Thermostats
- #2 Valves
- #2 Motors



**EMERSON**  
Industrial Automation

- #1 Alternators
- #1 Industrial Motors



**EMERSON**  
Network Power

- #1 AC & DC Power Systems
- #1 OEM Embedded Power
- #1 Precision Climate Systems



**EMERSON**  
Motor Technologies

- #1 Fractional Motors



**EMERSON**  
Appliance Solutions

- #1 Garbage Disposers
- #1 Appliance Components



**EMERSON**  
Professional Tools

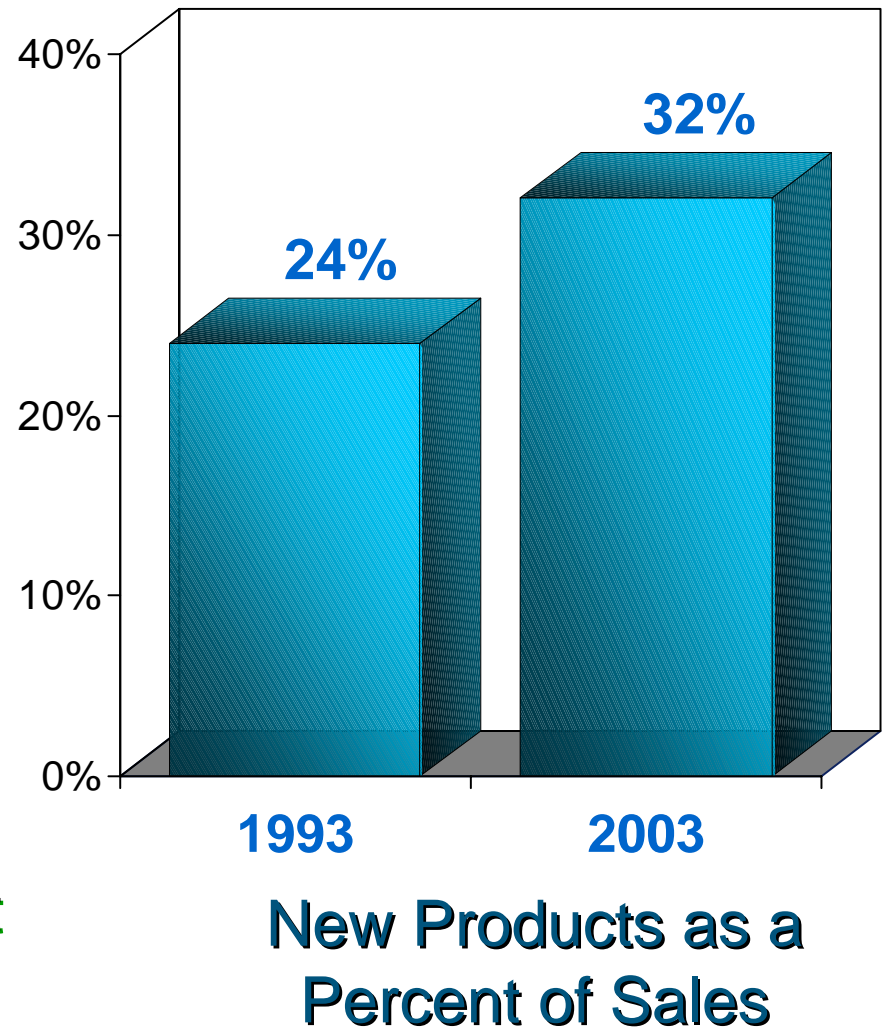
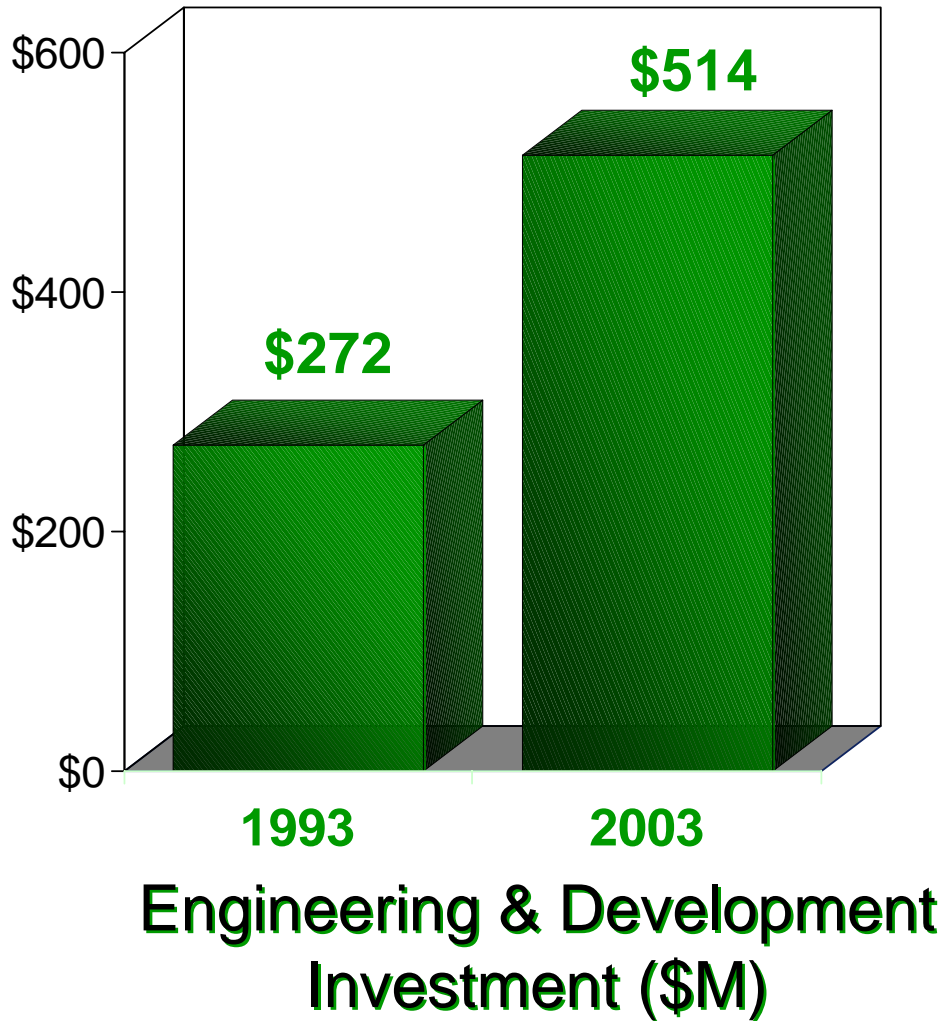
- #1 Plumbing Tools



**EMERSON**  
Storage Solutions

- #1 Storage Solutions

# Emerson Growth Through Technology Leadership



# Emerson Global Presence

A world map with color-coded regions: North America (purple), South America (pink), Europe (red), Africa (cyan), Asia (green), and Australia (light green). A yellow callout box at the top center contains worldwide totals. Five regional callout boxes provide specific data for North America, Europe, Asia, South America, and Rest of World.

**Worldwide Employees: 106,000**  
**Locations: 290**

## North America

**Sales: \$8.4 billion**  
**Employees: 57,600**  
**Locations: 175**

## Europe

**Sales: \$3.2 billion**  
**Employees: 22,000**  
**Locations: 70**

## Asia

**Sales: \$1.7 billion**  
**Employees: 25,000**  
**Locations: 40**

## South America

**Sales: \$0.3 billion**  
**Employees: 800**  
**Locations: 3**

## Rest of World

**Sales: \$0.4 billion**  
**Employees: 600**  
**Locations: 2**

# Who is using our technology?



Lilly

**EASTMAN**  
Eastman Chemical Company

 **LYONDELL**



**Mead**

*We bring good things to life.*

**HUNTSMAN**

**AIR PRODUCTS**

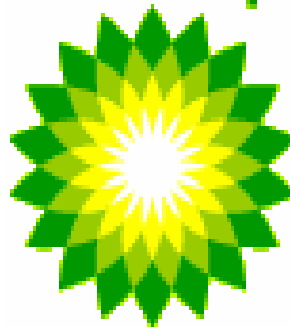


**BASF** 

bp

**Celanese**  
Chemicals Division  
Southern Africa

**EQUISTAR**



**Bayer** 



**PPG** PPG Industries, Inc.

**ExxonMobil**

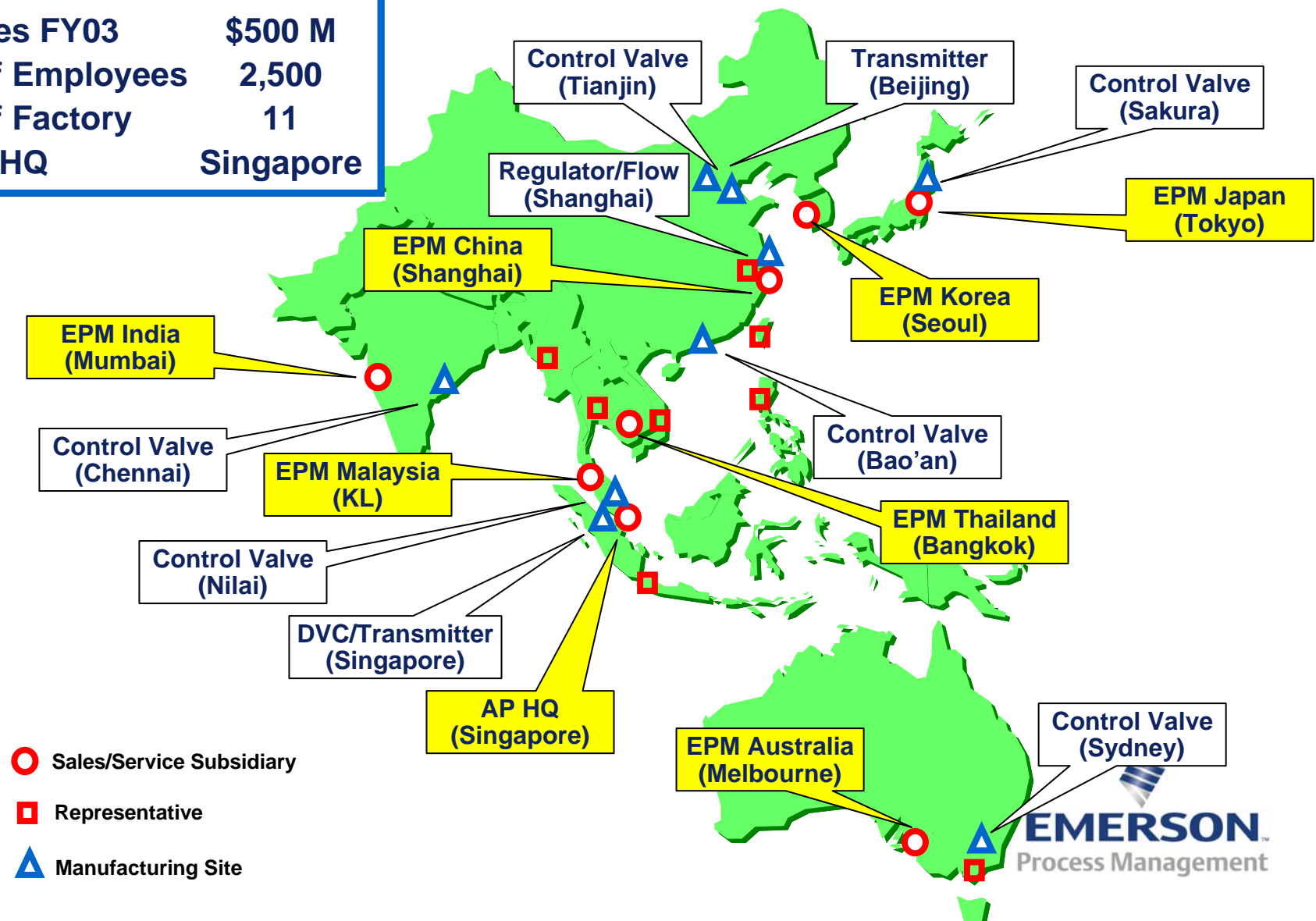
 **Kimberly-Clark**

**3M** **ROHM AND HAAS** 

 **EMERSON**  
Process Management

# Emerson Process Management AP Presence

Sales FY03	\$500 M
# of Employees	2,500
# of Factory	11
AP HQ	Singapore



- Sales/Service Subsidiary
- Representative
- ▲ Manufacturing Site



# Emerson Electric (Thailand) Ltd

## Rayong



# Profile

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**Total Area** : 94,000 sq.m.  
**Building** : 13,248 sq.m. (FY02, 26,423 sq.m.)  
- **Factory** : 12,648 sq.m. (FY02, 23,403 sq.m.)  
- **Office** : 600 sq.m. (FY02, 3,010 sq.m.)

**Construction** : 1996  
**Production** : Feb. 1997

**Capacity** :  
- **Phase 1 only** : 640,000 Units/year  
- **Phase 1+ Phase 2** : 1,200,000 Units/year

# ***Asset Optimization***

## Overview



## ***Definition***

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- **Asset Optimization makes your** boilers, compressors, turbines, furnaces, heat exchangers, pumps, instruments, valves, and other **process equipment as perfect, effective, or functional as possible**

# *Why is it important*



# *Emerson's Asset Optimization Delivers*

- World-class services and innovative technologies to increase the availability and performance of production assets for improved bottom line results



**Mechanical  
Equipment**



**Electrical  
Equipment**

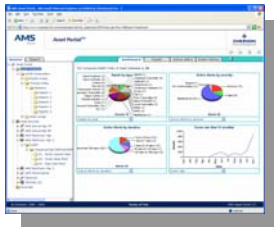


**Process  
Equipment**



**Instruments  
& Valves**

# AMS Suite Technologies



**AMS Asset Portal**



**AMS Device Manager**



**AMS Machinery Manager**



**AMS Performance Monitor**



**AMS Optimizer**



**Other asset information sources**

- Decision-support, reporting and analysis on the health and performance of production assets
- Predictive and proactive maintenance of instruments and valves
- Predictive and proactive maintenance through condition monitoring of mechanical equipment
- Predictive and proactive maintenance through performance monitoring of process and mechanical equipment
- Real-time economic optimization of units, plant or multiple facilities based on changing conditions and business constraints



# PlantWeb Services

- Ensure successful implementation of the AMS Suite and maximize the value realized by users
  - Implementation
    - Assessment and Benchmarking
    - Program Design
    - Apply AO Technology
    - Define & Document Work Processes
    - Enterprise Integration
    - Education / Certification
  - Ongoing
    - Diagnostics Services
    - Monitoring & Analysis
    - Program Management
    - Hardware & Software Technical Support
    - Education / Certification



## ***J-Power (Formerly EPDC) Introduction***



J-Power Building (Ginza, Tokyo)

Founded: September 16, 1952  
Capital: Authorized capital ¥ 100 Billion  
Paid-in capital ¥ 71 Billion  
Shareholders: 10  
Minister of Finance and  
9 electric power companies  
Facilities (as at March 31, 2001):  
58 hydroelectric plants 8,260,800kW  
7 thermoelectric plants 7,754,500kW  
1 geothermal plant  
(Total 66 plants 16,015,300kW)  
and transmission facilities etc  
Sales volumes and revenues (fiscal 2000):  
Electric power 48,915,411 MWh  
Revenues from electric power sales  
¥ 425 Billion  
Employees: 3,379(as at March 31, 2001)

## ***J-Power: In the Process of Privatization***

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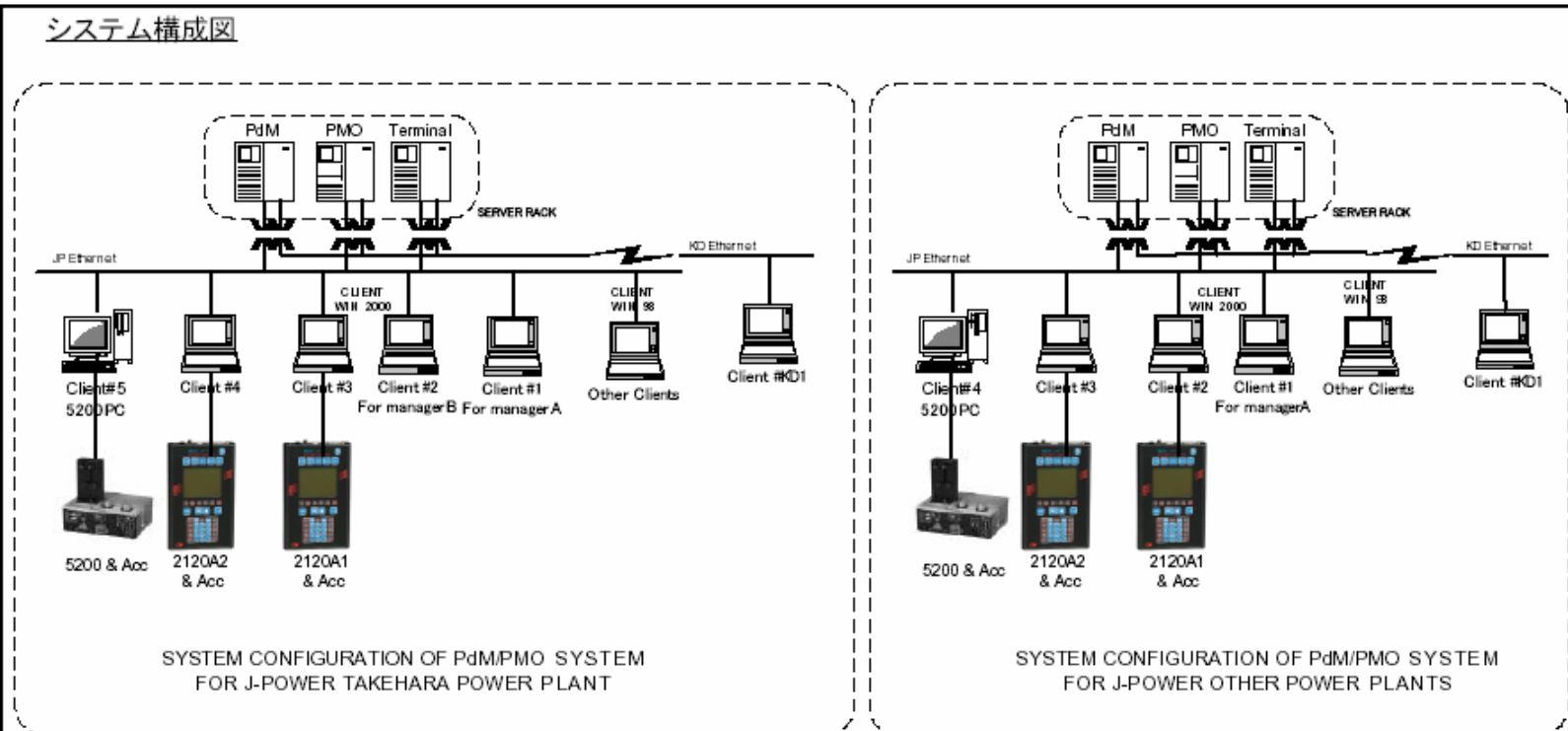
- In June 1997, the Japanese Cabinet ruled EPDC (now J-Power) to be privatized within five years corresponding to the reassessment of special public corporations initiated as an attempt for administrative reform.
- Accordingly, J-Power is proceeding to enhance its efficiency of management, concurrently diversifying its activities from its current projects of hydroelectric, coal thermal and nuclear power generation to research and development in exploration of the potentials of alternative sources of power including refuse incineration and wind-power, also striving to resolve environmental issues relating to power generation.
- J-Power also intends to engage in power generation activities and the provision of technical assistance abroad.
- J-Power has been successfully listed in Tokyo Stock Exchange Market from Oct 2004.

# ***Maintenance Reform @ J-Power***

- **Inviting Duke Engineering Services (now a part of Framatome ANP Inc.) to survey their Takehara Plant ('00-'02).**
- **Dispatching 3 engineers to CSI for extensive training (01'-'02).**
- **Introducing PdM Programs into all 7 thermal power plants (May '02).**
- **Sublicensing CSI training programs and conducted extensive training for all PdM Personnel by the 3 engineers with CSI's assistance ('02-'04...).**
- **Case histories show that the PdM programs have high ROI.**

# Predictive Maintenance System @ J-Power

システム構成図



SYSTEM CONFIGURATION OF PdM/PMO SYSTEM FOR J-POWER TAKEHARA POWER PLANT

SYSTEM CONFIGURATION OF PdM/PMO SYSTEM FOR J-POWER OTHER POWER PLANTS

竹原火力発電所

その他の火力発電所(合計6発電所)

- 礪子火力発電所
- 高砂火力発電所
- 横濱火力発電所
- 松島火力発電所
- 松浦火力発電所
- 石川石炭火力発電所

注記

1. 機器の設置場所は顧客が提供するものとし、また関連ネットワーク工事は顧客が行うものとする。
2. パソコンのIPアドレスの取得とネットワーク関連の設定は顧客が行うものとする。
3. このシステム構成図は、システムの構成を示すものであって、各機器のアクセサリを示していない。各機器のアクセサリの詳細については、見積書などをご参照ください。

SYSTEM CONFIGURATION OF PdM SYSTEM FOR J-POWER

PROJECT NO.	J-POWER PdM PROJECT (ADDITIONAL)				SYSTEM CONFIGURATION OF PdM SYSTEM FOR J-POWER		
REV	DATE	DRAWN	CHECKED	APPROVED	NF JOB NO.	DRAWING NO.	SIZE
1	Nov 18 '03	Robin Lu					A4
Nippon Fisher Co., Ltd. TOKYO, JAPAN					SCALE: NONE	UNIT: NONE	SHEET 1 OF 1



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