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FUJI ELECTRIC ASIA PACIFIC CO\_SG\_FAP\_V.1/2019

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# A B O U T U S

Since **1923**, Fuji Electric has been a global leader in manufacturing power electronics products ranging from distribution & control equipment, semi-conductors, blowers, AC drives, HMI, Instrumentation to UPS systems, transit door systems, and steam turbine generators. We provide more than 90 years of trusted brand in power electronics equipment for industries, such as automotive/transportation, data centers, food & beverage, factory automation, medical/pharmaceutical, oil & gas, and energy-related products in more than **90 countries**.

We pursue technological innovation in energy and continue to provide environmentally friendly products that maximize energy efficiency with a smaller carbon footprint. With energy and environment as its core technology, Fuji Electric contributes to the creation of responsible and sustainable societies through its 5 business segments :



With more than **27,000 employees** across the globe co-operating more than **440,000 products** delivering through our **121 sales network office** with a fiscal sales for 2018, **8,317 million US\$**, we deliver products to customers around the world, contributing to the resolution of energy management problems.



## CONTRIBUTION TO THE REALIZATION OF A SUSTAINABLE SOCIETY

Guided by its corporate philosophy and its management policies, Fuji Electric has continued to contribute to the resolution of social and environmental issues by pursuing innovation in energy and environment technology and creating high-value, eco-friendly products.

We have established the Fuji Electric Code of Conduct as a policy by which the Company and all employees come together as one under shared common values. Acting in accordance with this code, Fuji Electric is contributing to the accomplishment of the United Nations Sustainable Development Goals through its business activities.



Fuji Electric contributes to the resolution of social and environmental issues through its business activities.









## Getting to know **MR. ATSUSHI**

Entered Fuji Electric Co., Ltd in 1995 after graduating from Yokohama National University, major in Engineering, Mr. Shirayama held a position in the International Sales Department in the ED&C drives department, in-charged of the South East Asia region. At his 6th years of service in the head-quarter, Mr. Shirayama was assigned to Singapore office, Fuji Electric Asia Pacific as the Sales Manager to expand the sales territory to developing countries. In 2007, Assigned back to the Japan head-quarter to lead the global Drives team in Tokyo. Mr. Shirayama was appointed the General Manager of Fuji Electric Asia Pacific Office at the young age of 40s in the year 2011. With his strategic leadership and planning, he was promoted swiftly to the President position within the 3 years. Now, he is managing the company with the motto of "Building and maintaining a culture of trust."

#### Q: What intrigued you to join Fuji Electric as sales personnel when you graduated with an engineering degree?

S: I have always been a dynamic person who loves to be involved with people and get excited with challenges and projects.

#### Q: How would you describe your management style?

S: I believe in employee empowerment as I see cost improvement, employee satisfaction, and accountability. We work towards our mission and vision together as a family. To create an amicable and supportive working environment is my duty.



#### Q: What is the proudest moment in your career with Fuji Electric

S: I am a dynamic person, in the year 2001, I see the potential in the India market, despite all the challenges and corporate considerations, I seek out the India market single-handled, establishing distributors, system integration, and managing the business plan. In less than three years, we achieved 0.5million in sales from scratch.

#### Q: How do you think Fuji Electric Asia Pacific can contribute to the customers and society in the next few years?

S: With the increase of globalization and emerging countries, we see the need to contribute to the resolution of social and environmental issues through our business activities and by offering to our customer our range of renewable energy product; solar and wind power generation and power conditioner.

Guided by our corporate philosophies, we will continue to contribute to the creation of sustainable societies through our energy and environment business.

I believe in employee empowerment as I see cost improvement, employee satisfaction, and accountability. We work towards our mission and vision together as a family.

**66** Contributing to the **Resolution of Social and Environmental Issues** Through Our Business.



#### Atsushi Shirayama President and CEO, Fuji Electric Asia Pacific Pte Ltd

#### South East Asia



# Strong Presence in South East Asia

Asia's importance in the world economy is large and growing; The countries of Southeast Asia are contributing to that growth as well. To meet the diverse needs of customer around the regions, Fuji Electric is expanding its sales office network in addition to the manufacturing plants. With the strong connection and collaboration, Fuji Electric Asia Pacific is capable of fulfilling the increasing demands in the industry and remains resilient.

- ♀ 1. Fuji Electric (Thailand) Co., Ltd. ●
  ♀ 2. Fuji Electric Manufacturing (Thailand) Co., Ltd. ▲
  ♀ 3. Fuji Tusco Co., Ltd. ▲
  ♀ 4. Fuji Electric (Malaysia) Sdn. Bhd. ▲
  ♀ 5. Fuji Electric Sales Malaysia Sdn. Bhd. ●
  ♀ 6. Fuji Electric Asia Pacific Pte. Ltd. ●
  ♀ 7. Fuji SMBE Pte. Ltd. ▲
  ♀ 8. PT Fuji Electric Indonesia ●
  ♀ 9. PT Fuji Metec Semarang ▲
  ♀ 10. Fuji Electric Vietnam Co. Ltd. ●
  ♀ 11. Fuji CAC Joint Stock Company
  - **♀** 12. Fuji Electric Sales Philippines Inc ●
- ♀ 13. Fuji Electric Co., Ltd. (Myanmar Branch Office) ●
- ♀ 14. Rep. Office of Fuji Electric Co., Ltd. ●









Our company is approaching 100<sup>th</sup> years of establishment. Fuji Electric continues to evolve in steps with the times and society, with technology as its driving force.

#### 1923

Fuji Electric Manufacturing Co., Ltd., Established as a capital and technology alliance between Japan Furukawa Electric Co., Ltd., and German Siemens AG. The result is a company with characteristics inherited from industry in both countries

#### 1924

Began manufacturing electrical machinery

#### 1925

• Began transformer production

• Began operation of the Kawasaki Factory

#### 1927

Began electric fan production

#### 1936

Built first hydraulic turbine, 4.850 HP Francis Turbine



1937 Began watt-hour meter production

#### 1943

Began operation of the Fukiage and Toyoda factories

#### 1944

Began operation of the Mie Factory

1920



Began ultra-compact magnetic switch production



1959 Began manufacturing silicon diodes

1961 Began operation of the Chiba Factory

#### 1968

Merged with Kawasaki Denki Seizo Co., Ltd., and commenced operations at the Kobe and Suzuka factories

#### 1969

Began production of vending machines



1971 Began manufacturing hybrid ICs

#### 1973

Began operation of the Otawara Factory

#### 1976

Began manufacturing general-purpose inverters

1950



## 1984

Changed company name to Fuji Electric Co., Ltd.

#### 1985

Released the programmable logic controller "MICREX-F Series"

#### 1987

Developed IGBT module

#### 1991

• Began operation of the Yamanashi Factory • Developed 2.5-inch magnetic disks

### 1996

Won order for IGBT main conversion devices used in electric railways. (The world's first largecapacity flat IGBT)

1998 Delivered 100 kW phosphoric acid fuel cell

2002 Introduced Company symbol mark

#### 2003

Changed company name to Fuji Electric Holdings Co., Ltd., owing to shift to pure holding company system

#### 2008

Fuji Electric FA Components & Systems Co., Ltd., merged operations with Schneider Electric Japan Ltd

(Power distribution and control equipment joint venture)

## 1980

..... Fuji Electric Asia Pacific

# FUJI ELECTRIC MILESTONE

#### 2010

Developed next-generation SiC module power semiconductor

#### 2011

Changed company name to Fuji Electric Co., Ltd

#### 2012

Developed inverter equipped with next-generation power semiconductor SiC-SBD, a first in Japan

#### 2014

- Created new corporate brand emblem for products
- Launched power electronics equipped with SiC power semiconductors

#### 2015

Launched steam-generation heat pumps

#### 2018

Began manufacturing exhaust gas cleaning systems for ships











B R A N D M E S S A G E



FRE

## Innovating Energy Technology

Through our pursuit of innovation in electric and thermal energy technology, we develop products that maximize energy efficiency and lead to a responsible and sustainable society.

## POWER ELECTRONICS SYSTEMS ENERGY

#### Transmission and Distribution

Fuji Electric provides industrial power supply and infrastructure equipment that enables customers to stabilize. production, improve productivity and realize energy savings. This equipment includes substations, generators, and other power-supply equipment for electric power facilities, railways, factories, and buildings as well as high-capacity rectification equipment for aluminum smelters and chemical plants.







High-capacity transformers

Molded transformers

Oil-immersed transformers

#### **G** Transmission And Distribution, Monitoring And Control Systems

We supply substation equipment and perform preventive maintenance to ensure stable operation.



#### Substation Equipment



Screenshot of monitoring and control system

#### 🕑 Switchboards

Fuji Electric provides power distribution equipment that has such functions as operation, protection, monitoring for the stable supply of electricity. The equipment is used for various stages form generation, transmission, distribution, to consumers, and also plays an important role in dealing with environmental resistance.



Medium-Voltage Equipment

#### **9** Power Supplies

Fuji Electric offers switching power supply systems for embedding in facilities equipment and information devices such as servers and supercomputers, uninterruptible power system (UPS) to handle power source troubles such as outrages and voltage fluctuations, and power conditioning sub-systems (PCS) that efficiently convert electricity.



Uninterruptible Power Systems (UPS)

#### **5** ED&C Components

Fuji Electric offers power distribution and control equipment such as magnetic switches and molded-case circuit breakers for manufacturing equipment and other machinery in factories, to meet customers' needs for energy savings and safety improvement.



Magnetic Switches

#### Do you know?

Fuji Electric supports electricity infrastructure with proven technologies to ensure that energy can be supplied in a stable, reliable and optimal manner.





**Control Panels** 



Power Conditioning Sub-Systems (PCS)



Molded-case Circuit Breakers

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## **POWER** ELECTRONICS SYSTEMS INDUSTRY

#### Orive Equipment

Fuji Electric supplies inverters, motors and motor application products that contribute to automation and labor and energy savings in the various industrial setting. The Company also provides products not only for compact and lownoise machines but also offers servo and synchronous drive systems of the internal magnet-type variety and products compliant with the Top Runner Motor, which contribute to further energy savings.









Low-voltage Inverters

Servo Systems

Medium Voltage Inverters



## **6** Control Equipment

Fuji Electric promotes factory automation by delivering equipment and other system solutions that allow for optimal control of servo systems and inverters with programmable controllers and programmable displays.



Motors

Programmable Controllers



Human Machine Interface (HMI)

#### Do you know?

Fuji Electric combines its power electronic products with measuring instruments and the Internet of Things (IoT) and facilitates the advance of plant automation and visualization to increase productivity and save energy.

#### 🚱 Measuring Instruments

Fuji Electric delivers measuring instruments that are compact and offers high precision, high performance, and long term stability. They can be used for optimizing equipment operation, reducing energy consumption, and measuring the environment such as air pollution, as well as visualizing consumer facilities to help ensure safety and security.



Ultrasonic Flowmeter (Portable Type)

#### **Metal Plants** - High-speed Control Systems

Fuji Electronic's systems help achieve stable operation with minimal maintenance by providing both high-speed control and monitoring control.



Metal plants

**Gement Plants** - Monitoring Control Systems Fuji Electric provides systems that contribute to stable-operation and high-quality product manufacturing by realizing

#### Sexhaust Gas Cleaning Systems For Ships

optimal monitoring control and operation management.

Fuji Electric's exhaust gas cleaning systems combine the world's \*smallest SOx scrubbers with optimal control functions using exhaust gas analyzers to ensure compliance with SOx emissions regulations and minimal operating costs.



**Exhaust Gas Cleaning Systems For Ships** 



This product is a portable type ultrasonic flowmeter for measuring liquid flow rate (pure water, cooling water, liquid chemicals, etc.) provided with a sensor that can be installed anywhere in the existing piping of plant facilities without stopping facility operation.

Cement plants

\* As of October 2017, based on Fuji Electric's data.

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## POWER AND NEW ENERGY

#### 6 Thermal Power

Fuji Electric offers a comprehensive lineup of services for thermal power generation plants encompassing basic planning, design, production, construction, commissioning, and after-sales services that are centered on steam turbines and generations.





Steam-turbines

## Solar Power Generation



Combined-cycle power generation plants

For solar power generation systems, Fuji Electric supplies peripherals equipment, such as high-efficiency largecapacity power conditioning systems, as well as its expertise in engineering, procurement, and construction (EPC).



#### Power Conditioner System

Fuji Electric provides a substation type of PCS that can be installed outdoors. A switchgear, a step-up transformer, and P CS are integrated on a common base in a single unit. This eliminates the need to build a house for the equipment and air-conditioning facilities. Since this substation is transported to the site as an integrated unit, on-site construction costs can be greatly reduced. Optional fuses for a DC branch in the PCS can be equipped



Central Type PCS

#### 🕑 Geothermal Power Generation

We supply design, production, and construction services for entire power plants that include flash-cycle and binarycycle turbines and generators as well as other major and peripheral equipment.



Geothermal power generation facilities

#### Hydroelectric Power Generation

With our extensive range of turbines, which can be selected as ideal for regional specifications, we offer a comprehensive lineup of plant engineering services spanning from design and production to on-site installation and trial operation.



Micro-tubular turbines

#### Do you know?

Fuji Electric is a one stop provider of services ranging from design and manufacturing to on-site installation, commissioning tests, and after-sales services.





String Type PCS

Binary-cycle power generation facilities



Vertical bulb turbines

## ELECTRONIC DEVICES



## FOOD AND BEVERAGE DISTRIBUTION

#### 🕗 Semiconductors

Fuji Electric supplies IGBT modules that meet the high-quality standards and achieve high conversion efficiency for use in industrial machinery and wind power and solar power generation equipment, which are increasingly incorporating the IoT and labor-reducing techniques. We aim to develop even higher performance semiconductor components to contribute to equipment that is more compact and boasts greater energy savings with our advanced packaging technology.



7th generation IGBT modules



Small-capacity IPMs (Intelligent Power Modules)



Power MOSFETs

#### Vending Machines

As a leader in the industry, Fuji Electric is actively working on expanding the use of environmentally friendly vending machines with advanced energy-saving features, and on responding to customers' diverse needs with an abundant variety of products, ranging from can and PET bottle vending machines to cup and food vending machines. With a good range of selection, we contribute to labor savings in the workplace.



Hybrid heat pump can/PET vending machines



Food Vending Machines



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#### Do you know?

Fuji Electric's electronic devices, achieving higher quality and high conversion efficiency, contribute to product downsizing and energy savings.

#### Do you know?

Fuji Electric provides food safety and security and helps to save labor, manpower, and energy.







In the fast-moving world of today, you and your customers are working hard to fulfill the demanding needs. Fuji Electric produces products and solutions to ensure that your equipment and the daily operation run smoothly.

# NORTHEN CYPRUS PROJECT

#### The Project

Fuji Electric Asia Pacific (FAP) was awarded the direct contractor to conduct a full turn-key in supplying, delivering, replacing, installation and testing & commissioning an existing 3000kVA 11/3 46Kv Mineral oil Type Transformer. This is also the first time; FAP was selected as the direct contractor after several working opportunities with PETRONAS Chemicals MTBE as their vendors.



The Expectations PETRONAS Chemicals MTBE Sdn Bhd required FAP to provide engineering solutions during the turn-key period with zero failure of equipment and most importantly, meeting the project designated time-line.

#### The Challenges

As a strong player in the oil & gas industry, PETRONAS Chemicals Sdn Bhd needed to adhere to a set of strict safety regulations such as Healthy Safety & Environment (HSE) code of conduct. Therefore, the team needed to more time to clear different level of approval for drawings or bill of materials. The first worrying issue was meeting the designated time-line set by the customers.

The second challenge was tightening the communication between PETRONAS, FAP, and Fuji Tusco (FTU), which is our factory. Fuji Tusco supported the project by providing product and solutions for the project. As this is the first time as the direct contractor, FAP needed to manage and ensure accurate communication between both parties to make sure zero errors were obtained during the turn-key period.





#### The Solutions

FAP project management team arranged the project stakeholders to the site to solve the teething issues periodically throughout the project. The team makes sure that every problem was presented with effective solutions adhering to the deadline committed by parties informed. The team had also taken careful steps in making sure that the project members compliance with Petronas HSE safety code.

#### The Results

As a result of strategizing planning and effective communications by FAP's team, the required equipment and materials for the project was delivered and installed smoothly without any delay.

We were also proud that zero failure or accidents were reported during the 2-weeks onsite execution. The result was positive, and PETRONAS Chemicals Sdn Bhd was happy with the project.













The Project

MTBE as their vendors.

designated time-line.

set by the customers.

The Challenges

In the fast-moving world of today, you and your customers are working hard to fulfill the demanding needs. Fuji Electric produces products and solutions to ensure that your equipment and the daily operation run smoothly.

## Direct Contractor Project with PETRONAS Chemicals MTBE Sdn Bhd

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//Entertainment:

PROJECT

REFERENCES

#### 1) Garden by the Bay

Gardens by the Bay is located in the heart of Marina Bay and aims to become the world's most premier tropical garden. Singapore's location near the equator makes it the perfect location for a lush tropical paradise, and these new gardens in Marina Bay plan to offer that and so much more. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.

#### 2) J Cube

JCube Shopping Mall boasts an iconic façade inspired by an ice cube. Like an ice cube, it is designed to reflect natural light by day and sparkle by night. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.

#### 3) Jem

Jem is a suburban shopping. This regional shopping mall, found next to Jurong East MRT in the west of Singapore, is the third largest suburban shopping mall in Singapore. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.

#### 4) Mediapolis @one-north

The Media 21 blueprint envisions Singapore as a Global Media City where media services and projects are created developed, traded and distributed to the international market. Singapore plans to become Asia's leading media marketplace and financing hub, producing high quality content and digital media. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.













#### 5) Suntec Singapore

In 2013 Suntec City was given a new look (Alteration & Addition) after open its door for 16 years. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.



#### //Education:

#### 6) BCA Academy

BCA Academy is the education and research arm of Singapore's Building and Construction Authority (BCA). The installed Fuji Electric FRENIC-HVAC VSD with passive harmonics filter is use as a show case study for guest and students on building ACMV solution. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.



#### 7) GEMS World Academy

GEMS World Academy's new state-of-the-art Singapore campus in Yishun is the latest offering from this highly-regarded schools. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.



#### 8) Lee Kong Chian School of Medicine

The Lee Kong Chian School of Medicine, a partnership between Nanyang Technological University (NTU) and Imperial College London, will train a generation of doctors who will put patients at the centre of their exemplary medical care. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.



#### 9) SUTD

SUTD is Singapore's newest university, Singapore University of Technology and Design is the fourth autonomous university in Singapore. Fuji Electric was evaluated as the preffered supplier by the project consultant for its HVAC inverter.



#### //Health:

#### 10) Sengkang Health

The Sengkang General and Community Hospital (SKGH) is one of Singapore's largest regional hospitals. The project completed in 2018. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.



#### **11) Singapore General Hospital**

A new community hospital in Outram, scheduled to be completed by 2020, will add 550 beds to Singapore's healthcare system, easing the national bed crunch. Situated near the Singapore General Hospital (SGH), 500 of the beds in the Outram Community Hospital (OCH) will be for general rehabilitation and sub-acute patients. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.



#### 12) Yishun Community Hospital

The 428-bed Yishun Community Hospital (YCH) is one of the Singapore's largest community hospital to provide intermediate care for recuperating patients who do not require the intensive care services of an acute care hospital. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.















#### **18) National Art Gallery**

National Gallery is the region's newest and largest museum of modern Singapore and Southeast Asian art housed within two of Singapore's awe-inspiring national monuments. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.



#### 19) PUB

The Bedok Reservoir is a reservoir in the eastern part of Singapore, to the north of Bedok New Town. The reservoir has a surface area of 880,000 m<sup>2</sup>, and a capacity of 12.8 million m<sup>3</sup>. Fuji Electric was evaluated as the preferred supplier by the project consultant for its Medium Voltage pumps inverter.



#### 20) Rolls-Royce

In 2012 Rolls-Royce established its largest facility in Asia, Singapore Prime Minister Lee Hsien Loong officially opened the Rolls-Royce Seletar Campus. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.

# Rolls-Royce

#### **21) SMRT**

The SMRT Downtown Line 3 is to meet Singapore's growth and travel demand, in recognised that additional radial lines were required to bring commuters from residential areas such as Bukit Timah and Bedok more directly to the City. Fuji Electric was evaluated as the preferred supplier by the project consultant for its HVAC inverter.









