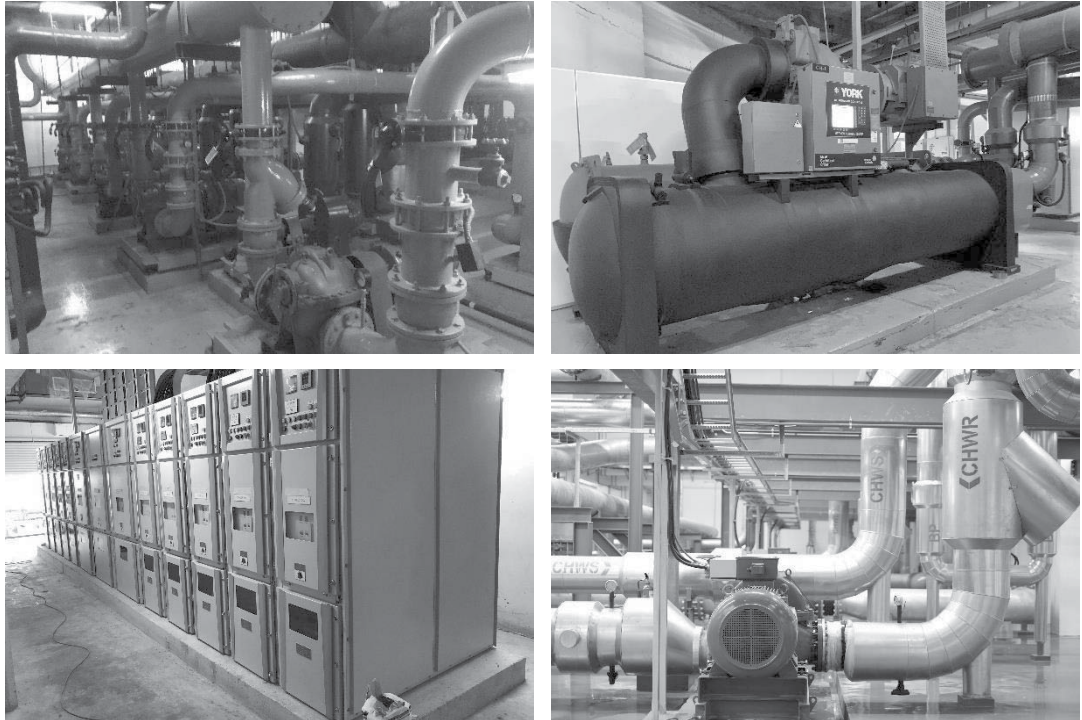


7. BUSINESS OVERVIEW (Cont'd)

- **Distribution piping network:** This is the network of insulated pipes that circulates chilled water to each connected building and airside equipment, and returns the warmed water to the chillers to be cooled again. The distribution piping network includes pumps and valves to control the flow of water, and meters to monitor and track the supply of chilled water.

Some of the equipment used in a DCS or chiller plant

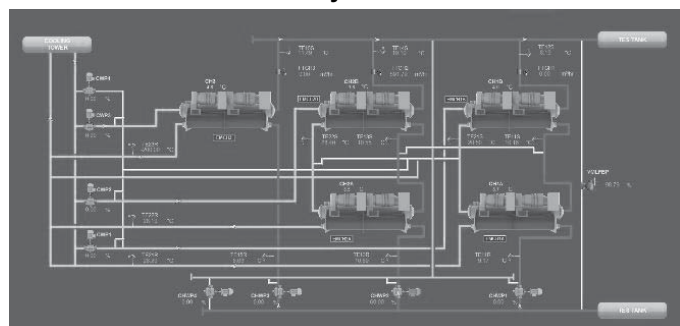


*Top-left: Cooling water pumps and pipes; Top-right: Chillers;
Bottom-left: Switchgear; Bottom-right: Chilled water pumps and pipes.*

- **Switchgears or switchboards:** These are the electrical equipment that receive electricity from an external supply and distribute them safely to various areas and equipment. Amongst others, it also includes starters for equipment and various types of protection devices and circuit breakers to prevent overloads and sudden surges in current.

- **Plant control system:** This is a centralised control system that monitors and controls all aspects of the DCS or chiller plant, and energy transfer station (if installed) operations in real time, and provides alerts of abnormal performance. The plant control system includes application software and hardware controllers such as programmable logic controllers (PLC) and accessories.

Plant control system dashboard



The plant control system can be linked to external networks such as the internet, and linked to our CC.

7. BUSINESS OVERVIEW (Cont'd)

Energy management system

In addition to the main machinery and equipment listed above, DCS and chiller plants will also incorporate an energy management system that is designed to optimise cooling energy system performance while minimising operating and energy usage costs through the following:

- optimising the working parameters and timing of operating the chillers to minimise electricity consumption and costs;
- effective use of thermal energy storage tanks (where installed) to time and regulate the amount of chilled water supplied to airside equipment;
- manage adherence to the proper maintenance schedule to ensure that all machines and equipment are operating efficiently, effectively and safely; and
- gather data through sensors, and measuring and monitoring devices to facilitate efficient, effective and safe operations of machines, equipment and systems.

Energy management system components include the following:

- plant control system (as described above);
- sensors to measure the temperature of chilled water and coolant water parameters, including flow rate, temperature and pressure;
- electricity meters to measure electricity consumption;
- sensors to measure performance feedback from machinery and equipment, such as chiller operation parameters, inverter motor frequency and speed, and valve status;
- energy meters to measure the energy used by the entire system (based on the quantity of chilled water generated by the plant and the difference between the supply temperature of the chilled water generated by the plant and the return temperature of warmed water returned from buildings; and
- fault detection system for connected machinery and equipment and the plant control system to detect faults and failures.

Commencing from 2022, some of the sensor modules that we install are Wi-Fi enabled that automatically upload data, through the internet to the control room of their respective DCS or chiller plant, and our CC.

The energy management system links chillers, cooling towers, pumps, valves and other process equipment, as well as all the sensors, measurement, monitoring and control devices to the plant control system at the onsite control room. For some of our customers

where we carry out cooling energy management, our personnel are stationed in the control room to continuously monitor the performance of the DCS or chiller plant in real time. Our personnel can take corrective actions when faults or performance deteriorations are detected before they escalate into equipment or system failure.

Wireless sensor modules



7. BUSINESS OVERVIEW (Cont'd)

Connection to buildings

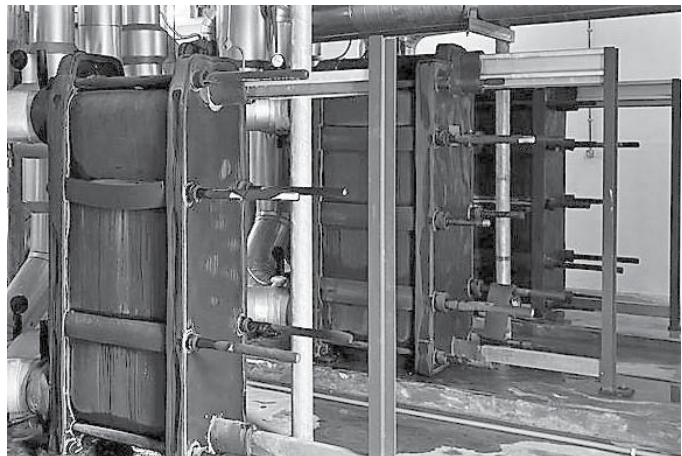
There are two methods of connecting a DCP or chiller plant to buildings as follows:

- **Direct connection:** The chillers will provide chilled water directly to all of the buildings' airside equipment. This method is normally used for small DCS networks where the pumps at the DCP are sufficient to provide water pressure to all connected buildings.
- **Indirect connection:** The chillers supply chilled water to an energy transfer station, which serves as a secondary circuit to control the supply of cooling energy to the airside equipment according to the building's requirements. The secondary circuit has separate pumps to pressurise and circulate chilled water to the building's airside equipment. The indirect connection method is commonly used for larger DCS networks with more and/or larger connected buildings, whereby connected buildings require their own pumps to circulate chilled water to their airside equipment.

Some of the main equipment installed in connected buildings are described below:

- **Chilled water meter:** All connected buildings are equipped with a chilled water meter to measure and record the quantity and temperature of chilled water supplied to the building, and the quantity and temperature of water returned to the chillers.

Energy transfer station

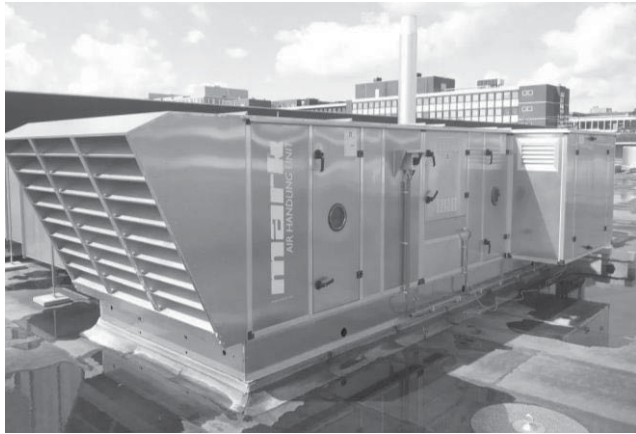


- **Energy transfer station:** Energy transfer stations are only installed in buildings with an indirect connection. The energy transfer station is equipped with heat exchangers, which physically separate the chiller's supply of chilled water from the building's secondary chilled water distribution network. Waste heat from the building's airside equipment is transferred across the heat exchanger to the chilled water supplied by the DCP or chiller plant. The now-chilled water is then recirculated through the building's secondary chilled water distribution network to the airside equipment. The energy transfer station also incorporates pressure sensors and pumps to control the pressure of the water going to the airside equipment.
- **Building chilled water distribution piping network:** The building's chilled water piping network distributes chilled water to the building's airside equipment. The system incorporates valves, field instruments and control equipment to regulate water flow rate and pressure as needed. Buildings with an indirect connection are also equipped with pumps to circulate the chilled water.
- **Airside equipment:** These are the devices that condition, circulate and regulate the flow of air in the building. There are two common types of airside equipment used in buildings that utilise chilled water for cooling energy systems, namely air handling units (AHU) and fan coil units (FCU). Both require chilled water for cooling and perform the same function in conditioning and supplying air. AHUs have more features and larger capacity compared to FCU, and as a result, are suited for cooling larger areas or spaces with specific temperature and humidity requirements (such as cleanrooms and hospital wards):

7. BUSINESS OVERVIEW (Cont'd)

- . **AHUs** are designed to condition, circulate and regulate the flow of cool air for a large internal area using ducting. AHU are capable of air treatment (such as humidifying, filtering and/or sterilising) with the appropriate fittings, and can supply fresh or recirculated air. The main components of an AHU include blowers, cooling coils and filters, and may be equipped with other supplementary fittings for air treatment. The AHU is normally housed in a dedicated area and it is connected by air ducts to supply diffusers and return air intakes installed in rooms, corridors and other internal spaces of the area that it serves.

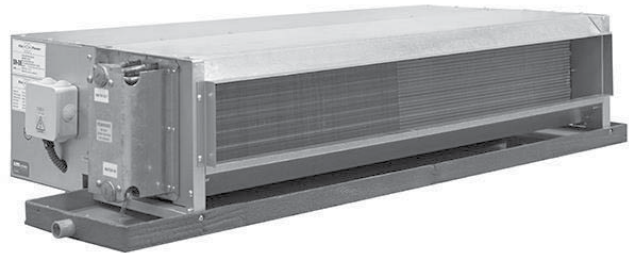
A rooftop mounted air handling unit



Warm and moist air is sucked through the return air intakes and conveyed to the AHU through the return air ducts. The return air is filtered to remove solid particles and blown across the cooling coil, through which chilled water from the chiller circulates. As the warm and moist air passes through the cooling coil, excess heat is transferred to the chilled water resulting in the cooling and drying of the air. The “used” chilled water (which is now warmer) is returned to be cooled again and reused. The cooled and drier air is blown through supply air ducts to the supply diffusers, and circulated into the rooms, corridors and other internal spaces.

- . **FCU** is designed to condition and recirculate air only and is not equipped for air treatment or to supply fresh air. They are smaller in size compared to AHU and have lower capacity, and are suitable for serving small areas or rooms. FCU comprises a fan, cooling coil and filter to provide cool air in indoor space without connecting to ductwork. The fan draws air into the FCU, where it passes over the cooling coil which is supplied by chilled water, cooled and then re-circulated into the room. The “used” chilled water is returned to be cooled again and reused. FCU is commonly installed within the suspended ceiling of the space where they are intended to cool.

A fan coil unit



7. BUSINESS OVERVIEW (Cont'd)

7.5.1.3 Chiller plant

A chiller plant performs the same function as a DCP, except that it is on a smaller scale and is designed to generate and deliver chilled water to provide cooling energy to a single building. Chiller plants are usually housed in a dedicated area of the building that they supply, and they are equipped with the same types of main machinery and equipment as DCP, namely chillers, cooling towers and a chilled water distribution network. Chiller plants are also commonly equipped with an energy management system to promote efficient operations and maintenance, as well as minimise the usage of electricity.

The chilled water generated by the chiller plant is distributed through the building's chilled water distribution piping network to AHU and/or FCU, as required.

7.5.1.4 Cooling energy management

We are engaged by our customers to provide cooling energy management, mainly based on the supply of chilled water, as well as carrying out O&M services to meet their space cooling needs. For the Financial Years and Period Under Review, our revenue from cooling energy management amounted to RM24.27 million (32.90%), RM25.11 million (29.44%), RM30.02 million (31.78%) and RM14.06 million (19.59%) of our total revenue for FYE 2020, FYE 2021, FYE 2022 and FPE 2023, respectively. The segmentation of our cooling energy management revenue by country is as follows:

Cooling energy management services	FYE 2020		FYE 2021		FYE 2022		FPE 2023	
	RM'000	%*	RM'000	%*	RM'000	%*	RM'000	%*
Malaysia	24,265	32.90	19,374	22.72	25,491	26.99	12,558	17.50
Thailand	-	-	5,731	6.72	4,525	4.79	1,503	2.09
Cooling energy management services total	24,265	32.90	25,105	29.44	30,016	31.78	14,061	19.59

Note:

* Percentage of total revenue.

Before we provide cooling energy management, we would have carried out either EPCC of new or retrofitting and/or upgrading existing cooling energy systems for most of our customers. This is mainly predicated on our value proposition that our cooling energy systems and cooling energy management services will help customers save on their electricity costs for space cooling.

Before undertaking retrofitting and/or upgrading existing cooling energy systems, we would carry out an energy audit to establish the benchmark electricity cost to achieve the required space cooling parameters. We will show our potential customers that retrofitting and/or upgrading their existing cooling energy system, and engaging us to provide our cooling energy management service will improve the efficiency of the cooling energy system to reduce electricity consumption and costs compared to the benchmark.

Similarly, for EPCC of new cooling energy systems, we can demonstrate through our various reference sites, how we can construct efficient cooling energy systems that minimise electricity costs for space cooling.

As electricity cost savings are also dependent on proper operations and maintenance of the cooling energy system, we would also carry out the cooling energy management of the new or retrofitted and/or upgraded cooling energy system.

7. BUSINESS OVERVIEW (Cont'd)

Our cooling energy management services include O&M of the DCS or chiller plant, and/or their airside equipment, which may include AHU and/or FCU. The cooling energy system that we manage would also incorporate our in-house developed energy management system which links the operations of the cooling energy system to the onsite control room. The onsite control room will collect and display real-time performance data and information such that any deterioration in performance or faults detected would be highlighted and alerts displayed for remedial actions. For cooling energy management which includes DCS and chiller plants, we would station our personnel in our customers' control room to monitor the performance of the system. For cooling energy management comprising only maintenance of only airside equipment, our personnel stationed at the customer's premises will carry out scheduled maintenance and ad hoc corrective maintenance and repair for any faults detected.

Some of our customers' onsite control rooms are also linked to our CC at our head office in Kuala Lumpur. Our CC is operational 24 hours per day and seven days a week (24/7). They serve as an additional line of monitoring and oversight for our customers' onsite control rooms.

Our main activities for cooling energy management include the following:

- active monitoring and management;
- on-going operations;
- preventive maintenance;
- corrective maintenance;
- major maintenance; and
- supply of chilled water.

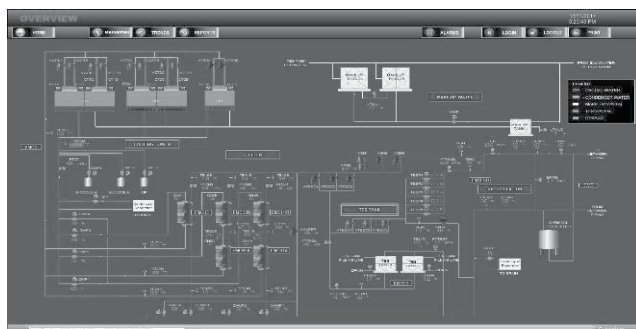
Active monitoring and management

Active monitoring and management involve continuous monitoring of the cooling energy system's performance when it is operating, and taking remedial action when faults or abnormal performance are detected. The intentions are to ensure that the system is operating safely and efficiently, and that minor faults are detected and addressed before they escalate into more serious problems. Active monitoring is facilitated by the following:

- measurement and monitoring devices incorporated in key machinery and equipment, such as the chillers, cooling towers, thermal energy storage tank (if present), chilled water meters and airside equipment;
- field sensors to gather temperature and other data at specific locations; and
- onsite control room and dashboard at customers' premises, linked to our CC at our head office.

The energy management system's monitoring devices, field sensors and control room are connected through a combination of wired and wireless networks. Real-time data from the measurement devices and field sensors are collected, stored and analysed at the onsite control room, and relevant data are displayed for onsite personnel through the dashboard. The dashboard will display a notification if abnormal system performance or machinery malfunction is detected for onsite personnel to take the appropriate remedial actions.

Control room dashboard for a chiller plant



7. BUSINESS OVERVIEW (Cont'd)

Data from the connected energy management systems are also sent to our CC, which is operational 24/7 with at least one person on duty monitoring the CC at all times. Our CC monitors connected cooling energy systems comprising DCS or chiller plants that we operate and maintain. We can alert onsite personnel if remedial action is not taken promptly. Our CC personnel can also remotely control some onsite machinery and equipment when required.

Our personnel at our CC



On-going operations

Our operations of the cooling energy system are focused on the supply of chilled water as a source of cooling energy. We will need to ensure chilled water is supplied according to contractual specifications, which include the following:

- chilled water must be supplied during specific hours and days;
- a certain minimum quantity of chilled water must be supplied per day; and
- the chilled water supplied must be within a specific temperature range.

Some of the day-to-day operational tasks performed include the following:

- when the system is running, which may be 24 hours per day depending on our contract with the customer, our personnel are onsite at the control room to ensure that all machines, equipment and systems are running efficiently;
- proper start-up of DCS or chiller plants that do not operate 24 hours per day and are contracted to provide chilled water at specified times, such as those for shopping centres and offices;
- respond to any alerts, faults or parameters that fall outside of specifications displayed at the onsite control room;
- respond to problems or concerns from customers or building occupants;
- regularly inspect and maintain chillers to ensure that they operate efficiently and to prolong their lifespan.

7. BUSINESS OVERVIEW (Cont'd)

Preventive maintenance

Preventive maintenance is carried out according to schedule and is intended to avoid machinery and equipment breakdown. It is usually carried out relatively frequently and it does not require a prolonged shutdown of the machinery and equipment. Any minor faults or problems uncovered during preventive maintenance are rectified before they escalate into breakdowns. The types of preventive maintenance that we carry out as part of the operations and maintenance of cooling energy systems include the following:

- daily: checking machinery and equipment working parameters are within the specified range;
- monthly: chemical analysis of chilled water and cooling water, greasing pumps and motors, and cleaning cooling tower basins; and
- annually: cleaning chiller tubes and gearbox oil change where necessary.

Corrective maintenance

Corrective maintenance is carried out in response to unexpected breakdowns or faults detected and to restore functionality or rectify faults as quickly as possible. The tasks involve troubleshooting to identify the source of the problem, and carrying out repairs and/or replacing worn-out or broken parts and components.

Major maintenance

Major maintenance is also carried out according to schedule and is more extensive than normal preventive maintenance. As performing major maintenance requires the shutdown of the machinery and equipment involved, we plan major maintenance jobs to avoid a shutdown of the entire cooling energy system. For example, we typically shut down and carry out major maintenance on individual chillers and pumps while other units continue to operate to provide cooling energy for the building. The type and frequency of major maintenance tasks are specified in each machinery and equipment's operating manual.

Subsisting contracts

As at the LPD, our on-going contracts for providing cooling energy management services with estimated annual charges of more than RM1.00 million are as follows:

Description	Mode of Operation	Start date ⁽¹⁾	End date ⁽²⁾
Johor Hospitals CEMS Contract	F+MCP	Dec 2019	Mar 2025
Muar Education Facilities CEMS Contract	F+CW	Jan 2017	Jan 2037
PJ Shopping Mall and Office CEMS Contract	F+V+MCP	Jan 2016	Mar 2032
Melaka Shopping Mall CEMS Contract	F+CW	Feb 2018	Jan 2028
Subang Shopping Mall CEMS Contract	F+CW	Oct 2018	Oct 2033
JB DCS CEMS Contract	F+CW	Aug 2018	Jul 2038
Bangkok Mixed Development CEMS Contract	F+CW+MCP	May 2021	Feb 2037

Notes:

F+CW = Fixed monthly charges plus monthly supply of chilled water charge; F+MCP = Fixed monthly charges with monthly capital repayment charges; F+V+MCP = Fixed plus variable monthly charges, with monthly capital repayment charges; F+CW+MCP = Fixed plus supply of chilled water monthly charges, with monthly capital repayment charges.

(1) Based on the letter of award or commencement date of the agreement.

(2) Based on the expiry date of the agreement.

7. BUSINESS OVERVIEW (Cont'd)

7.5.1.5 EPCC of cooling energy systems

We provide EPCC for cooling energy systems which includes the entire new DCS or chiller plants or retrofit and/or upgrade of existing cooling energy systems. For the Financial Years and Period Under Review, revenue from our EPCC of cooling energy systems amounted to RM21.04 million (28.52%), RM16.44 million (19.27%), RM13.73 million (14.54%) and RM21.97 million (30.62%) of our total revenue for FYE 2020, FYE 2021, FYE 2022 and FPE 2023 respectively. All of our revenue from EPCC of cooling energy systems for the Financial Years and Period Under Review was from Malaysia.

For EPCC of new buildings that incorporate new DCS or chiller plants, we work as the sub-contractor to the main contractor of the overall building construction project. For most EPCC retrofit and/or upgrade works, we are the main contractor.

As we are engaged as an EPCC contractor, we are responsible for the overall engineering design, procurement of all machines, equipment, materials and parts, installation, and testing and commissioning of the facility. In some circumstances, we also work with consultants engaged by the customer. The installation works are carried out by our employees with the exception of mechanical, electrical and process control works which are carried out by third-party sub-contractors under our supervision and management.

The EPCC of cooling energy systems includes the following:

- **Engineering design**, where we are responsible for the engineering design and specification of the new cooling energy system or the retrofitted and/or upgrading parts to meet the facility owners' requirements, including desired cooling level and availability, budget and environmental sustainability goals, if any.

The overall design of the cooling energy system will take into consideration site conditions such as the prevailing temperature profile of the location, space available for the cooling energy system (particularly for the DCP or chiller plant) and internal layout of the building, as well as usage factors such as the building's cooling demand profile. In addition, in line with our overall energy management approach, the system design will focus on achieving cost-efficient operations in terms of energy consumption, maintenance requirements and occupants' comfort. These factors, considered as a whole, will determine the design of the system in terms of chilled water generation capacity, number and type of main equipment such as chillers, cooling towers and thermal energy storage tanks (if installed), energy transfer station (if installed), airside equipment and energy management system.

Our engineering design process leads to the development of schematic drawings, specification of the types and quantity of machines and equipment such as chillers, cooling towers, pumps and piping systems, and estimated cost of the project. We have our in-house engineering department to carry out the engineering design of the mechanical, electrical and control systems for DCP, chiller plants and airside equipment, and where required thermal energy storage tanks and energy transfer stations. As at the LPD, we have 4 engineers in the engineering department of our Cooling Energy Segment focused on engineering design.

- **Procurement**, including, amongst others, machines, equipment, sensors, monitoring and measurement devices, cables, pipes, valves, actuators, fittings and parts. We may also be responsible for procuring building materials if required to construct any buildings or structures to house or support the plant, as well as engaging sub-contractors and workers to carry out the works.

7. BUSINESS OVERVIEW (Cont'd)

- **Construction**, which is only required for some new-build projects, involves the construction of new buildings or modifying existing buildings to accommodate the machinery and equipment. We engage third-party sub-contractors to carry out certain portions of the construction work, such as structural and building design, earthworks, piling and foundation, superstructure and infrastructure.
- **Installation**, which involves installing the mechanical, electrical and control machinery and equipment including the piping network required for the cooling energy system. We use our in-house resources and engage third-party sub-contractors to carry out installation works.
- **Testing and commissioning** are carried out after installation is completed to ensure that the cooling energy system is fully functional and performing according to the design and specifications. Any identified faults or performance shortfalls during this stage are promptly rectified. Final testing and commissioning require our customer to witness and sign off all our testing parameters. The cooling energy system is handed over to the customer after it has passed testing and commissioning.

During the Financial Years and Period Under Review and up to LPD, we have completed the following projects for the EPCC of cooling energy systems:

Description	Mode of Operation	Start Date ⁽¹⁾	Completion Date ⁽²⁾	Contract Value (RM'000)
Seri Iskandar DCP EPCC Project	FLS	Mar 2018	Oct 2020	26,900
Damansara Heights Chiller EPCC Project	FLS	Mar 2021	Oct 2022	1,780

FLS = Fixed lump sum.

Notes:

- (1) Based on the letter of award or purchase order date.
- (2) Based on the acceptance of handover by the main contractor or owner, or submission of final invoice.

[The rest of this page is intentionally left blank]

7. BUSINESS OVERVIEW (Cont'd)

As at the LPD, our on-going EPCC of cooling energy systems projects are as follows:

Description	Mode of Operation	Start Date ⁽¹⁾	Completion Date ⁽²⁾	Contract Value (RM'000)	Billed as at the LPD (RM'000)	Unbilled as at the LPD (RM'000)
Damansara Mixed Development Chiller EPCC Project – Phase 1	FLS	May 2019	Dec 2022 ⁽³⁾	35,500	31,475	4,025
Bangsar Mixed Development Chiller EPCC Project	FLS	Jan 2020	Dec 2023 ⁽⁴⁾	8,989	6,432	2,557
Muar Manufacturing Facility Chiller EPCC Project	FLS	Apr 2022	Jan 2023 ⁽³⁾	5,200	4,128	1,072
Kuala Lumpur Office Building Chiller & Airside Equipment EPCC Project	FLS	Jul 2022	Jul 2023 ⁽³⁾	12,180	10,814	1,366
Damansara Mixed Development Chilled Water Distribution & Ductwork EPCC Project – Phase 2 ⁽⁵⁾	FLS	Jul 2022	Sep 2024 ⁽⁴⁾	13,889	3,007	10,882
Putrajaya Office Building Cooling Towers EPCC Project	FLS	Sep 2022	Apr 2023 ⁽³⁾	3,678	3,428	250
EPCC to retrofit chiller plant at a manufacturing facility in Ipoh, Perak	FLS	Apr 2023	Feb 2024	6,450	-	6,450
EPCC to retrofit airside equipment at a shopping complex in Subang, Selangor	FLS	May 2023	Mar 2024	5,260	2,534	2,726
EPCC to retrofit a chiller plant at a specialist medical centre in Klang, Selangor	FLS	Aug 2023	Mar 2024	3,198	1,422	1,776
Relocate and reinstall chiller unit from Johor Bahru to the Solaris district cooling plant in Kuala Lumpur	FLS	Oct 2023	Dec 2023 ⁽⁶⁾	1,424	-	1,424
Total				95,768	63,240	32,528

FLS = Fixed lump sum.

7. BUSINESS OVERVIEW (Cont'd)**Notes:**

- (1) Based on the letter of award date.
- (2) Based on the completion date specified in the contract, unless otherwise noted.
- (3) As at the LPD, we have submitted an application for extension of time (“EOT”) to the respective customer. However, as at the LPD, we have not received an official response from the respective customer, and the respective customers have not made a claim for liquidated ascertained damages against us.
- (4) Based on EOT granted by the respective customer.
- (5) This project comprises 3 contracts awarded by the customer.
- (6) As at the LPD, the customer has issued a purchase order for additional works to be performed which has resulted in the extension of the expected completion date from November 2023 to December 2023.

In addition, as at the LPD, we have 2 EPCC of cooling energy systems projects that have been suspended, which are as follows:

Description	Mode of Operation	Start Date (1)	Completion Date (2)	Contract Value (RM'000)	Billed as at the LPD (RM'000)	Unbilled as at the LPD (RM'000)
EPCC of DCS of a mixed industrial and commercial development in Johor	FLS	Aug 2020	Jul 2021 (3)	7,806	365	7,441
EPCC of airside equipment for three buildings at a mixed industrial and commercial development in Johor	FLS	Aug 2020	Jul 2021 (4)	2,138	-	2,138

FLS = Fixed lump sum.

Notes:

- (1) Based on the letter of award date.
- (2) Based on the completion date specified in the contract.
- (3) The customer informed KJ Engineering, via a letter dated 22 June 2021, that the project has been suspended with immediate effect, and that there will be no liquidated damages charges imposed on KJ Engineering for delay in completion due to the suspension of work. This project is suspended as at the LPD.
- (4) The customer informed KJ Engineering, via a letter dated 22 June 2021, that the project has been suspended with immediate effect, and that there will be no liquidated damages charges imposed on KJ Engineering for delay in completion due to the suspension of work. This project is suspended as at the LPD.

7. BUSINESS OVERVIEW (Cont'd)

7.5.2 Cleaning services

We provide a range of cleaning services that are intended to keep our customers' premises clean, tidy and hygienic. As the cleaning service contractor, we are responsible for providing the manpower to carry out the work, and ensuring a sufficient supply of washroom consumables. In carrying out our work, we have to use our cleaning chemicals, materials, tools and specialised cleaning equipment.

Our cleaning services are focused on built environment within as well as outside of buildings and in some situations including outdoor areas. Our cleaning services are mainly for the following types of properties:

- commercial and mixed properties such as offices, shopping centres, retail outlets, food service outlets and gymnasiums, as well as commercial mixed with residential properties;
- theme parks;
- manufacturing facilities and premises; and
- high-density residential properties such as condominiums.

A significant proportion of our revenue from the provision of cleaning services was from Singapore. For the Financial Years and Period Under Review, revenue segmentation of our cleaning services by country is as follows:

Cleaning services	FYE 2020		FYE 2021		FYE 2022		FPE 2023	
	RM'000	%*	RM'000	%*	RM'000	%*	RM'000	%*
Singapore	19,884	26.96	18,426	21.61	18,893	20.01	13,841	19.29
Malaysia	878	1.19	4,884	5.72	16,904	17.90	14,231	19.83
Cleaning services total	20,762	28.15	23,310	27.33	35,797	37.91	28,072	39.12

Note:

* Percentage of total revenue

The types of cleaning services that we provide include the following:

- **Regular cleaning** involves general tasks such as sweeping, mopping, buffing and scrubbing floors; vacuuming carpets; cleaning surfaces of windows, glass panels, sanitary wares, furniture, fittings and accessories; emptying waste bins and disposal of rubbish and waste materials. The tasks are performed daily or several days per week.
- **Periodic cleaning** involves general cleaning tasks that are carried out for areas that are hard to reach (such as ceilings and high walls) or not subject to high traffic (such as storage and AHU rooms, and rooftops). Cleaning of these areas is carried out from time to time.
- **Hygiene services** include cleaning toilets and showers, emptying waste bins and replenishing toilets and shower consumables such as hand and body wash, paper towels, toilet paper, sanitisers and deodorisers. These services are normally incorporated as part of our regular cleaning services.
- **Specialised furniture cleaning and treatment** are carried out periodically to thoroughly clean furniture. The type of cleaning and treatment applied depends on the furniture, and includes polishing wooden and leather furniture, and steam cleaning fabric furniture.
- **Thorough floor and carpet cleaning** provides a higher level of cleaning compared to regular cleaning. They are carried out either periodically based on our contracts or upon customers' request. Examples include polishing marble floors, waxing tile floors and carpet shampooing and steam cleaning.

7. BUSINESS OVERVIEW (Cont'd)

- **External façade and window cleaning** for high-rise buildings and structures to remove dirt and grime from external façade and windows, which are usually carried out according to schedule. This type of cleaning requires special equipment and experienced personnel.
- **Event cleaning** involves cleaning and removing rubbish from a space such as a banquet hall, convention centre, field or residence after an event. Event cleaning services are normally provided on an ad hoc basis based on customer's request.
- **Exterior cleaning and landscaping** relate to keeping the exterior areas, such as gardens, car parks and driveways, clean and tidy. Tasks include grass cutting, pruning shrubs and trees, litter clearing, removing dead leaves and plant debris, cleaning drains and gutters, and water jet spraying to clean pavements.

We also provide specialised cleaning services that involve specific skills and/or equipment. The types of specialised cleaning services that we provide include the following:

- **Cleanroom cleaning** where we are engaged to clean the cleanroom in manufacturing premises. A cleanroom is a controlled space designed to maintain a low concentration of airborne particulates within specified parameters. It is isolated from the rest of the facility, supplied with filtered air and equipped with specialised furniture, fittings and equipment. Our service involves surface cleaning the machines, equipment, furniture, fixtures and other items found in cleanrooms. Our personnel working within a cleanroom must be trained in Good Manufacturing Practices, be properly attired according to specifications and guidelines, follow strict operating procedures and cleaning techniques, and use appropriate equipment. We provide cleanroom cleaning services for manufacturers of medical devices, pharmaceutical products and biological research tools
- **High-level cleaning of theme park rides and attractions** is carried out daily on indoor and outdoor rides and attractions after theme park operating hours. The cleaning tasks include cleaning stains, algae and watermarks, sanitising high-contact surfaces such as seats, ride barriers and handrails, and cleaning the floors and exteriors of rides and attractions. We also carry out extensive cleaning of the theme park rides and attractions during scheduled shut-down and maintenance.

Our personnel in cleanroom attire



Our robotic vacuum cleaner



We carry out our cleaning services using a combination of our staff and sub-contractors. In Malaysia, cleaning is either carried out by our employees or sub-contracted to cleaning services companies in the event we experience shortage of manpower. In Singapore, cleaning is carried out by our employees. As at the LPD, we had 630 employees and engaged 1 sub-contracted cleaning services company who engaged approximately 5 cleaners carrying out cleaning services in Malaysia, and 201 employees carrying out cleaning services in Singapore. For both Malaysia and Singapore certain skilled cleaning works such as high-rise building façade and pest control are sub-contracted to and carried out by third-party service providers.

7. BUSINESS OVERVIEW (Cont'd)

In addition, as at the LPD we have 1 unit of robotic vacuum cleaner that we use to carry out floor cleaning in Singapore. This robotic vacuum is stationed at specified customer' premise and is programmed to automatically clean a designated floor area.

As at the LPD, our on-going cleaning services contracts with estimated annual charges of more than RM1.00 million are as follows:

Description	Mode of Operation	Start Date⁽¹⁾	Expiry Date⁽²⁾
Pahang High-level Cleaning Contract	FMC	Dec 2021	Nov 2024
Specialised cleaning services for cleanroom at a medical devices manufacturing facility in Tuas, Singapore	FMC	May 2022	Apr 2025
General cleaning services for non-cleanroom areas at a medical devices manufacturing facility in Tuas, Singapore	FMC	May 2022	Jun 2025
Cleaning services for an office building in Kuala Lumpur, Malaysia	FMC	Jan 2023	Jan 2024
Pahang F&B Outlets Contract	VMC	Jan 2023	Dec 2023 ⁽³⁾
Cleaning services for an industrial machinery manufacturing facility in Johor, Malaysia	FMC	Jan 2023	Dec 2023
Cleaning services for a battery manufacturing facility at Gul Way, Singapore	F+V	May 2023	Apr 2025
Cleaning services for manufacturing and other facilities of a pharmaceutical company in Singapore ⁽⁴⁾	FMC	Jul 2023	Dec 2023
Cleaning services for surgical gloves manufacturing facilities in Kedah, Malaysia ⁽⁵⁾	FMC	Jul 2023	Aug 2025
Cleaning services for an electronics manufacturing facility in Tuas, Singapore	FMC	Oct 2023	Sep 2024

F+V = Fixed plus variable monthly charges; FMC = Fixed monthly charges; VMC = Variable monthly charges.

Notes:

- (1) Based on the letter of award date or commencement date of the agreement.
- (2) Based on the expiry date of the agreement.
- (3) As at the LPD, the Pahang F&B Outlets Contract is pending renewal.
- (4) Comprises 3 purchase orders facilities at Tuas, Jurong and Mountbatten Road in Singapore.
- (5) Comprises 3 contracts for 3 different facilities at Kulim and Kuala Ketil, Kedah.

7.5.3 FM services

For the Financial Years and Period Under Review, revenue from our FM services amounted to RM7.69 million (10.43%), RM10.53 million (12.35%), RM14.89 million (15.77%) and RM7.66 million (10.67%) of our total revenue for FYE 2020, FYE 2021, FYE 2022 and FPE 2023 respectively, all of which were from Malaysia.

Our FM services are mainly involved in repair and maintenance of machinery and equipment in the following areas:

7. BUSINESS OVERVIEW (Cont'd)

- mechanical and electrical (M&E) including distribution box, lighting, public address systems, backup power, elevators, pumps, fans and blowers;
- process utility including plumbing, drainage, sewerage, air compressors, driers, vacuum systems and fire protection systems;
- F&B outlet equipment such as liquefied petroleum gas (LPG) and cooking system, refrigeration equipment, and outlet air conditioning and mechanical ventilation equipment, furniture, fittings and signage; and
- retail outlet equipment such as outlet air conditioning and mechanical ventilation equipment, refrigeration equipment, electrical system, lighting and roller shutters.

Our FM services are segmented into the following:

- static FM, where we have personnel stationed at the customers' premises to provide FM services; and
- mobile FM, where we do not have personnel stationed at our customers' premises, but our personnel will call on their premises to carry out repair and maintenance services when scheduled or as and when required.

7.5.3.1 Static FM

Our FM contracts involve some combination of the areas of services listed below. It mainly includes various types of repair and maintenance services to ensure the availability and efficient, effective and safe operations of various physical assets:

- **Preventive maintenance** is carried out according to schedule to prevent machinery and equipment breakdown. The tasks include conducting periodic inspections and testing of specified machinery and equipment to ensure that they are in good working order, and taking corrective action if faults or inefficiencies are uncovered. In addition, preventive maintenance also involves tasks such as changing or topping-up oil and lubricants, replacing parts, and identifying and rectifying minor problems.
- **Corrective maintenance** is carried out to repair unexpected breakdowns of machinery and equipment, and to restore the functionality of critical machinery and equipment as quickly as possible. In the event of a breakdown, the affected customer will make a service request, and we respond within an agreed timeframe, which is dependent on the type and impact of the machinery and equipment involved. Corrective maintenance also includes addressing faults discovered outside of the normal periodic inspection and preventive maintenance process.
- **Major maintenance** is carried out according to schedule but is more extensive and performed less frequently than preventive maintenance. Major maintenance normally involves machine and equipment overhaul requiring the machine and equipment to be shut down. Major maintenance is mainly based on recommendations by the respective machine and equipment manufacturers.

We normally carry out the above services using our in-house technical staff for preventive maintenance. When required, we engage third-party specialists (commonly from the respective equipment manufacturers or their authorised representatives) to carry out preventive, corrective and major maintenance. Third-party specialists are engaged when specialised skills or equipment are required, or when it is a condition of the warranty period of some machines and equipment.

For all our FM except mobile FM contracts, we have our personnel stationed at our customers' premises during business operation hours.

As at the LPD, there is no on-going FM contract with estimated annual charges of more than RM1.00 million.

7. BUSINESS OVERVIEW (Cont'd)

7.5.3.2 Mobile FM

Some of our FM contracts are mobile FM contracts where we provide FM for specified machinery and equipment mainly for chain F&B and retail outlets. Our mobile FM services are similar to the FM services discussed above with the key difference being that our technical staff are not stationed at these premises for the duration of the respective contract. Instead, our technical staff are assigned to a specific area and they are sent to provide mobile FM services at any mobile FM customers' premises in that area, as and when required. Our technical staff are sent to our mobile FM customers' premises based on the following:

- to provide preventive maintenance services according to pre-determined schedule based on our contract with the respective customer; or
- to carry out corrective maintenance and repair as and when we receive a helpdesk request from a customer.

Assignments to technical staff to provide preventive and corrective maintenance services (known as "tickets") are made by our helpdesk agent based on the technical staff's skillset and availability. Helpdesk agents also plan routes and schedules. As at the LPD, we have 57 mobile technical staff based throughout Malaysia to provide mobile FM services for all mobile FM customer outlets in Malaysia.

The types of machinery and equipment under mobile FM preventive and corrective maintenance include individual outlet's air-conditioning and mechanical ventilation system, general electrical system and distribution box, fire protection system, liquefied petroleum gas (LPG) and cooking system, plumbing emergency and exit lights, and heating equipment. We also provide corrective maintenance for kitchen exhaust fans, ventilation systems, refrigeration equipment as well as outlet furniture, fittings and signages.

As at the LPD, our subsisting mobile FM service contract with estimated annual charges of more than RM1.00 million is as follows:

Description	Mode of Operation	Start Date ⁽¹⁾	Expiry Date ⁽²⁾
F&B Chain MFM Contract	F+V	Dec 2020	Nov 2023

F+V = Fixed plus variable monthly charges.

Notes:

- (1) Based on the letter of award date or commencement date of the agreement.
- (2) Based on the termination date of the agreement. As at the LPD, the F&B Chain MFM Contract has expired but we have continued to provide services to the customer pending renewal of the F&B Chain MFM Contract.

7. BUSINESS OVERVIEW (Cont'd)

7.5.3.3 Integrated Building Services (IBS)

We also provide IBS which includes static FM for its physical assets, and value-added services to support and manage some aspects of the customer's facilities and operations.

During the Financial Years and Period Under Review, our IBS included cleaning services, FM as well as value-added services such as the following:

- management activities to support the customer's production operations:
 - . managing quality of service;
 - . life cycle asset management;
 - . maintenance planning and scheduling;
 - . warranty and service contract administration;
 - . standard operating procedures;
 - . plant shutdown for major maintenance; and
 - . procurement and materials management;
- management of the centralised maintenance management system including providing and maintaining information systems and technologies for relevant equipment and machinery;
- control systems monitoring and management;
- production support services such as the provision of chilled water, compressed air and vacuum;
- building operations and maintenance;
- plumbing systems; and
- life safety systems (such as fire protection systems).

IBS also includes managing the panel of our customers' sub-contractors who they engage to provide maintenance services for their machinery and equipment.

As at the LPD, our subsisting comprehensive FM service contract with contract value or annual charges of more than RM1.00 million is as follows:

Description	Mode of Operation	Start Date ⁽¹⁾	End Date ⁽²⁾
Muar IBS Contract	FMC	Aug 2022	Jul 2024

FMC = Fixed monthly charges.

Notes:

- (1) Based on the letter of award date or commencement date of the agreement.
- (2) Based on the expiry date of the agreement.

[The rest of this page is intentionally left blank]

7. BUSINESS OVERVIEW (Cont'd)

7.5.4 Building construction services

We also provided building construction services, although it is not one of our main business activities. During the Financial Years and Period Under Review, revenue from building construction was none for FYE 2020, RM9.90 million (11.61%) for FYE 2021 and none for FYE 2022 and FPE 2023, all of which was from Malaysia. We secured a building construction project on a one-off basis, which was as a sub-contractor for part construction of an international school building in Desa Park City, Kuala Lumpur (the International School Project). Our intention in securing the International School Project was to subsequently cross-sell our cooling energy management, cleaning services and/or FM services to the international school operator. As at the LPD, we do not have any other subsisting building construction projects, we have not submitted any tenders for new projects and we do not plan to secure any new building construction projects. Moving forward, we will not carry out building construction as a standalone project.

For the International School Project, we were engaged as a sub-contractor to carry out specific works for the construction of the basement carpark, school block and external works, including concrete works, plastering and paving, brickwork and blockwork, internal walls and doors, and kerb and roadworks within the school's boundary. As a sub-contractor, our work was based on designs and specifications provided by the main contractor. We engaged a sub-contractor to carry out the building construction works, including procurement of building materials, engaging workers.

During the Financial Years and Period Under Review and as at the LPD, we completed the following building construction project:

Description	Start Date ⁽¹⁾	Completion Date ⁽²⁾	Contract Value (RM'000)
International School Project	Mar 2020	Jan 2022	9,900

Notes:

- (1) Based on the letter of award date.
- (2) Based on the submission of the final invoice to the customer.

[The rest of this page is intentionally left blank]

7. BUSINESS OVERVIEW (Cont'd)

7.6 OPERATIONAL FACILITIES

The location of our operational facilities and the number of employees as at the LPD are as follows:

Subsidiary	Main Functions	No. of employees as at the LPD⁽¹⁾	Approximate Built-up Area (sq. ft)	Ownership	Address
KJ Technical Services	Group head office	49	4,968	Rented	Suite 3.03, Level 3, Wisma E&C, No. 2, Lorong Dungun Kiri, Damansara Heights, 50490 Kuala Lumpur, Malaysia.
	Storage area	-	565	Rented	B1-03, Basement 1, Wisma E&C, No. 2, Lorong Dungun Kiri, Damansara Heights, 50490 Kuala Lumpur, Malaysia.
	Office	3	818	Rented	Amcorp Business Suite EL-11-06, Menara Melawangi, 18, Amcorp Trade Centre, No. 18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor, Malaysia.
ETC Cleaning Services	Office	10	1,161	Rented	B1-01, Basement 1, Wisma E&C, No. 2, Lorong Dungun Kiri, Damansara Heights, 50490 Kuala Lumpur, Malaysia.
	Office	3	1,049	Rented	B-4-16, Krystal Point, Jalan Sultan Azlan Shah, 11900 Bayan Baru, Penang, Malaysia.

7. BUSINESS OVERVIEW (Cont'd)

Subsidiary	Main Functions	No. of employees as at the LPD⁽¹⁾	Approximate Built-up Area (sq. ft)	Ownership	Address
	Storage area	-	385	Rented	B1-02, Basement 1, Wisma E&C, No. 2, Lorong Dungun Kiri, Damansara Heights, 50490 Kuala Lumpur, Malaysia.
	Storage area	-	1,442	Rented	426, Ground Floor, Jalan 5/132 Gasing Indah, 46000 Petaling Jaya, Selangor, Malaysia.
KJ Energy Management	Group CC	18	1,011	Rented	Suite G.01, Ground Floor, Wisma E&C, No. 2, Lorong Dungun Kiri, Damansara Heights, 50490 Kuala Lumpur, Malaysia.
KJ FEM Singapore	Singapore office	10	2,110	Rented	8 Boon Lay Way, #08-16, TradeHub21, Singapore 609964.
KJTN Engineering Thailand	Thailand office	5	1,399	Rented	No. 18/4 Village No. 13, Petchkasem 91 Lane, Petchkasem Road, Omnoi Sub-District, Krathumban District, Samut Sakorn Province, 74130, Thailand.

Note:

(1) Excludes employees who are stationed at our customers' site as at the LPD.

7. BUSINESS OVERVIEW (Cont'd)**7.7 MAIN EQUIPMENT USED**

We do not require specialised equipment to provide our cooling energy management services and facilities management services as our personnel carry out their work at the customers' premises.

The main equipment that we use for our cleaning services operations include the following:

Main equipment used	Brief description	Number of units	Net book value as at 31 July 2023 (RM'000)
Dry vacuum cleaner	Vacuum dry floors and walls.	118	29
Wet and dry vacuum cleaner	Vacuum dry and wet floors.	65	5
Floor blower	Blow air to dry wet floors.	65	6
High-pressure water jet	Spray high-pressure water to clean floors and walls.	35	21
Walk-behind auto scrubber	Powered tool to mop and clean floors, requires an operator to push.	13	47
Buffing machine	Powered tool to polish floors.	23	16
Carpet extractor	Deep-clean carpets and rugs.	9	12
Ride-on auto scrubber	The operator rides the machine to mop and clean floors.	10	73
High efficiency particular air (HEPA) vacuum cleaner	Specialised vacuum for use in clean rooms.	9	* -
Ride-on sweeper	The operator rides the machine to sweep floors.	3	5
Robotic auto scrubber	Autonomous robotic device to mop and clean floors.	1	154
Escalator cleaner	To clean escalator steps.	3	1
Carpet steamer	To steam-clean carpets.	1	* -
Robotic vacuum	Autonomous robotic device to vacuum floors.	1	* -
Electric cart	Battery-powered cart to transport personnel and goods.	1	* -
Leaf blower	To blow leaves or debris.	24	1
Manual scrubber	To mop and clean floors.	49	36
Backpack vacuum	Portable, hands-free vacuum worn on the back to vacuum floors.	14	3
Fogging spray sanitiser	To disperse sanitising solution to disinfect large areas.	2	1
Bush cutter	Powered tool to cut bushes.	13	1
Walkie talkie	Two-way radio to communicate wirelessly over short distances.	13	2
Auto scrubber	Power tool to scrub and dry floors	19	74

7. BUSINESS OVERVIEW (Cont'd)

Main equipment used	Brief description	Number of units	Net book value as at 31 July 2023 (RM'000)
Electric mop	Powered tool to clean and scrub floors.	1	* -
Handheld vacuum	Portable device to vacuum floors.	29	* -
Total			487

Note:

* The asset or assets have been fully depreciated as at 31 July 2023.

7.8 PRODUCTION CAPACITY, OUTPUT AND UTILISATION

Operational capacity, output and utilisation rate do not apply to our business as the nature of our business activities are based on providing services that are mainly carried out at our customers' premises.

For cooling energy systems where we carry out EPCC or cooling energy management through the supply of chilled water, the cooling energy systems belong to our customers and were constructed based on their requirements.

7.9 BUSINESS PROCESS FLOW**7.9.1 Cooling Energy Segment**

Our Cooling Energy Segment comprises the following activities:

- cooling energy management; and
- EPCC of cooling energy systems.

7.9.1.1 Cooling energy management

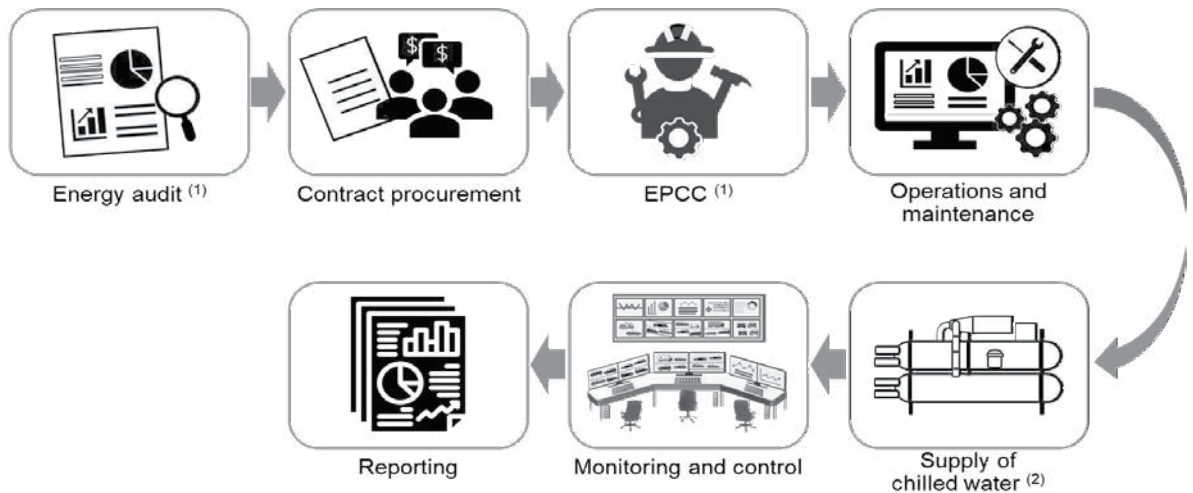
Our cooling energy management is mainly for:

- new cooling energy systems where we had carried out the EPCC works; or
- existing cooling energy systems where we will carry out retrofitting and/or upgrading works.

The above conditions for our cooling energy management services are mainly predicated by our value proposition that our new or retrofitted and/or upgraded cooling energy systems will provide energy savings in the form of lower electricity charges for similar levels of space cooling.

7. BUSINESS OVERVIEW (Cont'd)

The process flow for cooling energy management is as follows:



Notes:

(1) Only applicable for some contracts.

(2) The cooling energy systems that we operate and maintain are focused on the supply of chilled water for space cooling. In some of our contracts, charges are also based on the amount of chilled water supplied for space cooling.

Energy audit

When we tender, quote or negotiate cooling energy management services contracts for existing systems, we will first conduct an energy audit to determine the electricity consumption baseline in terms of electricity consumption per unit of chilled water supply for the provision of space cooling. In addition, we would also measure the energy usage efficiency of key equipment to identify the parts, components, equipment and sub-systems that could provide the most benefit from retrofitting and upgrading in terms of reduced energy consumption moving forward. The energy audit is carried out by our in-house engineers.

To carry out this energy audit, we would place various sensors, monitoring and measuring devices at strategic locations and next to major equipment to monitor electricity consumption, as well as output parameters such as chilled water supply and return temperatures, and the temperature and humidity of the space being cooled. The energy audit would be carried out for a short duration, commonly a typical 7-day period covering working days and weekends.

The results of the energy audit will provide us with data and information to carry out retrofitting and/or upgrading and the subsequent estimated cost savings in terms of reduction in electricity usage charges while maintaining the same level of comfort in terms of temperature and humidity. The resultant cost savings will form the justification for the capital investment in retrofitting and/or upgrading the existing cooling energy system.

Contract procurement

Cooling energy management services contracts are secured through tendering, quotation or direct negotiation with the prospective customer.

Our cooling energy management contracts take the following forms:

- Cooling energy management services that include EPCC for the retrofit and/or upgrading of existing cooling energy systems, followed by operation and maintenance services;
- Separate cooling energy management services contract for systems that we have constructed, upgraded or retrofit; and
- Cooling energy management services that only involve operations and maintenance services of existing systems.

7. BUSINESS OVERVIEW (Cont'd)

The tendering or quotation process begins when we receive an invitation to tender or quote from prospective customers. We will carry out a preliminary assessment based on the project requirements and background of the customer before deciding to participate in the tender. Once we have decided to bid, we will commence the preparation of tender or quotation documents which involve considerations including legal requirements as well as costing and budgetary evaluations. We will then submit our tender bid together with a tender bond. The tender bond amount is commonly less than RM20,000 per tender bond, with a few exceptions where the tender bond amount was up to RM0.4 million per tender bond.

Some of the key terms outlined in the contract include the scope of work, contract period as well as payment amount, terms and schedule. Some of the contractual agreements may include operational guarantees on performance in terms of chilled water temperature, supply rate and availability.

Operations and maintenance (O&M)

To facilitate our value proposition to provide energy savings with better designed and more efficient operation, we would also carry out the O&M of the cooling energy system for the provision of cooling energy management services. Our O&M responsibilities cover the whole cooling energy system where our scope of work includes the following:

- chillers including condensers and heat exchangers, cooling towers and thermal energy storage tanks (where installed);
- energy transfer station including heat exchangers (where installed);
- chilled water distribution network piping system;
- chilled water and condenser water system;
- water treatment and filtration system;
- pumps, valves, actuators and accessories;
- airside equipment;
- switchgear/switchboard and electrical system;
- control system including distributed control system, supervisory control and data acquisition, programmable logic controller, on-site control room and connection to our CC;
- sensors and monitoring and measurement devices; and
- housekeeping and security for the DCP or chiller plant.

Our operations are focused on the supply of chilled water for space cooling based on the agreed temperature range, and when required. Our maintenance of the cooling energy system includes the following:

- **preventive maintenance** is carried out according to schedule and is intended to avoid machinery and equipment breakdown. It is usually carried out relatively frequently, commonly once a month, and it does not require a prolonged shutdown of the machinery and equipment;
- **corrective maintenance** is carried out in response to unexpected breakdowns or faults and is carried out to restore functionality and rectify faults as quickly as possible; and
- **major maintenance** is carried out according to manufacturers' specifications. It is done on schedule and is more extensive than normal preventive maintenance. Performing major maintenance requires the shutdown of the machinery and equipment involved and consequently, they are planned and carried out at night or during weekends to minimise disruption.

7. BUSINESS OVERVIEW (*Cont'd*)

The services we carry out in the O&M of cooling energy systems include amongst others, the following:

- operate the cooling energy system according to the design and operational parameters;
- monitor plant efficiency and minimise energy consumption;
- ensure zero downtime within the control boundary;
- assist in developing an O&M handbook for the cooling energy system;
- develop standard operating procedures;
- develop corrective maintenance programme; and
- ensure the operations of the cooling energy system meets health, safety and environmental guidelines, including relevant ISO 14001 environmental management system and ISO 45001 occupational health and safety management system guidelines.

Supply of chilled water

The focus of our cooling energy management is the uninterrupted supply of chilled water for space cooling when required. In some of our cooling energy management contracts, a major component of our charges is based on the amount of energy supplied (in the form of chilled water for space cooling) during the required periods. We may be subject to penalties if we fail to meet specific operational and performance conditions as stipulated in our respective contracts.

The supply of chilled water involves the operation of chillers to chill the water, as well as cooling towers, thermal energy storage tanks (where installed), distribution piping network, energy transfer station (where installed) as well as airside equipment.

Monitoring and verification

We install sensors, measurement and monitoring devices to provide real-time data in monitoring the operations of the cooling energy system, including electricity consumption. The data are stored in the control room and our CC to avoid disputes in the calculation of energy supplied, where relevant. After compiling the data, we will calculate the total energy supplied based on the agreed calculation method.

To monitor the guaranteed temperature, we will measure the temperature of the chilled water supplied continuously. The energy management system will raise an alert if the supply temperature exceeds the specified maximum so that our personnel can take remedial action. In the event we do not deliver chilled water at the specified temperature, a penalty for non-performance will be imposed on us. The penalty will be computed based on the formula stipulated in the contract.

We will calibrate the measuring devices and meters installed to measure chilled water supply temperature on an annual basis. Other measuring devices and meters are calibrated every 3 to 5 years.

Reporting

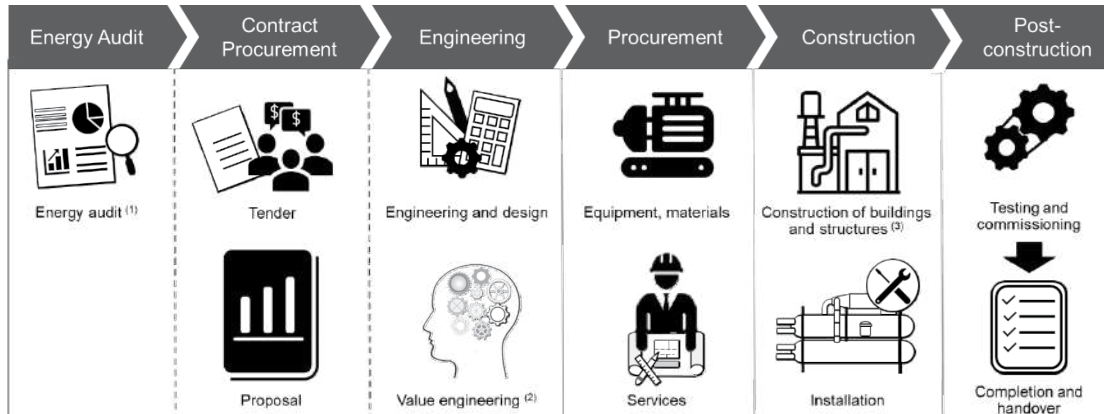
We will maintain regular communication with our customers regarding the status of the O&M work performed by submitting monthly reports to our customers. The monthly report will include, amongst others the status of preventative and corrective maintenance as well as energy consumption.

7. BUSINESS OVERVIEW (Cont'd)

7.9.1.2 EPCC of cooling energy systems

We carry out EPCC of cooling energy systems involving DCS or chiller plants as part of our business, either on a stand-alone basis or as part of some of our cooling energy management services contracts. We provide EPCC of cooling energy systems to construct new systems, as well as to upgrade and/or retrofit existing systems.

The general process flow for the EPCC of DCS and chiller plants is as follows:



(1) Only applicable for retrofit and/or upgrade projects. (2) Only for some projects where we are provided with designs from third parties. (3) Mainly for EPCC of new cooling energy system.

Energy audit

When we tender or submit proposals for EPCC involving upgrading and/or retrofitting of existing DCS or chiller plants, we will first conduct an energy audit to determine the energy consumption baseline in the form of electricity consumption per unit of chilled water supplied for the provision of space cooling. The steps involved in carrying out an energy audit are described in Section 7.9.1.1.

Contract procurement

The initial phase begins with contract procurement, whereby the contracts for the EPCC of cooling energy systems are secured through a tendering process or provision of proposals to the prospective customer.

The tendering or proposal process begins when we receive an invitation to tender or request for proposal from prospective customers. We will carry out a preliminary assessment based on the project requirements and background of the customer before deciding to participate in the tender. Once we have decided to bid, we will commence the preparation of tender documents which involve considerations including legal requirements, costing and budgetary evaluations, as well as capabilities. We will then submit our tender bid together with a tender bond. The average tender bond is approximately RM45,000 per tender bond. The tender documents include amongst others, the tender form, summary of tender price, schedule of price, schedule of rates, technical data, maintenance charges as well as delivery and completion.

Generally, some of the key terms outlined in the contract include the contract value, scope of work, work commencement and completion date as well as defect liability period.

7. BUSINESS OVERVIEW (Cont'd)

Engineering: Engineering and design

We will carry out the engineering and design of the entire new or retrofit and/or upgrade part of the cooling energy system, as well as project planning. We will first study the basic inputs provided by the chiller plant and thereafter design the chilled water generation system as well as the chilled water distribution network from the chiller plant to the buildings and back to the chilled water plant. This will involve considerations on the selection of chillers, pumps, and cooling tower sizing along with its basin size as well as pipe and valve sizing. In addition, we will prepare the relevant documentation such as the design report, equipment layout as well as general arrangement drawing of the chillers and piping.

Our project planning mainly focuses on project schedule and timeline, costing, sourcing and procurement of resources as well as compliance with the regulatory requirements.

Engineering: Value engineering

For some projects where we are engaged as the sub-contractor for the EPCC of cooling energy systems and we are provided with the design of the system by the project owner, their engineering consultant or the main contractor, we may undertake value engineering as a value-added service. Under value engineering, we evaluate the design provided and apply our in-house engineering expertise and experience to propose changes that can lower the capital cost of the system, increase energy efficiency and/or reduce the operating costs of the system.

As an example, in 2019 we secured the Damansara Mixed Development Chiller EPCC Project – Phase 1 where the chiller plant design was provided by the developer's consultant. We conducted a value engineering review on the consultant's design and proposed that the system be modified to use different equipment to control the chilled water flow to the chillers. Our proposed modification would not increase capital expenditure while performing the same function with lower electricity consumption, thereby achieving electricity cost savings. The developer accepted our proposal and our value engineering was adopted into the system.

Procurement

Our procurement includes machinery, equipment, components, parts, building materials, labour as well as the appointment of sub-contractors. We will source machinery, equipment, components and parts based on the approved schedule of equipment, which includes information such as technical data, product specifications and quantity. Machinery and equipment include chillers, cooling towers and pumps, while components and parts include pipes and valves. We carry out factory inspection and testing of specific key materials, such as chillers and pumps, together with the customer and their representatives, to witness and validate that they are functioning to the required specifications before they are delivered to the site. We inspect other materials upon receipt to ensure the materials received are as per specification. Any discrepancies or damages will be reported to the supplier for rectification or replacement.

Construction: Buildings

Some of our EPCC projects also include the construction of buildings particularly to house various machinery and equipment. Such buildings may include those to house switchgear/ switchboards, chillers, cooling towers, pumps and distribution pipes and control rooms. Structures to be fabricated and erected may include thermal energy storage tanks and a distribution piping network. Building and structure works may also include earthworks and foundations. Building construction works are carried out by third-party sub-contractors.

7. BUSINESS OVERVIEW (Cont'd)

Construction: Installation of machinery and equipment

We are responsible for installing all the relevant machinery and equipment, which also includes incorporating sensors and measurement and monitoring devices as well as an energy management system. The entire system is then linked to an on-site control room where we will also install the relevant hardware and software to facilitate monitoring and control, as well as provide real-time data on display screens. In some cases, the on-site control room is linked to our CC.

The installation work will be carried out in compliance with the site safety rules and regulations. The installation work is carried out by our employees with the exception of mechanical, electrical and process control works which are carried out by third-party sub-contractors under our supervision and management.

Post construction: Testing and commissioning

Once the system is fully installed, we will carry out initial testing to ensure all subsystems work according to specifications, and the entire systems operate safely, efficiently and effectively according to specifications. Any defects or inefficiencies discovered will be rectified before the final inspection and testing.

All final inspection and testing works will be conducted by our engineers in the presence of the customer or their appointed representatives as witnesses. We will perform a trial run of the plant to monitor the operating conditions and ensure there are no deficiencies. The performance of the plant will be evaluated in accordance with the mechanical and electrical specifications to ensure it is safe and meet the design requirements. Some of the test procedures include general checks, operation tests as well as system performance tests. Equipment and machinery will be checked and tested to ensure proper installation and functionality, while interaction with auxiliary systems will be verified. Any deficiencies noted will be rectified accordingly. Upon successful testing, the plant will be commissioned.

Post construction: Completion and handover

Upon the successful completion of testing and commissioning, the plant is officially handed over to the customer and the Certificate of Practical Completion, or its equivalent, is issued to us by the customer or their representative. We will hand over the relevant documents and drawings to the customer, including amongst others, the operation and maintenance manuals for the plant, performance test reports, spare parts list, as-built drawings as well as all technical details related to the control and instrumentation of the chiller plant. We will provide maintenance and servicing during the defects liability period as stipulated in the contract, which is normally for a period of between 12 and 24 months. In cases where we carried out EPCC as part of a cooling energy management services contract, or if the customer subsequently engaged us to provide cooling energy management services, we will continue to operate and maintain the cooling energy system as part of these contracts.

7.9.2 Cleaning services

Our cleaning services are focused on built environments, especially for commercial buildings such as offices and shopping centres, industrial buildings such as manufacturing plants, and high-rise residential properties. In some cases, we also carry out specialised cleaning mainly for cleanrooms in manufacturing plants.