

JURONG ENGINEERING LIMITED

# JEL BULLETIN

NOVEMBER 2018

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## BUILDING SOUTHEAST ASIA'S LARGEST ULTRA- SUPERCRITICAL POWER PLANTS

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### JEL'S HR TRANSFORMATION AND DIGITALIZATION

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JEL's Human Resource and Administration division recognizes the importance of using technology to transform HR functions and has identified digital transformation as a key component of its overall strategy. ► pg. 3

### JEL GROUP'S FIRST SOLAR POWER PROJECT IN SINGAPORE

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JEL Maintenance Pte Ltd ("JML") has successfully secured the first of its kind project from Sembcorp Solar Pte Ltd ("Sembcorp Solar"), for the installation of 9.67MW PV Solar Power for 165 HDB blocks in Jurong, Singapore. ► pg. 8



# PERSONNEL CHANGES



**Mr Takashi Koumi**  
Non-Executive Director

## MR TAKASHI KOUMI APPOINTED AS A NON- EXECUTIVE DIRECTOR OF JEL ON 29 JUNE 2018

He succeeds Mr Nozomu Kobayashi, who has served in the capacity since May 2012. Mr Koumi joined IHI Corporation in 1987 and has served in various capacities over the span of more than 30 years with IHI Corporation and its group of companies.

A graduate from Waseda University, Japan with a Bachelor of Arts degree in Economics, Mr Koumi began his career in Finance department where he honed his financial management skills. He went on to serve in the department for 14 years before he took on a new role in Corporate Planning department in IHI Corporation. He served as a Director of IHI Europe Ltd in London from 2002 to 2007. He assumed the role of General Manager of Planning & Control department of Resources, Energy & Environment Business Area of IHI Corporation from 2014 to 2018. Mr Koumi is currently the General Manager of Accounting Group, Finance & Accounting division of IHI Corporation.

## DR BEN TAN APPOINTED AS ADVISOR OF EPC CENTRE ON 25 AUGUST 2018

His journey with JEL started in 1996 as Deputy Manager in the then Design department. Due to his stellar performance, he was promoted to Head of Design department in 2005 and subsequently assumed the role of Head of division and General Manager of EPC centre respectively in 2006 and 2014.

Dr Tan was described by those who have worked with him as, "hardworking and committed" and a "people person". He devoted himself to mentor the young engineers by interacting and guiding them on complicated engineering calculation and verification in spite of his hectic work schedule. He believes that a leader should be lead by example and be patient.

Under his watch, he introduced many engineering softwares, including the

modelling software and diligently maintained usage of these software, which was a giant stride in advancing our engineering capabilities.

Dr Tan, with his wealth of experience and professional knowledge, still has much to offer.

## MR WONG CHOW YEE APPOINTED AS GENERAL MANAGER OF EPC CENTRE

Mr Wong began his career in JEL in 1993. Driven, dedicated and pragmatic, he played a pivotal role in the success of many past projects under his charge in his early years. He went on to hone his leadership skills and deepen his knowledge when he assumed the position of the head of department in 2002. In 2014, he was assigned as Head of EPC Management Unit where he was adept in executing projects with effective management skill sets and techniques. He was Deputy General Manager of EPC Centre before taking over the reins from Dr Tan.

Because of his strong engineering background, he pays great attention to details to ensure that project delivery is consistent and to customers' standards.

Mr Wong will lead our EPC Centre to drive the growth of this core business in existing and new markets.

## MR RAMANATHAN BALASUBRAMANIAN SUCCEEDS MR WONG AS DEPUTY GENERAL MANAGER OF EPC CENTRE

He joined JEL's Design department in 1996. Prior to his new appointment, he was the Head of Engineering Unit.

His ability to conceptualise customer's requirements and provide customized designs and engineering solutions ensures that the final results are what both the team and customer have envisaged.

When asked about his guiding principle, he shared, "Responses. You have to be responsible and responsive to clients."



**Dr Ben Tan**  
Advisor, EPC Centre



**Mr Wong Chow Yee**  
General Manager, EPC Centre



**Mr Ramanathan  
Balasubramanian**  
Deputy General Manager, EPC  
Centre

# JEL'S HR TRANSFORMATION AND DIGITALIZATION

**In this era of digital disruption, rapid technology development and stiff global competition, it is imperative that companies transform and find ways to innovate and create value in order to compete and survive uncertainties and economic downturn.**

The digital capabilities of companies will increasingly be an important factor and differentiator to determine which companies will be creating or losing value, and which companies will thrive, even in the midst of uncertainties and economic downturn.

Digitalization is necessary and should no longer be viewed as an option. It is the new norm or standard for business innovation and is an essential tool for increasing competitiveness and efficiency. Companies which fail to recognize and embark on the digitalization journey stand to lose out and may eventually become redundant for failing to do so.

The new HR applications implemented in the past two years:

- JEL HR E-Appraisal System
- JEL HR E-Employee Requisition System
- JEL HR Training Portal
- JEL Discussion Forum
- JEL Electronic Payslip

JEL's Human Resource and Administration division (HRD) recognizes the importance of using technology to transform HR functions and has identified digital transformation as a key component of its overall strategy.

Having devised and digitalised several HR applications, we have made significant improvements to HR processes by eradicating tedious manual processes, leading to higher work efficiency and accuracy.

HRD's digitalization efforts are part of the wider JEL Group's digitalization initiatives to integrate our group of companies and to automate, streamline our business processes as well as foster better collaboration within the JEL Group. JEL Group IT department will continue to leverage on digital technologies by introducing more initiatives, to enhance our proposition of increasing value for our customers.

Ongoing and new initiatives include:

- Moving JEL's entire infrastructure, file servers, ERP/SAP and applications to Cloud
- Developing new applications to simplify and improve business processes
- Improving Disaster Recovery (DR) and Business Continuity (BC) on Cloud
- Supporting JEL Subsidiaries' digital transformation initiatives

Our endeavours through digitalisation will ensure that our business will continue to grow and thrive.

## NEW HR APPLICATIONS



HR E-Appraisal System



HR E-Employee System



HR Training Portal



Discussion Forum



Electronic Payslip





## ANNUAL GROUP FINANCE MEETING

This year's Group Finance Meeting was held from 26-27 July 2018 in Singapore. The annual event provides a networking platform for finance staff from JEL Group of companies to discuss and share financial knowledge.

Our Managing Director, Mr Masao Akamatsu graced the event and presented the JEL Management Policies for 2019-2021. Mr Akamatsu reiterated the salient message that Finance division has a critical and irreplaceable role to play in supporting the frontline operations.

In his presentation entitled "Role and Mission of Finance", Mr Derick Lim, the General Manager for Finance division expounded on topics covering: performance, compliance, efficiency and risk control management. He also emphasized the importance of recruiting, developing and coaching team members to build a high-performing and sustainable finance team.

Latest changes to Financial Reporting Standards ("FRS") remained a key topic in the 2-day event. One of the follow up on adopted standards is FRS 115 which depicts the "Revenue from Contracts with Customers". In particular, we explained the treatment of variable consideration such as

liquidated damages and its impact on profit margin. Changes have been applied to Singapore Financial Reporting Standards, SFRS (I) INT 22, on "Foreign Currency Transactions and Advance Consideration" which outlines the requirements on the conversion rate of advance project receipts from clients. In addition, the team discussed the measurement and recognition of expected credit losses of clients via a credit rating system. This will be an added responsibility for the finance team apart from monitoring the recovery of outstanding receivables. "Current and Future Leases" under FRS 116 was another Accounting Standard addressed during the sessions. To effectively implement and comply with the accounting framework, we need to upskill ourselves to fully comprehend the significance of these Accounting Standards to further enhance the financial strength of our company.

One area which needed reinforcement is variance analysis in reporting. Our finance team needs to delve deeper to understand the cause of the changes in projects' figures in order to provide meaningful explanation to Management. Treasury is an important function, and the team plans to roll out a unified treasury report to capture both the cashflow and currency

exposure, to improve analysis and hedging. Another measure to be introduced is the sharing of International Trade through letter of credit as alternative to trade with customers who are deemed high risk.

Embracing technology, such as Office 365, to increase the overall efficiency and effectiveness was part of the agenda, through which we encouraged the centralization of information for easy access and reporting.

Representatives from both EESB and TJEL took the opportunity to share with the group the local practices. EESB highlighted the crux of proper tax treatment and shared their experience with the Malaysia tax authority. Following that, TJEL recounted the know-how to build a lean and efficient team in Thailand. On last day, a brainstorming workshop was held, where many valuable ideas emerged on how to sustain profitability.

For the participants, the two days have been an incredible learning experience. Financial stability of the company boils down to sound management and team effort. No one can whistle a symphony. It takes the whole orchestra to play.



# BUILDING SOUTHEAST ASIA'S LARGEST ULTRA-SUPERCritical POWER PLANTS

## TANJUNG JATI “B” #5 & #6 2 X 1,000MW COAL-FIRED POWER PLANT

Spearheaded by Sumitomo Corporation, in collaboration with Kansai Electric Power Co., Inc. and PT United Tractors Tbk, an affiliate of Astra Group, the construction for Tanjung Jati B Unit 5 & 6 ultra-supercritical coal-fired power plant is underway. Our Indonesia subsidiary, PT Jurong Engineering Lestari (“PTJEL”) was awarded the mechanical erection works for the boilers and auxiliaries package for the project, and is responsible for the erection of the two ultra-supercritical boilers, supplied by Sumitomo Corporation Boiler Division (“SCBD”) and designed by Mitsubishi Hitachi Power Systems, Ltd (“MHPS”), with each unit capable of producing 1,000MW. Fuelled by sub-bituminous coal sourced locally, this expansion project which is located at Tubanan, Central Java, will almost double the current combined capacity of 2,640MW from the existing units 1-4 upon its completion in 2021 and transform the new facility into Southeast Asia’s biggest coal-based power plant.

This project is laborious and demands intensive planning to effectively mobilize resources. In September 2018, close to 2,300 manpower were activated to perform various tasks. The project has gained traction and milestones were achieved on schedule. We commenced



the preassembly ground work and boiler steel erection for Unit 5 boiler in the first half of 2018, while work for Unit 6 boiler will ensue in the second half of 2018. Everyone in the team has had a hand in shaping the success of the project. That was the underlying message delivered by JEL’s Managing Director, Mr Masao Akamatsu, who attended the first column erection dedication ceremony on 2 July 2018 for Unit 5 boiler. To commemorate this milestone, Mr Akamatsu tightened a bolt using the

symbolic gold-painted spanner.

PTJEL has been at the forefront of efficiency through continuous enhancement of our business processes. The commitment to add value to our customers’ requirements stands for what we believe as we gain new experience every time we are involved in a different project, even though one thing remains unchanged – striving to produce better results to customer’s satisfaction.





## JIMAH EAST POWER 2 x 1,000MW COAL- FIRED POWER PLANT

Jointly owned by Tenaga Nasional Bhd (“TNB”), Mitsui & Co., Ltd and Chugoku Electric Power Co., Inc., the Jimah 2 x 1000MW power plant is located next to the existing 2 x 700MW power plant in Mukim Jimah in Negeri Sembilan, Malaysia. The engineering, procurement and construction (“EPC”) contract was awarded to the consortium partners of IHI Corporation, Toshiba and Hyundai Engineering Co., Ltd. Our Malaysia subsidiary, Equator Engineering Sdn Bhd (“EESB”) is responsible to execute the boiler – mechanical and electrical packages. When fully operational in 2019, the power plant will be the largest of its kind in Southeast Asia, and improve Malaysia’s power generating capacity.

We are especially proud to achieve substantial completion of around 80% as at August 2018 within the span of 20 months since work commenced in January 2017. As in every project, we aim to deliver faster, efficiently to customer’s satisfaction. With assiduous efforts from the team, we tackled every problem, and progressively met the various project milestones. The hydro test for the first boiler – both the re-heat circuit and super heater circuit were completed in April 2018. Other milestones such as boiler structure column erection, critical system piping lifting, ESP support structure erection, top girders lifting as well as pressure parts lifting were aptly executed while applying innovative solutions to improve the work processes.

Works for the second boiler commenced in July 2017, simultaneously with the erection works for the first boiler. Despite the tight schedule for delivery, we remained unbend on our workers safety. Safety is paramount to our employees, customers and our business, and we are committed in providing a safe working environment. With safety as a priority, our workers executed the job responsibly and received several safety recognitions including commendations for demonstrating attentiveness to avert injuries and accidents and minimizing disruption to the work schedule.

The project will enter a critical period from October to December 2018 where efforts will be ramped up for initial fire and coal fire for the first boiler, and the hydro test for the second boiler. Due to the extensive scale of the project, vast manpower were deployed, comprising close to 2,200 direct workers and 200 in-direct workers at the peak of the project. This is one of our most significant projects underway in terms of scale and capacity. Every project builds on our capabilities which is also one of our core values: continuous learning – to constantly elevate our knowledge and skills to stay competitive and ahead of the curve, and become a better partner to our customers with whom we work collaboratively to build various power and industrial plants.





## CENTRAL JAVA 2 x 1,000MW COAL- FIRED POWER PLANT

Touted as the largest coal-fired power plant to be built in Southeast Asia, the 2,000MW Batang coal-fired power plant project, also known as the Central Java power plant in Central Java, Indonesia, is developed by PT Bhimasena Power Indonesia ("BPI"). BPI is a consortium consisting of ITOCHU Corporation, Electric Power Development Co., Ltd ("J-Power") and PT ADARO Power. PT ADARO Power is a subsidiary of Adaro Energy which is Indonesia's largest domestic coal supplier. This infrastructure – the first of such public-private partnership projects ever undertaken in Indonesia, is major as the Government of Indonesia has the intention to add 35,000MW to the nation's grid in the next five years.

Sumitomo Corporation was awarded the engineering, procurement and construction ("EPC") contract, and Sumitomo Corporation Boiler Turbine Generator ("SCBTG") enlisted our subsidiary in Indonesia, PT Jurong Engineering Lestari ("PTJEL") for the

mechanical, electrical and instrumentation erection works. This is testament to the strength of JEL's group of companies, that we are a company that can be counted on to handle projects of such scale. Technology is key to designing cleaner and more efficient coal-fired power plants. The Central Java plant will feature the advanced ultra-supercritical technology, capable of higher combustion efficiency to substantially reduce the carbon dioxide emissions. Employing 2 boilers of 1,000MW each and 2 steam turbines and generators, the environmentally friendly plant is scheduled for completion in 2020, and will significantly increase the electricity supply for 13 million residents in the Central Java region.

Our work scope comprises the mechanical, electrical and instrumentation erection of the boilers, steam turbines and generators and its auxiliaries. It includes the supply of equipment, insulation, refractory and painting works. Work for the first column erection commenced in November 2017 and good progress was made as the boiler steel structure for Tier 1 and Tier 2 were taking shape, while Tier 3 was about one-third completed by March 2018. Works are underway for air and gas duct, installation of coal bunker and coal piping. At the peak of

construction, we are expected to mobilise close to 2,600 workers to the job site.

The project site is extensive: seating on 226 hectares of land covering 3 villages, about 10km northeast of Batang City in Central Java. This fast track project presents many challenges as weather changes will affect the clay and soil conditions and could entail additional work and project delays. Our team is drawing on our core competency on project management to coordinate schedules and deliverables to meet customer timelines and quality standards.

Dedicated to making safety a priority, we credit the team for the excellent safety performance of completing 861,765 safe man-hours without lost time injury as at 31 March 2018. We are refining our processes and educating our workers on the proper use of safety equipment, and how to spot safety hazards to prevent each and every possible accident.

Indonesia remains a growing and important market to us, and we are delighted to have helped build a major power plant and advance the nation's energy development. This work will position us for additional opportunities in the power construction market.



# CHARTING THE EPC COURSE

JEL is a prime partner for full turnkey solutions in power plants. It provides one-stop services in engineering, procurement, fabrication, construction, commissioning and maintenance.

We design and build power assets that are efficient, reliable and cost effective for our customers. To date, we have successfully delivered 31 EPC (Engineering, Procurement & Construction) power projects within the range of 10 MW – 300 MW.

While the global energy market continues to grow due to the increasing energy needs of developing countries, new challenges, such as the rapid rise of renewable energy resources, increasingly stringent environmental constraints and volatile political climate in our core markets, threaten the sustainability of our success. To gear up for the market transformation, we are strategically expanding our sphere of EPC business to include larger and

more sophisticated power projects, tailor solutions for different power generation technologies and reach out to non-traditional territories.

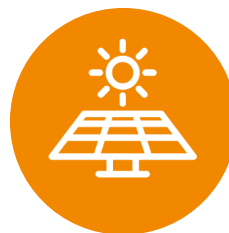
We will journey on and fulfil our mandate by delivering quality timely and safely to customers. JEL remains committed to being a strategic partner for our customers' global success.



**Combined cycle  
power projects  
≤ 400 MW**



**Thermal  
power projects  
≤ 300 MW**



**Renewable  
energy projects**



**Emerging markets**

## UPDATES ON JEL MAINTENANCE IN SINGAPORE

### JEL GROUP'S FIRST SOLAR PROJECT IN SINGAPORE: SOLAR NOVA PHASE 3

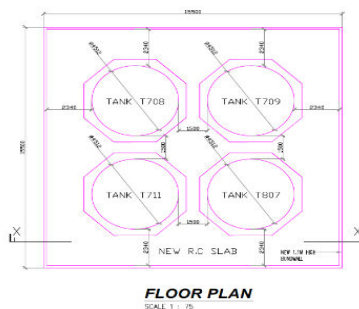


JEL Maintenance Pte Ltd ("JML") has successfully secured the first of its kind project from Sembcorp Solar Pte Ltd ("Sembcorp Solar"), for the installation of 9.67MW PV Solar Power for 165 HDB blocks in Jurong, Singapore. Sembcorp Solar, which is the developer of the 50MW project to be implemented over 3 phases: Scope-A, Scope-B and Scope-C, will provide the basic design of system as well as PV panels with inverter. JML has been selected to execute Scope-B, comprising of field engineering, procurements other than PV panel & inverter, construction, testing and commissioning. Work is expected to commence in November 2018 and to be completed by September 2019.

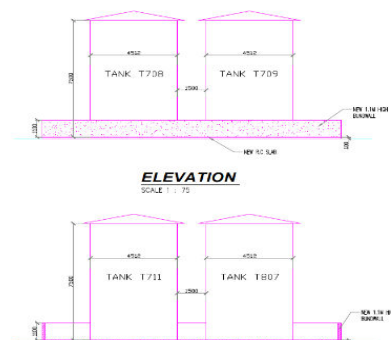


## NALCO TANK FARM EXPANSION PROJECT

JML was awarded the engineering, procurement and construction (“EPC”) contract for the construction of Tank Farm expansion project, located at 11 Ayer Merbau Road, Singapore by ECOLAB Pacific Pte Ltd, a NALCO Champion company. JML is responsible for the civil, structure, mechanical, piping, electrical and instrumentation works comprising 4 units of 120 cum stainless steel tanks and 4x45 cum delivery pumps. The contract was finalised in August 2018 and targeted to be completed by May 2019. The project will require 50 manpower during the peak of the construction phase. This



project came on the heels of the successful completion of the main plant, which was then known as NALCO's Eastern Hemisphere Core Plant - a



strong affirmation of the satisfactory work and the strong ties that we treasure with our customer.

## UNIMATEC PROJECT – SUCCESSFUL PROJECT COMPLETION

JML received the successful completion certificate from Sumitomo Chemical Engineering Singapore Pte Ltd (“SCES”) in recognition of the on-time completion of Unimatec Singapore expansion project, for which we performed the mechanical and piping, and electrical and instrumentation works. Through the collective efforts of the team, JML clocked a remarkable 950,000 safe man-hours for the execution of approximately 100,000 DI of piping, 850T of equipment, 50 tonnes of support structure, 85 kms of power cables and 90 kms of instrumentation

cables. Our team began work in March 2017 and through meticulous planning and commitment from our team, the project was completed within schedule in June 2018. During the construction, we encountered challenges in meeting the tight schedule given the stringent requirements and voluminous small-bore piping. However, the team was not deterred but, instead through the determination and experience, they executed the work efficiently with high standard of quality and safety throughout the project.



## TURNAROUND WORKS 2018 IN PCS , TREX & TPC PLANTS

In the recent major turnaround (TA) program carried out at the PCS plant in Singapore, JML has contributed towards the successful completion of the PCS fire water system modification works. JML has also played an important role in the major overhauling of equipment, valves and piping at both The Poly-Olefin Company (TPC) and Sumitomo Synthetic Rubber (T-REX) plants. For the excellent execution of these projects, JML was presented Certificates of Appreciation and Completion by PCS, TREX & TPC. With an uncompromising stance taken towards the health and safety of our workers, it has translated to an impressive safe man-hours of approximately 49,030 for TPC project and 45,000 and 20,000 safe man-hours respectively for T-REX and PCS projects.



# JEL'S HSE TEAM VISIT TO KASHIMA POWER PLANT SITE IN JAPAN



While there are still challenges today, our efforts at improving on our safety performance have certainly shown encouraging progress. Nevertheless, we recognize that there is more that can be done to equip ourselves with new skills and competencies to make our workplaces even safer for all our employees.

In June 2018, at the invitation of our parent company, IHI Corporation ("IHI"), we sent a team of Health, Safety and Environment ("HSE") personnel to one of IHI's current job sites - Kashima power plant site, located at Ibaraki prefecture, northeast of Tokyo. Our team was given an immersive and engaging tour of the power plant site as our host, IHI HSE team, shared the in-depth knowledge of the safety practices surrounding the job site, and how we can put to good use to prevent work accidents.

The 5-day visit provided much insights as JEL team listened, observed, discussed and internalized the safety processes. Our final goal is geared towards achieving zero accidents at our operations globally.



## NEW HSE INITIATIVES



### HSE COMMITTEE

JEL Group HSE committee has been formed. HSE committee meeting is conducted monthly to raise our safety standards and standardize HSE protocol within JEL Group of companies.



### WORK SAFETY RULES

We have disseminated JEL work safety rules to all projects sites. All employees have to abide by the rules strictly.



### SG SECURE

SG Secure is an initiative by the Government of Singapore to raise awareness and preparedness against terrorism. JEL's SG Secure team is responsible to inform staff of any suspicious behaviours or activities within JEL's vicinity and project sites.



### COMMUNICATION

New communications methods have been established to raise alertness in JEL projects in the event of safety lapses to ensure early detection and prevention.



### HEALTH

We have introduced monthly blood pressure checks to encourage staff to take charge of their own health. We have also participated in National Steps Corporate Challenge in Singapore - all staff are encouraged to walk at least 10,000 steps a day for rewards such as shopping and grocery vouchers.



# JIMAH SITE VISIT

20 staff from our corporate office, together with our Managing Director, Mr Akamatsu, Mrs Akamatsu and General Manager of Human Resources and Administration division, Mr Alan Phang set off for Jimah power plant in the early morning on 6 July 2018. Organised by the Sports and Recreational Club, the Jimah site visit was a first of such field trips for JEL corporate staff who have not had the opportunity to visit a power plant. This was a follow-up to an internal training course conducted earlier this year.

Filled with excitement, the group made a quick stop-over in Johor Bahru for local breakfast before continuing on with the road trip to the job site at Port Dickson in the state of Negeri Sembilan, Malaysia. Upon arrival, they were warmly welcomed by Jimah project team and key and administrative staff from our Malaysia subsidiary, Equator Engineering Sdn Bhd (“EESB”).

EESB was engaged by Ishi Power Sdn Bhd to perform mechanical and electrical erection works for the two boilers, including steel structure erection, boiler and piping erection, auxiliary equipment erection as well as painting and insulation works in the new facility.

Our Chief Operating Officer, Mr Koh Kew Sek took the opportunity to highlight the core competencies of our company and encouraged all to leverage on the experience from the current projects, to expand our capabilities in order to manage bigger projects in future.



Donned with the safety outfits and equipped with protective gears, the participants climbed up to the structural building where the boilers were installed. Hit by strong winds on high ground, many had to hold to the railings even as they enjoyed the stunning view of the Jimah power plant and the sunset horizon.

As the visit came to a close, the participants left the site carrying fond memories. One participant shared, “We are certainly more appreciative of the site workers now that we have seen the arduous working environment, the risks on site and the teamwork that is required of everyone to execute such a massive project. This trip, for many of us, is an unforgettable experience!”

Since it coincided with the durian season, the group made a detour to a nearby durian farm and were treated to an all-you-can-eat durian buffet. Everyone enjoyed thoroughly the delectable king of fruits.



## LUCKY DRAW

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Please submit your answers together with your name and email address here: <https://goo.gl/JxrJpV>. Five randomly picked entries with all correct answers, will each win NTUC Vouchers worth S\$30, sponsored by the Corporate Affairs Division.

1. Which are the five new HR applications?
2. What is JML's scope of work in the new solar power project in Singapore?
3. Name the four key areas which EPC Centre is strategically targeting to gear up for the market transformation.
4. What is SG Secure?
5. Name the three ultra-supercritical power plants that are featured in the special section, "Building Southeast Asia's Largest Ultra-Supercritical Power Plants".

## EDITORIAL NOTES

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Special thanks to all the article contributors and editorial team members.

Every reasonable care has been taken to ensure the accuracy of the information printed in this bulletin. No responsibility can be accepted therefore.

For enquiries, comments and feedback, please contact us at [enquiries@jel.com.sg](mailto:enquiries@jel.com.sg).



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DILIGENCE



CONTINUOUS  
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SHARED  
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CUSTOMER  
SATISFACTION



RESPECT