

JURONG ENGINEERING LIMITED

JEL BULLETIN

APRIL/MAY 2018

MCI (P) 116/03/2018

EARLY COMMERCIAL OPERATION OF SAHACOGEN EXPANSION PROJECT - 3

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NEW YEAR MESSAGE FROM MANAGING DIRECTOR

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COMPLETION OF TJEL'S FIRST TURNKEY BUILDING PROJECT

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In the recent years, our surrounding circumstances including the energy market has undergone rapid changes and the landscape for power projects has become intensively competitive. There is now a shift of demand to renewable and non-fossil power generation arising from the megatrend of decarbonization of energy sources.

Secondly, diversifying and expanding of our engineering capabilities through our development programs in JEL. It has always been my aspiration and aim to create an environment where our people have the opportunity to be skilled in numerous disciplines. With the various training and development programs, I have no doubt that they will be able to contribute to the growth of JEL.

Thirdly, we should pursue a culture where our people are rooted firmly in the five core values of the JEL group. With good culture being the backbone of our three core businesses: Construction, EPC and Maintenance Solutions, I am



MR MASAO AKAMATSU
MD/CEO, JEL

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It is clear that we will be affected in some way or another. Therefore, it is important for us to re-position ourselves to respond effectively to this market paradigm shift for us. Let's all be prepared for the rapid change of circumstances ahead. I would like to propose three key measures to steer us through the challenges to come.

Firstly, I aim to refocus our organization and business structures to being lean, flexible and effective. As we face more challenging business conditions, we should synergize the resources of our key subsidiaries through maximizing their technical capabilities and skillsets as well as unifying our group corporate branding to further consolidate our group of companies.

confident in saying that we can further entrench our position in the project value chain and bring about greater customer satisfaction throughout the JEL group. Our management policy 2014-2018 has resulted in positive business developments and growth of JEL Group of Companies. Moving forward, we shall further refine the initiatives and bring our business to new heights through the steady continuity of the current policy to the revised one from 2019 and beyond.

2018 will be a remarkably important year for us as we prepare to step up to the next phase towards achieving our vision of being recognized as “Asia’s best Engineering and Construction Service Provider,” even more so as we approach our 50th

anniversary. We should change our mindset and not be contented with past successes. I would like to encourage you all to walk towards the vision of building a global brand name for JEL amid the tough times ahead.

Lastly, we must continue to be safety conscious and strive to achieve zero accident at workplaces. Once again, I would like to sincerely remind all of you that all incidents and injuries are preventable by our own actions. Our success, achievements and happiness would be undermined without safety.

I wish you and your family good health and a happy new year.

CONGRATULATIONS, CHAIRMAN!

On 5 May 2018, our Chairman, Mr Bob Tan Beng Hai, received the "Distinguished Service Award" at the NTUC May Day Awards ceremony. He was one of the three recipients of the award for this category, which was bestowed to individuals who, after having received the "Meritorious Service Award", are still contributing significantly to the labour movement. Mr Tan serves as a member of the NTUC Club Management Council.

In its tribute to Mr Tan, NTUC said, "Armed with a wealth of experience from the private sector, Mr Tan has been providing guidance to NTUC Club in the formulation of strategic directions and development of sound business plans. He has a full understanding of the social impact and financial implications of business decisions and has provided valuable inputs that have helped NTUC Club achieve a balance in fulfilling its social mission and ensuring greater financial sustainability. He is very prudent yet critical when it comes to tender and procurement issues. In addition, Mr Tan provides advice to ensure that NTUC Club's compensation and benefits packages are competitive and attractive. He saw through the Refreshing Downtown East project from 2012 to 2017 and played a crucial role in shaping some of the business strategies and plans."

Together with the Board and Management, we congratulate him on this outstanding achievement.



APPOINTMENT OF NEW COO AT JJEL



We would like to extend a warm welcome to Mr Sugihiro Konishi, who has been appointed as Chief Operating Officer of Japan Jurong Engineering (JJEL), with effect from 1 April 2018. Concurrently, Mr Kazuya Hagiwara has relinquished his role as Chief Executive Officer. We wish to thank Mr Hagiwara for his dedicated service during his tenure with JJEL.

Mr Konishi joined IHI Corporation in 1983 and started his career as an engineer. Over the years, he has accumulated broad experience in design and commissioning of utility and industrial boilers as well as project management skills when he was assigned to NEDO (New Energy and Industrial Development Organisation) and involved in a few national projects in Japan.

Prior to his appointment in JJEL, he was the Chief Financial Officer of IHI Plant Construction Co., Ltd (IPC) from 2014 to March 2018.



EARLY COMMERCIAL OPERATION OF SAHACOGEN EXPANSION PROJECT - 3

In order to meet the increased demand for power and steam from its customers, Sahacogen (Chonburi) Public Company Limited ("Owner") has decided to expand the existing combined cycle power plant facility, with a capacity of 184 MW and 80.5 TPH process steam, at the Saha Pathana Group Industrial Park – Sriracha in Chonburi, Thailand.

The EPC contract for the new expansion project, namely, Sahacogen Expansion Project-3, which will provide a gross output of 24 MW and 15 TPH process steam, was awarded to JEL and TJEL on 22 December 2015. The new expansion facility comprises one train of Gas Turbine Generator, HRSG and Steam Turbine Generator and associated Balance of Plant. JEL's scope was for the design and engineering of the expansion facility and the supply of equipment whereas TJEL's scope was for local procurement, installation, erection, testing, commissioning and warranty services.

A narrow plot of land was allocated for the expansion project adjacent to the existing power plant facility. The plant design was optimized to accommodate the new facility as it was a challenge to the construction team to bring in and erect large components of HRSG and Gas Turbine. Construction plan and lifting cranes were well prepared and with good co-operation from Owner and neighbouring plants, all main equipment were installed without any issue. Tie-ins to existing plant were planned and executed in co-ordination with the operating plant.

Overall construction, testing and commissioning went well and the project was successfully handed over to Owner on 20 December 2017. The commercial operation of the expansion project started one month ahead of schedule on 20 November 2017. Early commercial operation and a better than guaranteed plant performance were well appreciated by the Owner.

This is the fifth EPC project that JEL has successfully executed for Sahacogen, exemplifying the faith from our esteemed customer on JEL's engineering and project management services.



UPDATES ON JEL MAINTENANCE

SUCCESSFUL PROJECT COMPLETION: K2C & KRP PROJECTS, GEBENG, MALAYSIA

JML was the mechanical and piping contractor for the construction of the Kuantan 2nd Crystex Plant (K2C) Project & Kuantan Resin Plant (KRP) for Eastman Chemical (Malaysia) Sdn Bhd managed by Jacobs Engineering Group Malaysia Sdn Bhd. JML started work in January 2016 and carried it through to successful completion on November 2017 as per project's schedule. Throughout the project, the JML team executed the work efficiently with high safety standards. JML's safe working methods contributed to "5+ Million Safe Work Manhours" achieved for K2C & KRP Projects.



SUCCESSFUL PROJECT COMPLETION: EQUATE TURNAROUND 2017, KUWAIT

JML received its successful completion certificate from Equate Petrochemical Company for its Major Turnaround 2017 – Aromatics Package - Mechanical Lumpsum Scope in November 2017, two days ahead of schedule and was duly rewarded with early completion incentive. Aromatic plants in Equate Petrochemicals was majority owned and operated by Dow Chemicals and PIC (Kuwait Petroleum Company). JML is one of the major contractors involved in TA-2017 and successfully completed the works with no major incidents and "Zero-Leak Performance". With this, JML could be an automatic choice for Equate for future Maintenance & TA programs.



PROJECT AWARD: EVONIK Me6 PROJECT AT JURONG ISLAND, SINGAPORE

JML was awarded another contract from Amec Foster Wheeler Asia Pacific Pte Ltd, who intends to build a new production complex adjacent to recently completed similar facility at Jurong Island, Singapore for Evonik Methionine (SEA) Pte Ltd. JML will carry out mechanical and piping works, erection & testing, tie-ins, equipment installation, painting works, scaffolding works, inspection and testing, turnover and handover activities. This integrated complex (Me6) will produce methionine and all strategically important intermediates, doubling the capacity of the existing plant. The project was awarded last August 2017 and scheduled to be completed by October 2018 with a span of 14 months and peak manpower of 450.



COMPLETION OF TJEL'S FIRST TURNKEY BUILDING PROJECT - MAE MOH 600 MW COAL-FIRED THERMAL POWER PLANT B30 & B35

CLIENT: ALSTOM (THAILAND) LTD

OWNER: ELECTRICITY GENERATING AUTHORITY OF THAILAND (EGAT)

PROJECT GROUP: THAI JURONG ENGINEERING LIMITED (TJEL)

Mae Moh Coal-Fired Power Plant Units 4-7 Replacement Project consists of one unit of supercritical boiler with a gross output of 600 MW. The main plant consists of boiler, turbine generator, balance of plant systems, tanks, ESP and related electrical and control systems. The site is located near the existing power plant in Lampang District, Thailand.

The tender for Mae Moh B30 & B35 Turnkey Project started in May 2015 after Alstom and TJEL met to discuss the Request for Quotation (RFQ) in Alstom's Beijing office and TJEL's Bangkok office. The project was awarded to TJEL and the contract was signed on 22 March 2016. The project was substantially completed with all the building services functioning on 15 March 2018. Power plant commercial operation will be on 13 November 2018.

The Mae Moh B30 & B35 Turnkey Project scope of works included engineering, procurement, and construction (EPC) of Central Control

Building (B30) and Boiler and ESP Electrical Building (B35). B30 has a 4500 square meters usage area, 5 floors of building and B35 has a 1350 square meters usage area and 3 floors of building. Our scope of works included EPC of B30 and B35 interior decoration, architectural, foundation, structural, sanitary, drainage and landscaping, lighting and earthing, HVAC, and fire-protection works. During the detailed design, interface with the client's and owner's departments were taken care by TJEL. 3D modelling of structure, building services, and interior decoration was utilized as required by client to minimize work interface problems.

The buildings consists of the following usage areas: Central Control (CCR) Room, Control System (DCS) Room, Boiler Control System Room, Medium Voltage (MV) Room, Low Voltage (LV) Room, Programming Room, Server Room, Battery Room, Cable Room, and the administrative area.



PENGERANG COGENERATION PLANT

Equator Engineering Sdn Bhd (EESB) commenced construction work at Pengerang Cogeneration Plant on 7 January 2016 and successfully achieved the first gas turbine fire on 1 August 2017. The plant has been generating an output of 375 MW since 8 August 2017, followed by second gas turbine with a capacity of 375 MW since 11 September 2017.

We conducted the steam blow out from Heat Recovery Steam Generator ("HRSG-11") to Steam Turbine Unit 31 and 32 on 16 November 2017.

The project has since started commercial operation, supplying an added capacity of 900 MW to Malaysian National Grid.

The balance of two gas turbine units

and two HRSG will begin operation by end April and July 2018 respectively.

EESB's dedication and hardwork were paid off by achieving 11,362,310 safe man-hours without lost time injury, and was presented the "Project Achievement Award" from Siemens.

In addition, Petronas issued "Focus Recognition Award" to EESB in recognition of the successful execution of Pengerang cogeneration project towards delivering commercial operation date ("COD") 1 on time, without compromising on safety, within budget and meeting the quality requirement.



The awards were strong affirmation of EESB's competencies in fulfilling the RAPID project requirements.

JEL (BORNEO) SDN BHD SPONSORS NEW MINI PLANT WHICH HELPS DEVELOP JOB-READY GRADUATES

On 18 January 2018, JEL (Borneo) Sdn Bhd, amongst others, officially sponsored the opening of a newly constructed Hand-on Operation Training Skids Unit at the Institute of Brunei Technical Education (IBTE) (Jefri Bolkliah Campus).

This mini plant project was a joint collaboration between IBTE and the Energy and Industry Department of Prime Minister's Office (EIDPMO), together with several operator and service companies from the oil and gas industry, which contributed to the funding of this project and provided consultation expertise during its construction. Students from IBTE, who are part of the Higher National Technical Education Certificate program, National Technical Education Certificate program and the

Industrial Skills Qualification Program will be the main beneficiaries of this mini plant and will make use of this facility over the course of their education.

The introduction of this mini plant served to support IBTE's vision of providing first class training equipment to help develop highly skilled, job-ready graduates to meet industry requirements and standards. Doing so will provide opportunities for instructors from the industry to train and develop the IBTE students' skills through continuous professional development, upskilling, and competence upgrading, among other methods.

Dr Chin Wei Keh, the Director and CEO of IBTE said in his speech during



the opening ceremony. "This project is a good example of a 'whole-of-nation approach' as it is a collaborative effort bringing together partners from across industries, ministries and government agencies, exemplifying the vital importance of increasing links between stakeholders."

JEL (Borneo) is proud to be one of the sponsors for the construction of the Mini Plant Project.

2018 ANNUAL GROUP MEETING - LAUNCH OF MANAGEMENT POLICIES FOR 2019-2021

This year's Annual Group Meeting was held on 22 February 2018, a day before our Annual Dinner and Dance. Close to 60 attendees packed the room at our corporate office as our key personnel took turns to present the past year's performance and targets set for the coming year.

Our Managing Director, Mr Masao Akamatsu launched the Management Policies for 2019-2021 – a revision of the first phase of the Management Policies 2014-2018 which we have executed well and seen visible results in the five core areas – Group Integration, Engineering Capability, Human Resource Development, Marketing and Safety. Importantly, the 3-year initiatives leading up to our 50th anniversary, will be a continuation of the preceding policies, driven by the former Managing Director, Mr Hiroshi Ide.

Mr Akamatsu set out the new five core areas to improve our competitive edge, namely: Re-grouping & Consolidation, Diversification of Engineering Skillsets, Streamlining our Human Capital, Effective Marketing and Environmental, Health and Safety. He challenged the Group to do better than any other construction service provider, and to work towards being recognised as Asia's best engineering & construction service provider. With the intricacies of the changing energy markets, particularly the shift towards renewable energy sources, the challenges ahead are to diversify our engineering skillsets in order to develop new business, immerse in new technologies to increase work efficiency, and to break ground into new territories and further differentiate ourselves through the ability to increase customer value. To maintain our growth for the longer term, we have to harness the resources from within the Group, and to this end, to be a lean, flexible and effective organization. In his presentation, Mr Akamatsu also highlighted that we should hold ourselves accountable to ensure safety in our workplaces, and the fundamentals of building a strong, healthy and happy workforce.

To forge ahead in our quest to be the best service provider, our Chief Operating Officer, Mr Koh Kew Sek, recounted experiences from project sites, and urged all to work hard, as we always have, in order to cement our ambitions in the power and non-power markets.

In their respective presentations, the Managing Directors of our subsidiaries – Thai Jurong Engineering Limited, Equator Engineering Sdn Bhd, PT Jurong Engineering Limited and JEL Maintenance Pte Ltd, related their



respective operation's past year performance and progress of initiatives implemented. In all these key subsidiaries, efforts have been taken to train young engineers, to maximize their potential and be entrusted with greater responsibilities. There was also closer collaboration amongst the subsidiaries, in terms of manpower supply, engineering expertise, customer network and back-end support. The Managing Directors also shared their thoughts on the outlook for the coming years, and they remained optimistically confident that we should continue to benefit from the upcoming power and non-power projects globally.

As we grow our business, we want to stay as a financially strong company. The various financial and risk management initiatives which we have implemented in recent years such as credit review and budget review, threshold for welding rejection rates and other quality control procedures have yielded good results and continued to protect us against operational and reputational risks as highlighted by our Chief Finance Officer and our Head of Risk Management in their presentations.

More than 170 employees engaged in the various training programs since April 2017 including in-house workshops, career development program and JEL learning credit related courses – a record in JEL's history, as depicted by Mr Alan Phang, General Manager of Human Resources and Administration.

We were honoured to have Mr Awano, Vice President of the Resource, Energy & Environment Business Area of IHI Corporation join us in the annual event. He presented the priorities of IHI Corporation for 2018 and beyond in the context of further expanding its businesses.

JEL STAFF PARTY - SECRET SOCIETY



The staff party is held annually to thank everyone for their hard work in the past year and to herald in a new and better year ahead! With this mind, we look forward to another year of great abundance and achievements.



Black seems to be the colour of the night as our staff came dressed as suave crime bosses, sexy and deadly femme fatales to “ah liens” and “gung ho” gangsters, representing all spectrums of the mysterious world of secret societies.

The theme for JEL 2018 Staff Party was “Secret Society”. Based on its principles of mutual assistance and bonding, the hope is for everyone at JEL to stand united as one in the years ahead!

Held at Singapore Expo's convention wing, MAX Atria on 23 February 2018, this year's staff party venue was spacious. Before the start of the party, there were many activities at the foyer and the staff enjoyed themselves at the spray on tattoo booth and instant photo kiosk, where they had fun

posing with fellow colleagues in their best imitation as secret society members for the camera.

Since it was still within the Lunar New Year period, the party ensued with an auspicious lion dance performance to usher in our Managing Director, Mr Masao Akamatsu, who then gave an opening speech after a “James Bond” dance performance.

The emcee guided everyone through a fun, albeit messy, “lo hei” - tossing of the yusheng. That got everyone in high spirits and set the tone for a fun-packed night.

From rousing Japanese Mafia drum performance to impromptu sing-along games, both guests and staff were kept entertained as they

feasted on the food specially prepared by Tung Lok, including their signature “London Duck”. Yummy!

The highlights of the night were definitely the lucky draws, where sound of delight and cheers were interspersed with some groans as the prizes were given out one by one. Special thanks to all sponsors for their generous sponsorship of the prizes!

Alas, the night drew to a close when the Management Committee went on stage for a rousing toast and a rendition of our JEL song. The staff party is held annually to thank everyone for their hard work in the past year and to herald in a new and better year ahead! With this mind, we look forward to another year of great abundance and achievements.

CNY CELEBRATION - A TALE OF LIONS AND FISHES

At the stroke of gam on 28 February 2018, 3 lions dashed into JEL's compound!

No worries though, as these were "auspicious" lions! Accompanied by the loud and lively beating of drums, clashing of cymbals and resounding gongs, the lions danced and pranced around the building, ushering in good luck and fortune to JEL and all staff.

This year, the performance was especially exciting as part of the dance was performed on top of steel poles. Staff who watched eagerly let out 'woos' and 'ahs' as the lion nimbly leaped from pole to pole.

After the thrilling acrobatic performance, the lions proceeded with the "cai qing" (採青) ceremony, literally meaning "plucking the greens". The ceremony involved a lion climbing up a tall pole to pluck the green lettuce which was hung at the top of the pole. Chinese characters for 'plucking' (採) and vegetable (菜) both sound like fortune/prosperity (財). Hence, the double symbolism is believed to bring good luck and fortune to the business.

After the lion dance performance, staff went on to the second part of the celebration, which was the 'lohei' or tossing yusheng. Everyone gathered around tables and heartily tossed together different ingredients, each symbolizing a different 'blessing' or 'luck' such as happiness, harmony in family, eternal youth and of course abundant wealth! As the finale, everyone strived to toss all the ingredients high up into the air and as usual, half of the food ended up on the tables ... as far as it was the auspicious custom, the fun was certainly in the act!

Wishing everyone and JEL a great year ahead!



LUCKY DRAW

Answer all five questions and send your answers together with your name and address to dewie@jel.com.sg. Five randomly picked entries with all correct answers, will each win NTUC Vouchers worth S\$30, sponsored by the Corporate Affairs Division.

1. Which project of EESB received the "Focus Recognition Award"?
2. What is our Managing Director's vision for the year 2018 in his new year message?
3. State two reasons why our client, Sahacogen, appreciated the JEL-TJEL collaboration/ consortium in the Expansion Project - 3?
4. Who are the beneficiaries of the mini plant at Jefri Bolkiah Campus?
5. What is the name of the product to be produced in Evonik Me6 plant?

EDITORIAL NOTES

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.



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