

Supplement to

***ELECTRICAL INDUSTRY OF BURMA/MYANMAR* (Fourth Edition)**

Articles for December 2012

This is the eighth in a series of supplements to the fourth edition of *The Electrical Industry of Burma/Myanmar* which was published in April 2012. Approximately 350 cross-linked articles in the original cover many aspects of the industry including the development of the hydro and thermal power resources of the country, the increasing intervention of foreign and national companies in this economic sector, the production of electrical and electronic goods, government plans and regulation of the industry, the development of the national power grid and alternative and sources of electricity, among others. This supplement covers articles published in December, 2012.

Sinmakaw and Kadatpana in Yangon South connected to the grid

Kyemon, 30/12/12. Edited. From p.2 of the print edition of NLM on 31/12/12.

<http://www.burmalibrary.org/docs14/NLM2012-12-31.pdf>

Sinmakaw model village in Tada sub-township of Kyauktan township of Yangon South District is receiving electricity after the installation of an 11/0-4-KV line, and a 315-KVA transformer. Forty-three homes and buildings in the village are on the circuit. Kadatpana model village was the first village in the sub-township to be connected to the grid. The Kyawswa company made a major contribution to the project.

Start on 500-KV transmission grid with foreign assistance funding

Maung Maung Myint Swe, Myanma Alinn, 26/12/12. Edited and abridged. From p.16 of the print edition of NLM on 30-12-12.

<http://www.burmalibrary.org/docs14/NLM2012-12-30.pdf>

"Construction of Myanmar's first-ever 500-KV power grid installation is to start early in 2013," said an official from the Ministry of Electric Power. The purpose of installing the 263-mile 500-KV power grid is to avoid power losses. The project will be implemented in three phases. The first will be a section 146 miles long between the power stations at Thabyaywa near Meiktila and Toungoo which will be built with the assistance of a loan from Serbia of US\$ 116.32 million. A second 500-KV power grid will consist of a 117-mile line between the power stations at Toungoo and Kamanat near Bago. It will be built during 2013, at a cost of US\$ 87.75 million funded by the Economic Development Cooperation of the Republic of Korea. second phase. The third phase will see the construction of three power plants between Thabyaywa and Kamarnat which will be implemented at a cost of USD 87 million to be funded by Japan's Overseas Development Assistance (ODA).

Power supply resumes after eight-hour blackout in Heho

Kyemon, 27/12/12. From p.4 of the print edition of NLM on 28/12/12.

<http://www.burmalibrary.org/docs14/NLM2012-12-28.pdf>

As a result of the crash landing of an Air Bagan aircraft near Heho nairport on 25 December, pylons holding the 11-KV power line that connects the 66-KV line at Aungthabye to Kalaw and the 11-KV line that connects Heho Airport to the 11-KV at Aungban were damaged resulting in power outtages at Taunggyi, Aungban, Heho, Shwenyaung, Nyaungshwe, the Inlay region, Hopong, Mongpun and Hnaungkar. A Shan State electrical team carried out reinstallation of the power lines and reset the pylons at once. After an eight-hour interruption, normal power service was restored by evening.

Yesagyo township village of Thedaw connected to grid

Kyemon, 26/12/12. Revised. From p. 2 of NLM on 27/12/12

<http://www.burmalibrary.org/docs14/NLM2012-12-27.pdf>

Thanks to the collaborative efforts of the residents of Thedaw village and the staff of the Yesagyo Township Electrical Engineer's Office, transformer and concrete pylons are being installed for transmission and distribution lines which will connect the village to national grid.

Power lines installed along eight streets in Pyinmana

Myanma Alinn, 24/12/12. From page 15 of NLM on 25/12//12.

<http://www.burmalibrary.org/docs14/NLM2012-12-25.pdf>

Electricity prices on the rise as Ministry faces millions in losses

Soe Sandar Oo and Htoo Aung, Myanmar Times, 24/12/12.

<http://mmtimes.com/index.php/business/3632-electricity-price-on-the-rise.html>

Myanmar's Ministry of Electric Power is set to compensate for an estimated K368.952 billion (US\$430 million) loss in the 2013-2014 fiscal year by increasing the price of electricity and natural gas, senior representatives of Myanmar Electric Power Enterprises (MEPE) announced last week. Due to General Transformer's plans to increase their electricity price and the rising price of natural gas, the Ministry of Electric Power will continue to lose millions if the pricing system remains the same, said Daw Zaw Zaw Than, general manager of the financial department of the Myanmar Electric Power Enterprise (MEPE), on December 19. "We buy and distribute the electricity at normal price, so the Ministry of Electric Power is losing money. We lose one kyat and 74 pyar for each unit we sell to the Yangon Electricity Supply Board. The Ministry of Electric Power has lost K18.751 billion (\$21.9 million) in the 2012-2013 fiscal year," she said.

The Ministry of Electric Power is currently buying electricity from General Transformer, Hydropower Generation Enterprise and Shweli Hydropower Generation Enterprise, and offshore natural gas from the Ministry of Energy. Currently, 67pc of the electricity is sourced from Hydropower Generation Enterprise, while 23pc is sourced from General Transformer and 10pc is sourced from Shweli Hydropower Generation Enterprise. General Transformer's contribution will increase to 31pc after March 2013. "One of our biggest problems is that we need to buy more natural gas," Daw Zaw Zaw Than added. The price of natural gas is currently \$5 for one British Thermal Unit (BTU). However, the price will rise to \$11.1966 per BTU after March 2013.

Myanmar will implement a standardised system for pricing electricity and natural gas based on an international model, which will be provided for by foreign investment, said Daw Aye Aye Mon, director of the MEPE's financial department told The Myanmar Times on Wednesday, December 19. "The [rise in price] will not affect the majority of lower and middle class people. The system will be based the amount of kilowatts each [unit] uses," she said. A household expending 200kw over one month will pay K35 per unit while a household expending over 200kw will pay K50 per unit, Daw Aye Aye Mon said. Industrial units expending between 10,000 and 15,000kw per month will be charged K75 per unit. In comparison, China charges K72 per unit for a household expending up to 150kw over one month while Thailand charges K50 for the same.

Compiler's note: Under the organizational setup that existed prior to September 2012, MEPE (Myanmar Electric Power Enterprise) was responsible for the generating stations in Yangon and gas-fired generating plants elsewhere in the country. It was also responsible for the national transmission grid which carried the electricity produced at all hydro, gas and coal generating stations and sold it to the Yangon Electricity Supply Board (YESB) for distribution in Yangon Region and to the Electricity Supply Enterprise (ESE) for distribution in the rest of the country. This arrangement appears to have been changed when the two ministries of electric power were combined in September 2012. The company identified as General Transformer in the Myanmar Times article above would now appear to be responsible for electricity generated by the gas-fired power plants which is sold to MEPE, in the same way as electricity generated at hydropower stations is sold to MEPE by the HGE. MEPE then transmits the electricity for resale to the YESB and ESE which distribute the power to and bill local customers. However, further clarification is needed, particularly as to the role and function of the company known as General Transformer. An organogram of the organizational setup of the combined Ministry of Electric Power (MOEP) can be found on p. 24 of the ADB's report: *Myanmar Energy Sector Initial Assessment*, but the ADB report does not mention the General Transformer company or make any reference to the gas-fired power generating plants either in Yangon or elsewhere in the country. <http://www.adb.org/sites/default/files/myanmar-energy-sector-assessment.pdf>

Japan's Meidensha Corp to invest in Myanmar transformer manufacturer

Justin Heifetz, Myanmar Times, 24/12/12. Abridged.

<http://mmtimes.com/index.php/business/3631-japanese-back-myanmar-electrics.html>

Meidensha Corporation (MEIDEN) has moved into Myanmar, signing a technical transfer agreement with Asia General Electric Co, Ltd (AGE) and a Memorandum of Understanding between AGE and Japan's Metal One Corporation, MEIDEN's President and CEO Junzo Inamura announced last week. On Monday, December 17, the

Tokyo-based electronics equipment maker signed with AGE, a national transformer manufacturing and sales company, to build a local network for power transmission and distribution. Development will focus on transformer design, manufacturing and repair. "Through the supply of the low cost and high-quality licensed products manufactured by AGE, MEIDEN will reinforce its competitive edge in the Southeast Asian Region," MEIDEN's official announcement states. "AGE will have the latest technology on high quality medium and large power transformers and it will solidify its presence as the largest supplier of power transformer in Myanmar," the announcement continues. MEIDEN also signed an MoU between AGE and Metal One, Japan's leading steel trading house, for the study of equity investment. "If the equity investment is made, it will be the first case of equity investment from Japan to a power infrastructure-related company in Myanmar," MEIDEN's announcement states. Under the conditions set out in the MoU, Metal One will provide AGE with electromagnetic technology to manufacture midsize and large transformers. The MoU also states that MEIDEN would consider investing in AGE if the cooperation is successful.

Supply of electricity launched in rural area of Lewe township

Myanma Alinn, 20/12/12. Edited and condensed. From p.7 of the print edition of NLM on 21/12/12.

<http://www.burmalibrary.org/docs14/NLM2012-12-21.pdf>

A ceremony to launch the generator that will supply electricity was held in Ywama Village of Dalantchun Village tract in Lewe township of the Nay Pyi Taw Council Area on the morning of 11 December. Council member U Myint Swe and Lewe Township Administrator Htay Win and local people participated in the program. The village consists of 199 homes. The local people spent over K 1 million and Nay Pyi Taw Council K 7.7 million to install the electrical system.

Interruption in natural gas supply causes power outages

Public Notice of Ministry of Electric Power, 19/12/12. Edited. From p.16 of print edition of NLM on 20/12/12.

<http://www.burmalibrary.org/docs14/NLM2012-12-20.pdf>

The failure of the electronic control system at Yadana natural gas drill at 5 am on 17/12/12 led to the suspension of natural gas supply for domestic use. As a result, Myanma Oil and Gas Enterprise (MOGE) is repairing the gas intake systems at the power stations in Yangon Region and at Shwedaung and Myanaung and electricity generation was cut to about 310 megawatts. Thanks to MOGE's efforts, the supply of 60 million cu ft of natural gas was restored by 10 am on the same day; this was increased to 90 million cubic ft by 11 am; to 110 million cubic ft by 1 am; to 124 million cubic ft by 4 am on 18/12/2012 and to 148 million cubic ft by 5 am on 19/12/12. As the offshore natural gas supply could not resume at full capacity, the electricity generation at Shwedaung and Myanaung power stations has been reduced by 28 megawatts and at the power stations in Yangon by 30 megawatts. The electricity supply to some regions and states may be cut back periodically during the reduction in the supply of natural gas. The Ministry of Electric Power is trying to fill the gap by increasing the supply of electricity from hydropower stations and is planning to cope with the reduction in electricity supply and voltage. Repair should be completed by the evening of 19/12/12.

Online payment of electricity bills initiated

Myanma Alinn, 15/12/12. Edited and abridged. From p.7 of the print edition of NLM on 16/12/12.

<http://www.burmalibrary.org/docs14/NLM2012-12-16.pdf>

Yatanarpon Teleport in cooperation with private banks and Myanma Economic Bank will facilitate the payment of electric meter bills to the online Electricity Billing Services of the Ministry of Electric Power through the use of Yatanarpon Online Payment Gateway (Y pay). Electric meter bills can be paid in Nay Pyi Taw and Mandalay Region from 15 to 24 every month through www.ebilling.ypay.com.mm. the same e-payment service will soon be available to Yangonites.

Vilage tract in Amarapura township connected to grid

Kyemon, 13/12/12. Edited and condensed. From p. 2 of the print edition of NLM 14/12/12.

<http://www.burmalibrary.org/docs14/NLM2012-12-14.pdf>

Under the rural region development and poverty alleviation scheme , installation of transformer and power lines and setting up of pylons are being carried out by staff of the Ministry of Electric Power with the contribution of the State at Uyindaw village-tract in Amarapura township near Mandalay. So far, 90pc of the project that will supply electricity to

555 houses in the village-tract has been completed. Plans are underway to supply the remaining houses in the village-tract.

Hot Season Power Outages Again Likely, Officials Warn

Lawi Weng, The Irrawaddy, 18/12/12. Edited, corrected and condensed.

<http://www.irrawaddy.org/archives/21508>

Burmese government officials have warned that they might struggle to provide sufficient power during the hot weather early in 2013 and called for the public's understanding for any possible outages. "Even though we plan to produce more electric power or to build more power stations, we may not have enough electric power and we may have to cut off power sometime next summer," said Yangon Electricity Supply Board (YESB) Chairman Aung Khaing. He and several other officials spoke at a press conference at the board's office in Rangoon this weekend to address the issue of possible power shortages. During the last hot season, frequent power shortages led to large-scale protests in Rangoon and Mandalay in the months of April, May and June. Aung Khaing said officials were working to ensure 24-hour power supply during the upcoming hot season, when water levels in hydropower stations usually drop due to droughts and the power output of the stations falls sharply. "We had a good rainy season this year and there is a lot of water in the dam [reservoirs]. We will even try to maintain the water level at the dams, so that it could last until March," he said, adding that concerns also remained over the state of the long-distance power transmission lines. Aung Khaing said Burma's current energy supply, which comes for 70pc from hydropower and 30pc from coal, was well below the needs of the country. "We need 1,800 megawatts of electric power during summer time in March, but we only can produce 1,400 megawatts," he said, adding, "Burma has opened the door of the economy and the most basic infrastructure development need is electric power." Aung Khaing said that in Rangoon 900,000 households were linked to the city's power grid and they require about 750 megawatts. "But if we do not have it, we have to cut off the power, which causes problems for the people," he added. Ministry of Electric Power Director General Khin Maung Zaw told reporters that armed ethnic Kachin groups were partly to blame for Burma's poor power supply because of their supposed attacks on hydropower stations. He said the power station at the Chibwenge dam project in Kachin State was ready to go online, but had been prevented from operating properly because of Kachin rebel attacks. "This power plant is built and ready for use in 2012 and 2013. It can produce 99 megawatts, but we cannot provide the necessary security," Khin Maung Zaw said.

GE turbine technology to power natural gas-fired plant in Myanmar

Power Engineering, 17/12/2012. Edited and condensed.

<http://www.power-eng.com/news/2012/12/17/ge-turbine-technology-to-power-natural-gas-fired-plant-in-myanmar.html>

General Electric (GE) has announced that its aeroderivative gas turbine technology will power a new natural gas-fired plant in Myanmar. The power generating facility, which would produce about 100MW, is expected to enter commercial service no later than the second quarter of 2013. GE will deliver two LM6000-PC Sprint aeroderivative gas turbine-generators and provide technical advisory services for the power station located in Ahlone Township of Yangon city. The LM6000 offers reliability of more than 99% and availability of over 97%, in addition to a high level of operating flexibility and dry low nitrous oxide emissions technology, GE said in a statement. The power plant owner, TOYO Thai Power Corp in Singapore (TTPSG), an independent power producer, will operate the plant and sell the generated electricity to Myanmar's Ministry of Electric Power. Myanmar intends to add 450MW of gas-based capacity as part of an initiative to double its installed electricity capacity by 2015. TTPSG president and chief executive Hironobu Iriya highlighted the availability of abundant energy resources in Myanmar that can be tapped for power generation. "Due to the availability of natural gas, we expect that gas-fired combined-cycle projects will play an increasingly important role in increasing Myanmar's power supply to support the country's urgent need for more power," Iriya added. GE Power & Water president and CEO Darryl Wilson said: "Gas-fired combined-cycle power plants can be delivered and installed to meet tight project schedules making this technology an excellent fit for addressing Myanmar's immediate electricity requirements."

Myanmar company proposes two hydropower projects for Kokang region

Eleven Media, 13/12/12. Revised and corrected.

<http://www.elevenmyanmar.com/business/1711-two-hydropower-projects-proposed-in-shan-state>

The Rich Yedanar Shwe Myay company, recently made a proposal to develop two hydropower projects in the Kokang region of Shan State, according to the Directorate of Investment and Company Administration of the Myanmar Investment Commission. "One proposed project site is near the Laukkaing region and the other is in the

Kokang. The company wants to run both projects,” said a DICA official. Currently there are plans to construct eight hydropower dams in Shan State, and three dams are under construction. Eleven more are undergoing feasibility studies. Among the eight projects are three that have already been approved for loans from China. Two projects, Upper Yeywa and Kyaing Taung dams, have already received Chinese funding and will complete construction between 2018 and 2019, while the third, Shweli-2, is still awaiting loan approval.

Myogyi multi-purpose dam project inspected

Myanmar News Agency, 13/12/12. Edited and condensed. As published on p.16 of NLM on 14/12/12.

<http://www.burmalibrary.org/docs14/NLM2012-12-14.pdf>

Union Minister for Agriculture and Irrigation Myint Hlaing inspected Myogyi Dam in Shan State's Ywangan township on 12/12/12. During his visit he called for the timely completion of the whole project in parallel with the irrigation system that will benefit 33000 acres of farmland in the Meiktila plain. The Minister also checked on the construction of the power tunnel and related structures, the spillway and the equipment to be used in generating electricity. Upon completion, 30 megawatts of power will be generated by the dam for use in the surrounding area.

Hsedwin, Gwaykon villages in Yamethin township connected to power grid

Kyemon, 12/12/12. Edited and condensed. As published on p.2 of NLM on 13/12/12.

<http://www.burmalibrary.org/docs14/NLM2012-12-13.pdf>

The installation of a transformer and power lines for Hsedwin and Gwaykon villages has been completed on self-reliant basis. Skilled employees are presently installing meter boxes and service power lines at houses in the two villages. A total of K 90 million is being spent on the project.

Myanmar power summit scheduled for end of January

Business Wire, 10/12/12. Edited, revised and condensed.

<http://www.businesswire.com/news/home/20121210005744/en/Strategic-Summits-Present-Business-Investment-Opportunities-Myanmar>

In January 2013, Singapore's Center for the Management of Technology (CMT) will host three timely forums in Myanmar outlining what would-be investors need to know, latest policy guidelines, authoritative speaker line up and networking sessions with decision-makers. These summits aim to help align expectations between investors and the government, thereby accelerating the country's economic reforms. They are: (1) the Myanmar Mining Summit, hosted by the Ministry of Mines, (2) the first Myanmar Power Summit with U Khin Maung Soe, Union Minister of Electric Power giving the keynote opening address, and (3) the New Myanmar Investment Summit to discuss key clauses of the new investment law and the role of the Directorate Investment and Company Administration (DICA) and the Myanmar Investment Commission (MIC). The Power Summit will take place on 28-29 January and will offer the opportunity for one-to-one business meetings with officials of the Ministry of Electric Power.

Installation of power line in Tatkon and Yamethin townships

Kyemon, 07/12/12. Edited. As published on p.6 of NLM on 08/12/12.

<http://www.burmalibrary.org/docs14/NLM2012-12-08.pdf>

Since the Moe Hti Moe Mi region of Waphyutaung village-tract in Yamethin township has become an urbanized area, availability of electricity is a necessity. The setting up pylons and sub-stations needed for the installation of 33-KV and 11-KV overhead power lines from Shwe Myot in Tatkon township to Ngatesu, a distance of 38.76 miles, has been completed. At present the stockpiling of necessary items for the installation of power lines from Ngatesu to Sakhamgyi and from Sakhamgyi to the ball mill are underway.

Laymyo dam survey suspended due to rains

Eleven Media, 03/12/12. Revised and corrected.

<http://www.elevenmyanmar.com/national/1552-myanmar-dam-stalled-due-to-rains>

Survey work at the Laymyo Chaung hydropower project [near the border of Chin and Rakhine States] has been temporarily postponed due to the monsoon rains. Myanmar authorities said the project will resume by the end of monsoon, after completing studies and surveys on the river during the rainy season. The dam in Phapyochay village is one of the many hydro projects being built to supply power to the Rakhine State. “Chinese engineers have been testing the project area for three years. At least 60 Chin ethnic villages will be relocated if the project resumes,” a source from an environment group said. The proposed hydroelectric dam on the Laymyo Chaung is known to be

the largest facility in western Myanmar. Local residents downstream fear the project's negative impact on their livelihood and the environment.

ADB study puts spotlights Myanmar's energy sector

Justin Heifetz, Myanmar Times, 03/12/12. Abridged.

<http://mmtimes.com/index.php/business/3466-adb-study-puts-spotlights-myanmar-s-energy-sector.html>

Myanmar has significant potential energy resources but lacks the capital and regulatory framework needed to develop them, an initial assessment by the Asian Development Bank (ADB) shows. ADB's Energy Sector Initial Assessment, released on November 27, suggests that Myanmar can benefit from oil and gas exploration, as well as harnessing the energy of geothermal and other renewable energy sources. The assessment shows that the country's largest potential energy resources are hydropower and natural gas. "Myanmar's energy sector has suffered from decades of underinvestment, and only one in four people currently have electricity access," said Anthony Jude, director of the energy division in ADB's Southeast Asia Department. "As Myanmar continues to open up there is a remarkable opportunity to utilise domestic energy resources to power the country's development, but it's essential that strong, enforceable environmental and social safeguards be firmly in place." The ADB assessment also cites a lack of qualified personnel, poor legal and regulatory frameworks and a lack of coordination planning among Myanmar's seven energy-related government ministries as an impediment to developing the country's energy sector. The assessment says that Myanmar's energy sector could benefit from international investment in medium- and long-term planning; rehabilitation works in power generation, transmission, and distribution; and building gas-fuelled power plants in Yangon. The assessment further says the construction of a 500KV transmission line from upper Myanmar to Yangon; an integrated, comprehensive plan for hydropower development; and the rehabilitation and upgrading of coal- and gas-fired generation plants, refineries, and natural gas pipelines. "Electrification is an urgent requirement, without which whole areas of the country will be severely hampered in their efforts to advance economically. Social progress also depends on electrification, without which health, education, and other essential services inevitably suffer," the assessment says. Myanmar's per capita electricity consumption is among the lowest in Asia. Electrification rates range from 67 percent in Yangon to as little as 16pc in rural areas.

Compiler's note: The Asian Development Bank (ADB) report, titled **Myanmar: Energy Sector Initial Assessment**, is available at the following URL <http://www.adb.org/sites/default/files/myanmar-energy-sector-assessment.pdf>

Upper Yeywa hydropower project to generate 1409 million kWh per year

Myanmar News Agency, 02/12/12. Edited. From page 16 of the print edition NLM, 03/12/12.

<http://www.burmalibrary.org/docs14/NLM2012-12-03.pdf>

Union Minister for Electric Power U Khin Maung Soe visited the site of the Upper Yeywa Hydro Power Plant project on the Myitnge River in Kyaukme township, Shan State (North), on 1 December. On his tour of inspection, the Union minister called for completion of the project ahead of schedule and for the efficient use of materials and work site safety. The plant which will be equipped with four 70-MW generators on completion, is expected to generate 1409 million kWh per year. The project is being implemented by the Construction Group-4 of the Hydropower Implementation Department of the Ministry of Electric Power. During the tour, the Union Minister and Deputy Minister U Myint Zaw inspected the main dam, the power plant, the site chosen for digging tunnel, construction of the bridge across the river and earth work for maintenance of the diversion tunnel.