EUROCHAM
MYANMAR

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EUROPEAN CHAMBER OF COMMERCE IN MYANMAR

EuroCham serves as the voice of European business in Myanmar. Its main mission is to significantly increase the presence of European companies in the country and to facilitate market access particularly for European SMEs – by advocating for member interests with the government and organisations in Myanmar, the ASEAN region and the EU.

With a strong, growing network of partners, EuroCham offers on-the-ground assistance for European businesses interested in commercial endeavours in Myanmar, whether in the form of advocacy, business services, research or networking.

This report serves as a guide for European small-to-medium sized enterprises interested in investing in Myanmar; it starts with a sector overview followed by entry-level information and relevant contact details.

Please contact us for further information and support.

Yangon, October 2018

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The voice of European business
in Myanmar

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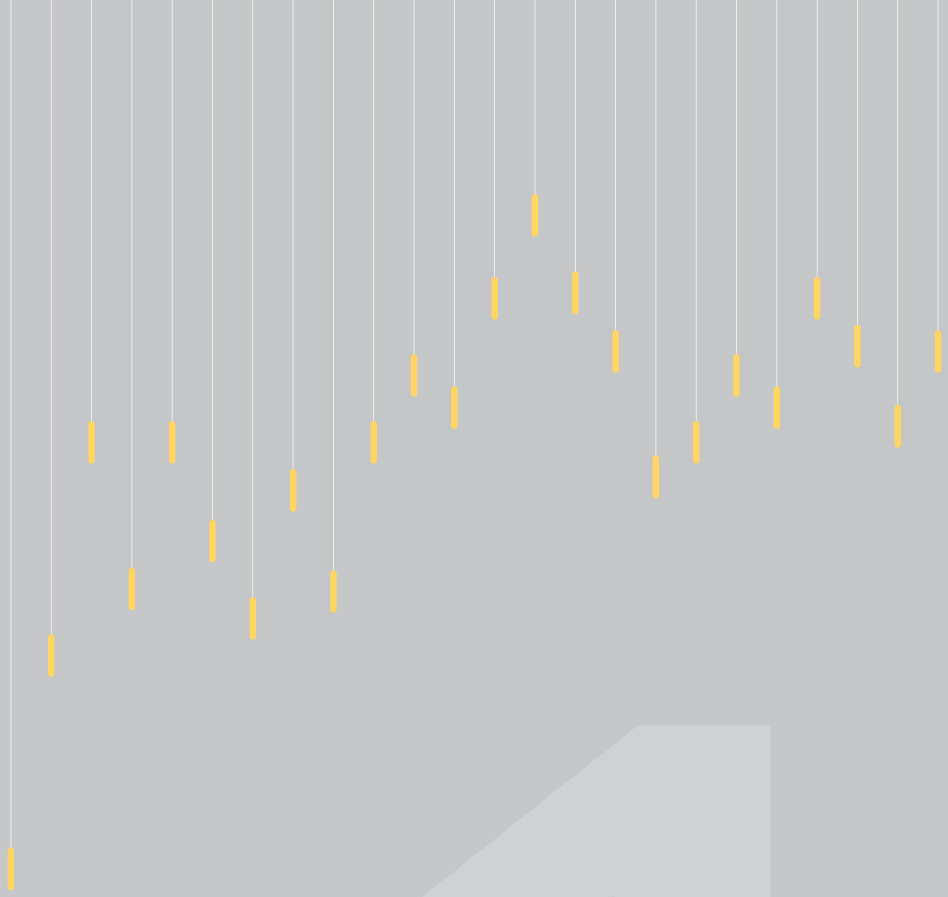
ACRONYMS

AEC	*ASEAN Economic Community*
ASEAN	*Association of Southeast Asian Nations*
BOT	*Build-Operate-Transfer*
DICA	*Directorate of Investment and Company Administration*
ESHA	*European Small Hydropower Association*
FDI	*Foreign Direct Investment*
FIL	*Foreign Investment Law*
IASH	*International Association for Small Hydro*
kWh	*Kilowatt Hour*
LNG	*Liquefied Natural Gas*
LPG	*Liquefied Petroleum Gas*
MIC	*Myanmar Investment Commission*
MMCF	*Million Cubic Feet*
MOEE	*Ministry of Electricity and Energy*
MOU	*Memorandum of Understanding*
MPE	*Myanma Petrochemical Enterprise*
MPPE	*Myanmar Petroleum Products Enterprise*
NEMC	*National Energy Management Committee*
NTP	*Notice to Proceed*
SHP	*Small Hydropower Plants*
SME	*Small and Medium Enterprise*
UNIDO	*United Nations Industrial Development Organisation*
YESC	*Yangon Electric Supply Corporation*



1.
SECTOR OVERVIEW

Myanmar is strategically located in Southeast Asia, between China and India, and is endowed with abundant oil and gas, hydropower, coal and renewable resources. Natural gas has been the country's largest export commodity for years, as well as a crucial GDP growth driver. Electricity demand is increasing rapidly, with the sector requiring major investment to meet an ambitious goal of 100% electrification by 2030. Growing economic development, coupled with vast infrastructure upgrades mean Myanmar is now one the most promising energy markets globally.

1.1 CURRENT MARKET SITUATION

Political and economic reforms carried out under former President U Thein Sein's administration from 2011 to 2015 led to the end of many international sanctions, as well as increased investment in the energy sector, trade liberalisation and an increasingly favourable economic climate.

In 2016, under the new National League for Democracy government, the Ministry of Electric Power and Ministry of Energy merged to form the Ministry of Electricity and Energy. The current minister is U Win Khaing. He took the position jointly with his existing construction portfolio in August 2017, before transitioning to focus solely on electricity and energy on 15 January 2018[i].

The new government has generally continued reform in the energy sector, as the country looks to surmount a broad array of challenges in electricity generation, fuel imports and petroleum production.

Considerable clarity on the future direction of Myanmar's electricity sector was achieved in 2018, as important decisions were made toward electrifying the country and meeting expected future demand growth. A total of six power projects (four gas-to-power projects, including three LNG solutions, along with two hydropower plants) received government "Notices to Proceed". Meanwhile, funding was secured for important transmission and distribution links.

In the downstream sector, the fuel market has been liberalised, with a number of major international brands preparing for market entry. Domestic firms are continually improving infrastructure and distribution networks, and moving into relatively untapped businesses such as LPG.

Potential petroleum production has been buoyed by recent discoveries in offshore blocks, notably in A-6 and M-3 (see page 19). The petroleum sector is now emerging from challenges face around the globe stemming from low prices. Although 16 onshore and 20 offshore blocks were awarded in the 2013 bidding round, many have either been handed back to the government or have had exploration delayed[ii]. Nonetheless, the government is planning another bidding round slated for the next few months, also promising more favourable contract terms. Coupled with improving international prices, it is an exciting prospect for international investors.

1.2 LOCATION OF ELECTRICITY GENERATION SITES

Myanmar has a total of 19 gas-fired power plants, with nine located in Yangon Region, and the remainder near gas infrastructure at various locations across the country. It has about 28 hydropower plants, ranging from 10MW at the smallest to 790MW for the largest, the Yeywa plant. It also has another 30 small-scale plants that are less than 10MW.

Figure 1: Map of Myanmar

The table below shows the location of 28 large hydropower projects (>10 MW) in the Ministry of Electricity and Energy's most recent list. Together they a combined capacity of 3,223MW. The table also lists 19 gas power plants, with a combined capacity of 1,725MW, as well as the 120MW Tigyit coal power plant, the only large coal plant in operation[iii].

Region / state	Generation type	Quantity	Total capacity (MW)
Nay Pyi Taw Union Territory	Hydropower	3	460
	Gas	-	-
Yangon Region	Hydropower	-	-
	Gas	9	979
Mandalay Region	Hydropower	3	871
	Gas	2	197
Magwe Region	Hydropower	3	189
	Gas	2	91
Sagaing Region	Hydropower	2	34
	Gas	-	-
Bago Region	Hydropower	7	370
	Gas	1	55
Ayeyarwady Region	Hydropower	-	-
	Gas	1	16
Tanintharyi Region	Hydropower	-	-
	Gas	1	6
Kachin State	Hydropower	2	339
	Gas	-	-
Kayah State	Hydropower	3	248
	Gas	-	-
Kayin State	Hydropower	-	-
	Gas	-	-
Mon State	Hydropower	-	-
	Gas	2	281
Rakhine State	Hydropower	-	-
	Gas	1	100
Chin State	Hydropower	-	-
	Gas	-	-

Shan State	Hydropower	5	714
	Gas	-	-
	Coal	1	120
Total	**Hydropower**	**28**	**3,223**
	Gas	**19**	**1,725**
	Coal	**1**	**120**

Table 1: Power production by region / state
(Source: Ministry of Electricity and Energy)

It is important to note that many projects operate well below installed capacity.

1.3 ELECTRICITY SECTOR ANALYSIS

Myanmar has enormous unmet demand for electricity. Current electrification rates are at about 40%, meaning 60% of households are not connected to the national grid, instead relying on local solutions such as diesel generators and, increasingly, solar home systems[iv]. Average per user consumption is also increasing, adding to the challenges of meeting the ambitious target of 100% electrification by 2030. The result is that the amount of electricity being generated in Myanmar must, by some estimates, increase by a factor of seven by 2030.

Various plans have been put forward to meet this challenge. Perhaps the most frequently cited is the Myanmar National Electricity Master Plan, which in its recommended "power resources balance" scenario called for a large increase in coal power (see page 14).

The scenario outlined by the plan is somewhat different from what is unfolding in Myanmar. The Myanmar National Electricity Master Plan's recommended scenario has been criticised for among other factors a large reliance on coal power, to the point where it becomes the largest generation source by 2030. Reports have stated the plan is to be updated with assistance from JICA, which may see a lower percentage devoted to coal and a larger share for hydropower[vi]. In practice, Myanmar has been reluctant to embrace coal power so far, most recently opting for LNG-to-power (natural gas) and hydropower plants instead.

The challenging is complicated by mounting government losses due to electricity subsidies. Residential tariffs range from MMK35 to MMK50 per kWh, while industrial and commercial tariffs are between MMK75 and MMK150 per kWh, based on usage. This is well below the cost of generation, with the government estimating it will lose up to USD500 million in the current fiscal year – a figure which will grow as much generation is added[vii].

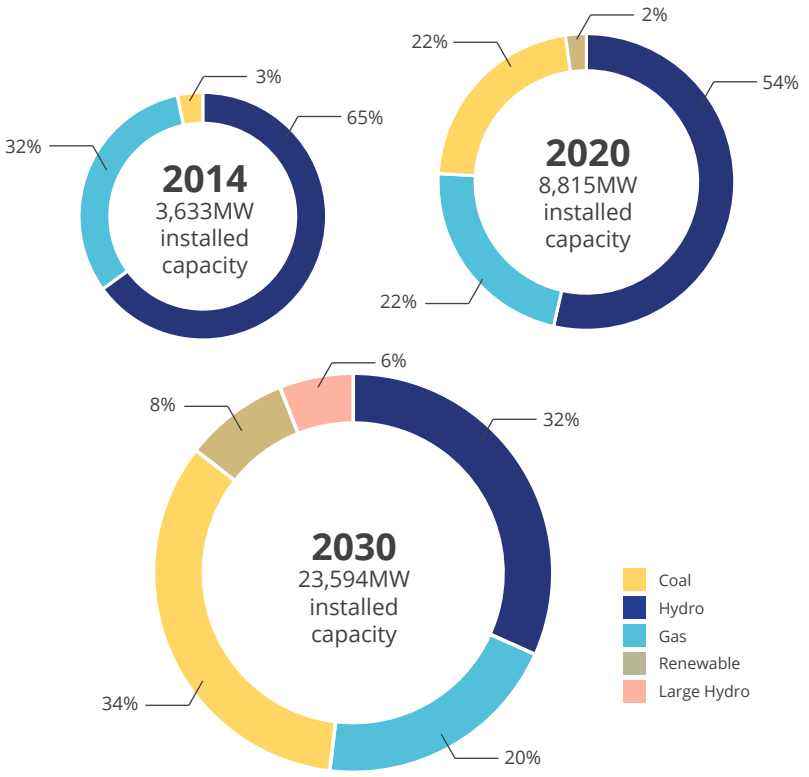


Figure 2: Power resources balance scenario

(Source: Section 5.5, Final Report for the Myanmar National Electricity Master Plan)[v]

1.3.1 Coal power plants

The government's stance towards coal has changed significantly in the past years. Various plans call for a large portion of generation to come from coal power in the future, though recently there has been little progress in this area.

The former government signed at least 11 early-stage agreements for coal-fired power plants around the country with several international and regional companies. Most of these projects have since stalled due to widespread public opposition, including from local residents and environmental groups[viii]. There is further concern that domestic coal extraction may not meet the demand of all 11 planned plants, leading to a situation where Myanmar must import the resource. Although Myanmar has estimated domestic coal resources of 540 million tons, coal extraction has remained slow due to low investment and the remoteness of most of the country's 565 identified coal sites[ix].

In April 2016, Huagaung Electric Power Engineering was selected as the winner for a tender to upgrade and operate the existing Tigyit plant in southern Shan State, the only coal-fired power plant in the country[x]. Since this agreement, the current government has not signed any new major agreement for a coal power plant, though some regional and state level agreements have been reached, such as for the 1,280MW Toyo Thai project in Kayin State.

1.3.2 Gas power plants

In the past, gas-fired power plants in Myanmar used existing domestic gas, which is cheaper and more environmentally-friendly than liquid fuel. Nevertheless, gas power is limited by declining domestic production and export contracts with Thailand and China, limiting the amount available for Myanmar's use.

Nonetheless, there is considerable interest in gas-fired power plants. Three significant gas plants are completed / nearly so, including the Thilawa project at Yangon, Myingyan in Mandalay Region, and Thaton in Mon State, with a total combined capacity of 380MW.

In terms of adding new production, a major step was taken on 31 January 2018, when four gas-to-power projects received the first "Notices to Proceed". The four projects total over 3,000MW, representing a large increase to national capacity if they are built. The projects include Total and Siemen's 1,230MW LNG-to-power plant in Tanintharyi Region, Supreme and Zhefu's 1,390MW LNG-to-power plant in Ayeyarwady Region, Toyo Thai's 356MW LNG-to-power plant in Yangon Region, and Supreme and Sinohydro's 135MW combined-cycle plant in Rakhine State[xi].

The four Notices to Proceed (NTP) are not final Power Purchase Agreement, which are in the process of being negotiated. Nonetheless, the NTPs indicate a clear direction for medium-term power production in Myanmar.

1.3.3 Hydropower

Myanmar has a rich endowment of potential hydropower sites, given its strong river system and favourable geography. Altogether, 28 hydropower plants with a minimum capacity of 10MW have been built. Another six have been listed as under construction, and another 69 with potential capacity of 43,848MW have been proposed / identified[xii].

Under previous governments, much of the proposed FDI into hydropower was from Chinese companies. However, beginning with the 2011 democratic transition, and further under the current government, there has been increasing interest particularly from European countries. This culminated in 2018 with Électricité de France receiving a Notice to Proceed for the 1,050MW Shweli-3 plant on 10 September, and a consortium including Austrian firm Andritz receiving a Notice to Proceed for a small plant at Deedoke in Mandalay Region in August[xiii].

1.3.4 Bioenergy

Biomass is the main energy source for cooking, particularly in rural areas. The 2014 census, the first conducted in decades, showed 86.2% of rural households relied on firewood for cooking food[xiv]. Other sources used in the country include sugarcane bagasse, palm leaves, cotton stalk, sesame stalk, rice husk, sawdust and bamboo. While

this figure has likely dropped, as the electrification rate increases and the government and private sector makes a push into kerosene and LPG, it is still a major fuel source for local people.

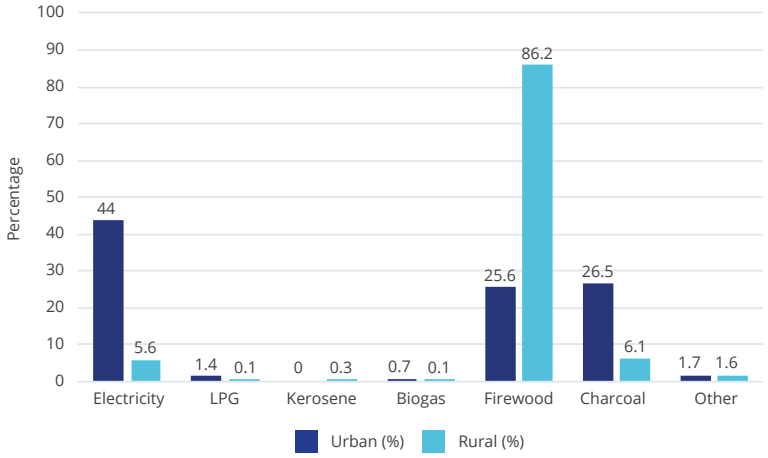


Figure 3: Energy source for cooking
(Source: The 2014 Myanmar Population and Housing Census, main results, page 32)

Biomass is traditionally a local, decentralised energy source, though this is changing. A few experiments are being conducted with electricity generation from rice husk, with local firm MAPCO opening a 0.5MW, USD4.7 million facility with a foreign partner in May 2018[xv].

There were previously attempts to build a biofuel industry based on jatropha. However, the attempt has essentially been abandoned due to problems including pests and diseases in the plants.

1.3.5 Wind power

Myanmar has a technical potential for the development of 4,032 MW of wind energy, mostly in Shan State, Chin State, and along the Rakhine coast[xvi]. The following new projects are planned according to the Ministry of Electricity and Energy:

Region	Number of Projects	Capacity (MW)
Rakhine	10	1,484
Chin	10	1,472
Ayeyarwady	5	478
Yangon	2	274

Table 2: Renewable energy projects
(Source: ADB Sector Assessment: Energy 2015–2017)

An MOU for the first wind-power project was signed between the Ministry and China's Three Gorges Corporation in March 2016. This agreement paves the way for construction of a wind turbine project in the Chaung Tha area of Ayeyarwady Region which is expected to generate 30MW of electricity. In April 2017, InfraCo Asia Development signed an MoU looking at wind potential in Magwe Region[xvii].

1.3.6 Solar power

The overall potential for solar power is estimated to be 51,973 terawatt-hours per year, with the highest potential in the central dry zones of the country. Although several MoUs have been signed, only two firm Power Purchase Agreements have been reached for large-scale solar. US-based ACO Investment Group plans to invest USD480 million to build two 150MW solar plants near Mandalay. Thailand's Green Earth Power will spend USD350 million on a 220MW A/C plant in Magway Region's Minbu township. As of 2018, the first 40MW phase of the Green Earth Power project is moving forward[xviii].

1.4 POWER CONSUMPTION

Yangon, the largest city, accounted for 50% of national power consumption in 2013. This share has dropped steadily as the grid expands outside the country's largest city – though Yangon still counts for 42% as of October 2018.

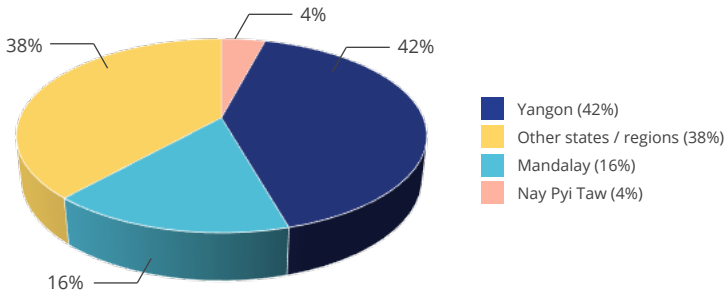


Figure 4: Electricity usage by area
(Source: Ministry of Electricity and Energy, accessed 2 October 2018)

1.5 OIL AND GAS

Myanmar has a long history of petroleum production for commercial purposes. The former kings oversaw oil production in the pre-colonial period, while the Burmah Oil Company was founded in 1871. Today, though, Myanmar is primarily a natural gas producer, as onshore oil production has declined from peak production, which was 35,000 barrels per day (bpd) in 1985.

Domestic oil production last peaked in 2006, when it averaged about 23,000 barrels per day. As of 2017–18, it average 9,266 barrels per day, a decline on 11,775 bpd in 2016–17[xix]. Generally about one-third of this is from offshore condensate and two-thirds from onshore production. In May 2018, Minister U Win Khaing said the goal is to increase onshore crude production to 10,000 barrels per day within three years.

Natural gas production has grown to become much more important in the last three decades. There are four major offshore areas currently producing, of which about 75% of production is exported to China and Thailand. There is also some onshore gas production, though it totals only about 50MMCF per day, compared with about 1,750MMCF per day offshore.

As an integral export commodity, the country is vulnerable to falling natural gas prices, which caused a significant drop in export revenue between 2016-17[xx].

There are 54 onshore and 51 offshore, 24 of which are classified as deep sea.

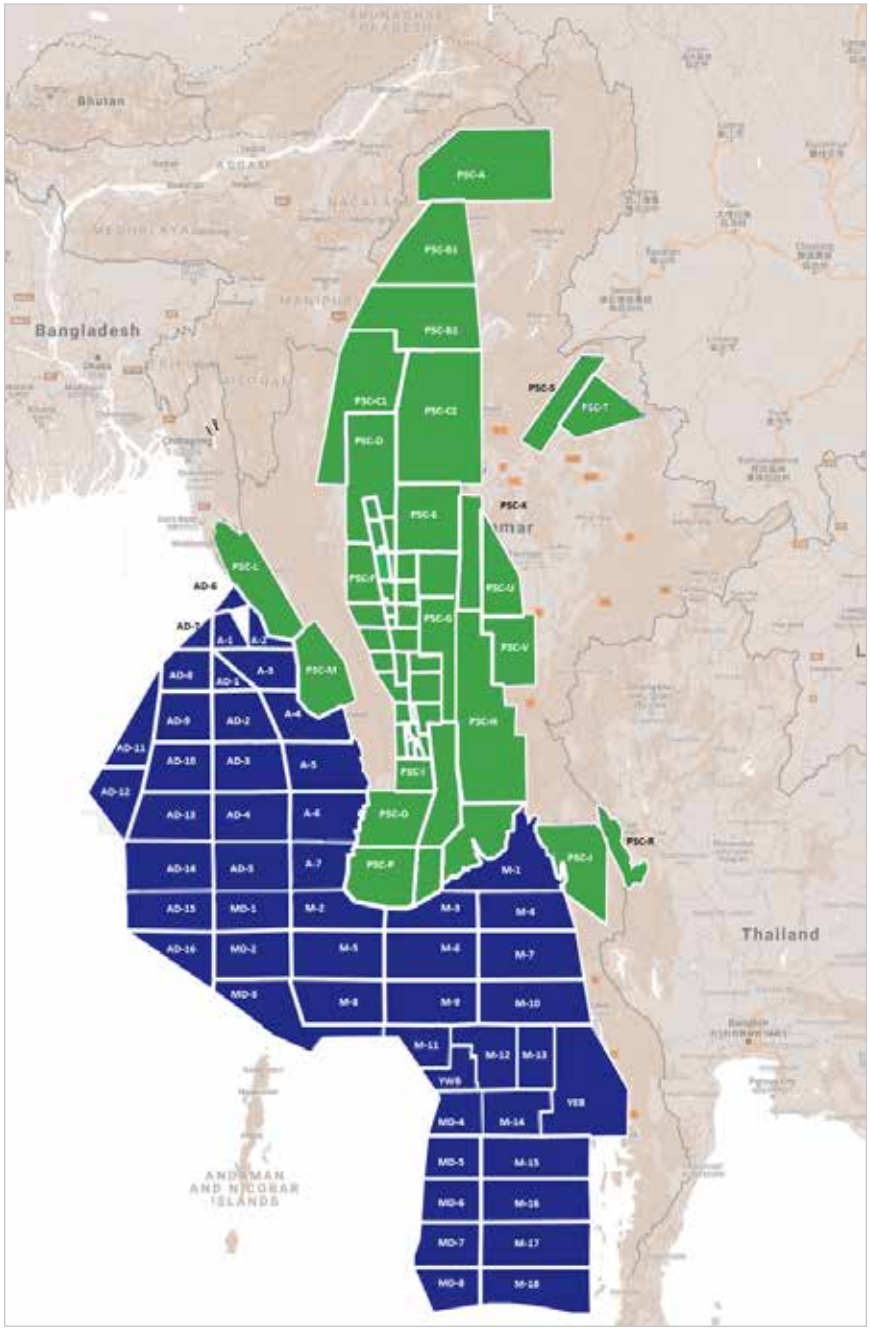


Figure 5: Onshore and offshore blocks in Myanmar
(Source: FMR Research, based on data from https://opendevelopmentmyanmar.net/profiles/oil-and-gas-blocks/)

Current offshore production is as follows[xxi]:

No.	Project	Established	Operators	Daily Production Rate
1	Yadanar	Discovered in 1992. Production began in 1998.	Total SA	750 million cubic feet, (550 MMCF exported to Thailand, 200 MMCF for domestic use)
2	Zawtika	Discovered in 1997. Production began in 2014.	PTTEP	300 million cubic feet (100 MMCF for local consumption, 200 MMCF for daily export to Thailand)
3	Yetagon	Discovered in 1992. Production began in 2000.	Petronas	About 200 MMCF, all exported to Thailand
4	Shwe	Discovered in 2005. Production began in 2014.	Posco Daewoo	500 million cubic feet (400 MMCF for export, 100 MMCF for domestic market)

Table 3: Offshore production areas

Myanmar last held a bidding round in 2013. The round was widely considered to be successful, with big names including Statoil, Royal Dutch Shell and ConocoPhillips all taking part. A subsequent downturn in prices international, some disappointing local results and what exploration and production companies claim are challenging contractional agreements combined to lead to a large number of companies exiting blocks in late 2017 and early 2018.

One of the most prominent companies current active offshore is Australia's Woodside. In partnership with Total and MPRL E&P, it aims to begin production at the promising offshore block A-6 (see page 19) within five years.

In light of the large number of vacant blocks, Myanmar authorities are planning another onshore and offshore bidding round. It is slated to begin in the next few months, as of publishing this guide.

1.6 MID AND DOWNSTREAM PETROLEUM INDUSTRY

Myanmar's fuel distribution and retail businesses have grown rapidly over the last ten years since the business was liberalised. There are over stations at present, plus growing infrastructure, storage facilities and distribution network. As of 2016–17, licensed stations were located in the following states and regions[xxii]:

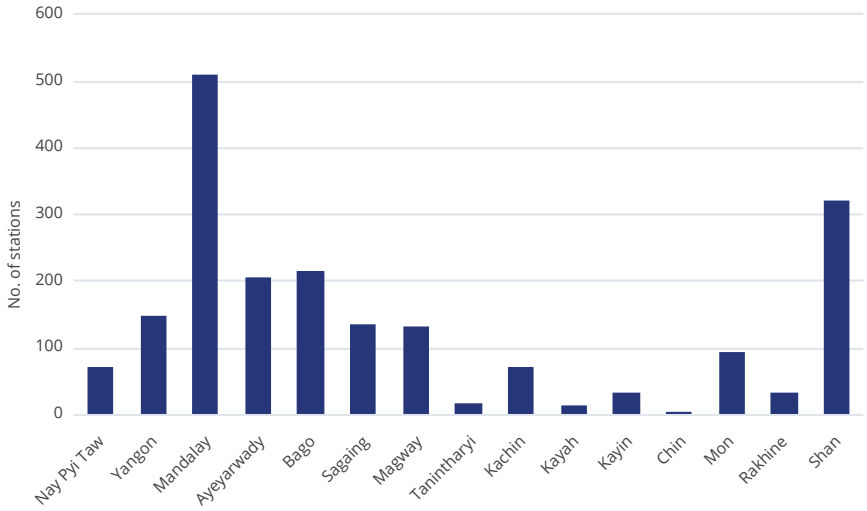


Figure 6: Fuel stations by location
(Source: Ministry of Electricity and Energy as reported in The Myawaddy, December 2016)

The downstream business is again on the cusp of change. In 2017, the government announced that fuel retail, distribution and import would be open to foreign companies. A number of prominent multinationals have since been looking for deals and planning market entry.

Other downstream products are increasingly attractive. The lubricant market is growing on the back of increasing vehicle and equipment usage. In the last year, the LPG market has also become much more competitive, with Parami Energy winning a tender to operate a government LPG terminal, while Elite Petrochemicals has opened its own facility near Thilawa in southeast Yangon.

1.7 FOREIGN INVESTMENT

In terms of FDI by sector, the oil and gas sector has received 29% of all USD77.2 billion of approved FDI between 1988–2017. To date, there have been 154 oil & gas investments, totalling USD22.4 billion. The power sector accounted for 27% of FDI, or USD20.1 billion across 14 investments, most of which were large hydropower projects approved at the end of the military government[xxiii].

Of note, these figures are for approved rather than actual foreign direct investment. However, the data does provide an indication of foreign interest in the economy.

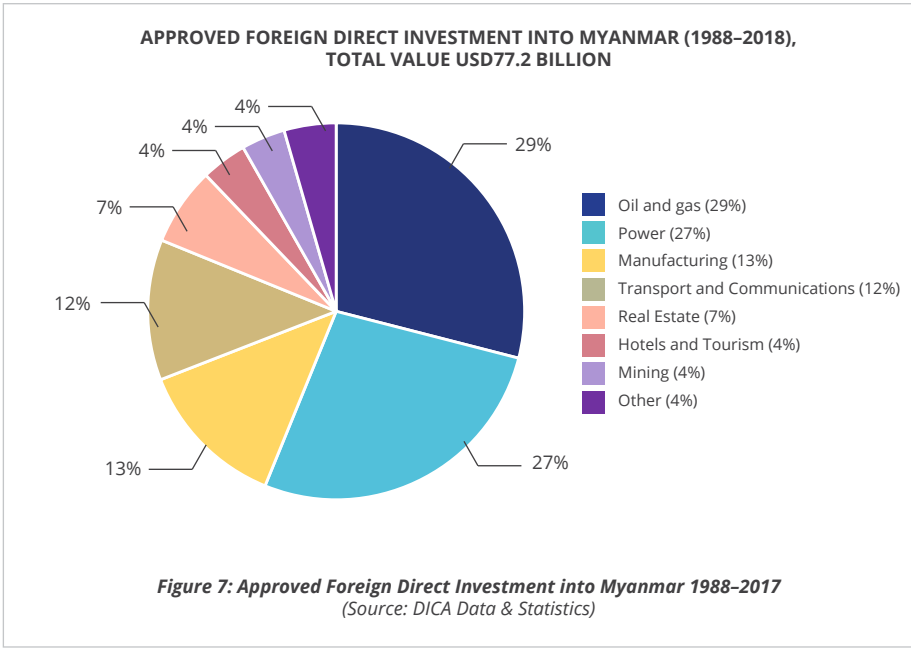


Figure 7: Approved Foreign Direct Investment into Myanmar 1988–2017
(Source: DICA Data & Statistics)

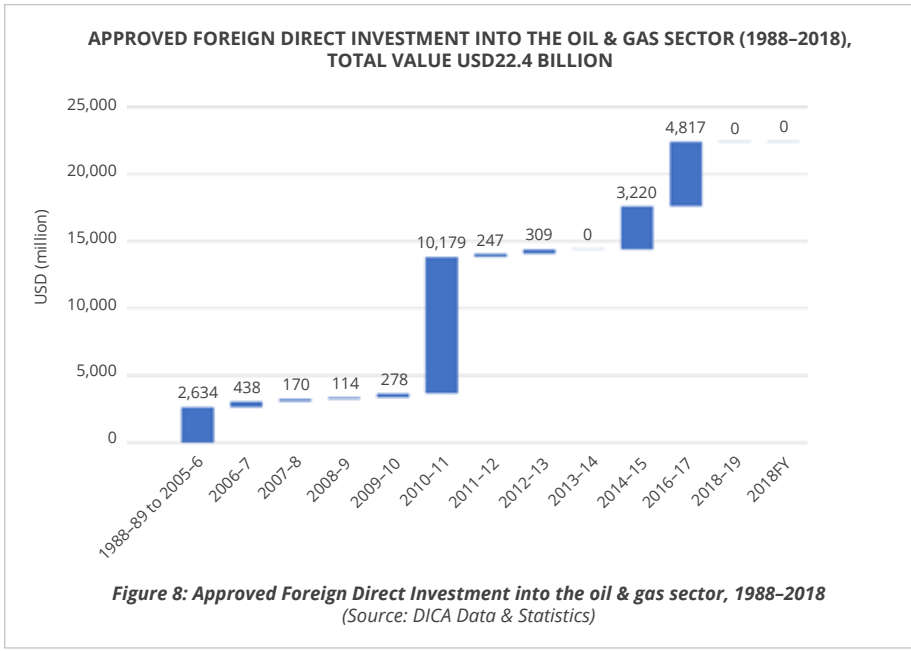


Figure 8: Approved Foreign Direct Investment into the oil & gas sector, 1988–2018
(Source: DICA Data & Statistics)

APPROVED FOREIGN DIRECT INVESTMENT INTO THE POWER SECTOR (1988–2018), TOTAL VALUE USD21.2 BILLION

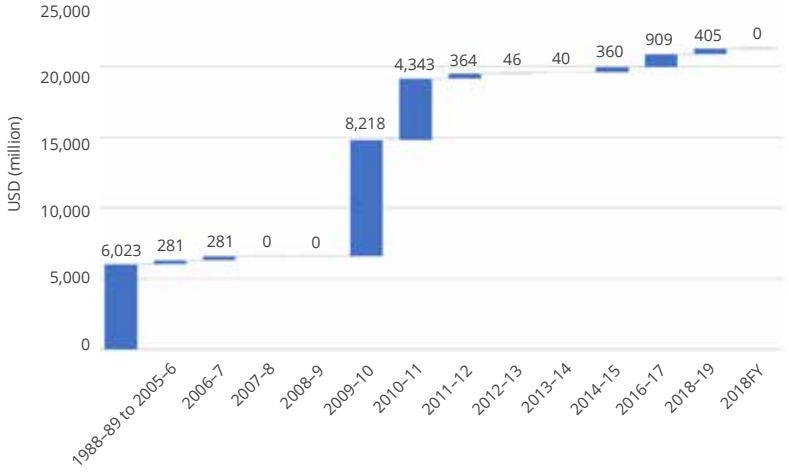


Figure 9: Approved Foreign Direct Investment into the power sector, 1988–2018
(Source: DICA Data & Statistics)

2.
INVESTMENT OPPORTUNITIES

Myanmar's energy and electricity sector has recently become one of the bright spots for foreign investment. A total of six Notices to Proceed have been awarded in 2018 for electricity generation projects as of the publishing of this guide. There are likely to be more such NTPs in the future, conducted through direct negotiations with the government.

Progress is being made on transmission and distribution. The World Bank-funded National Electrification Project is gathering steam, while a large loan from the Asian Development Bank was approved in September 2018 for transmission and distribution links.

In upstream energy, there are opportunities in existing blocks, as well as a planned offshore and onshore bidding round to take place soon.

2.1 INFORMATION ON TENDERS

The Ministry of Electricity and Energy frequently issues tender notices, providing opportunities for businesses. Tenders notices are generally published here: http://www.moee.gov.mm/en/

In 2018, many of the tenders have related to the National Electrification Project, though there are other opportunities for a wide array of businesses, from service providers to equipment manufacturers to logistics companies.

2.2 POTENTIAL OPPORTUNITIES FOR FOREIGN COMPANIES

The energy sector provides numerous opportunities for foreign companies. Before entering the market, it is important to analyse the competence of the existing competition: the local companies.

2.2.1 Strengths and weaknesses of the local companies

The strengths of the local energy companies include the capability to understand the local work culture and business environment, as well as having close contacts with industry stakeholders, including government offices.

However, many often lack the capital, technical know-how, and capabilities of international firms. Local companies need to expand their capacity and boost project management capacity to capture a bigger market share. Industry experts have pointed out that local companies should consider providing integrated services in the various fields of the energy sector. Technical and financial restraints limit the competitiveness of local companies when it comes to rivalling foreign players.

2.2.2 Opportunities for foreign investors

Oil & Gas sector

There are plenty of investment opportunities for foreign investors both in the upstream and downstream sectors of the oil and gas industry. Until recently, not every downstream business has been open to foreign investors. Rules have only recently been changed to allow foreign players to engage in retail and distribution businesses. Many international companies are now looking at the market, planning their market entry strategies. Some, such as Puma Energy and Royal Dutch Shell, have already publicly discussed plans.

Various efforts have been made by the government to transfer its infrastructure to the private sector. Often these have taken the form of public-private partnerships, though not all have been successful:

- Parami Energy won a tender in 2017 to operate a government-owned LPG import facility in Thanlyin, Yangon Region.
- Puma Energy was awarded a contract for the import and distribution of jet fuel in a joint venture agreement with MPPE of the Ministry of Electricity and Energy.
- A tender to partner with MPPE for its fuel distribution business was quietly dropped earlier in 2018, with authorities reportedly considering another tender.

For upstream businesses, Myanmar is thought to have significant untapped potential. Although many blocks have already been awarded to first-movers, many are currently vacant, and another bidding round is being planned. The market is also expected to grow for services companies in the future, particularly if the next bidding round unleashes another wave of interest.

Power sector

With the ambitious goal of 100% electrification in 2030, the power sector also offers plenty of opportunities for foreign investors. Investment opportunities exist throughout the supply chain from power generation to transmission and distribution. They include infrastructure and equipment, security, risk analysis, training and skills accreditation, legal and professional services, health and safety analysis and services, as well as environmental and social impact assessment services. Given the technical problems and inefficiencies along the power distribution process, the government has been giving out operation and maintenance contracts to private players with the intention of achieving more efficient power distribution.

3.
GOVERNMENT RULES AND REGULATIONS ON FOREIGN INVESTMENTS

3.1 GENERAL LEGAL / INVESTMENT STRUCTURE INFORMATION

3.1.1 Myanmar Investment Law

The new Myanmar Investment Law (MIL) was signed in October 2016 and has been effective since April 1, 2017; the MIL combines the Foreign Investment Law (FIL) 2012 and the Citizens Investment Law 2013. The new investment law was created to attract both foreign and local investors by simplifying the application process and offering tax breaks, incentives, rights and protections for businesses.

Key changes	Description
Ease of foreign investment	Foreign investors are permitted to own 100% of businesses which are not on restricted or prohibited lists.
Investment screening	An investor may submit an investment screening application to the Myanmar Investment Commission (MIC) for nonbidding guidance on whether a proposal investment: • Requires an MIC permit application; • Requires Pyidaungsu Hluttaw (Union Parliament) approval prior to permit issuance; • Is prohibited or restricted under the MIL and related notifications; • In a promoted sector under the MIL and related notifications.
Devolvement of authority for endorsement application	Application with investments less than USD5 million in non-strategic and non-restricted sectors will be handled at the state / regional level, with close involvement of the state / regional DICA officials.
Removal of blanket incentives	Business may be granted tax exemptions if investments are in promoted sectors – the duration of tax exemption is contingent upon the areas in which business set up operations. • Less developed regions (Zone 1) granted 7 years of tax exemption; • Moderately developed regions (Zone 2) granted 5 years of tax exemption; • Adequately developed regions (Zone 3) granted 3 years of tax exemption.
Long-term land lease possible beyond MIC permit	Foreign investors that invest under Foreign Investment Law (FIL) scheme can lease land from the government for 50 years and then extend it for another 20 years with two 10-year extensions.

Compensation for expropriation	Expropriation of investments is allowed under the following conditions: (a) necessary for the public interest; (b) carried out in a non-discriminatory manner; (c) carried out in accordance due to process of law; (d) on payment of prompt, fair and adequate compensation.
Grievance mechanism	MIC will establish and manage a grievance mechanism to inquire and resolve issues before escalation to legal disputes, and to prevent the occurrence of disputes.

Table 4: Key changes in investment laws

Key points of MIL
Under the MIL, a foreign investor is allowed to conduct business in Myanmar as a:

- 100% foreign-owned entity in permitted sectors;
- Joint venture with foreign, local, or government entities.

Myanmar Investment Commission (MIC) was formed under Myanmar Investment Law. It is a government-appointed body which streamlines and approves investment proposals, and comprises high-level figures, senior officials and experts from government ministries and non-governmental bodies.

The MIC also issues investment-related notifications and orders.

Investors must submit a proposal to the MIC only if the investments are:

- Activities essential to the national strategy
- Large capital-intensive investment projects
- Likely to cause a large impact on the environment and local community
- Use state-owned land and buildings
- Designated by the government as necessary to submit the proposal the committee.

3.1.2 New laws

A new piece of legislation called the Myanmar Companies Law was approved by President U Htin Kyaw on December 6, 2017, coming into effect in August 2018. The new Law will replace an older version that was enacted in 1914. The act will improve corporate governance by allowing:

- More flexible capital structures and changes to capital share
- Ability for foreign investors to purchase shares in the Yangon Stock Exchange
- Eliminate the requirement for foreign firms to obtain a permit to trade from DICA
- Possibility to incorporate a one-person company with a unique director.

Importantly, foreign investors will be able to hold up to 35% of ownership interest in a Myanmar company; if foreign stakes constitute more than 35%, the company is considered a foreign company. This will enable foreign investors to invest in companies in sectors that are currently closed to foreign investors, and thereby indirectly help to create foreign interest in companies listed on the Yangon Stock Exchange[xxiv].

3.2 ENERGY-RELATED RULES AND REGULATIONS

Foreign investment in the oil and gas industry is subject to the approval of the Union Government and to further terms and conditions imposed by the Ministry of Electricity & Energy; the drilling of shallow oil wells up to the depth of 150m is specifically prohibited. The venture may also be subject to environmental impact assessments[xxv].

MIC Notification No. 15/2017 sets out the business activities based on their permitted forms of ownership.

3.2.1 Activities permitted for 100% foreign ownership

The types of economic activities which are not included in the categories below can be carried out with 100% foreign investment. This requires the approval of the relevant Ministry, except for investments reviewed by the Myanma Investment Commission (MIC).

3.2.2 Activities not permitted by foreigners

Sector	Activity	Description
Oil & Gas	Prospecting, exploration, feasibility study and production mineral for small and medium scale businesses in accordance with the Mines Law.	These investment activities are not permitted to be carried out by foreign investors.
	Refinement of minerals by medium scale and small scale	
	Drilling shallow oil wells (<150m of water)	
Electricity	Control of electric power system	Only permitted to be carried out by the Union
	Inspection of electrical business	

3.2.3 Activities permitted to be carried out in the form of a joint venture with Myanmar citizens

The following activities can only be carried out in the form of a joint venture with Myanmar citizens.

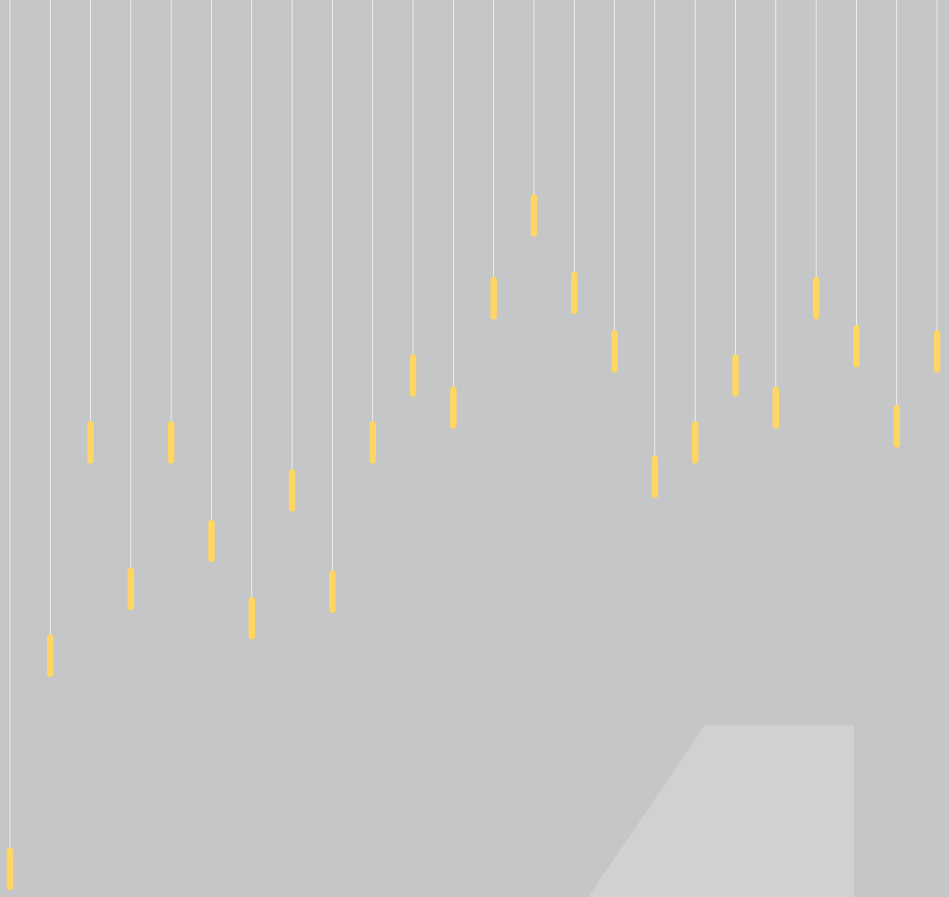
Sector	Activity	Description
Oil & Gas	Manufacturing and domestic distribution of chemicals based on available natural resources.	The foreign capital invested in a joint-venture between a foreign and Myanmar citizen (as opposed to the state) must not exceed 80% of the total investment amount. This restriction does not expressly apply to joint ventures between a foreign investor and the state.
	Manufacturing and domestic distribution of flammable solid, liquid, gaseous fuels and aerosol (acetylene, gasoline, propane, hair sprays, perfume, deodorant, insect spray)	
	Manufacturing and distribution of industrial chemical gases including compressed, liquefied and solid forms	
Electricity	Power projects below 30MW	Projects under 30MW are restricted for foreign investors, which means that the foreign investor can only hold up to an 80% ownership.
	Small and medium scale production of electricity	

Table 5: Activities with restrictions for foreign investors
(Source: MIC Notification 15/2017)

3.2.4 Activities promoted by Myanmar

MIC Notification 13/2017 lists several promoted sectors. Investors in these sectors may benefit from tax discounts including exemption from corporate income tax, customs duties and the right to deduct depreciation / expenses from assessable income. Sectors relevant to energy include[xxvi]:

- Power generation, transmission and distribution
- Production of renewable energy
- Construction of road, bridge and railway line
- Establishment of industrial zones
- Supply and transport services
- Science research development business.



4.
CHALLENGES AND OUTLOOK

Ambitious goals have been set by the Ministry of Electricity and Energy for the development of the energy sector. Recent liberalisations initiated by the government to enhance the involvement of the private sector, as well as the master plan to alter the energy mix of Myanmar, and achieve the 100% electrification rate by 2030, prove that government sees the growth of the energy sector as critical for the country's development. Cooperation with the private sector will be integral for the Ministry to achieve these goals, and therein lies opportunities for European investors.

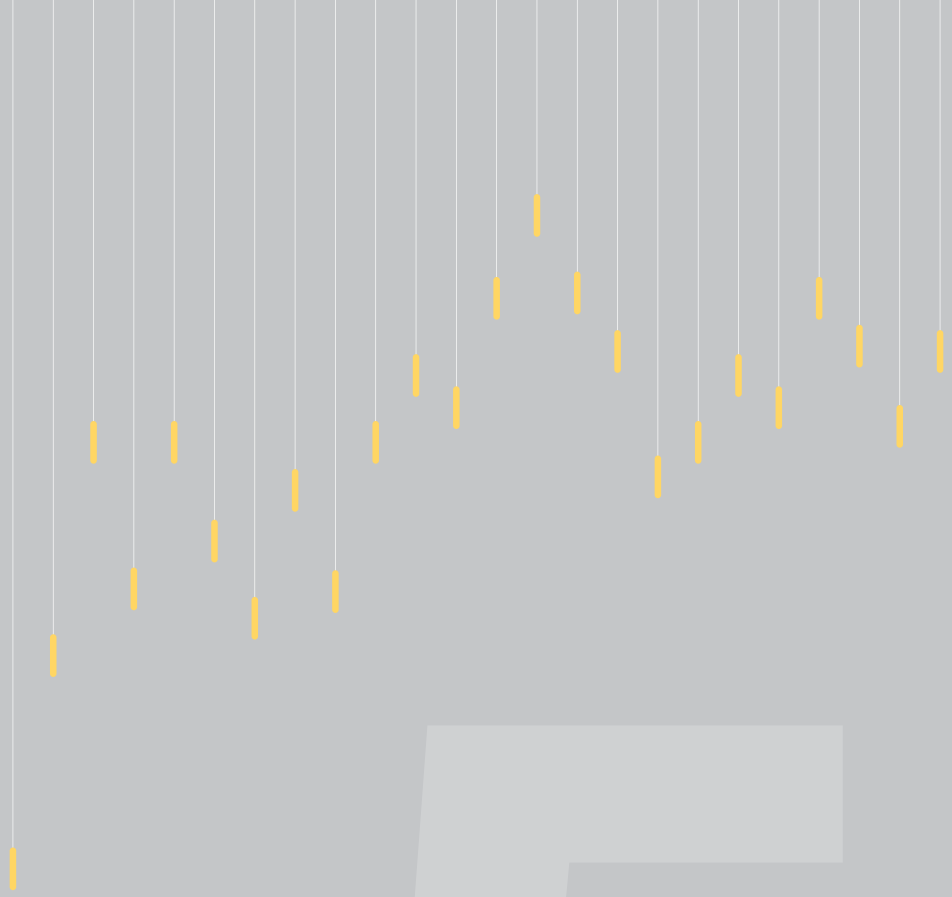
Reforms that could further stimulate foreign investment include the introduction of corporate governance, a concerted effort to tackle corruption, an upgrade to the currently weak rule of law, as well as an upgrade to the somewhat outdated regulatory framework for business. Nevertheless, new laws are being drafted and approved and the legislative outlook is positive in the long-run.

After years of tepid movement, progress is finally being made in 2018 on approving the major projects needed to reach the goal of 100% electrification. Of the six projects awarded Notices to Proceed so far, half have major European participation (Total SA, Siemens for the Kanbauk LNG project, Andritz Hydro at Deedoke hydropower, and EDF at Shweli-3). More such Notices are likely to be issued, while crucial discussions on Power Purchase Agreements and Concession Agreements are now moving forward.

Programmes to improve transmission and distribution are finally coming to fruition, with the potential to bring electricity to a large number of people currently without. Mini-grid and off-grid solutions are also moving forward.

On petroleum products, liberalisation of the downstream industry is moving forward, creating opportunities in businesses such as fuel import, distribution and retail. In the upstream market, a widely-watched bid round is likely to move forward soon, potentially ushering another wave of investment into oil and gas.

If the government can continue effectively addressing these challenges with the right policies, and create a more favourable investment climate, the energy sector could attract significant investment, bringing mutual benefits to investors, the government and the country more broadly.



5.
INDUSTRY CONTACT INFORMATION

5.1 GOVERNMENT OFFICES

MINISTRY OF ELECTRICITY AND ENERGY

The Ministry of Electricity and Energy is the focal body for the energy sector. Tender openings for public-private partnerships and other investment opportunities are made by the Ministry.

Mailing Address	Ministry of Electricity and Energy Office No. 6, Nay Pyi Taw
Contact	(+95) 67 411 060, 411 012

YANGON ELECTRIC SUPPLY CORPORATION

Yangon Electric Supply Corporation (YESC) is a government body under the Ministry of Electricity and Energy for the electric supply of Yangon.

Mailing Address	Lower Kyee Myin Daing Road, Ahlone Township, Yangon
Contact	(+95) 1 215 043, 215 035, 22914

MYANMA OIL AND GAS ENTERPRISE

Myanma Oil and Gas Enterprise (MOGE) is Myanmar's state upstream company, also fulfilling some regulatory functions.

Mailing Address	Ministry of Electricity and Energy Office No. 6, Nay Pyi Taw
Contact	(+95) 67 3 411 055

ELECTRIC POWER GENERATION ENTERPRISE

Formerly known as Myanma Electric Power Enterprise, the body was converted to the Electric Power Generation Enterprise (EPGE) in 2016. It plays a key role in power agreements for investors.

Mailing Address	Ministry of Electricity and Energy Office No. 6, Nay Pyi Taw
Contact	(+95) 67 3 411 055

MYANMA PETROLEUM PRODUCTS ENTERPRISE

Under the Ministry of Electricity and Energy, it focuses on the downstream oil and gas industry.

Mailing Address	Ministry of Electricity and Energy Office No. 6, Nay Pyi Taw
Contact	(+95) 67 411 053

DEPARTMENT OF RURAL DEVELOPMENT, MINISTRY OF AGRICULTURE, LIVESTOCK AND IRRIGATION

Responsible for off-grid electrification efforts.

Mailing Address	Office No. 14, Nay Pyi Taw
Contact	(+95) 67 409 416

MINISTRY OF NATURAL RESOURCES AND ENVIRONMENTAL CONSERVATION

For some investment opportunities that require an Environmental Impact Assessment, the role of the Ministry of Natural Resources and Environmental Conservation is vital.

Mailing Address	Director General Department of Forest Ministry of Natural Resources and Environmental Conservation Office No. 39, Nay Pyi Taw
Contact	(+95) 67 405 477, 405 015, 405 401, 405 399

MINISTRY OF COMMERCE

Exporting agricultural produce and importing products such as farm implements can only be done with an export/import license issued by the Ministry of Commerce. Trading licenses for most of the products are issued in Yangon.

Mailing Address	**Nay Pyi Taw** Director General Department of Trade Ministry of Commerce Office No. 3, Nay Pyi Taw **Yangon** No. 228-240, Strand Road, Kyauktada Township, Yangon
Contact	(+95) 67 408 002, 408 265, 408 485 (Nay Pyi Taw) (+95) 1 251 197 (Yangon) mocdotict@gmail.com

The Customs Department plays a vital role in trading transactions and is also under an arm of the Ministry of Planning and Finance.

Mailing Address	No. 132, Strand Road, Kyauktada Township, Yangon
Contact	(+95) 1 379 423, 379 426~9

MINISTRY OF PLANNING AND FINANCE

The Directorate of Investment and Company Administration (DICA) and the Myanmar Investment Commission (MIC) are the focal bodies for incorporation of foreign businesses. Both fall under the authority of the Ministry of Planning and Finance. Companies need to be aware of procedural updates issued by the MIC in order to successfully navigate the legal aspect of investment.

DIRECTORATE OF INVESTMENT AND COMPANY ADMINISTRATION (DICA)

Mailing Address	Director General Directorate of Investment and Company Administration Ministry of Planning and Finance No. 1, Thitsar Road, Yankin Township, Yangon
Contact	(+95) 1 658 143 (+95) 67 406 471

MYANMAR INVESTMENT COMMISSION (MIC)

Address	No. 1, Thitsar Road, Yankin Township, Yangon
Contact	(+95) 1 657 891 (+95) 1 658 127/ 128/ 129/ 130

5.2 BUSINESS ASSOCIATIONS

RENEWABLE ENERGY ASSOCIATION MYANMAR (REAM)

Mailing Address	No. 160, 5th floor (right), 2nd Thiri Avenue, Ahlone Township, Yangon (Project Office) No. 2, Anawratha Housing Estate, Room 8, Pazundaung Township, Yangon
Contact	(+95) 1 223 405, 212 486, 292 012 U Aung Myint (General Secretary) am.ream@gmail.com

MYANMAR PETROLEUM TRADE ASSOCIATION

Most of the business associations are formed under the auspices of the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI) and are located at the UMFCCI building.

Mailing Address	MPTA UMFCCI Tower, 10th Floor, No. 29, Min Ye Kyaw Swar Street, Lamadaw Township, Yangon
Contact	(+95) 1 214 344, 214 349 (ext 107) myanmar.mpta@gmail.com

MYANMAR OIL AND GAS SERVICES SOCIETY

The Myanmar Retailers Association is the sectors' main advocacy body.

Mailing Address	38th Street, 38th Street Plaza, 4th floor, Ward 6, Kyauktada Township, Yangon
Contact	(+95) 9 7159 4604 (U Kyaw Soe) mogss.mm@gmail.com

6.
ANNEXES

6.1 OFFSHORE OIL AND GAS BLOCKS

Block code	Block type	Block location	Area (sq. km.)	Year of award	Lead company	Origin
MD-3	Deep water	Moattama Offshore	13,604	2014	No bids	No bids
MD-2	Deep water	Moattama Offshore	10,803	2014	ENI	Italy
MD-1	Deep water	Moattama Offshore	9,009	2014	No bids	No bids
AD-8	Deep water	Rakhine Offshore	5,612	2007	CNPC International Ltd.	P.R. China
AD-1	Deep water	Rakhine Offshore	2,706	2007	CNPC International Ltd.	P.R. China
AD-7	Deep water	Rakhine Offshore	1,731	2007	Daewoo International Corporation	Korea
AD-6	Deep water	Rakhine Offshore	1,190	2007	CNPC International Ltd.	P.R. China
AD-14	Deep water	Rakhine Offshore	12,605	2014	No bids	No bids
AD-4	Deep water	Rakhine Offshore	11,369	2014	BG	UK
AD-13	Deep water	Rakhine Offshore	11,321	2014	No bids	No bids
AD-5	Deep water	Rakhine Offshore	11,009	2014	BG	UK
AD-3	Deep water	Rakhine Offshore	10,577	2014	Ophir	UK
AD-15	Deep water	Rakhine Offshore	10,065	2014	No bids	No bids
AD-10	Deep water	Rakhine Offshore	9,304	2014	Statoil	Norway
AD-2	Deep water	Rakhine Offshore	8,444	2014	BG	UK
AD-9	Deep water	Rakhine Offshore	8,061	2014	Shell	The Nether-lands
AD-16	Deep water	Rakhine Offshore	7,250	2014	No bids	No bids
AD-12	Deep water	Rakhine Offshore	7,190	2014	No bids	No bids

Block code	Block type	Block location	Area (sq. km.)	Year of award	Lead company	Origin
AD-11	Deep water	Rakhine Offshore	6,751	2014	Shell	The Netherlands
MD-6	Deep water	Tanintharyi Offshore	7,505	2014	No bids	No bids
MD-5	Deep water	Tanintharyi Offshore	6,787	2014	Shell	The Netherlands
MD-4	Deep water	Tanintharyi Offshore	5,936	2014	ENI	Italy
MD-7	Deep water	Tanintharyi Offshore	8,336	2013	PTTEP South Asia Ltd.	Thailand
MD-8	Deep water	Tanintharyi Offshore	6,795	2013	PTTEP South Asia Ltd.	Thailand
A-7	Unknown	Tanintharyi Offshore	8,127	2014	Woodside Energy (Myanmar) Pte Ltd.	Australia
YEB	Offshore	Tanintharyi Offshore	21,064	2014	Oil India	India
M-17	Offshore	Tanintharyi Offshore	14,530	2014	Reliance & United National Resources	India
M-10	Offshore	Tanintharyi Offshore	14,212	2014	CNOOC	China
M-16	Offshore	Tanintharyi Offshore	13,885	2014	Korea-Myanmar Development Corporation (KMDC)	South Korea
M-15	Offshore	Tanintharyi Offshore	13,586	2014	Canadian Foresight	Singapore
M-18	Offshore	Tanintharyi Offshore	12,779	2014	Reliance & United National Resources	India
M-12	Offshore	Tanintharyi Offshore	9,451	2014	Pateronas Caragali	Malaysia
M-14	Offshore	Tanintharyi Offshore	8,280	2014	Pateronas Caragali	Malaysia
M-13	Offshore	Tanintharyi Offshore	7,136	2014	Pateronas Caragali	Malaysia
YWB	Offshore	Tanintharyi Offshore	4,627	2014	Total	France
A-5	Offshore	Rakhine Offshore	10,872	2014	Chevron	USA

Block code	Block type	Block location	Area (sq. km.)	Year of award	Lead company	Origin
A-4	Offshore	Rakhine Offshore	8,376	2014	BG Asia Pacific Pte Ltd.	UK
A-2	Offshore	Rakhine Offshore	2,521	2014	Not found	Not found
M-7	Offshore	Moattama Offshore	14,285	2014	ROC	Australia
M-6	Offshore	Moattama Offshore	13,325	2014	Total	France
M-5	Offshore	Moattama Offshore	13,201	2014	Total	France
M-9	Offshore	Moattama Offshore	12,188	2014	Not found	Not found
M-8	Offshore	Moattama Offshore	11,454	2014	Berlanga Holding BV	The Nether-lands
M-4	Offshore	Moattama Offshore	10,506	2014	Oil India	India
M-11	Offshore	Moattama Offshore	5,941	2014	PTTEP South Asia Ltd	Thailand
M-2	Offshore	Moattama Offshore	9,474	2008	Petro Vietnam Exploration Corporation Ltd.	Vietnam
A-6	Offshore	Rakhine Offshore	10,761	2007	MPRL E & P Pte. Ltd.	Myanmar
M-1	Offshore	Moattama Offshore	13,678	2007	Rimbunan Petrogas Ltd.	Singapore
A-3	Offshore	Rakhine Offshore	7,208	2004	Daewoo International Corporation	Korea
M-3	Offshore	Moattama Offshore	8,690	2004	PTT Exploration and Production Int Ltd.	Thailand
A-1	Offshore	Rakhine Offshore	2,839	2000	Daewoo International Corporation	Korea

Table 6: Offshore oil and gas blocks
(Source: opendevelopmentmyanmar, 2017)

6.2 ONSHORE BLOCKS

Block code	Block type	Block location	Area (sq. km.)	Year of award	Lead company	Origin
EP-2	Onshore	Aunglan	1,418	2012	PTTEP South Asia Ltd.	Thailand
PSC-P	Onshore	Ayeyar-wady	11,573	2013	Not found	Not found
PSC-Q	Onshore	Ayeyar-wady	3,938	2013	Not found	Not found
MOGE-7	Onshore	Ayeyar-wady, Bago	1,021	2013	Not found	Not found
MOGE-6	Onshore	Ayeyar-wady, Yangon, Bago	10,754	2013	Not found	Not found
MOGE-5	Onshore	Ayeyar-wady, Yangon, Bago	10,003	2013	Not found	Not found
IOR-2	Onshore	Chauk Oil Field	1,073	1996	Gold Petro JOC Inc.	Indonesia
RSF-3	Onshore	Gwegyo-Nyashand-aung	1,746	2012	Petronas Carigali Myanmar Inc.	Malaysia
PSC-I	Onshore	Hinthada	3,492	2012	Jubilant Oil & Gas Pvt. Ltd.	India
IOR-5	Onshore	Htantabin	227	2013	Pateronas Caragali	Malaysia
PSC-A	Onshore	Hukaung	22,975	2008	JSC Nobel Oil	Russia
EP-5	Onshore	Inbin-Te-gyigon	441	2012	Istech Energy EP 5 Pte. Ltd.	Singapore
PSC-C1	Onshore	Indaw-Yenan	18,594	2013	Pacific Hunt	Canada
PSC-U	Onshore	Kalaw	7,708	2013	Not found	Not found
RSF-10	Onshore	Kan-ma-Nat-taung	1,544	2013	EPI Holding Ltd	Hong Kong
PSC-R	Onshore	Kayin State	3,471	2011	SNOG Pte. Ltd.	Singapore

Block code	Block type	Block location	Area (sq. km.)	Year of award	Lead company	Origin
EP-1	Onshore	Kyaukkyi-Mindon	1,218	2013	Brunei National Pateroleum	Brunei
PSC-M	Onshore	Kyaukpyu	10,448	2013	ENI	Italy
PSC-T	Onshore	Lashio East	7,277	2013	Not found	Not found
PSC-S	Onshore	Lashio-Hsenwi	6,157	2013	Not found	Not found
RSF-7	Onshore	Magway	2,181	2013	Not found	Not found
RSF-6	Onshore	Magway	1,861	2013	Not found	Not found
RSF-8	Onshore	Magway	1,793	2013	Not found	Not found
MOGE-8	Onshore	Magway	1,588	2013	Not found	Not found
RSF-4	Onshore	Magway	1,432	2013	Not found	Not found
IOR-1	Onshore	Magway	1,166	2013	Not found	Not found
RSF-1	Onshore	Magway	835	2013	Not found	Not found
MOGE-2	Onshore	Magway	285	2013	Not found	Not found
IOR-3	Onshore	Magway, Mandalay	488	2013	Not found	Not found
PSC-D	Onshore	Ma-hudaung	13,583	2013	Not found	Not found
PSC-V	Onshore	Mandalay, Shan, Kayin, Kayah	8,592	2013	Not found	Not found
MOGE-2	Onshore	Mann Oil Field	423	1996	MPRL E& P (PTE), Ltd.	Myanmar
PSC-J	Onshore	Mawlamy-ine	12,704	2013	Petroleum Exploration (PTE) Ltd.	Pakistan
EP-4	Onshore	Mayaman	861	2013	JSOC	Russia
IOR-6	Onshore	Myanaung	82	2013	MPRL	Singapore
PSC-E	Onshore	Myingyan	12,320	2012	Asia Orient International Ltd.	Russia
MOGE-4	Onshore	Myintha	932	2013	CAOG	Luxem-bourg
PSC-F	Onshore	Ngahlaing-dwin	5,064	2010	North Petro-chem Corporation Ltd., Myanmar	P.R. China

Block code	Block type	Block location	Area (sq. km.)	Year of award	Lead company	Origin
RSF-5	Onshore	Ondwe	1,402	2013	ENI	Italy
MOGE-3	Onshore	Padauk-pin-Natmi	1,251	2013	PTTEP South Asia Ltd.	Thailand
PSC-O	Onshore	Pathein	7,646	2013	Petroleum Exploration (PVT) Ltd.	Pakistan
RSF-9	Onshore	Pyalo-Paukkaung	2,680	2012	Geopetrol International Holding Inc.	Switzerland
IOR-4	Onshore	Pyay	275	2013	MPRL	Singapore
PSC-C2	Onshore	Shwebo-Monywa	30,137	2013	Not found	Not found
IOR-7	Onshore	Shwepy-itha	279	2013	Pateronas Caragali	Malaysia
PSC-L	Onshore	Sittwe	11,735	2013	Not found	Not found
PSC-G	Onshore	Taungd-wingyi	6,265	2012	PTTEP South Asia Ltd.	Thailand
PSC-H	Onshore	Taungoo-Pyinmana	27,416	2013	Pacific Hunt	Canada
EP-3	Onshore	Thegon-Shwegon	1,763	2013	ONGC Machinery & Solutions	India
RSF-2	Onshore	Tuyin-taung (Myaing South)	1,139	2012	Petronas Carigali Myanmar Inc.	Malaysia
PSC-B1	Onshore	Uyu	15,542	2013	Not found	Not found
PSC-K	Onshore	Yamethin	7,056	2013	Not found	Not found
MOGE-1	Onshore	Yenang-yaung Oil Field	873	1996	Gold Petro JOC Inc.	Indonesia
PSC-B2	Onshore	Ze-byutaung-Nandaw	18,640	2013	ONGC Machinery & Solutions	India

Table 7: Onshore oil and gas blocks
(Source: opendevelopmentmyanmar, 2017)

6.3 INSTALLED CAPACITY OF COAL, GAS AND DIESEL POWER PLANTS

COAL-FIRED POWER PLANT			
No.	**Plant**	**Installed capacity (MW)**	**Commerical operation date**
1	Tygit	120	2005
GAS-FIRED POWER PLANT			
Ministry of Electricity and Energy-owned power plants			
1	Kyung Chaung	54	1974
2	Myan Aung	35	1975
3	Ywama (CCPP)	70	1980
4	Mann	37	1980
5	Shwe Taung	55	1982
6	Thahton	51	1975
7	Thaketa (CCPP)	92	1990
8	Ahlone (CCPP)	154	1995
9	Hlawga (CCPP)	154	1996
10	Ywama (240)	240	2014
	Subtotal	942	
Independent Power Producer-owned power plants			
1	Toyo Thai	121	2013
2	MCP	54	2013
3	Max Power	50	2013
4	UPP	52	2014
5	Myanmar Lighting	230	2014
6	Kanbauk	6	2015
7	Thaketa CIC	54	2015
	Subtotal	452	
Rental			
1	APR	110.6	2014
2	V-Power	100	2015
3	Aggreko	103	2015
	Subtotal	314	
	Total gas	**1,824**	

Table 8: Installed capacity of coal, gas and diesel power plants
(Source: Ministry of Electricity and Energy, 2016)

6.4 INSTALLED CAPACITY OF LARGE (>10MW) HYDROPOWER PROJECTS

Installed name of hydropower station capacity [MW]	MW	Category	Storage capacity	Storage capacity [unit]
Ba Luchang No. 1	28	Run of river	/	
Ba Luchang No. 2	168	Run of river	/	
Ba Luchaung No. 3	52	Run of river	/	
Kinda	56	Irrigation	1,078	mm^3
Sedawgyi	25	Irrigation	/	
Zawgyi No. 1	18	Run of river	/	
Zawgyi No. 2	12	Irrigation	639	
Zaung Tu	20	Storage	620	mm^3
Thapanzeik	30	Irrigation	/	
Mone	75	Storage	53	GWh
Yenwe	25	Storage	67	GWh
Kabaung	30	Storage	1,084	mm^3
Shweli No. 1	400	Run of river	/	
Keng Taung	54	Run of river	/	
Yeywa	790	Storage	322	GWh
Shwegyin	75	Storage	114	GWh
Dapein No. 1	19	Run of river	/	
Kun	60	Storage	205	GWh
Kyeeon Kyeewa	74	Irrigation	571	mm^3
Upper Paunglaung	140	Storage	1,300	mm^3
Nancho	40	Run of river	/	
Lower Paunglaung	280	Storage	71	GWh
Phyuu Chaung	40	Storage	780	mm^3
Chipwi Nge	99	Storage	1.23	mm^3
Thaukyegat II	120	Storage	51	GWh
Mong Wa	60	Storage	65	mm^3
Myogyi	30	Storage	593	mm^3
Total	**2,820**			

Table 9: Installed capacity of 27 large (>10MW) hydropower projects
(Source: Ministry of Electricity and Energy, 2016)

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