Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 25-Feb-2020 | Report No: PIDISDSA24135
### BASIC INFORMATION

#### A. Basic Project Data

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID</th>
<th>Project Name</th>
<th>Parent Project ID (if any)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myanmar</td>
<td>P162151</td>
<td>Power System Efficiency and Resilience Project</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>Estimated Appraisal Date</th>
<th>Estimated Board Date</th>
<th>Practice Area (Lead)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAST ASIA AND PACIFIC</td>
<td>02-Mar-2020</td>
<td>12-May-2020</td>
<td>Energy &amp; Extractives</td>
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</table>

<table>
<thead>
<tr>
<th>Financing Instrument</th>
<th>Borrower(s)</th>
<th>Implementing Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Project Financing</td>
<td>Republic of the Union of Myanmar</td>
<td>Electric Power Generation Enterprise, Ministry of Electricity and Energy</td>
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</tbody>
</table>

**Proposed Development Objective(s)**

The project development objective is to increase the output and efficiency of power generation and improve the resilience of the power network in support of the government’s program on universal electricity access.

**Components**

- Upgrading Ywama Power Generation Units
- Improving Resilience of the Power Network

### PROJECT FINANCING DATA (US$, Millions)

**SUMMARY**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Total Project Cost</td>
<td>350.00</td>
</tr>
<tr>
<td>Total Financing</td>
<td>350.00</td>
</tr>
<tr>
<td>of which IBRD/IDA</td>
<td>350.00</td>
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<tr>
<td>Financing Gap</td>
<td>0.00</td>
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</table>

**DETAILS**

**World Bank Group Financing**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>International Development Association (IDA)</td>
<td>350.00</td>
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<tr>
<td>IDA Credit</td>
<td>350.00</td>
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B. Introduction and Context

Country Context

1. **Myanmar is a low-income and fragile-, conflict-affected state, going through a profound transition from decades of isolationist military rule.** To break with a past marred by authoritarian rule, economic mismanagement, and multiple conflicts, the country’s opened-up in 2011 and the first democratic elections were held in 2015. These events marked the beginning of a complex transition in the political, peace, and economic fronts. The transition towards durable peace has been challenging with violence continuing in the northeast of the country and in Rakhine State.

2. **Progress in the economic front is the most successful and challenges remain to make it more inclusive.** Between 2011 and 2017, the economy grew at the extraordinary speed of 7 percent a year—among the five fastest growing countries in the world. Capital accumulation supported by foreign direct investment and to a lesser extent, increased productivity, sustained growth. However, at 6.4 percent annually over 2010-2015, the rate of poverty reduction was modest. Myanmar is one of the few countries in the South East Asia region where the income of the bottom 40 percent of the population grew more slowly than the national average (1.3 vs 2.7 percent annualized growth). Inequality has also been rising over the last decade. Population living in rural areas, conflict-affected states, and ethnic and religious minorities, are lagging on most dimensions of welfare—from stunting to educational attainment and access to basic sanitation and electricity.

Sectoral and Institutional Context

3. **Despite good progress, electricity infrastructure development has not matched the pace of economic development and is increasingly becoming a constraint on poverty reduction and shared prosperity.** With the overarching goal of achieving universal electricity access by 2030, a large investment program launched at the beginning of the transition had positive results. The electrification rate (access to the public grid) doubled between 2010-11 (25 percent) and 2019-20 (50 percent) through the implementation of the government’s National Electrification Program (NEP). This was made possible by the launch of a large investment program, which attracted substantial private sector financing in power generation and increased public investments in power generation and the development of the national grid. The program was led by the Ministry of Electricity and Energy (MOEE), which is the main body responsible for policy making, overseeing and operating the state economic enterprises (SEEs). Despite these solid achievements, substantial challenges persist to achieving the universal electricity access goal. These challenges and the government’s strategy to address them are presented below. Supply has not been able to keep up with fast growing demand due to increased electrification and economic activity. The supply gap became evident in 2019, when the country faced widespread power shortages during the summer months of March to May. The supply gap

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1 During 2011-12 and 2018-19, the share of private sector-owned and -operated generation increased from around 25 percent to 45 percent.
is acute in Myanmar’s largest city, Yangon, which represents over 40 percent of the total electricity demand but holds only 20 percent of the generation capacity. Below are summarized the key sector challenges.

4. **Reduce the widening supply and demand gap at least-cost.** Assuming that electricity demand will continue to expand at an estimated average annual rate of 11.1 percent, the supply gap is expected to increase substantially in the short-to-medium term. Myanmar must develop its hydropower and renewable energy (solar PV and wind) potential and import electricity to reduce the supply gap according to an indicative least-cost generation plan prepared by the World Bank. LNG imports for new power generation assets will also be needed due to the declining output from maturing gas fields. Among the generation options, improving energy efficiency stands out as a priority. Existing gas-fired power plants, particularly state-owned ones, have very low thermal conversion efficiencies (15-27 percent) compared with modern gas-fired plants (52 to 55 percent). Such inefficiencies result in high system costs, wasteful natural gas consumption, and dependency on emergency power, LNG-fueled generation, and coal, which increases the energy sector’s environmental impact. In the medium-term, combined-cycle gas turbine (CCGT) plants are amongst the lowest-cost options to improve the efficiency of existing inefficient gas-powered generation assets due to its technological advantages.

5. **Remove bottlenecks to provide access to modern electricity services, focusing on the poor.** The most vulnerable households are yet to benefit from access to modern electricity services. It is estimated that 80 percent of the bottom twenty percent of households were not connected to the public grid. To reach those who remain without access to modern electricity services, the NEP is extending the public grid and deploying decentralized electricity solutions. These solutions are being deployed in more remote villages. In addition, the public grid is progressively reaching rural areas primarily in the central zones of Myanmar due to their proximity to the existing power network. Going forward, the continued implementation of off-grid solutions together with the phased roll-out of the public grid will be needed to bring basic electricity services to all Myanmar households. In urban areas, the priority is to provide electricity access to the poorest households, who are yet to be connected. In rural areas, availability of power supplies and limited capacity in power substations are constraints to on-grid electrification. In addition, continued efforts to deploy decentralized electricity solutions are needed to continue reaching the most disadvantaged households in areas which are unlikely to be connected to the grid in the next 5 to 10 years.

6. **Improve the environment for investments.** Policy, regulatory, and institutional constraints will need to be addressed to facilitate faster and more efficient investments. Building on technical assistance provided by the World Bank, in July 2019, the government increased significantly electricity tariffs for residential, commercial, and industrial consumers, after a five-year gap of no tariff adjustments. On the policy front, however, lack of a least-cost development plan for the power sector limits selection and prioritization of projects based on objective criteria for both public and privately-funded projects. In terms of regulatory constraints, the absence of an incentive framework for renewable energy projects and inadequate management of environmental and social risks limit the development of hydropower and renewable energy investments. Finally, institutional constraints including weak performance incentives and lack of capacity of SEE staff to accelerate project implementation, contribute to frequent delays and costs-overruns. With substantial capacity challenges, the government needs to create a more inclusive environment that provides opportunities for professional growth for talented professionals, including women.4

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2 The analysis was conducted using the World Bank Electricity Planning Model (EPM) for 2019-2030 that optimizes system-wide cost including (annualized) capital cost of new plants, operating costs of new and existing plants and cost of unserved energy and capacity reserve.
3 Myanmar Living Conditions Survey (MLCS 2017).
4 According to information provided by MOEE, women represent more than half of their workforce but less than 6 percent occupy technical and managerial positions. Key findings of research conducted with MOEE staff suggest that women are not able to reach their full potential for professional growth and face a productivity gap. In addition, the surveys reveal that about 14 percent of the employees interviewed, mostly mothers,
7. **Strengthen the power network infrastructure for increased quality of supply and climate resilience.** Network constraints and infrastructure vulnerabilities result in unreliable supply. Significant constraints in the transmission system prevent the evacuation of low-cost hydropower from the north to the main consumption centers of Yangon in the South and Mandalay in the center, aggravating the supply/demand imbalance. The power network lacks adequate redundancy and a single fault can lead to cascade tripping of facilities. As a result, Myanmar lags significantly behind its East Asian peers in all dimensions related to quality of electricity infrastructure. Low-quality services disproportionately affect low-income households. Unable to afford back-up power generators and voltage regulators, lower-income households bear the costs of long outages and damaged electrical equipment. Myanmar is also amongst the world’s most hazard-prone countries. Climate change is exacerbating the country’s vulnerability to periodic floods, fires, storms, cyclones and droughts. It is imperative that climate resilience measures are integrated both in the planning and design of investments and in the operation and maintenance of systems.

C. Proposed Development Objective(s)

**Development Objective(s) (From PAD)** The project development objective is to increase the output and efficiency of power generation and improve the resilience of the power network in support of the government’s program on universal electricity access.

**Key Results**

The achievement of the project development objectives will be measured by the following corporate results indicators:

- a. Projected lifetime fuel savings (in megajoules, or MJ) – core indicator
- b. Energy generation capacity constructed or rehabilitated (MW) – core indicator
- c. Annual outages in targeted substations (hours)
- d. Disadvantaged people benefiting from access to electricity or improved quality of service (number)

D. Project Description

**Component A: Upgrading Ywama Power Generation Units (US$290 million)**

8. **The component will finance the replacement of old gas and steam turbines in the Ywama power plant with a highly-efficient CCGT.** The Ywama power plant is in the suburbs of Yangon city, along the Hlaing River. It is a brown field partially occupied by existing gas and steam turbines, with a total available capacity of 60MW. They are all supplied mainly from the offshore Yadana field. Due to the acute power shortages in Yangon, state-owned turbines are still under operation despite having one of the lowest thermal conversion efficiencies (19 percent) among all gas-fired generation plants. These units will be replaced by a highly-efficient CCGT with capacity in the order of 300MW (net) and a thermal efficiency of approximately 55 percent. The energy efficiency upgrade will be implemented as a full turn-key project within the existing footprint of the plant. Given the country’s climate vulnerabilities, the new CCGT will be designed to withstand extreme weather conditions affecting Yangon: monsoon, strong winds, cyclones, flooding and seismic events. The scope of work for the new CCGT consist of the partial demolition of existing...
units, design, supply, installation, testing and commissioning of the new plant. During construction, remaining units in the plant totaling available capacity of 292MW (240MW EPGE owned and 52MW privately-owned and operated) will remain in operation, given their critical role in supplying Yangon consumers. After completion of the new CCGT, the EPGE-owned gas turbines (170MW) will remain in the site for backup purposes.

9. **In addition, technical assistance will be provided to EPGE for project implementation and to MOEE for the achievement of a more inclusive sector.** On project implementation, the following key consultancy contracts will be specifically financed: (a) an owner’s engineer to support EPGE through the procurement processes and project implementation, and (b) an independent consultancy firm to monitor environmental and social safeguards issues. Additional technical assistance will be provided by the World Bank (WB) through HEIS to EPGE and DTPSC during project preparation and implementation to address identified capacity constraints and support knowledge transfer. Regarding sector inclusion, to help reduce the gender productivity gap at work due to childcare responsibilities, this component will also finance technical assistance to support MOEE in the implementation of a childcare pilot. Specifically, a detailed roll-out plan\(^6\) will be prepared and initial start-up support will be provided for the operationalization of the childcare facilities. This initial start-up support will cover the set-up costs of material to start operations, the refurbishment of facilities, which will be hosted within MOEE’s premises, as well as training material and expenditures\(^7\) for an initial batch of staff that MOEE will hire to operate the services.

**Component B: Improving Resilience and Capacity of the Power Network (US$60 million)**

10. **This component will finance investments and measures in existing substations aimed at reducing system constraints and strengthening the resilience of the power network against climate change and disasters.** Investments will include transmission related equipment, mobile substations, and the implementation of adaption measures to protect existing assets functionality against the impact of climate change and emergencies. Activities under this component will cover the following aspects: a) re-enforcement of high-voltage equipment at substations and/or substation rehabilitation to reduce system constraints, increase system capacity, and improve network reliability, b) enhance emergency preparedness and management capacity through adaption measures to protect and harden equipment against climate and disasters impacts, and c) enable quick and effective recovery of the power system by procuring specialized equipment and spare parts. Transmission network equipment to be financed under this component will include, but not be limited to, mobile substations, power and current transformers, power and shunt reactors, switch bays, protection and control devices. Technical assistance will be provided to develop and implement policies and strategies on climate and disaster resilience of the power system and to support DTPSC in the implementation of project activities, including in the preparation of technical specifications, contract oversight, and safeguards monitoring.

11. **Power substations and measures under this component will be prioritized based on their relative contribution to support the implementation of the NEP and improvements in the quality of supply.** The selection of investments will be made based on technical analysis including the following key parameters: a) substations without adequate capacity and/or redundancy to support grid extension for electrification, b) most vulnerable assets to climate events, and c) substations serving households that suffer from low quality of electricity supply, d) substations which serve a

\(^6\) The roll-out plan will determine critical aspects for a successful implementation of the pilot including, but not limited to, services demand at MOEE, logistics, financial sustainability based on users’ contributions, etc. The roll-out plan will be undertaken in close collaboration with the MOEE and the Ministry of Social Welfare and will build on the lessons learned from IFC’s childcare activities in private companies of the energy sector.

\(^7\) The batch will follow the dedicated course on early childhood education currently given at the Ministry of Social Welfare.
substantial share of disadvantaged households\textsuperscript{8}. The project will not support investments on: a) development of new substations or new transmission lines, and b) investments in areas where there is active conflict.\textsuperscript{9}

E. Implementation

Institutional and Implementation Arrangements

12. The proposed project will be implemented by the EPGE and the Department of Power Transmission and Systems Control (DPTSC) under the oversight of MOEE. The project will be financed by an IDA credit to the Ministry of Planning and Finance which will make available the proceeds of the credit to EPGE and DPTSC. Under the overall oversight of MOEE, the two entities have put in place dedicated PIUs including project directors, technical specialists, procurement specialists, financial management specialists and environmental and social specialists. Both entities will rely on their existing organizational structures and processes to implement the procurement and financial management tasks related to the project. To support the PIUs on technical and safeguards matters, the project will procure an owner’s engineer and an independent environmental and social consultancy firms.

F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

For component A, the location is the existing Ywama power plant site in an industrial and residential area of Yangon. The site is an active industrial facility with controlled access on the left bank of the Yangon River. It is surrounded by residential buildings inhabited by staff of the power plant and adjacent industrial facilities. The location is accessible by barge from the river and by vehicles by road. The rehabilitation and upgrading works will take place ‘inside the fence’, within the existing Ywama power plant. For component B, the transmission equipment installation, the locations are various sub-stations and other parts of the national transmission system yet to be identified through technical studies supported during project implementation. Existing substations are scattered across the country. Investments will include substation upgrades and implementation of climate resilience measures. Transmission equipment such as mobile substations, power and current transformers, power and shunt reactors, switch bays, protection and control devices will be installed in existing power substations. Also, climate resilience works will be undertaken to protect existing assets against climate events (e.g. anchoring transformers, etc). Substantial expansion of substations beyond their existing physical location is not envisioned. However, if needed, small strips of land may be acquired to allow for enhancement.

\textsuperscript{8} The criteria will be based on the Multidimensional Disadvantage Index (MDI, World Bank 2019) which identify townships which are considered the most disadvantaged by comparing relative levels of non-monetary development across all townships in the country.

\textsuperscript{9} These areas are defined as locations where there is continuing or has been recent violence as monitored by the World Bank based on data from the Myanmar Institute for Peace and Security.
G. Environmental and Social Safeguards Specialists on the Team

Martin Fodor, Environmental Specialist
Marcel Robert Frederik, Social Specialist
Son Van Nguyen, Environmental Specialist
Khine Thwe Wynn, Environmental Specialist
David Jorge Baringo Ezquerra, Social Specialist

SAFEGUARD POLICIES THAT MIGHT APPLY

<table>
<thead>
<tr>
<th>Safeguard Policies</th>
<th>Triggered?</th>
<th>Explanation (Optional)</th>
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</thead>
<tbody>
<tr>
<td>Environmental Assessment OP/BP 4.01</td>
<td>Yes</td>
<td>The proposed project has been classified as category 'B' because the adverse environmental and social impacts that may occur; primarily civil works related to the construction or operation of the project. The main adverse impacts during construction include: increased levels of dust, noise, vibration; hazardous waste generated during the dismantling of the old plant; construction-site waste generation; traffic disturbance and safety; impacts related to labor influx; and health and safety issues for workers and community. The impacts, however, are expected to be small to moderate, localized and temporary, and can be mitigated. The potential environmental negative impacts during operation of the project are associated with worker health and safety related to the exposure to electric and magnetic fields, heat, noise, confined spaces, electrical fires and explosions, chemical hazards from the power plant, high voltage power lines and substations. The local residents living next to the power plants would be affected by increased noise. However, these impacts are limited and site-specific, and therefore, mitigation measures can be readily designed. Physical works are expected to take place within the existing brownfield locations, particularly at Ywama power plant and selected substations. The technical assistance (TA) will support preparation of a plan and initial roll-out of childcare facilities which are the be existing buildings</td>
</tr>
</tbody>
</table>
owned by MoEE, and no land acquisition will be required. Therefore, this component has no safeguard implication. The positive environmental impact of the project will be reduced GHG emissions per unit of electricity produced due to increased thermal efficiency of power generation.

An Environmental and Social Impact Assessment (ESIA) for Ywama power plant upgrading and an Environmental and Social Management Framework (ESMF) for the deployment of mobile substations (and potential activities at different locations of the power system in the future) under component B have been prepared by an international consultant. The ESIA includes a comprehensive and complete assessment of potential social impacts and risks of the Ywama upgrading, including for neighboring communities in the project area.

<table>
<thead>
<tr>
<th>Performance Standards for Private Sector Activities OP/BP 4.03</th>
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<tbody>
<tr>
<td>This policy is not triggered as the project does not support any private sector led economic development that will be designed, owned, constructed and/or operated by a Private Entity.</td>
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<tr>
<th>Natural Habitats OP/BP 4.04</th>
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</thead>
<tbody>
<tr>
<td>The project is not likely to have impacts on natural habitats since the only known site where the project activities will take place is an active power plant in an industrial area of urban Yangon. The potential locations for deployment of mobile substations are existing sub-stations and, potentially, other elements of the existing electricity network infrastructure. Activities under the project are therefore not expected to adversely impact or lead to the degradation of critical or other natural habitats.</td>
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<th>Forests OP/BP 4.36</th>
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<tr>
<td>The project is not likely to have impacts on forests or natural habitats since the only known site where the project activities will take place is an active power plant in an industrial area of urban Yangon, existing sub-stations and, potentially, other elements of the existing electricity network infrastructure. Activities under the project are therefore not expected to adversely impact or lead to the degradation of forests.</td>
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<tr>
<th>Pest Management OP 4.09</th>
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<td>The project is not likely to finance or affect the use of pesticides.</td>
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<tr>
<td>Physical Cultural Resources OP/BP 4.11</td>
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<tr>
<td>--------------------------------------</td>
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<tr>
<td>Indigenous Peoples OP/BP 4.10</td>
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<td>Involuntary Resettlement OP/BP 4.12</td>
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<td>Safety of Dams OP/BP 4.37</td>
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<td>Projects on International Waterways OP/BP 7.50</td>
<td>No</td>
</tr>
<tr>
<td>Projects in Disputed Areas OP/BP 7.60</td>
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</table>
A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

The implementation of the project will help increase the capacity and efficiency of generation and reliability of transmission. The specific benefits expected are: (i) increased hours of power supply due to avoided load shedding and blackouts; (ii) reduced risk of power system collapse and outages resulting in less losses; (iii) higher quality of power supply through more stable voltage and frequency, resulting in extended operating life of electrical appliances; (iv) improved energy efficiency, reducing the overall operating costs and GHG emissions; and (iv) lower noise and air emissions per unit of electricity output produced from obsolete gas turbines. The project may also bring direct temporary benefits for skilled and unskilled workers that would be employed for the construction of the project.

The potential adverse impacts are mainly associated with the implementation of components A and B. The upgrading of Ywama power generation units, under component A, involves dismantling two existing simple cycle power plants and relocating an existing gas turbine with stream turbo generators units, as well as its auxiliary systems, to allow space for the installation of a highly-efficient CCGT unit. Component B includes critical investments and upgrading measures in existing substations, mobile substations, and the implementation of adaption measures to protect existing assets functionality against the impact of climate change and emergencies.

The potential adverse impacts of the project are related with the dismantling of the existing plant, improvements on existing substations, the installation of the new CCGT units, installation of mobile substations, and other works such as fixing the transformers to the ground. Adverse impacts resulting from these activities include: (i) increased levels of dust, noise and other emissions, material stockpiles, operation of heavy equipment, and transportation of construction materials and electrical equipment; (ii) hazardous waste generated during the dismantling of the old plant, specially asbestos; (iii) construction-site waste generation, such as construction and domestic waste and wastewater; (iv) traffic disturbance and safety due to the transportation of building materials and equipment; (v) small scale soil erosion due to wastewater and sedimentation affecting the quality of surface water and, particularly, the Hlaing River; (vi) impacts related to labor influx; and (vii) health and safety issues for workers and community. The impacts, however, are expected to be small to moderate, localized and temporary, and can be mitigated.

The contractors may mobilize several workers from outside the project areas during the construction phase. This may generate potential social risks for communities living in the project area, such as violence with local youth, gambling, drug proliferation, and the risk of disease transmission (e.g., sexually-transmitted diseases such as HIV, syphilis, etc.), particularly among local women. However, these impacts will be mitigated through the implementation of measures proposed in the project ESMF including: training for workers and construction supervision teams on required lawful conduct in the host community and on HIV/AIDS awareness, strict enforcement of drug abuse and traffic, and ensuring payment of adequate salaries for workers to reduce incentives for theft and gambling. The PIUs and external monitoring consultant will be responsible for closely monitoring and mitigating potential risks caused by labor influx to communities in the surrounding project areas.

The potential environmental negative impacts during operation of the project are associated with workers’ health and safety and related to the exposure to electric and magnetic fields, heat, noise, confined spaces, electrical fires and explosions, chemical hazards from the power plant, high voltage power lines and substations. The local residents living...
next to the power plants would be affected by increased noise. These risks can be reduced by strictly applying national and international technical regulations and standards at project design and following electricity safety regulations during the project operation. The potential risk of oil leakage from transformers is addressed by constructing an emergency oil collection and storage tank. The potential risk of the Polychlorinated Biphenyls (PCBs) is strictly treated as discussed in the ESMF prepared for this project.

The main air pollutant concerning gas-fired combined cycle power plants is nitrogen dioxide (NO2) whilst emissions of sulphur dioxide (SO2) and particulate matters (PM10 and PM2.5) are likely minimal if the combustion process is optimized and efficient. Considering baseline data, the present value of NO2 with the 3 operational units at Ywama power plant and the functional privately owned and operated plant is around 25.4 μg/m3, which is within the prescribed standard by the World Bank and Myanmar. The highest predicted Ground Level Concentration (GLC) of NO2, for the proposed project (4 functional units and the gas engine plant) during normal combined cycle operation would be about 29.0 μg/m3, which is about 3.6 μg/m3 above the present scenario. It was found that due to stable and low wind speed, there will be no impact on the receptors near to the plant. The concentration will be towards the river and industrial area. Also, there are no ecological sensitive areas near the project site. Thus, it can be concluded that an incremental GLC of 3.6 μg/m3 is not severe and the significance of impact will be minor.

In particular for social safeguards, the ESIA conducted for component A states that noise and vibrations are one of the main risks due to the noise registered (Leq) near the residential building located next to the plant. The residential building is owned by EPGE and it is currently occupied by company employees working in the plant. In that area, noise was found to be 76.5dB(A) and thus, exceed the prescribed WBG EHS Guidelines’ limit of 55 dB(A) during day time and 45 dB(A) during night time for residential areas. This problem especially affects the 80 apartments (buildings E6-E10) located at 1000 meters from the plant (measured as areal distance from the center of the plant). Company employees and their families who live there are also affected by vibrations, especially caused by sporadic emergency shutdowns. For Component B, there are possible but not likely impacts on land acquisition and indigenous peoples. Because of that, a Resettlement Policy Framework (RPF) and a Community Participation Planning Framework (CPPF) have included as stand-alone sections of the ESMF for Component B.

The risk of gender-based violence (GBV) and sexual assault and abuse (SEA) related to labor influx is expected to be moderate. For component A, workers camps are not expected, and the project activities will be carried out near residential areas. It is estimated that about 300 workers will be recruited during the dismantling of the old plant at pre-construction stage. This will increase to about 800 during the construction phase. These workers will be sourced from Yangon city itself (estimated population of over 7 million people) and commute on a daily bases. Therefore, no labor camps will be required. To reduce labor influx and boost local benefits of the project, a training program will be in place for EPGE together with the EPC contractor to provide skill training to eligible local people so that they become skilled workers that can be employed in the plant, at least, for the pre-construction and construction phases. For component B, the risk seems limited since the required works will need relatively mid-size crews of approximately 60 skilled and unskilled workers, the majority of whom will be recruited locally. Most part of the technical staff will be DPTSC employees and will be accommodated in the residential colonies of DPTSC.

The ESIA and the ESMF prepared for the project confirmed the above-mentioned impacts.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:
The potential impacts are described in previous section. No other negative potential indirect and/or long term environmental and social impacts due to future activities are anticipated in the project areas.
3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

During the preparation of the project, a screening has been carried out for all the project potential investment to exclude proposals that would go against the project development objective. To minimize the potential adverse impacts, the project has also considered alternatives to the investment proposals, prioritized them based on the anticipated positive and negative impacts, and developed screening checklists to exclude all investment proposals that may cause significant or irreversible social and environmental impacts. A sub-project will not be eligible for funding if it would: i) involve the significant conversion or degradation of critical natural habitats; ii) involve significant conversion or degradation of critical forest areas; iii) contravene applicable international environmental agreements; iv) be located in a physical cultural resources site recognized at the national or provincial level.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

The borrower has experience working with WB projects through previous projects. Lessons learned in the Tathon Project will be assessed and integrated into the borrower’s capacity building program.

To address the project negative social and environmental impacts, the following safeguard documents have been prepared by the EPGE, reviewed by the environment and social specialists of the WB and found to be satisfactory.

Environmental and Social Impact Assessments (ESIA)

An ESIA for the Ywama Power Plant has been prepared and is being submitted for the Government approval. The project will comply with the Government regulations on environmental and social assessment, as well as the Bank’s safeguards policy requirements as specified in the ESMP. The ESMP consists of the set of good practice mitigation measures to address common construction related impacts, site-specific environmental and social measures to deal with the impacts specific to the subproject areas and activities. The objectives of the ESMP are to: i) ensure compliance with the applicable provincial, national, laws, regulations, standards, and guidelines; ii) ensure that there is sufficient allocation of resources on the project budget for implementation of ESMP-related activities; iii) ensure that environmental and social risks associated with a project properly managed; iv) respond to emerging and unforeseen environmental and social issues not identified in the ESIA; v) provide feedback for continual improvement in environmental and social performance. The ESMP includes monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The ESMP also includes a compliance framework which lays out the role and responsibilities of the contractor and a penalty system to address the cases of non-compliance with environmental and social management requirements by the contractor. Finally, the ESMP details the budgets for their implementation, including capacity building in project environmental and social management. In addition during project implementation, EPGE with support from the contractor, will undertake a hazard and operability study (HAZOP) to identify and evaluate problems that may represent risks to personnel or equipment. Among others, the study would focus on assessing explosion risks and their impact on the nearby residential areas. Also, the contractor will implement a waste management plan which will also include occupational health and safety mitigation measures during pre-construction and construction phases.

Environmental and Social Management Framework (ESMF)

Given that not all the subprojects with their details will be identified during project preparation, an ESMF has been prepared to ensure that activities financed under component B do not create adverse impacts on the local environment and local communities, and that the residual and/or unavoidable impacts will be adequately mitigated. The framework covers requirements for: (i) adequate safeguard screening including impacts on natural habitats, forests, and cultural resources; (ii) impact assessment and development of mitigation measures for construction and operation activities and procedures for chance findings; (iii) procedures for preparation, review, and clearance of
safeguards instruments during implementation; (iv) safeguards implementation, supervision, monitoring, and reporting; (v) institutional strengthening and capacity building programs; and (vi) institutional arrangements and budget. The ESMF also includes a screening checklist to exclude all investment proposals that may cause significant or irreversible social and environmental impacts. The ESMF identifies the requirements for the preparation of an Environmental and Social Management Plans (ESMP) for a subproject to comply with the WB’s and Government’s regulations on EIA. In order to address possible, but not likely, impacts on land acquisition and indigenous peoples, the ESMF also includes a Resettlement Policy Framework and a Community Participation Planning Framework as stand-alone sections.

Social safeguards aspects

MOEE knowledge of specific World Bank policies is not extensive. However, MOEE has demonstrated its capacity to effectively implement elaborated social safeguards arrangements in the context of the Tathon Project as well as the National Electrification Project.

In relation with the expected social impacts concerning component A, the ESIA states that sufficient noise control and isolation measures should be adopted to protect the surrounding apartments from the impacts of noise and vibration. The project must ensure that the noise levels do not exceed the prescribed WBG EHS Guidelines’ limit of 55 dB(A) during day time and 45 dB(A) during night time in the affected residential areas. In case those noise thresholds cannot be met or if the safety risks identified in the HAZOP cannot be adequately mitigated, the Borrower will relocate staff living in the affected areas.

Even if the WB Involuntary Resettlement (OP/BP 4.12) is not triggered for component A, a site-specific Environmental and Social Lay-out Areas Plan was included as part of the ESIA mitigation measures, since this is needed to ensure that provisions for land acquisition and access restriction are in place.

In relation with the risk of gender-based violence (GBV) and sexual assault and abuse (SEA) related to labor influx, the ESIA for component A includes a GBV Plan with mitigation measures including: (i) provisions to promote local recruitment of workforce, (ii) mitigation measures, such as a workers’ code of conduct (for both worker-community and worker-worker interactions), or (iii) training and public awareness activities to avoid sexual harassment, sexual assault and exploitation and human trafficking.

To reduce labor influx and boost local benefits of the project, a training program will be in place for EPGE together with the EPC contractor to provide skill training to eligible local people so that they become skilled workers that can be employed in the plant, at least, for the pre-construction and construction phases.

Both components A and B include mitigation measures to ensure that the local communities affected by the project works are properly notified of the timing and scope of the planned works and disturbances are minimized. Such minimization of disturbances may include limiting working hours to daylight, special precautions when the work is carried out near children’s institutions or traffic management including, if required, the establishment of alternative temporary traffic routes. Specially for component A, the 650 meters long access road to the plant is an area with risk of accidents as it is narrow and has just enough width to allow maneuver of the vehicles. Therefore, proper mitigation measures will have to be adopted to reduce the risk of any incidents on this road.

Borrower capacity

Although MoEE has got experiences in working with International Financial Institutions, including World Bank, EPGE and DPTSC have limited capacity in environmental and social safeguards during project preparation and
implementation. It is imperative that institutional and capacity development are provided for environmental and social safeguards guidelines, safeguards frameworks, capacity building trainings, coordination.

Safeguard Implementation, Monitoring, and Training
The Implementing Agencies (IAs) will be responsible for implementing and monitoring the environmental and social safeguard instruments (ESMF, ESIA, RPF, CPPF and ESMPs if needed) through their dedicated environmental and social focal points. During project implementation, EPGE will be responsible for preparing and ensuring the effective implementation of safeguard measures for component A (such as the ESMP included in the ESIA) and regularly liaising with local authorities and communities. The IAs will also include the ESMP requirements into the standard tender documents to be used as a basis for contractors to implement environmental management during the construction phase. The implementation of the ESMP on the ground will be supervised and monitored by the owner’s engineer and an independent environmental and social expert consultant hired by EPGE. The performance and compliance with environmental and social safeguard instruments will also be subject to regular supervision from the WB task team. EPGE, contractors, supervision consultants and local community representatives will receive training on the safeguard instruments to be applied to the project. DPTSC will be responsible for implementing the ESMF including preparation and implementation of subproject ESMPs.

As next steps during the preparation and construction phases of the project, the ESIA for component A and the ESMF for component B include the need of preparing a Stakeholders Engagement Program (SEP) for regular disclosures of relevant communications and documentation and meaningful consultations with stakeholders. It will be done with the contractor, under guidance and supervision of the IAs EPGE and DPTSC.

Grievance and Redress Mechanism (GRM)
The project ESIA and ESMF include a GRM to provide a framework to handle complaints about safeguards compliance, address grievances, and quickly settle disputes. The GRM will be in place by project effectiveness. As part of overall implementation of the subproject, the GRM will be established by the Environmental and Social Unit or designated focal points of the EPGE. It will be readily accessible, handle grievances and resolve them as quickly as possible. The key processes and elements of the GRM include, procedures for submission of complaints and grievance resolution, responsible persons, and contact information. The complaints can be received in verbal or writing forms, by telephone, fax, or email. They can be sent to the local authorities, contractors, construction supervision engineers, or the independent environmental monitoring consultants. The complaints will also be logged in the record system and sent to the responsible person, who will take action.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Consultations on the draft ESIA were conducted with EPGE and DPTSC staff, affected communities and local authorities in December 2018. Consultations on the ESMF and the RPF were also organized with EPGE and DPTSC officials, the employees at the sub-stations of Taungoo, Tharyaegone and Belin, and local communities in January 2019. Consultation for the CPPF was carried out on January 28, 2020. The feedback received from the consultations was incorporated in the project design, the final drafts of the ESIA and ESMF. The draft versions of the ESIA and ESMF including the RPF were disclosed at the Ministry of Electricity and Energy website on December..., 2019. The CPPF was disclosed on [...] and the feedback received from the consultations was incorporated in the final document as well.
## B. Disclosure Requirements

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<th>Environmental Assessment/Audit/Management Plan/Other</th>
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<th>Date of submission for disclosure</th>
<th>For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors</th>
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"In country" Disclosure
Myanmar
25-Feb-2020

Comments
https://www.moee.gov.mm/en/ignite/contentView/1637

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C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?  
Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?  
Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?  
Yes

OP/BP 4.10 - Indigenous Peoples

Has a separate Indigenous Peoples Plan/Planning Framework (as appropriate) been prepared in consultation with affected Indigenous Peoples?  
Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?  
Yes

If the whole project is designed to benefit IP, has the design been reviewed and approved by the Regional Social Development Unit or Practice Manager?  
Yes

OP/BP 4.12 - Involuntary Resettlement

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?  
Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?  
Yes

The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank for disclosure?  
Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?  
Yes
All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?
Yes

Have costs related to safeguard policy measures been included in the project cost?
Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?
Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?
Yes

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APPROVAL

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