



Emerging Risk

1. Global Economic Growth Slowdown Risk

Scenario

Decreasing regional economic growth forecasts in the US, China, and Europe as well as emerging markets such as Thailand and countries that EGCO Group has invested in and is planning to invest in are mainly caused by the US-China trade war, volatility in exchange rate, oil and natural gas prices. Notably, EGCO Group is concerned about these situations and has prepared the following measures:

Impact to EGCO Group:

A possible of negative impact to EGCO Group's investment.

Mitigations & Opportunities:

- The assignment of the authorized operators to EGCO Group's invested countries such as the Philippines and Indonesia to closely monitor, report, and assess the situation in order to prepare risk mitigation actions and to alert the related parties to respond to all of the possible risks.
- Diversify its investment portfolio throughout many countries.
- Invest in different types of power plants and seek new business opportunities e.g. fuel supply business, smart energy solution, etc.



2. Government Policy, Legislative Change and Compliance Risk Due to Climate Change Scenario

Due to the ongoing extreme global weather conditions, the 23rd United Nations Framework Convention on Climate Change, which was held from November 6 through November 17 in 2018, approved a new resolution aimed to fight climate change by reducing GHG emissions. Thailand not only participated and signed the agreement, which aimed to reduce GHG emissions from 20% to 25% by 2030—compared to the based year 2015—in this conference, but also committed to review and participate in climate change solutions every five years.

Impact to EGCO Group:

Thailand's government can consider additional relevant laws and regulations that are related to GHG emissions within three to five years. Also, the Thailand Power Development Plan (PDP) could be revised in order to be aligned with the agreement.

Mitigations & Opportunities:

To mitigate such a risk, EGCO Group not only closely monitors and analyzes the impacts, but also aims to increase its renewable energy portfolio to achieve 30% by 2026 from both domestic and overseas operations. In 2019, our renewable energy portfolio was 18.86% of our total electricity generating capacity which could reduce approximately 537,000 tons of carbon dioxide equivalent to the per-year emission rate (14 EGCO subsidiaries) in alignment with the government's policy. Furthermore, EGCO Group will invest in environment-friendly technology for future investments, promote energy conservation within our organization, and reduce GHG emissions indirectly by conducting business with eco-friendly partners.



3. Emerging / Disruptive Technology Risk

Scenario:

In accordance with the rapid technological advancements from micro grid systems, renewable energy systems, energy storage systems, and big data systems, the government aims to develop and launch its Commercial Smart Grid by 2021. Regarding the Thailand Smart Grid Development Master Plan 2016–2021, the Ministry of Energy has been assigned to take primary accountability through these three pillars: (1) Demand Response and Energy Management System, (2) Renewable Energy Forecast, and (3) Micro Grid and Energy Storage System.

Impact to EGCO Group:

This Government policy will gradually change user behaviors from consumer to “prosumer” and peer to peer. Furthermore, the smart grid could reasonably be expected to influence the industries due to its production cost and energy trading scheme that may impact not only government authorities that includes the Electricity Generating Authority of Thailand, Metropolitan Electricity Authority, and Provincial Electricity Authority, but also the independent power plants.

Mitigations & Opportunities:

On the other hand, this transformation may provide an opportunity to create value to the organization. To alleviate such a risk, EGCO Group closely monitors technological changes while developing new businesses by running the “Innovation Team Challenge” contest. This event aims to improve teamwork, employee creativity, and employee competency which will then provide sustainable business growth to the organization. In addition, EGCO Group has expanded the investment direction from power generation business to the new business in Smart Energy Solution to increase the competitiveness in the electricity industry market in the era of highly competitive market and rapidly changing energy technology. At present, it is in the process of establishing the Innovative Holding Company Limited and the establishment of Solar Roof Top (Retail Business) etc.



4. Cybersecurity and Data Privacy Protection Risk

Scenario:

Information technology (IT) systems are the crucial fundamental infrastructure that increases a business operation's efficiency, its efficient control of electricity generation, and its operating cost management. IT allows for a business to successfully compete in both domestic and overseas markets where EGCO Group invests and plans to invest; IT plays its role more importantly in business operations respectively.

In 2019, the *Royal Thai Government Gazette* announced the Cyber Security Act B.E. 2562 (2019), which came into effect on May 28, 2019, and the Personal Data Protection Act B.E. 2562 (2019), which is going to take effect on May 28, 2020.

According to the Cyber Security Act B.E. 2562 (2019), a system administrator that provides computer-related services must build confidence and strengthen computer cyber security, computer data, computer systems, or other information related to computer systems in order to prevent, confront, and reduce the risk of cyber threats in a timely manner. EGCO Group has to establish an IT security policy, which includes a policy for creating an IT emergency plan as well as an IT risk management policy.

Impact to EGCO Group:

According to the Personal Data Protection Act B.E. 2562 (2019), which stipulates that in regard to the control of personal and business partner information, to collect, use or disclose any data has to comply with such law. EGCO Group must establish a policy and measures to prevent the leakage of confidential information along with the development of information security and stability systems and the protection of personal information by collecting, storing, using, or disseminating the personal data of employees, partners, or contacts in the form of electronic data in order to prevent the violation of personal data.

Mitigations & Opportunities:

In this regard, EGCO Group will organize staff training to raise awareness and spread knowledge and understanding to employees regarding the Cyber Security Act B.E. 2562 (2019) and the Personal Data Protection Act B.E. 2562 (2019). The Information Technology Department will establish a data security certification system according to the international standard of ISO 27001 for data center rooms. Previously, the company has had no incidents and negative impacts from cyber threats and misuse of personal information.



5. COVID-19 Pandemic Risk to Global Economic Growth and Electricity Consumption Demand

Scenario:

The world economy was impacted by the COVID-19 pandemic that widely spread across the world. Numbers of infected persons and death tolls across the world increased sharply. Against this backdrop, most government had imposed containment measures including the lockdowns, mobility restriction and prohibition of mass gathering which thus made all countries experienced disruptions to economic activities. In addition, the global economy was not fully recovery from the impact of preceding trade dispute. All in all, the major economies showed some slowdowns or registered largest contraction rates since the economic crisis in 2009. The International Energy Agency (IEA) estimates that the world's electricity demand has shrink at 5 percent, the highest since the Great Depression 1930s. The Ministry of Energy estimates Thailand's electricity demand to fall by 3.8 percent, resulting in country electricity reserves increased to 35-40 percent, which cause the plan to build a new power plant may postpone. The Ministry of Energy prepare to begin the process of adjusting the Power Development Plan of Thailand 2018-2037, 2nd edition (PDP 2018 Rev.2) in the first quarter of 2021 after better control of the Covid-19 and more accurate in energy consumption forecasts.

Impact to EGCO Group:

EGCO Group has investment risk, asset management risk and projects under construction risk affected by the Covid-19 pandemic, such as the delay in negotiating new investment projects, lower in dispatch rate and power generation units, maintenance schedule, progress of projects under construction compared with the plan and shortage of spare parts etc.

Mitigations & Opportunities:

EGCO Group has action plans and mitigation that have been implemented to manage and mitigate the effects of such risks, for example, using Teleconference through Microsoft Team program in working and business negotiation during Work from Home period (WFH), reduce operating costs, administrative and interest expenses, de-scope and postpone maintenance plan, construction site lock down in order to proceed with the projects under construction, etc. It is expected that it will not have much impact on EGCO Group's performance target this year.