Sorik Marapi

Green Finance Framework
May 2024

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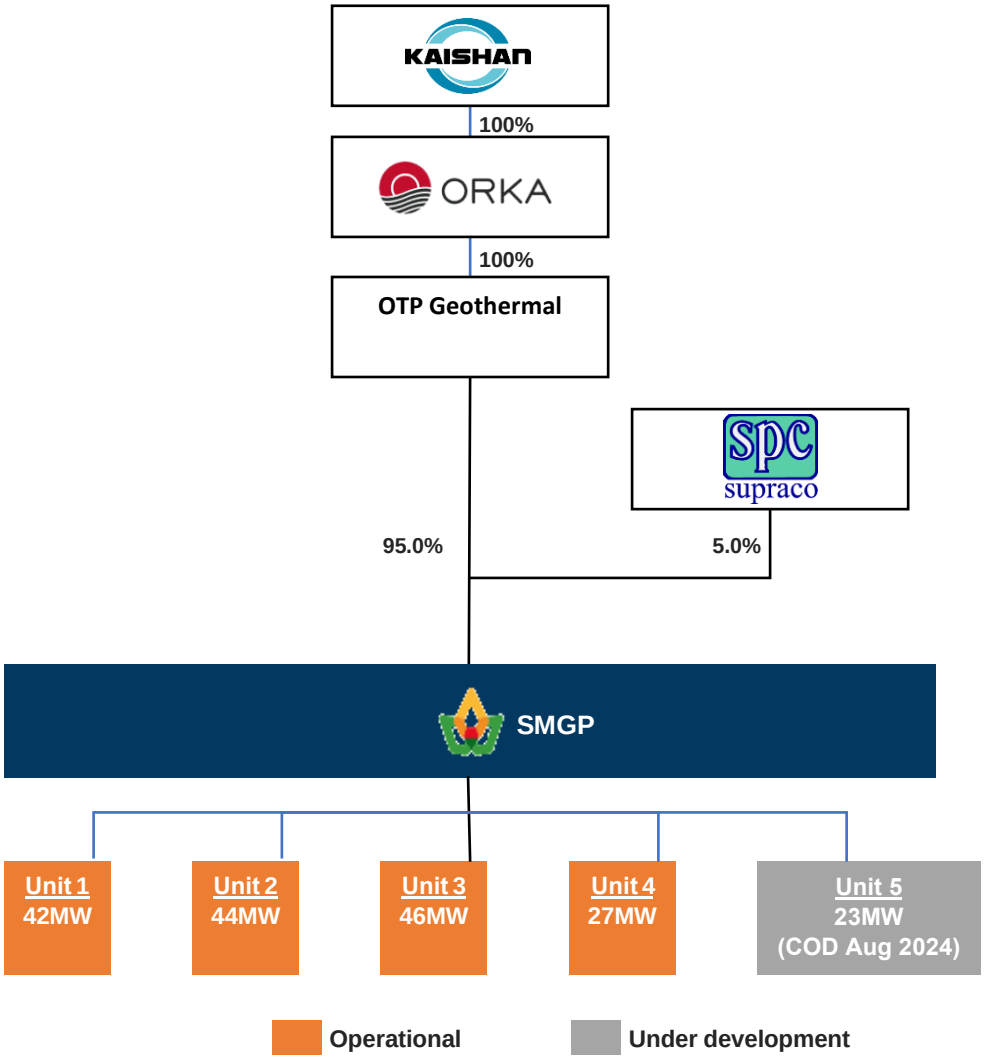
1. Introduction

PT Sorik Marapi Geothermal Power (**'Sorik Marapi' or the 'Company'**) is one of the largest geothermal energy development projects in Indonesia situated in the Mandailing Natal Regency, North Sumatera Province. The Company is a majority owned subsidiary of KS Orka Renewables Pte Ltd. (**'KS Orka'**), a project developer focusing exclusively on the development of geothermal resources, which acquired a 95% stake in Sorik Marapi in 2016. KS Orka is sponsored by Kaishan Group, a leading manufacturer of air compressors globally, and is a publicly listed company on the Shenzhen Stock Exchange.



Sorik Marapi is the legal holder of the right to manage and develop geothermal resources in Sorik Marapi – Roburan – Sampuraga Geothermal Work Area in Mandailing Natal, North Sumatra, having a Geothermal Permit since 2015. The Sorik Marapi geothermal field covers an area of 62,900 HA and has proven geothermal resources of 168 MW, and possible reserves of up to 240 MW. As of May 2024, Sorik Marapi has achieved Commercial Operating Date (COD) for Unit I of 42 MW in 2019, Unit II of 44 MW in 2021, Unit III of 46 MW in 2022, Unit IV of 27 MW in 2023, and Unit V of 23 MW with an estimated

COD of August 2024. Sorik Marapi sells the electricity produced from the geothermal operations under long-term purchase power agreements with PT PLN (Persero), a state-owned utility company.

2. Sustainability at Sorik Marapi

2.1 Environment

Indonesia is a rapidly developing economy, expected to become the fourth largest in the world by 2050. To meet growing energy demand, the government has set ambitious sustainability targets such as achieving a renewable energy mix of 31% by 2050 and committing to reach net zero by 2060 or earlier[1]. However, currently over 60% of national electricity supplied comes from fossil fuel combustion[2].

As a leading geothermal energy provider in Indonesia, Sorik Marapi recognises the key role geothermal energy will play in Indonesia's efforts to reduce carbon emissions and phasing out coal use. Indonesia has the second largest geothermal installed capacity in the world and 40% of the world's geothermal potential. With its own significant geothermal capacity of 240 MW, Sorik Marapi seeks to maximise its efforts to fulfil growing energy needs in Indonesia, while also contributing to the country's goal for geothermal energy to represent an increasing share of the national energy mix.

In line with efforts to maximise geothermal potential in a safe and sustainable manner, Sorik Marapi has implemented an environmental management plan to monitor and mitigate negative environmental impacts associated with its operations covering waste management[3], water conservation[4], domestic wastewater management[5] and noise management[6].

To mitigate geohazard potential in the Operational Area, Sorik Marapi has several procedures in place including an initial geohazard assessment, the implementation of an Early Warning System (EWS) in the high geohazard potential area, initiatives such as providing a nursery area to support revegetation activity, alongside monitoring erosion and landslide risks in the project area.

Additionally, Sorik Marapi has conducted emission dispersion modelling for the maximum installed capacity assumption (240 MW), which has found that emission dispersion into surrounding villages is

[1] As set out in Indonesia's Long Term Low Carbon and Climate Resilience Strategy 2050
[2] Calculated by the IEA in their report on Enhancing Indonesia's Power System – Analysis - IEA
[3] By doing waste segregation within 3 categorize: organic, inorganic, hazardous waste. Organic waste is treated for composting to support nursery activities, while the inorganic waste is transported by third party to the government landfill facility. Hazardous waste is managed by providing hazardous temporary storage prior to transport to the licensed third party for further treatment.
[4] Brine and condensate water are injected to reservoir and reuse the condensate water to substitute some of the use of surface water in drilling activities.
[5] Domestic wastewater is treated by providing sewage treatment plant facilities before discharged to surface water. Sorik Marapi also conduct regular (daily and monthly) monitoring its treated wastewater quality and surface water to ensure it is safe to environment. Sorik Marapi also report its water quality monitoring result to authorized agency periodically.
[6] Installing sound barriers in the nearest village to the power plant, planting bamboo, limiting the speed of their transport vehicles and signage insulating the turbine by using jacket expander. Sorik Marapi also conduct regular noise monitoring based on AMDAL and UKL-UPL requirements.

far below the threshold value. To minimise emission dispersion, Sorik Marapi emits power plant emissions (H_2S and NH_3) through a stack installed above the evaporative condenser and a fan for increased dispersion to the atmosphere. The company also conducts independent emissions monitoring quarterly and has a H_2S gas detector at the power plant, well pad, and the 2 nearest villages to measure H_2S concentration in real time.

Sorik Marapi has also sought to enhance its environmental management practices in line with best market standards and has been recognised with awards for such efforts:

1. "Blue" Proper[3] from Ministry of Environment and Forestry Indonesia period 2021-2022
2. "Blue" Proper[3] from Ministry of Environment and Forestry Indonesia period 2022-2023
3. "Pratama Rating of Subroto Award[4]" from Ministry of Energy and Mineral Resources, Indonesia for Environmental Protection and Management period 2022-2023

More recently, Sorik Marapi has developed an environmental management system based on ISO 14001:2015 and is planning to receive external certification in Q3-2024[5].

Beyond maximising geothermal potential in a safe and sustainable manner, Sorik Marapi has implemented operational efficiency measures to reduce its carbon emissions by applying the most advanced power plant technology known as binary cycle[6]. This effort will support Indonesia to realise its enhanced nationally determined contributions (NDC) of reducing emissions by 31.9% by 2030 against a business-as-usual scenario[7].

2.2 Social

Sorik Marapi acknowledges that its employees are instrumental to the ongoing success of the company. To ensure a safe and thriving workplace, the Company is focused on enhancing aspects of occupational health and safety (OHS) at its sites. One of these include HSE drilling audits, undertaken by an independent auditor with expertise in HSE policy and the SDGs, as well as quality, safety, and environmental management systems.

Sorik Marapi also recognises its responsibility to mitigate the potential health and safety risks to those living in the local Mandailing Natal community. Following the H_2S gas leak at Unit 2 (pre-COD) on 25 January 2021, that impacted several community members during well opening activities in Sibanggor Julu Village, Puncak Sorik Marapi Sub-district, Sorik Marapi undertook comprehensive improvements to health and safety procedures. These included installing gas detection and monitoring systems,

[3] PROPER is the evaluation held by Ministry of Environment and Forestry Indonesia to the companies for its environmental management performance.
[4] Subroto Award is the evaluation held by Ministry of Energy and Mineral Resources Indonesia to the companies for the effort of environmental protection and management.
[5] Sorik Marapi has appointed Sucofindo Indonesia as its certification body.
[6] Binary cycle (called Organic Rankine Cycle/ORC) is a power plant technology that uses organic fluid as a turbine expander-generator drive where the organic fluid is heated by utilizing geothermal fluid (steam and brine). Sorik Marapi has applied two types of ORCs, which steam ORC and brine ORC. Steam ORC emits less amount of CO_2 emission compared to other technology, while brine ORC doesn't emit CO_2 emissions. Fridriksson, T., Merino, A. M., Orucu, A. Y., & Audinet, P. (2017, February 13). Greenhouse Gas Emissions from Geothermal Power Production. 42nd Workshop on Geothermal Reservoir Engineering.
[7] As pledged in the Republic of Indonesia's enhanced Nationally Determined Contributions

designing safety procedures for well opening[8], and appointing external consultants to re-evaluate and improve OHS policy, to prevent a similar incident from happening again.

The Company also strives for its presence to improve the welfare of the local community. This is achieved by prioritising recruiting local workers and engaging with local vendors, especially from local villages within the study area. For example, Sorik Marapi recruits shift operator trainees locally to fulfil its commitment for human resources capacity development and many restaurants, shops, and lodging can be seen near Sorik Marapi's well pads and substations. Sorik Marapi also implements Corporate Social Responsibility (CSR) programs including training programs for making organic fertilizers, microorganisms and selecting rice seeds, scholarships for outstanding students, providing clean water facilities, and offering donations for mosque construction and tree planting.

2.3 Governance

It is essential that Sorik Marapi has a robust ESG governance structure in place to ensure that sustainability is effectively integrated across all its operations. Whilst the Board of Directors have ultimate responsibility for ESG, it is the Head of Geothermal Engineering (KTPB - Kepala Teknik Panas Bumi) who is responsible for implementing the Company's sustainability agenda and reviews potential ESG risks of planned projects and associated activities.

Additionally, Sorik Marapi has several governance policies in place like the Code of Conduct which has anti-bribery and corruption, environmental, and human rights policies integrated, as well as procurement guidelines that enable the Sorik Marapi to operate responsibly.

3. Green Finance Framework

Sorik Marapi has developed this Green Finance Framework (hereafter the "Framework") to facilitate the issuance of green bonds (including project bonds), green loans, green convertibles etc. ("Green Financing Instruments"). The establishment of this Framework allows Sorik Marapi to align its financing strategy with its sustainability strategy of increasing its installed geothermal energy capacity, which in turn will support the Republic of Indonesia's net zero objective.

An equivalent amount to the net proceeds raised by Green Financing Instruments issued under this Framework will finance and/or refinance, in whole or in part, eligible green projects[9] meeting the

[8] The well opening safety procedure that Sorik Marapi developed is segmented into (i) pre-opening, (ii) during well opening, and (iii) after well opening. Pre-opening, a range of activities including community socialization, safety briefings, well opening preparation and production facilities inspection would be carried out with the support of the Mandailing Natal Regency Government, usage of gas detectors and H_2S gas abatement system for detection and monitoring, usage of drones to monitor the perimeter of the well opening site. During opening, all workers who operate well opening activities are equipped with Self-Contained Breathing Apparatus (SCBA) to minimize risk and enable them to work safely in high-risk areas, and the community would be gathered in a safe area with 300m distance from the well pad. After opening, gas and fluid sampling is conducted from the opened well for detailed analysis.

[9] Cash is fungible meaning that an equivalent amount of net proceeds raised through a green financing instrument will be allocated to eligible green expenditures.

eligibility criteria defined under 'Use of Proceeds', which will enable Sorik Marapi to increase installed renewable energy capacity at its geothermal field.

The Framework was developed to communicate Sorik Marapi's Green Financing Instruments in a clear, comprehensive, and transparent manner, in accordance with the following principles:

- **The International Capital Markets Association's (ICMA) Green Bond Principles[10] (2021):** The Green Bond Principles (GBPs) are a voluntary framework intended to promote the role that global debt capital markets can play in financing progress towards environmental sustainability.

- **Loan Market Association's (LMA) Green Loan Principles[11] (February 2023):** The Green Loan Principles (GLPs) aim to promote the development of the green loan product by providing a recommended framework of market standards and guidelines for use across the green loan market, whilst allowing the loan product to retain its flexibility.

- **In addition, the Framework showcases alignment with some of the United Nations Sustainability Development Goals[12] (UN SDGs):** Sorik Marapi has conducted a mapping exercise in accordance with ICMA's guidance (June 2023) to indicate how each of the eligible green projects as defined in this Framework are contributing to the UN SDGs.

In alignment with the above Principles, Sorik Marapi's Framework is framed around the core components of the ICMA's GBP and LMA's GLP:

- Use of Proceeds
- Process for Project Evaluation and Selection
- Management of Proceeds
- Reporting
- External Review

Furthermore, outside of ICMA's GBP and LMA's GLP, Sorik Marapi, at its own discretion, may update this Framework from time to time for alignment with evolving best practices. Any updated version of this Framework will either maintain or improve the current levels of transparency and reporting disclosures, including the corresponding External Review.

3.1 Use of Proceeds

The net proceeds raised from any Green Finance Instrument issued under this Framework, or an equivalent amount, will in whole or in part, be allocated exclusively to new or existing projects that meet the criteria ('Eligible Green Projects') defined in the table below. Eligible Green Projects will refer to

[10] With June 2022 Appendix. Green-Bond-Principles-June-2022-060623.pdf (icmagroup.org)
[11] Green-Loan-Principles-February-2023
[12] Green-Social-and-Sustainability-Bonds-A-High-Level-Mapping-to-the-Sustainable-Development-Goals-June-2023-220623.pdf (icmagroup.org)

operational expenditures (opex) with a 36-month look back period prior to the issuance of the Green Finance Instrument. A look-back period is not defined for capital expenditures (capex).

GBP and GLP category	Eligible Green Projects	SDG mapping[13]
Renewable energy	Investments and expenditures related to the development, construction, and operation of geothermal sources, including[14]: – Geothermal electricity generation facilities with direct emissions of <100g CO2/kWh – Geothermal exploration – Geothermal transmission and supporting infrastructure	 

Eligible Green Projects that are involved in the following operations will in any case be ineligible as Use of Proceeds under this Framework:

- Activities that relate to fossil fuels
- Activities that relate to nuclear
- Activities that are deemed illegal under host country laws or international conventions and agreements, or subject to international bans

3.2 Process for Project Evaluation and Selection

Any potentially Eligible Green Projects to be financed and/or refinanced with Green Finance Instruments will be evaluated and selected by the Green Finance Working Group (GFWG). The GFWG will consist of the CFO, the General Manager of the SMGP Power Plant, and representatives from Legal and Compliance, HR and Services, Finance and Accounting, Stakeholders and Permitting, Corporate Communication, Maintenance and Facility, Construction, Corporate OHS, and Corporate Environment. The GFWG will meet on an annual basis to ensure projects meet the criteria set out above in section 3.1, Use of Proceeds.

The role of the GFWG is to:

- Annually review and validate the list of Eligible Green Projects against the eligibility criteria set out. If a project, no longer meets the eligibility criteria set forth in this Framework, the Eligible Project will be removed from the Green Finance Register and replaced as soon as a substitute has been identified;
- Validate annual reporting for investors;

[13] As per ICMA's 'High-level Mapping to the Sustainable Development Goals (June 2023). Green-Social-and-Sustainability-Bonds-A-High-Level-Mapping-to-the-Sustainable-Development-Goals-June-2023-220623.pdf (icmagroup.org).
[14] In accordance with the Climate Bonds Initiative's Geothermal criteria: Geothermal Energy | Climate Bonds Initiative

- Monitor on-going developments of the Green Bond Principles and Green Loan Principles, particularly in relation to disclosure and reporting, to align Sorik Marapi's approach with the voluntary guidelines;
- Review the framework to reflect any changes with regards to Sorik Marapi's sustainability; strategies and initiatives, at Sorik Marapi's discretion.

3.3 Management of Proceeds

Sorik Marapi's GFWG will manage the allocation of an amount equivalent to the net proceeds of its Green Finance Instruments.

Sorik Marapi will maintain a Green Finance Register, which contains the list of Eligible Green Projects as well as relevant information on all Green Finance Instruments issued, including issuance size, ISIN, pricing date, and maturity date. Sorik Marapi will ensure a level of allocation to the Eligible Green Projects matches or exceeds the balance of net proceeds of its outstanding Green Finance Instruments. Sorik Marapi will aim to fully allocate proceed within 24 months from issuance of each Green Finance Instrument on a best-efforts basis. If Eligible Green Projects no longer meet the eligibility criteria set out above or exit the register, bringing the Green Finance Register below the value of the outstanding Green Finance Instruments, Sorik Marapi will strive to replace these with Eligible Green Projects as soon as reasonably practicable.

Pending full allocation of an amount equal to the net proceeds of outstanding Green Financing Instruments, the unallocated proceeds will be held in temporary investments such as cash and cash equivalents as per Sorik Marapi's standard liquidity policy.

Environmental and Social Risk Management

Sorik Marapi has put in place a strong evaluation and selection process and risk management framework to ensure mitigation of potential environmental and social risks associated with the Eligible Green Projects. For example, Sorik Marapi has developed an environmental management system based on ISO 14001:2015 and ensures that certain procedures are undertaken in all operating activities such as environmental aspect-impact assessment (EAIA), geohazard assessments and H_2S gas abatement system for detection and monitoring in real time. Moreover, Sorik Marapi incorporates the views of the EBTKE and local stakeholders to further enhance mitigation plans regarding potential environmental and social issues. This is in addition to ensuring that further developments at Sorik Marapi meet applicable national and international environmental & social standards and regulations.

3.4 Reporting

To enable monitoring and provide insights into prioritised areas, Sorik Marapi will publish a Green Finance Report which will be publicly available on KS Orka's website within one year from the issuance of any Green Finance Instrument and will be updated annually, until full allocation, and in case of any material developments.

This reporting will consist of (i) the allocation reporting and (ii) the impact reporting.

Allocation Reporting

With the aim or providing disclosure on the allocation of proceeds, the allocation report will include:

- The size of the Eligible Green Register
- The total outstanding of the Green Finance Instruments issued under the Framework
    - The allocation of the proceeds towards the Eligible Green Register, including, when possible;
    - The list of eligible green projects (re)financed per category;
    - Descriptions of the Eligible Green Projects financed, such as project locations, amount allocated;
    - Selected examples of projects financed (e.g., case studies);
    - A breakdown of what is being financed (assets, capex, opex and investments);
    - Share of financing vs refinancing
- The balance of unallocated Proceeds

Impact reporting

The impact report will illustrate the estimated and observed environmental benefits of the Eligible Green Projects to which net proceeds of Green Finance Instruments have been allocated. Subject to data availability, impact reporting may cover the following impact reporting metrics listed below. Where possible, impact metrics will align with the suggestions made in the ICMA Harmonised Framework for Impact Reporting (June 2023)[15]. In addition, calculation methodologies and key assumptions will be disclosed.

GBP and GLP category	Indicative impact indicators
Renewable energy	− Annual GHG emissions emitted by the geothermal power plant in gCO_2e/kWh − Annual GHG emissions avoided in tCO_2e/year − Annual geothermal power generation in GWh − Capacity of geothermal plant in MW

3.5 External Review

Pre-Issuance

Sorik Marapi has appointed DNV to assess its Green FinanceFramework and its alignment with the ICMA's Green Bond Principles (2021) and LMA's Green Loan Principles (2023) and issue a Second

[15] icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Green-Social-and-Sustainability-Bonds-A-High-Level-Mapping-to-the-Sustainable-Development-Goals-June-2023-220623.pdf

Party Opinion (SPO) accordingly. The Second Party Opinion will be made publicly available on KS Orka's website.

Post-Issuance

Sorik Marapi intends to engage third-party reviewers to conduct an independent assessment on an annual basis on the alignment of the allocation and impact of funds with the Framework's criteria. The independent third-party report will be made publicly available on the KS Orka's website.

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