
Star Energy Geothermal Salak, Ltd and Star Energy Geothermal Darajat II Limited

Green Bond Framework



September 2020

Salak and Darajat's Green Bond Framework – September 2020

1. Introduction

1.1. General Background

Star Energy Geothermal Salak Ltd (“Salak”) and Star Energy Geothermal Darajat II Ltd (“Darajat”), both part of Star Energy Geothermal Pte Ltd (the “Group”), are leading geothermal energy producers in Indonesia.

Situated in Sukabumi, West Java province, Salak manages Indonesia's largest geothermal field¹ and is capable of producing 377MW of electricity. Located in Garut, also in West Java province, Darajat supplies geothermal energy and has an installed capacity of 271MW. Both Salak and Darajat geothermal fields are among the largest geothermal fields globally and were acquired by the Group in April 2017.

As of September 2020, Salak consists of six units supported by 75 production wells and 20 injection wells, of which electricity generation capacity is 197MW and steam sales capacity is 180MW, while Darajat has three units supported by 40 production wells and 3 injection wells, of which generation capacity is 216MW and steam sales capacity is 55MW. Salak and Darajat conduct geothermal operations through a joint operation contract with PT Pertamina Geothermal Energy and sell the electricity produced from the geothermal operations under a long-term energy sales contract to PT PLN (Persero), a state-owned utility company.

The Group envisions to manage and operate 1,200MW of geothermal assets by 2028, to fulfil its ambition of becoming the largest and leading geothermal company in the world. Its wholly-owned subsidiary – Star Energy Geothermal Wayang Windu Ltd (“Wayang Windu”) also manages a 277MW geothermal facility that is located in Pangalengan, West Java province. With 875MW of combined geothermal operations in Salak, Darajat and Wayang Windu, Star Energy Geothermal is currently the world's third largest and Indonesia's largest geothermal company.

1.2. Environment

Despite possessing the second largest geothermal resource in the world, fossil fuels have historically been, and currently remain, Indonesia's important source of energy for economic growth. Up until October 2018, coal was the largest contributor in power plant energy mix with 59.6% share. However, this figure is set to be reduced, as the Indonesia's Ministry of Energy and Mineral Resources aims to increase the share of renewable energy in its energy mix to 23% by 2025, up from 13% at 2017 level².

Star Energy Geothermal recognises the need to take climate action and is well positioned to spearhead the energy transition, having already three operational geothermal fields (Salak, Darajat and Wayang Windu) with 875MW of combined geothermal capacity and two geothermal projects in exploratory phase. Geothermal energy is clean with minimal greenhouse gases produced when harnessed. In addition, a key strength of geothermal

¹ R Pasikki, R Maria, F Abdurachman, C Peters. Potential Utilization of Idle Wells in Salak Geothermal Field, Indonesia. 2015.

² Ministry of Energy and Mineral Resources, Ministry of Finance. Indonesia's Effort to Phase Out and Rationalise Its Fossil-Fuel Subsidies. 2019.

energy compared to other sources of renewable energy is its ability to provide base-load power, ensuring energy reliability in the electricity grid.

Darajat Unit III facility has been registered as a Clean Development Mechanism project under the United Nations Framework Convention on Climate Change (UNFCCC)'s Kyoto Protocol, which generates Certified Emission Reductions (CERs). The significant result of this program is in its reduction of greenhouse gases, through the operation of a low-emission geothermal plant. Since December 2006, Darajat field has contributed a documented 6.2 million tons of CERs.

Both Salak and Darajat also received the ISO 14001:2015 certification in 2019 by meeting stringent requirements for an environmental management system, and were also recipients of the prestigious Subroto Award from the Ministry of Energy and Mineral in 2019 for strong environmental management and safety performances. Salak and Darajat were awarded the Green and Gold PROPER (Company Performance Rating Assessment Program in Environmental Management) from the Ministry of Environment and Forestry.

At Star Energy Geothermal, we see community development as not just a duty, but an opportunity to create inspiring positive impact. This perspective leads to a deep focus on sustainable value creation in the communities we serve, and is aligned with our commitment to creating a brighter future for Indonesia. Our core 3E of Environment, Economy and Education pillars approach ensures a holistic, 360-degree approach in creating meaningful positive impact.

1.3 Environmental Stewardship

Inspired by our commitment to clean energy and in support of the UN's Sustainable Development Goals, we at Star Energy Geothermal are constantly seeking ways to safeguard our environment and create a more sustainable future for generations to come. We firmly believe that geothermal and the natural world can not only co-exist but can encourage healthy, sustainable environmental practices.

From forest conservation and restoration, to collaborating with local community for freshwater access, we are proud of our ongoing efforts to develop thriving and resilient communities, in harmony with our natural world.

1.4 Economic Empowerment

From broad-based support for local farmers to focused capacity-building programs, Star Energy Geothermal plays a proactive role in growing lives and livelihoods and advancing economic equity and social inclusion. Star Energy Geothermal's economic empowerment pillar sharpens our focus on advancing socio-economic equity, including the creation of a sustainable food security program.

We work with local partners and independently to improve local and personal economies, supporting micro-enterprises, creating work opportunities, and financing local infrastructure. All to create and sustain lives and livelihoods in the communities we serve in our operational areas.

1.5 Educational Upliftment

At Star Energy Geothermal, we aim to educate rural youth and foster an educational ecosystem. It stems from our belief in education as the primary tool for social mobility, especially for children from disadvantaged backgrounds.

To date, we have provided over 1,600 scholarships to local students, including at the tertiary (university and vocational) level. To further our positive impact, we contribute to the building of schools and sporting facilities, and regularly distribute books, computers and stationery to communities at our operational locations. Our support for local teachers has seen over 200 teachers in Bogor and 100 in Garut benefit from upskilling and increased capacity building.

2. Green Bond Framework

The International Capital Markets Association (“ICMA”) Green Bond Principles (“GBP”) are a set of voluntary process guidelines recommending transparency and disclosure to promote integrity in the development of the Green Bond market by clarifying the approach for Green Bond Issuances. In addition, the ASEAN Capital Markets Forum (“ACMF”) published its own guidelines (ASEAN Green Bond Standards, “ASEAN GBS”) in November 2017, which were subsequently updated and enhanced in 2018, to ensure alignment with the latest ICMA GBP. Compared to the ICMA GBP, the ASEAN GBS aim to provide more detailed guidance on how the ICMA GBP are to be applied across ASEAN.

The Salak and Darajat’s green bond co-issuance will be governed by this Green Bond Framework, which is aligned with both the Green Bond Principles 2018², as well as the ASEAN Green Bond Standards³ and consists of the following five key pillars:

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

Salak and Darajat intend to update the Green Bond Framework periodically at their sole discretion to reflect developments in the best practices of the Green Bond Market.

2.1. Use of Proceeds

For Salak and Darajat’s inaugural issuance of Green Bonds in 2020, the net proceeds from the issuance of the Bonds (the “Green Bond Proceeds”), after deducting fees, commissions and other estimated offering expenses, are expected to be primarily used for the repayment all outstanding indebtedness under the Existing Senior Debt Facilities and the associated repayment expenses.

The estimated proportion of Green Bond Proceeds used for refinancing the Salak and Darajat geothermal assets vis-à-vis other purposes is 84% : 16%. The Existing Senior Debt Facilities

² Green Bond Principles 2018 website: <https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>

³ ACMF ASEAN Green Bond Standards website: <https://www.theacmf.org/initiatives/sustainable-finance/asean-green-bond-standards>

were incurred in December 2016 for the purposes of funding the acquisition of the Salak and Darajat geothermal assets, i.e. a look-back period of almost 4-years.

The balance of the proceeds will be used to fund the Debt Service Account and Major Maintenance Reserve Account, and for working capital requirements of the Salak and Darajat geothermal energy generation facilities. The amounts on deposit in the Debt Service Account will be used to fund the principal and interest payment obligations in respect of the newly issued inaugural Green Bonds, while the amounts on deposit in the Major Maintenance Reserve Account will be used to fund the ongoing major maintenance costs and capital expenditures of the Salak and Darajat geothermal energy generation facilities.

In case there should be any further Green Bond issuances under Salak and Darajat's Green Bond Framework in the future, the proceeds of those bonds will be only used to finance or refinance assets that fall under the following general category of Eligible Green Assets ("Eligible Green Assets"):

- **Geothermal Energy:** Development, construction and operation of geothermal energy generation facilities. To reduce the direct emissions of carbon dioxide resulting from the operational production of geothermal power plants, Salak and Darajat commit themselves to the highest industry standards by financing or refinancing only assets with direct emissions of less than 100 gCO₂/kWh and 35 mgH₂S/Nm³.

Additionally, for any further Green Bond issuances, Salak and Darajat will ensure that the estimated proportion of such Green Bond proceeds used for refinancing vis-à-vis financing will be clearly documented in the relevant publically available documents like the annual report, sustainability report or Green Bond Report.

The existing geothermal fields in the Salak and Darajat contract areas with a gross installed generation capacity of 271 MW and 377 MW, respectively, yield direct emissions of less than 100 gCO₂/kWh and 35 mgH₂S/Nm³. Both plants (inclusive of their steam generation capacity) can be considered as good low carbon alternatives, in particular in Indonesia's still highly carbon intensive grid.

The main inputs to the geothermal energy generation process are (i) geothermal steam; and (ii) brine, which comes from geothermal reservoirs. Production wells are drilled into the geothermal reservoirs to extract the naturally occurring hot fluid from underground. Depending on the type of reservoir, when this fluid is produced at the surface, it consists of either (i) pure steam (from vapor-dominated reservoirs like Darajat's); or (ii) a mixture of steam and brine (from liquid-dominated reservoirs like Salak's).

If the fluid is a mixture of steam and brine, it must first be passed through the resource production facilities, where separators use centrifugal forces and gravity to separate the steam from the brine, and then to the electricity generation facilities. If the fluid is pure steam, there are no separators and other brine-related facilities required.

In the electricity generation facilities, the steam is then directed at high velocity into a series of turbine blades, which drive the turbine shaft that is coupled to a generator. The electricity generated will then be delivered to an interconnection point, and then subsequently into the grid. As for the steam exhausted from the turbines, it will be condensed into liquid water and then injected back into the geothermal reservoir.

Additional information on the Salak and Darajat geothermal assets can be found under *1.1 General Background*.

Other asset categories that are complimentary to geothermal energy generation, or are of comparable environmental benefit, might be added within the scope of future amendments to the Green Bond Framework, however, only after prior approval by the Salak and Darajat Environmental and Social Impact Committee (as described under 2.2. *Process for Project Evaluation and Selection*).

Assets that are involved in the following operations will be in any case ineligible as Use of Proceeds of a Salak and Darajat Green Bond issuance:

- Oil and gas power plants;
- Clean coal or any other fossil fuel-related technologies;
- Nuclear and nuclear-related technologies;
- Large-scale hydropower plants;
- Infrastructure that facilitates the above forms of energy generation

2.2. Process for Project Evaluation and Selection

As described in 2.1. *Use of Proceeds*, the proceeds of Salak and Darajat's debut Green bond will be fully and entirely used for the refinancing of Salak and Darajat's geothermal plants, fund the Debt Service Account and Major Maintenance Reserve Account, pay associated repayment expenses, and for working capital requirements of the Salak and Darajat geothermal energy generation facilities.

Any subsequent Green bond issuances, projects, acquisitions or other assets that are aligned with the Use of Proceeds are generally eligible for Green Bond proceeds allocation and can be proposed by Salak and Darajat's Treasury Departments to be considered as eligible to Green Bond financing as laid out in this Green Bond Framework.

To underline its continued commitment to the highest environmental standards, Salak and Darajat will establish an Environmental and Social Impact Committee ("ESIC") in order to strengthen overall governance and oversee the Green Bond Framework.

As of 15 September 2020, on the direction of the Group Chief Executive Officer, the initial ESIC has been established with the following members:

- Chief Finance & Administration Officer;
- Chief Power Plant Operations Officer;
- Head of Financial Compliance & Treasury;
- Head of Safety, Health and Environmental;
- Head of Darajat Power Plant Operation;
- Head of Salak Power Plant Operation;
- Head of Facility Engineering; and
- Head of Policy, Government & Public Affairs

Further members of the ESIC may be appointed by the CEO or the Board of Directors, on the recommendation of existing Committee members. All further members appointed shall possess an adequate level of awareness of ESG matters to discharge their duties effectively and in the interests of Salak and Darajat.

The roles of the ESIC will be to:

- Select the Eligible Green Assets for the inaugural Green Bonds issuance

- After future preliminary project evaluation and selection from the Treasury Departments, validate the selection decision of the Eligible Green Assets based on the Green Bond Framework;
- Use its veto power to decline the final selection in case of mismatches between chosen projects and the Use of Proceeds identified; and
- Review annual reporting for all stakeholders, including investors.

The process of evaluating and selecting Eligible Green Assets will also be aligned to the Environmental Policies of Salak and Darajat. In particular, considerations will be given to Eligible Green Assets that can contribute towards the reduction in emissions of conventional air pollutants and greenhouse gases, improve energy efficiency and conservation, and / or the reduction of hazardous waste.

The ESIC will also be responsible for any potential future updates of the issuer's Green Bond Framework and, if there is no extraordinary reason, meet on a semi-annual basis to discuss any potential environmental and social impact issues related to the outstanding Green Bond(s).

2.3. Management of Proceeds

Salak and Darajat's ESIC will ensure the highest standards of governance when applying the proceeds of the Green Bonds issuance toward refinancing the identified Eligible Green Assets. For future potential Green Bonds after the inaugural transaction, Salak and Darajat shall allocate the Green Bond proceeds within 12 months to unencumbered Eligible Green Assets as selected by the ESIC. At any time of the lifetime of the Green Bonds, the outstanding amount of Green Bonds will not exceed the value of Eligible Green Assets.

All relevant details regarding the Green Bond issuances and Eligible Green Assets shall be kept in record in Salak and Darajat's internal accounting systems. Salak and Darajat will establish systems to monitor and account for the allocation of the proceeds. The proceeds of each Salak and Darajat Green Bond will be credited to the general funding account of the issuing entities.

Specific to the inaugural transaction, the proceeds of the Green Bonds will be deposited into a secured account in Singapore that is pledged to the lenders on the Existing Senior Debt Facilities, pending repayment of these Facilities. Upon successful repayment, the remainder of the proceeds will then be credited to the general funding account of the issuing entities.

In order to keep track of the use of proceeds for each Salak and Darajat issuance, the Treasury Departments will maintain a Green Bond Register (the "Register") and earmark the respective assets. The Register will contain – for each Salak and Darajat Green Bond issued – the following information:

- Details about the respective Salak and Darajat Green Bond such as:
 - Notional and amount outstanding;
 - Issue and maturity date;
 - ISIN
- Use of Proceeds:
 - Brief overview of project(s) refinanced / financed
 - Estimate of the asset(s)' beneficial environmental impact

Salak and Darajat has in place the respective systems and governance policies that ensure a technical implementation of the management of the Register under this Green Bond Framework.

Pending allocation, the net proceeds from Green Bond issuances may be temporarily invested or otherwise maintained in cash; cash equivalents; short-term investments that do not include greenhouse gas intensive projects which are inconsistent with the delivery of a low carbon and climate resilient economy; or used for other general corporate purposes in relation to the Salak and Darajat geothermal energy generation facilities.

In any case, unallocated proceeds will not be allowed to be invested in carbon-intensive investments or companies that do not meet the requirements of low-carbon and climate-adaptive economies.

2.4. Reporting

Salak and Darajat is committed to prepare and publish a Green Bond Report (the “Report”) on the Green Bond issuances on an annual basis, which will be made publicly available on Star Energy Geothermal’s website (www.starenergygeothermal.co.id).

Details of the report shall include:

- The total amount of outstanding Green Bonds;
- Examples of Eligible Green Assets financed or refinanced subject to confidentiality arrangements;
- Proportion of net proceeds allocated within each Eligible Green Asset category, as well as the balance of unallocated proceeds invested in liquid marketable instruments; and
- Proportion of net proceeds used for new financing versus refinancing.

As part of Salak and Darajat’s climate efforts to monitor environmental performance, the following impact metrics, subject to data availability and type of Eligible Green Assets, shall be disclosed in the Green Bond Report:

Geothermal Energy:

- Annual greenhouse gas emissions avoided (tonnes CO₂) versus baseline carbon emission of local energy grid, “Jamali”;
- Annual hydrogen sulphide emissions into the atmosphere (tonnes H₂S);
- Installed capacity of geothermal plants (MW); and
- Annual renewable energy generation (MWh).

For each annual Green Bond Report, Salak and Darajat intends to engage an external reviewer to provide independent verification on the reporting and management of proceeds of all Green Bonds issued in accordance with this Framework. Such external review reports will also be made publicly available on Star Energy Geothermal’s website (www.starenergygeothermal.co.id).

In addition to the Green Bond Report, Salak and Darajat will also, on a best efforts basis, look to publish a comprehensive Sustainability Report that discloses various other metrics (i.e. amount of water used, energy reduction achievements, etc.) and sustainability efforts on an annual basis going forward.

2.5. External Review

Salak and Darajat have appointed Carbon Trust Assurance Limited as a Second Party Opinion provider for the Green Bond Framework. The resulting Second Party Opinion is publically available on Star Energy's corporate website. Carbon Trust Assurance Limited will separately carry out post-issuance verification of Salak and Darajat's Green Bond Report.

Disclaimer

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