

‘Second Opinion’ on PT Sarana Multi Infrastruktur (Persero) (PT SMI)’s Green Bond and Green Sukuk Framework

24. April 2018

Summary

PT Sarana Multi Infrastruktur (Persero) (PT SMI)'s Green Bond and Green Sukuk Framework provides a structured, sound approach to green financing for “business activities that protect and/or improve the quality or function of the environment.” The eligible project categories detailed under this framework will forward the Government of Indonesia’s progress towards mitigation and adaptation targets. It has been designed to comply with the Indonesia Financial Services Authority (FSA) Regulation Concerning Green Bonds (Number 60/POJK.04/2017, referred to as POJK) and the ASEAN Green Bond Standards (2017), and aligns with the core components of ICMA’s 2017 Green Bond Principles.

The Framework includes six eligible project categories that cover renewable energy, energy efficiency, transportation, water and waste management. It excludes fossil fuel power generation and has taken a conservative stance against large hydro and biofuel from forest-based feedstocks. It does not exclude projects that include other forms of fossil fuels like transportation, construction, or manufacturing.

To date, PT SMI has not set corporate or project-level targets for environmental performance, nor does it yet have the internal capacity to measure and report on metrics most relevant for mitigation and adaptation impact reporting. PT SMI has however recently been approved as an accredited Direct Access Entity (DAE) to the Green Climate Fund (“GCF”), which establishes a baseline of capacity and due process for managing and reporting on climate finance. GCF accreditation requires demonstrated application of Environmental and Social Safeguards (ESS) policy, which frame the Environmental and Social Management System (ESMS), designed to assess levels of environmental and social risk. PT SMI has established a Sustainable Financing Division to oversee green projects. All new projects are screened according to PT SMI’s ESMS, as well as the eligibility and exclusionary criteria. Final project selection and approval is made by a consensus by a committee of senior-level representatives from the technical, legal, risk management, and financial divisions of the company.

PT SMI has identified seven existing projects deemed eligible for refinance under the project framework, and has provided transparent overviews of project sector, value, expected impact and identified environmental and social risk. These projects fall within the determined project categories and are expected to deliver net emissions reductions and positive environmental impacts. However, the Company’s established ESMS has not been applied retroactively to screen for additional risks. PT SMI does not expect to propose additional projects for refinancing under this framework and will focus on new projects moving forward.

The Company is currently in the process of development and issuing a sustainability report and building internal capacity to measure and report on greenhouse gas emissions from corporate operation and project implementation. The World Bank Group has reviewed the Green Bond Framework for its alignment with international best practices. PT SMI is building its capacity in green project selection, evaluation, monitoring, and reporting and developing safeguards for riskier project categories, where needed.

Based on the overall assessment of selection and evaluation criteria, governance policies, and reporting procedures, PT SMI’s Green Bond and Green Sukuk Framework is awarded the Medium Green shading. The framework will provide financing for implementation of important low emissions infrastructure in the energy and transportation

sector, as well as solutions to waste and water management challenges. This range of projects will support low emissions, climate resilient growth of the Indonesian economy, contributing to the Government of Indonesia's NDC and aligning with the UN's Sustainable Development Goals.



°CICERO

Medium Green

Contents

Summary	2
1 Introduction and background	5
Expressing concerns with ‘shades of green’	6
2 Brief Description of PT SMI’s Green Bond and Green Sukuk Framework and rules and procedures for climate-related activities	7
Use of Proceeds:	8
Project Evaluation and Selection:	9
Management of proceeds:	10
Reporting:	10
3 Assessment of PT SMI Green Bond and Green Sukuk framework and environmental policies	14
Overall shading	14
Eligible projects under the Green Bond and Green Sukuk Framework	14
Strengths	17
Weaknesses	18
Risks and Potential Pitfalls	18
Appendix: About CICERO	19

1 Introduction and background

As an independent, not-for-profit, research institute, CICERO (Center for International Climate and Environmental Research - Oslo) provides Second Opinions on institutions' framework and guidance for assessing and selecting eligible projects for green bond investments, and assesses the framework's robustness in meeting the institutions' environmental objectives. The Second Opinion is based on documentation of rules and frameworks provided by the institutions themselves (the client) and information gathered during meetings, teleconferences and e-mail correspondence with the client.

CICERO is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO has established the global Expert Network on Second Opinions (ENSO), a network of independent non-profit research institutions on climate change and other environmental issues, to broaden the technical expertise and regional experience for Second Opinions. CICERO works confidentially with other members in the network to enhance the links to climate and environmental science, building upon the CICERO model for Second Opinions. In addition to CICERO, ENSO members currently include Basque Center for Climate Change (BC3), International Institute for Sustainable Development (IISD), Stockholm Environment Institute (SEI), and Tsinghua University's Institute of Energy, Environment and Economy. A more detailed description of CICERO can be found at the end of this report. ENSO encourages the client to make this Second Opinion publicly available. If any part of the Second Opinion is quoted, the full report must be made available.

CICERO's Second Opinions are normally restricted to an evaluation of the mechanisms or framework for selecting eligible projects at a general level. CICERO does not validate or certify the climate effects of single projects, and thus, has no conflict of interest in regard to single projects. CICERO is neither responsible for how the framework or mechanisms are implemented and followed up by the institutions, nor the outcome of investments in eligible projects.

This note provides a Second Opinion of PT SMI Green Bonds Framework and policies for considering the environmental impacts of their projects. The aim is to assess the PT SMI Green Bond and Green Sukuk Framework as to its ability to support PT SMI's stated objective of promoting the transition to low-carbon and climate resilient growth.

This Second Opinion is based on the Green Bond and Green Sukuk Framework presented to CICERO by the issuer. Any amendments or updates to the framework require that CICERO undertake a new assessment. CICERO takes a long-term view on activities that support a low-carbon climate resilient society. In some cases, activities or technologies that reduce near-term emissions result in net emissions or prolonged use of high-emitting infrastructure in the long-run. CICERO strives to avoid locking-in of emissions through careful infrastructure investments, and moving towards low- or zero-emitting infrastructure in the long run. Proceeds from green bonds may be used for financing, including refinancing, new or existing green projects as defined under the mechanisms or framework. CICERO assesses in this Second Opinion the likeliness that the issuer's categories of projects will meet expectations for a low carbon and climate resilient future.

Expressing concerns with ‘shades of green’

CICERO Second Opinions are graded dark green, medium green or light green, reflecting the climate and environmental ambitions of the bonds and the robustness of the governance structure of the Green Bond Framework. The grading is based on a broad qualitative assessment of each project type, according to what extent it contributes to building a low-carbon and climate resilient society. The shading methodology also aims at providing transparency to investors when comparing green bond frameworks exposure to climate risks. A dark green project is less exposed to climate risks than a lighter green investment.

This Second Opinion will allocate a ‘shade of green’ to PT SMI’s Green Bond and Green Sukuk Framework :

- **Dark green** for projects and solutions that are realizations today of the long-term vision of a low carbon and climate resilient future. Typically, this will entail zero emission solutions and governance structures that integrate environmental concerns into all activities.
- **Medium green** for projects and solutions that represent steps towards the long-term vision, but are not quite there yet.
- **Light green** for projects and solutions that are environmentally friendly but do not by themselves represent or is part of the long-term vision (e.g. energy efficiency in fossil-based processes).
- **Brown** for projects that are irrelevant or in opposition to the long-term vision of a low carbon and climate resilient future.

The project types that will be financed by the green bond primarily define the overall grading. However, governance and transparency considerations also factor in, as they can give an indication whether the institution that issues the green bond will be able to fulfil the climate and environmental ambitions of the investment framework. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris Agreement. The overall shading reflects an ambition of having the majority of the project types well represented in the future portfolio, unless otherwise expressed by the issuer.

2 Brief Description of PT SMI's Green Bond and Green Sukuk Framework and rules and procedures for climate-related activities

PT SMI is an infrastructure financing company wholly owned by the Indonesian government and supervised by the Ministry of Finance. The national entity supports the Government of Indonesia's infrastructure development agenda by financing national or local infrastructure projects, project development, and serves as a project financing adviser. It also mobilizes various resources from bilateral/multilateral financial institutions and capital market instruments. PT SMI contributes to the sustainable development and climate resilience of the Indonesian economy and communities by financing infrastructure projects in the water, renewable energy generation, transportation, and irrigation. It also supports projects in other sectors such as oil and gas, tourism, education, hospital, and penitentiary facilities. It established a Sustainable Financing Division in early 2016, and is currently developing a sustainability report and building its Greenhouse Gas ("GHG") accounting capacity.

Indonesia has an extensive tropical landscape and seascape with high levels of biodiversity, carbon stock, energy and mineral resources scattered across a low-lying and small island archipelago, making it highly vulnerable to the impacts of climate change. In order to build climate resilience, the Government of Indonesia has committed to climate change mitigation and adaptation targets that will protect and sustain existing ecosystems and environmental services. Per the country's Nationally Determined Contributions (NDC)¹, 63% of national emissions are a result of land use change and peat and forest fires. The energy sector contributes 34.9% of emissions. The Government of Indonesia's mitigation targets include a 26% unconditional reduction of emissions and 41% conditional reduction of emissions by 2020. As part of national efforts to reach this goal, Indonesia intends to increase the share of renewable energy in the national energy portfolio to 23% by 2025. It has also issued a moratorium on clearing of primary forests and prohibited the conversion of remaining forests. On the adaptation front, the Government of Indonesia emphasizes community-based forest management; protection, restoration and rehabilitation of watersheds; and soil and water conservation through sustainable agriculture and land use.

In response to the Indonesian government's focus on low-carbon and climate resilience growth and in support of the initiatives to reach the country's NDC under the Paris Agreement, PT Sarana Multi Infrastruktur (PT SMI) has developed a Green Bond Framework as a way to promote green financing for "business activities that protect and/or improve the quality or function of the environment"². It has been designed to comply with the Indonesia Financial Services Authority (FSA) Regulation Concerning Green Bonds (Number 60/POJK.04/2017, referred to as POJK) and the ASEAN Green Bond Standards (2017), and aligns with the core components of ICMA's 2017 Green Bond Principles. The World Bank Group has reviewed the Green Bond Framework for its alignment with international best practices.

In addition to adhering to parameters laid out by the above standards and principles, the eligible project categories detailed under PT SMI's Green Bond Framework will forward the Government of Indonesia's progress towards mitigation and adaptation targets. However, PT SMI does not have its own organizational-level targets for

¹http://www4.unfccc.int/ndcregistry/PublishedDocuments/Indonesia%20First/First%20NDC%20Indonesia_submitted%20to%20UNFCCC%20Set_November%20%202016.pdf

² Indonesia Financial Services Authority (FSA) Regulation Concerning Green Bonds (Number 60/POJK.04/2017)

environmental performance at this time. The Company is currently in the process of development and issuing a sustainability report and has established a Sustainable Financing Division to oversee green projects.

PT SMI is an accredited Direct Access Entity (DAE)³ to the Green Climate Fund (“GCF”) which establishes a baseline of capacity and due process for managing and reporting on climate finance. PT SMI has been approved to deliver project management, grant management, and loans for small projects with moderate environmental and social risk under the GCF. Achievement of this accreditation requires demonstrated application of an Environmental and Social Safeguards (ESS) framework and guidelines that are aligned with relevant national laws and subject to periodic reviews. The ESS framework is referred to as the Environmental and Social Management Framework (ESMF) and the guideline is referred to as the Environmental and Social Management System (ESMS); they are designed to ensure that financed projects impart benefits to stakeholder communities or the environment.

The Company has committed to supporting activities that forward the Sustainable Development Goals (SDGs) and has identified 10 SDG objectives that are relevant to its current and expected project portfolio. These include 1. No poverty; 3. Good health and wellbeing; 6. Clean water and sanitation; 7. Clean and affordable energy; 8. Economic growth and decent work; 9. Industry, innovation and infrastructure; 10. Reducing interzonal gap; 11. City and community sustainability; 13. Climate action and 15. Life on the ground.

Use of Proceeds:

Green bond or sukuk proceeds under the framework will be used to finance or refinance new and existing projects which “should have clear environmental benefits, promote the transition to low carbon and climate resilient growth, and aim to conserve, preserve, and/or improve the qualities and functions of the environment.” PT SMI has laid out criteria for eligible and ineligible projects.

Eligible project categories, outlined in detail in section 3, include renewable energy, energy efficiency, sustainable pollution management and prevention, sustainable natural resources and land use management, clean transportation, and sustainable water and sewage management.

Projects ineligible for finance or refinance under this framework include fossil fuel and nuclear power generation, construction of roads and toll roads, in addition to as the following categories: production or trading of any products or activities considered illegal, arms and ammunition; alcoholic beverage production and trading (excluding beer and wine); tobacco; gambling/casinos; radioactive material; unbonded asbestos; driftnet fishing in the marine environment by using more than 2.5 km nets; forced or child labor; commercial logging operations for use in primary tropical forest; production or trade in wood or other forestry products other than from sustainably managed forests; or activities that destroy critically endangered habitats. PT SMI has an Exclusion List in the framework that is drawn from the Guideline for Project ESMS, as well as Indonesian FSA green bond regulations and the ASEAN Green Bond Standards.

PT SMI has identified seven existing projects that are eligible for refinance under the first green bond issuance for this framework. The Company has provided a review of the sector, scope, location, value, identified environmental risks, and reporting metrics, where possible. The seven existing projects proposed for refinance include five mitigation projects and two adaptation projects. Of the mitigation projects, three will develop low emissions mass transportation system in the form of light rail transit, and two will develop mini hydro power plants. The two

³ <https://www.greenclimate.fund/-/pt-sarana-multi-infrastruktur?inheritRedirect=true&redirect=%2Fhow-we-work%2Ftools%2Fentity-directory>

adaptation projects will develop a water treatment plant and irrigation systems. PT SMI does not expect to propose additional projects for refinancing under this framework and will focus on new projects moving forward.

PT SMI also provided details for one new pipeline project, a co-power generation power plant, proposed for financing under the first green bond issuance.

Project Evaluation and Selection:

Projects proposed under this framework will be evaluated on financial viability as well as environmental and social risks; all new projects are screened according to PT SMI's ESMS⁴, as well as the eligibility and exclusionary criteria. Five divisions within PT SMI will be responsible for conducting due diligence, project approval review, and technical monitoring of environmental and social risk management throughout the project cycle. These divisions include the Corporate Development and Management Initiative (which reports directly to the President Director of PT SMI), the Environmental and Social Safeguard (ESS) Division (which reports to the Risk Management Director), the Financing and Investment Division, the Legal Division and Finance Division.

The outlined process for project selection is as follows:

1. the Business Unit prepares the list of existing and pipeline projects.
2. The Corporate Development and Management Initiative division builds the underlying basket of eligible green projects from the list of tagged projects using the eligibility and exclusionary criteria.
3. The ESS Division checks compliance with ESS framework. In the case of specific environmental issues, the ESS Division can call on environmental consultants and multilateral development agencies to provide support and expertise.
4. The final list is approved by consensus by a team comprising senior managers and directors, including the Chief Financial Officer, from the Corporate Development and Management Initiative, the Financing and Investment Division, the Sustainable Finance Division, the Legal Division and the Finance Division to ensure that selected projects are in compliance with the Indonesian Green Bond Regulations (POJK) and the green bond framework. This committee of senior managers is held accountable for the selection, evaluation, and approval of projects under the green bond framework.

The ESS team monitors environmental and social risks and supervises interventions throughout the project life cycle.

The Environmental and Social Management System (ESMS) guidelines are intended as a reference for the Company in conducting financing and investment activities, project development, and consulting service provision. They contain guidance for implementation of occupational health and safety measures as well as environmental and social risk management.

The ESMS has three risk categories: low, medium and high; the Project ESMS Guidelines provide detailed criteria for each risk category. Environmental and Social Due Diligence (ESDD) assessments are conducted for projects considered high or medium risk. ESDDs are conducted by an ESMS officer, the Business Division and – when necessary – an environmental consultant. The ESDD process considers licensing, air management, water and liquid management, waste management, hazardous material management, biodiversity management, and potential natural disaster management. The resulting report flags risk factors and a Corrective Action Plan (CAP) that will

⁴ <https://www.ptsmi.co.id/wp-content/uploads/2017/08/Project-ESMS-Guidelines.pdf>

help the project address the risk factors; fulfillment of the CAP is audited and verified within one year of project signing.

Management of proceeds:

The proceeds from each green bond will be allocated and managed by the Finance Division following recommendations from the business units (Financing and Investment Division and Sustainable Finance Division). The Finance Division will track allocation of proceeds within its internal management system, noting a brief description of the projects, the regions in which the projects are located, and amount of proceeds allocated to projects.

PT SMI has confirmed that 100 percent of green bond proceeds will be used to finance eligible projects. The proceeds can be used to finance or refinance eligible projects; PT SMI will report an estimate of the share of financing versus re-financing, and clarify which eligible projects may be refinanced. However, the Company does not expect to refinance more projects than the initial seven identified for the first green bond issuance at this time. The framework allows a look-back period of two years for re-financed projects.

The Finance division and other supporting divisions will be responsible for the issuance process and management of proceeds. The Business units (Financing and Investment Division and Sustainable Finance Division team) will ensure that the proceeds are used in accordance with the framework.

Pending allocation, net proceeds from the sale of the notes may be invested in cash, cash equivalents and/or marketable securities, in accordance with PT SMI's fund management policies. PT SMI has informed us that funds will be fully allocated within one year. Per the Indonesian FSA green bond regulations, if the audited yearly impact report indicates that the green bond has failed to meet promised impact, the holders of the green bond may request that the issuer a.) repurchase the green bond; and/or b.) to compensate in the form of coupon increases on the green bond.

Reporting:

Per the Indonesian FSA regulations, PT SMI will publish an annual report for the portfolio, to be made available on the website, as long as there are outstanding green bonds issued under the framework. The report will be reviewed by a senior-level team comprising Financing and Investment, Sustainable Finance, Corporate Development and Initiative Management, and Legal and Finance Divisions. It will include, at minimum, the following:

- A list of projects to which green bond proceeds have been allocated,
- A brief description of the projects,
- The total amount signed,
- The amount of proceeds allocated to the projects, and
- The expected environmental impacts of projects (where relevant and possible).

The Indonesian FSA regulations requires the calculation and reporting of the benefit impact of projects for the environment. Accordingly, PT SMI is building its internal capacity to measure and report on greenhouse gas emissions for projects, and will include reduction of GHG emissions as impact reporting metrics for renewable energy, energy efficiency, and clean transportation projects. The company has confirmed that they will build capacity to measure and report on impact metrics, such as for water and waste projects, as requested by investors.

In order to ensure compliance, PT SMI will mandate annual external auditors/environmental experts to provide assurance on the environmental credentials of projects, allocation of net proceeds and alignment with the green bond framework. The auditors' report will be attached to the annual report and disclosed publicly.

PT SMI will establish a page on its public website to make the following publicly available:

- Key information about the green bond program and framework, including project selection criteria;
- Independent second opinion of the green bond framework and selected projects;
- Monitoring of compliance with governance, environmental and social aspects, as well as any safeguard and risk assessment documentation.

The table below lists the documents that formed the basis for this Second Opinion:

Document Number	Document Name	Description
1.	PT SMI Green Bond and Green Sukuk Framework	The green bond and green sukuk framework
2.	PT SMI Corporate ESMS Guidelines	Description of PT SMI's Environmental and Social Management System with a focus on the company's offices and operations
3.	PT SMI ESMS Exclusion List	A list of excluded activities approved by the risk management sub-committee
4.	PT SMI Financing Procedure	Outlines due diligence process for new projects. Includes approach to ESS.
5.	PT SMI Multilateral Project ESS Guidelines	These Multilateral Project ESS Guidelines contain guidance on implementing occupational health and safety as well as environmental and social risk management, related to financing and investment activities, project development, and consulting service provision by using Multilateral Fund and/or based on Multilateral Cooperation. Use the following as legal basis: International rules and/or standards, such as IFC Performance Standards, The World Bank Safeguard Policies, ADB Safeguard Policy Statements (SPS), as well as other international institutions and Indonesian legal provisions.

6.	PT SMI Project ESMS Guidelines	Description of PT SMI's Environmental and Social Management System for financing and investment, project development, and the provision of consultation service provision, including a risk classification process. Contains guidance on implementing and managing occupational health and safety as well as environmental and social risks.
7.	Green Bond Underlying Projects	Presentation of the projects to be financed by the first issuance, their key environmental benefits and risk. Includes 7 projects from their existing portfolio and one pipeline project.
8.	PT SMI GCF Accreditation	PT SMI accreditation to the Green Climate Fund
9.	Introduction to PT SMI	Overview of their portfolio, goals, and investment opportunities. Links the mission and capacity to the SDGs
10.	Organizational Structure	Organization chart showing hierarchy, departments, and lines of accountability. Sustainable financing team is under Project Development and Advisory director who reports to the President Director.
11.	Indonesia MOF Energy Fiscal Policy	Comprehensive overview of Indonesia's energy sector and fiscal policy for energy supply and demand.
12.	Highlight Sustainability Report of PT SMI	Highlights from PT SMI's forthcoming sustainability report
13.	ASEAN Green Bond Standards	An overview of the definitions and criteria set by ASEAN for green bonds
14.	Indonesia Green Bond Standards (POKJ)	Detailed review of regulations for green bonds in Indonesia
15.	ESMS Implementation Flowchart	Flow chart showing steps and persons accountable for the review of proposed projects moving through PT SMI's ESMS

16.	ESDD Project #1 – Rentang_Titap Irrigation	A review of occupational safety and environmental impact risks for a project proposed for refinance under the first green bond issuance
17.	ESDD Project #4a – Cipasauran Dam	A review of occupational safety and environmental impact risks for a project proposed for refinance under the first green bond issuance
18.	ESDD Project #4b – Cipasauran Dam	A review of occupational safety and environmental impact risks for a project proposed for refinance under the first green bond issuance
19.	ESDD Project #5 – Mini Hydro Lubuk Gadang	A review of occupational safety and environmental impact risks for a project proposed for refinance under the first green bond issuance
20.	ESDD Project #7 – LRT Jabodebek	A review of occupational safety and environmental impact risks for a project proposed for refinance under the first green bond issuance
21.	ESDD Project #8 – Rolling Stock LRT Jabodebek	A review of occupational safety and environmental impact risks for a project proposed for refinance under the first green bond issuance

Table 1. Documents reviewed

3 Assessment of PT SMI Green Bond and Green Sukuk framework and environmental policies

The framework and procedures for PT SMI's green bond and green sukuk investments are assessed and their strengths and weaknesses are discussed in this section. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects, whereas the weaknesses are typically areas that are unclear or too general. Pitfalls are also raised in this section to note areas where issuers should be aware of potential macro-level impacts of investment projects.

Overall shading

PT SMI's Green Bond and Green Sukuk Framework provides sound guidance and policy for selection, implementation, and reporting of climate-friendly investments. Based on the project category shadings detailed below and careful consideration of the supporting governance structure, we rate the framework **medium green**. The framework will provide financing for implementation of important low emissions infrastructure in the energy and transportation sector, as well as solutions to waste and water management challenges. This range of projects will support low emissions, climate resilient growth of the Indonesian economy, contributing to the Government of Indonesia's NDC and aligning with the UN's Sustainable Development Goals.

Eligible projects under the Green Bond and Green Sukuk Framework

At the basic level, the selection of eligible project categories is the primary mechanism to ensure that projects deliver environmental benefits. Through selection of project categories with clear environmental benefits, green bonds aim to provide certainty to investors that their investments deliver environmental returns as well as financial returns. The Green Bonds Principles (GBP) state that the "overall environmental profile" of a project should be assessed and that the selection process should be "well defined".

Category	Eligible project types	Green Shading and potential concerns
Renewable energy	<ul style="list-style-type: none"> • Generation and transmission of energy from renewable energy sources, including offshore and onshore wind, solar, tidal, hydropower under 10 MW, and geothermal. • Research and development of products or technology (R&D) for renewable energy generation, 	<p>Dark green</p> <ul style="list-style-type: none"> ✓ By excluding biomass, the issuer ensures that no projects involving peat will be financed under this framework. ✓ It is possible that some projects may include an element of deforestation. However, per PT SMI's governance structures and Indonesian regulations, projects that may impact any of twenty

	including turbines and solar panels.	<p>classifications of protected area including forest areas, national parks, and reserves, are required to go through an Environmental Impact Assessment (AMDAL) and the resulting Corrective Action Plan.</p> <ul style="list-style-type: none"> ✓ Geothermal energy is a part of the 2050 solutions; however, some studies have found that there can be considerable emissions and potential for heavy metal pollution associated. The issuer has informed us that safeguards for emissions from geothermal are being developed with technical support from a reputable bilateral/multilateral financial institution. ✓ Consider emissions from construction, land use change, and mass deposits. ✓ Renewable energy projects can have potentially negative impacts on biodiversity.
Energy efficiency	<ul style="list-style-type: none"> • Improvement of the energy efficiency of infrastructure, which results in an energy consumption of at least 10% below the average national energy consumption of an equivalent infrastructure. • Research and development of products or technology (R&D) and their implementation that reduces energy consumption of underlying assets, technology, products or systems, including LED lights, improved chillers, improved lighting technology, district heating, smart grids, and reduced power usage in manufacturing operations. 	<p>Light green</p> <ul style="list-style-type: none"> ✓ Efficiency gains sometimes lead to rebound effects; take care to mitigate this. ✓ Only directly associated expenditure (e.g. installation of LED lighting) is eligible for financing.
Sustainable pollution management and prevention	<p>Management of land pollution and waste:</p> <ul style="list-style-type: none"> • Waste treatment and decontamination 	<p>Medium to dark green</p> <ul style="list-style-type: none"> ✓ Incineration with energy recovery is a sound environmental and climate friendly option to divert waste away

	<ul style="list-style-type: none"> • Waste prevention • Waste-to-energy activity 	<p>from landfills. However, burning plastics and other materials can release toxic emissions and contaminants into the surrounding atmosphere. A dark green rating would require paring with ambitious recycling programs.</p>
Sustainable natural resource and land use management	<ul style="list-style-type: none"> • Irrigation systems 	<p>Medium green</p> <ul style="list-style-type: none"> ✓ Irrigation projects can overdraw fresh water supply, thereby threatening drinking water sources and fragile ecosystems. As an archipelago facing sea level rise, adaptation measures to assess and protect potable water systems and availability should inform and accompany irrigation projects.
Clean transportation	<ul style="list-style-type: none"> • Developing clean transportation systems (electric transportation, hybrid vehicles, light rail transit, mass rapid transit) • Transportation network upgrade to higher climate resilient design standards 	<p>Medium green</p> <ul style="list-style-type: none"> ✓ Both electric and fossil fuel-driven transportation technologies can be financed. Locking in emissions and obsolete technologies is a conc. The largest amount of carbon savings come from switching from inefficient modes of transport (e.g. private cars) to mass transit. However, because hybrid vehicles and mass transit both support continued dependence on fossil fuels and thereby present transition risks to investors, we see them as bridging technologies and not part of a 2050 scenario.
Sustainable water and sewage management	<ul style="list-style-type: none"> • Waste minimization, collection, management, recycling • Rehabilitation of landfill areas • Water treatment plants and distribution networks • City drainage networks 	<p>Dark green</p> <ul style="list-style-type: none"> ✓ Climate-friendly water management strategies for cities include bioswales, green roofs, rainwater catchment systems, and rain gardens. We encourage use of green infrastructure

for adaptation over grey infrastructure, where possible.

Table 2. Eligible project categories

Strengths

PT SMI adheres to the Indonesian Financial Services Authority (FSA) green bond regulations in addition to the ASEAN Green Bond Standards and ICMA's Green Bond Principles. Per the Indonesian FSA's regulations, if the audited yearly impact report concludes that the green bond has failed to meet the expected environmental performance, the issuer has one year to meet expectations. Thereafter, the investor has the option to either request to the issuer to buy back or request to step up the coupon. This measure protects the investor from underperforming projects.

PT SMI's framework has been reviewed by the World Bank Group for its alignment with international best practices, and the organization was recently approved as an accredited Direct Access Entity to the Green Climate Fund. The GCF accreditation requires the project selection process to include an assessment of environmental aspects, including emissions reduction potential for mitigation projects and number of beneficiaries for adaptation projects. PT SMI is building internal capacity to measure and report on GHG emissions, and will build capacity to measure and report on other environmental indicators such as for water and waste projects, as required by investors.

PT SMI has an established Environmental and Social Safeguards policy that cleared the GCF accreditation process and ensures all new projects go through the Environmental and Social Management System (ESMS) for screening; the Sustainable Finance division was established to oversee implementation of the ESMS. This process involves representatives from legal, financial, and technical sides of the organization which ensures that project risks are considered from every angle. The process has demonstrated that it effectively flags environmental concerns, and results in issuance of a Corrective Action Plan.

PT SMI has confirmed that 100 percent of green bond proceeds will be used to finance eligible projects, exceeding Indonesian Financial Services Authority's Green Bond Standards which only require that 70 percent of proceeds are used for eligible projects.

In the renewable energy project category, PT SMI has excluded biomass, which protects investors from exposure to projects that are affiliated burning peat. For geothermal projects, PT SMI has a safeguard in place for geothermal government drilling schemes and is currently working to develop a new ESMF safeguard for state-owned and private drilling schemes. Finally, PT SMI has excluded large hydro, defined as any hydro project above 10 MW, from eligibility under this framework which reduces investor exposure to environmental concern in the form of flooded or otherwise disrupted ecosystems, threats to biodiversity conservation, and emissions from construction and operation.

The Company has a thorough and transparent reporting plan, which will be reviewed by an auditor. In addition, the issuer is committed to seeking technical assistance to verify impacts and respond to investor requests for impact metrics.

Weaknesses

No significant weaknesses were perceived in this review.

Risks and Potential Pitfalls

To date, PT SMI has not set corporate or project-level targets for environmental performance, nor is it standard practice to consider life cycle or supply chain analysis in project selection and evaluation. The company has indicated that the recently established Sustainable Finance division will be responsible for setting baselines and targets, and measuring and reporting progress against both.

Although there is a demonstrably effective process for flagging environmental concerns and identifying mitigation actions through a Corrective Action Plan, there is currently no requirement that mitigation actions identified in the CAP – except for procurements of permits required by Indonesian law – be fulfilled before contracts are signed and projects launched. According to PT SMI, measures identified in the CAP are given a deadline usually between 3 and 6 months past project signing. This delayed response to environmental concerns introduces the risk of projects incurring environmental damage that is difficult to remediate.

PT SMI has selected seven existing projects for refinance with the first green bond issuance under this framework. For four of these seven projects, no environmental and social risk assessment was conducted prior to the loan agreement; for one of them, limited environmental and social risk assessment was conducted – mainly on the corporate level - prior to agreement. These projects have not been reviewed by the current ESMS, nor will the projects be assessed retroactively. PT SMI has flagged some environmental concerns in the process of preparing the Environmental and Social Due Diligence (ESDD) report for each project. We encourage PT SMI to follow up on the risks flagged in the ESDDs and address concerns proactively.

PT SMI does not exclude fossil fueled infrastructure from other sectors such as transportation or manufacturing from financing under this framework. This presents a risk of locking in long-term emissions and extending dependence on obsolete technologies, which presents a transition risk to investors.

Waste incineration with energy recovery is a sound environmental and climate friendly option to divert waste away from landfilling. However, because of the risk of toxic emissions released from burning plastics and other materials, this energy generation technology is best combined with ambitious recycling policies. When the capacity of waste incineration is high, there might be an incentive to burn waste for energy purposes instead of recycle it, which can offset gains made from the technology; it is therefore particularly important to invest in and promote plastics recycle programs in parallel with waste-to-energy.

Capacity to identify, measure and report impact metrics is still nascent, although the Company has committed to addressing this and is working closely with a reputable bilateral/multilateral financial institution to build capacity, as needed.

Appendix: About CICERO

CICERO Center for International Climate Research is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international climate cooperation. We collaborate with top researchers from around the world and publish in recognized international journals, reports, books and periodicals. CICERO has garnered particular attention for its work on the effects of manmade emissions on the climate and the formulation of international agreements and has played an active role in the UN's IPCC since 1995.

CICERO is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO received a Green Bond Award from Climate Bonds Initiative for being the biggest second opinion provider in 2016 and from Environmental Finance for being the best external review provider (2017).

CICERO Second Opinions are graded dark green, medium green and light green to offer investors better insight in the environmental quality of green bonds. The shading, introduced in spring 2015, reflects the climate and environmental ambitions of the bonds in the light of the transition to a low-carbon society.

CICERO works with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions. Led by CICERO, ENSO is comprised of trusted research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University and the International Institute for Sustainable Development (IISD). ENSO operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

cicero.oslo.no/greenbonds

