



RATCH Group Public Company Limited ("RATCH")

Green Financing Framework

September 2020



Contents

Section 1	Introduction to RATCH	1
1.1)	Company Overview.....	1
1.2)	Sustainable Environmental Management.....	2
1.3)	Sustainable Development Strategies and Approach	4
1.4)	RATCH’s Portfolio (as of Q2/2020)	6
Section 2	Sustainable Development Policy	7
2.1)	Environmental, Social, and Governance (“ESG”) Policy.....	7
2.2)	Greenhouse Gas (“GHG”) Emission Reduction Milestone.....	8
2.3)	Greenhouse Gas (“GHG”) Emissions Target Identification.....	8
Section 3	Green Financing Framework	9
3.1)	Use of Proceeds	10
3.1.1)	Eligible Green Project Categories	10
3.1.2)	Exclusions	12
3.2)	Process of Project Evaluation and Selection	12
3.3)	Management of Proceeds	13
3.4)	Reporting	13
3.4.1)	Allocation report.....	14
3.4.2)	Impact report.....	14
Section 4	External Review	14
Section 5	Amendments to this Framework	15

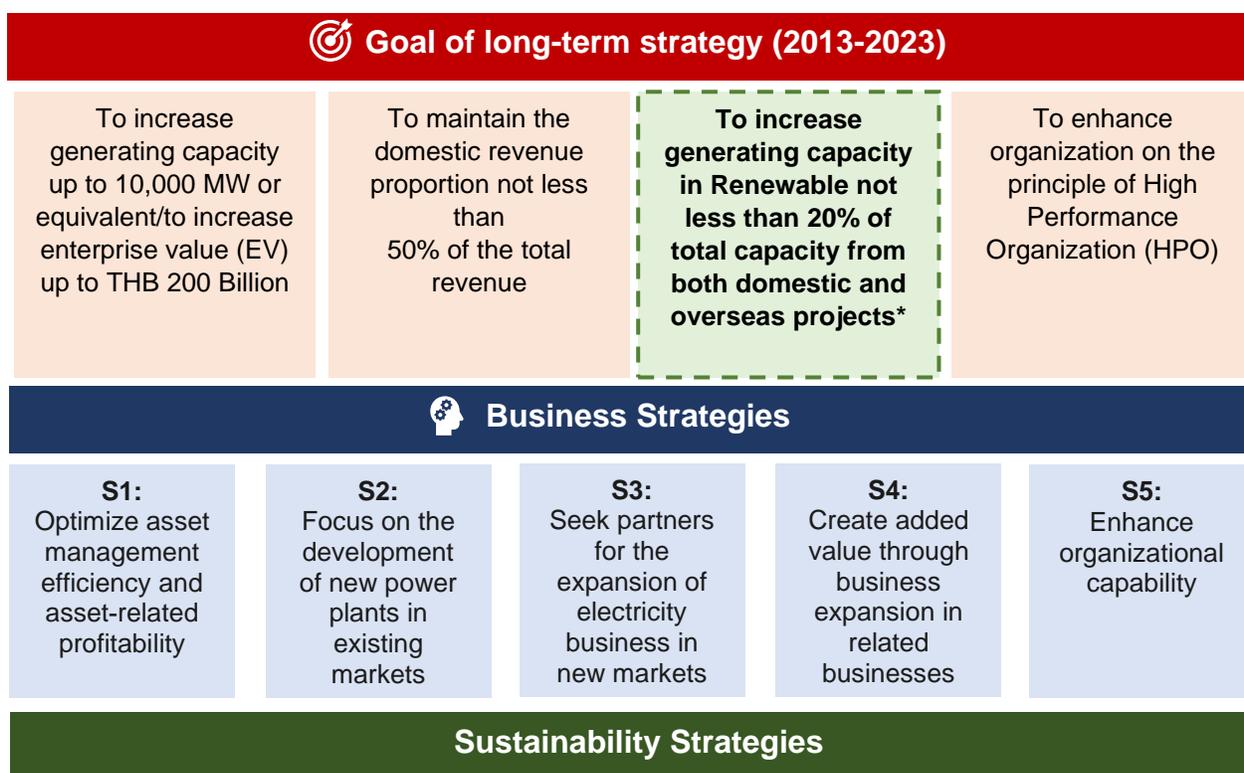
Section 1 Introduction to RATCH

1.1) Company Overview

RATCH Group Public Company Limited (“RATCH” or “Company”) (formerly named as Ratchaburi Electricity Generating Holding Public Company Limited) was founded in March 2000 and listed on the Stock Exchange of Thailand (“SET”) in November 2000. The company is a leading Independent Power Producer in Thailand; primarily involved in the construction, development and operation of power plants in Thailand, Laos, Vietnam, Australia, Indonesia and China



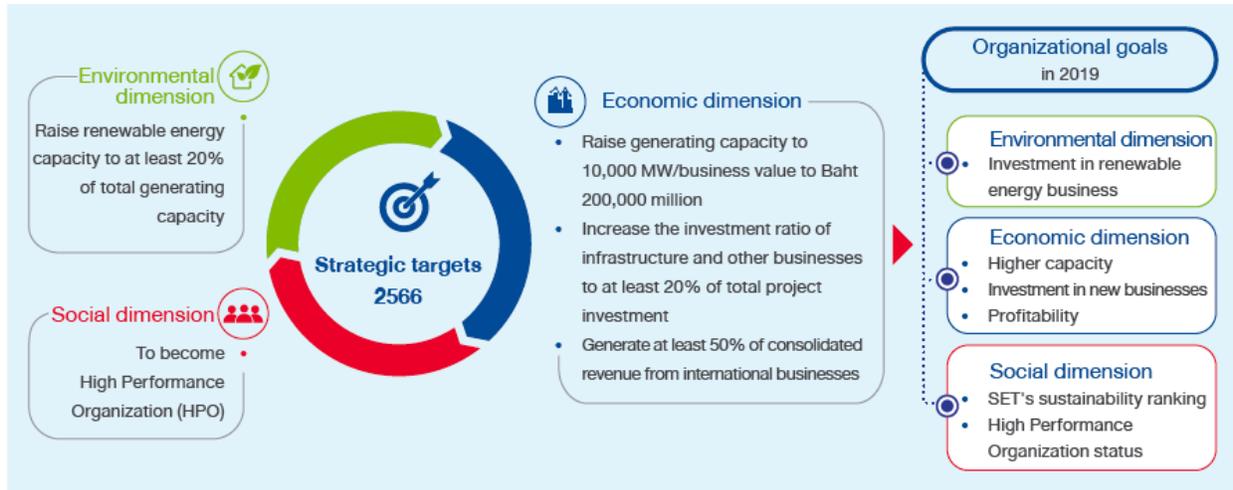
Led by its vision, the Company maps out 5 long-term strategies to achieve this goal. The strategy is integrated with the 6 sustainability strategies specified in the corporate sustainable development policy, to guide the Company in growing economic value and benefiting society and the environment.



* The Company is in consideration to increase generating capacity in Renewable from not less than 20% to not less than 25% of total capacity from both domestic and overseas projects

-  Executives and employees follow regulations on occupational health, safety, security, as well as social and environmental responsibility
-  Operate businesses that benefit society; ensure occupational health and safety of employees, suppliers and community; prevent impacts on communities; control and reduce GHG in production process; and protect ecosystem and biodiversity

The monitoring and assessment of strategy effectiveness is carried out through the following inside and outside tools



1.2) Sustainable Environmental Management

In managing the environment, the Company adopts legal measures as well as the preventive and mitigation measures specified in the Environmental Impact Assessment(EIA) and applies international-standard measures, to assure community, customers, end-users and relevant stakeholders that the Company's electricity is environmental-friendly to the environment and community and supports the United Nations Sustainable Development Goals.



The Company outlines environmental responsibility principles in Corporate Sustainability Development Policy to define sustainable business guidelines

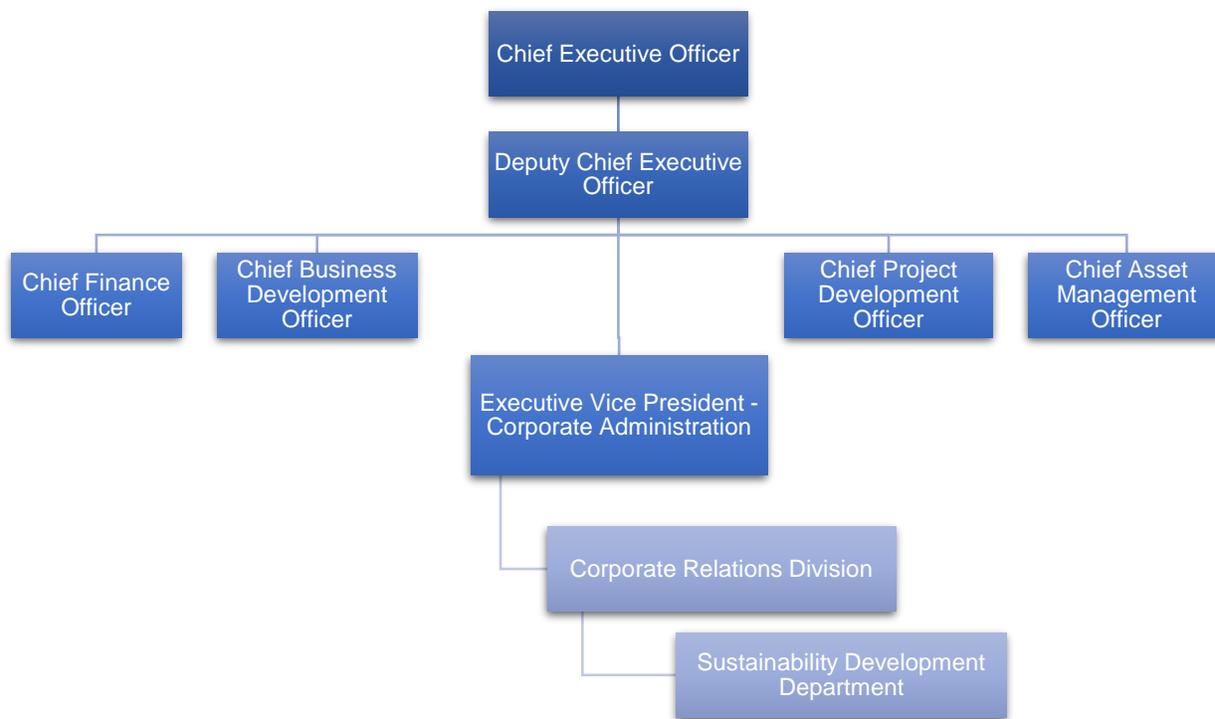
- Ensure environmental and biodiversity management meet relevant laws and regulations; invest in, develop and improve the environmental management system; and seek new measures and approaches to lift the management efficiency and better control the environmental quality.
- Invent and seek approaches to reduce resource and energy consumption and the emission of pollutants, waste and GHG, to prevent, control and reduce impacts on the environment, community and society as best as possible.
- Set the targets of GHG emission, power generation and business operations; define the approach to assess climate-changed risks and impacts on the operations and business; seek measures to reduce GHG emission; and search for mitigation measures for stable and sustainable business growth.

The Company’s corporate governance is overseen by a number of board sub-committees, which include Risk Management Committee, Audit Committee, Corporate Governance and Social Responsibility Committee, Investment Committee and Human Resources and Remuneration Committee in upholding morals, ethics and integrity coupled with best management and governance practices as well as efficient and effective internal control is a key in promoting sustainable business and maintaining leadership.

To demonstrate our long-term commitment for sustainability development, the Sustainability Development Department was set up to promote and ensure the sustainability development concepts be applied to various operating process and disclose the relevant information to our stakeholders.



RATCH 's Organization chart as of August 2020



1.3) Sustainable Development Strategies and Approach

Under the policy, guidelines on the economy, society, the environment and corporate governance are formulated to achieve the goals of each dimension and hence attain the organizational sustainability. In 2018, significant targets of each dimension and operation guidelines are summarized below:

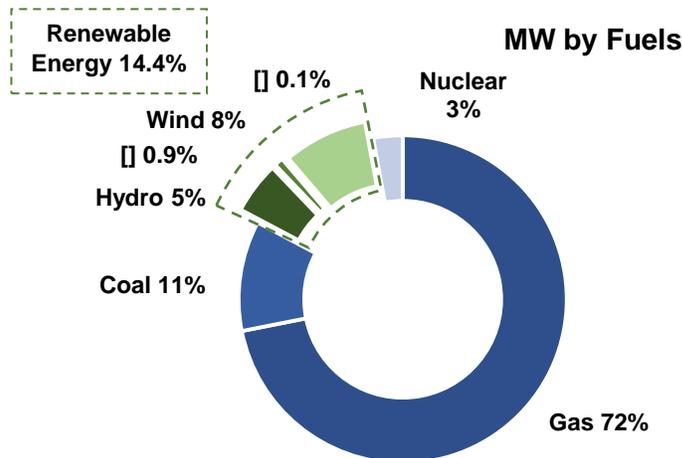
Environmental Dimension	
Goal	Minimizing environmental impacts deriving from generation and business operations
Key aspects	<ul style="list-style-type: none"> • Standardized environmental management • Water management • Usage of resources • GHG management and adaptation • Waste management

<p>Operation guidelines</p>	<ul style="list-style-type: none"> • Analyze environmental impacts on the quality of air, water, waste and biodiversity, to identify preventive and management measures which must be strictly complied • Select and install efficient power-generating technologies that can lower energy and resources consumption and control pollutants emission in line with the emission standard • Pursue methods to improve power plant efficiency and energy efficiency, as well as cutting down energy consumption at power plants and Head Office to reduce GHG emissions • Invest in renewable energy and promote energy saving in community, to reduce GHG. Welcome community participation in the discussion on environmental concerns and the pursue of mutual solutions, to reduce conflicts
<p>Social Dimension</p>	
<p>Goal</p>	<p>Seeking stakeholders' trust and acceptance</p>
<p>Key aspects</p>	<ul style="list-style-type: none"> • Fair and equitable treatment of stakeholders • Caring of community and society • Respect to human rights • Safety, occupational health and pleasant working environment management for employees and suppliers • Enhancement of organizational competitiveness and employee engagement
<p>Operation guidelines</p>	<ul style="list-style-type: none"> • Open up, listen, and regularly foster relations with stakeholders with transparency, sincerity, and equitability • Respect human dignity and accept the differences in values, faiths, religions, cultures and traditions of communities and societies • Generate and deliver goods (electricity) with agreed quality and quantities as an assurance to customers and strengthen the national energy security • Formulate safety and security measures to prevent losses and accidents among employees, contractors, and neighboring communities as well as our business • Promote work-life balance in the premises and develop a merits-based human resources management system along with the improvement of employees' capacity and ability for their professional prosperity
<p>Economic Dimension</p>	
<p>Goal</p>	<p>Driving corporate values and power generation to support overall economic and social development</p>

Key aspects	<ul style="list-style-type: none"> • Organizational strategies and goals • Generation efficiency management to satisfy customers' demands • Supplier management (regarding environment and safety) • Management of the supply chain and long-term business partnership • Management of enterprise and project-level risks
Operation guidelines	<ul style="list-style-type: none"> • Explore investment opportunities in energy and infrastructure businesses and enhance the value generation of assets, for creating shareholders' returns and shared value in the business chain • Pursue long-term partnership with business partners and suppliers in the supply chain, to strengthen competitiveness • Exercise transparent, accountable and equitable criteria on supplier selection and procurements • Assess economic, environmental, social, and good governance risks and define relevant preventive and mitigation measures for such risks • Take into account safety, environmental and social issues in the business decision-making process
Corporate Governance	
Goal	Becoming a transparent, fair, and accountable organization
Key aspects	<ul style="list-style-type: none"> • Corporate governance • Morality and business ethics • Culture of integrity and responsibility • Organizational management
Operation guidelines	<ul style="list-style-type: none"> • Comply with the laws governing RATCH's businesses and across its business chain • Assess corruption risks, define preventive and control measures as well as monitoring the application of these measures • Amend internal control mechanism and corporate regulations to always be compatible with situations while minimizing governance-related risks • Cultivate corporate values focusing on morality, ethics, integrity and responsibility through RATCH's mechanisms, work processes and activities • Treat employees and stakeholders fairly and equitably and refrain from any violation or discrimination

1.4) RATCH's Portfolio (as of Q2/2020)

To achieve the Goal "To increase generating capacity in Renewable not less than 20% of total capacity from both domestic and overseas projects", the Company has enthusiastically explored the potential renewable energy businesses where suitable and strengthen Company's portfolio. As of Q2/2020, the Company's portfolio (including projects in pipeline) of 8,178 MW contains 14.4% of renewable energy projects.



MW by Fuels	
Gas	5,879
Coal	888
Hydro	419
Solar	72
Wind	680
Biomass	4
Nuclear	236
Total	8,178

Section 2 Sustainable Development Policy

2.1) Environmental, Social, and Governance (“ESG”) Policy

By 2023, the Company targets to increase its renewable energy portfolio of not less than 20% of total capacity. RATCH has consistently implemented environment conservation and rehabilitation and enhancement of people’s quality of life. The projects have initiated based on adoption of the late King Rama IX’s philosophy on sustainability and the United Nations Sustainable Development Goals. The long-term flagship project is set to promote community forest management and strengthen community to rehabilitate and conserve national forests.



Set Award 2019 – “Rising Star” in Sustainability Excellence among Listed companies



SET Awards 2019 – Rising Star” in Sustainability Excellence



Sustainability Disclosure Award 2019 recognized by Thaipat Institute



Thailand Sustainability Investment: THSI 2019

The Company emphasizes on sustainable growth through a balance in economic, social and environmental dimensions under international standard governance practices. The Company was 1 of 98 listed companies in Thailand Sustainability Investment (THSI) 2019, the fifth consecutive year in a row. In the announcement of the SET Awards 2019. The Company won “Rising Star” Sustainability Excellence Award, among listed companies with market capitalization between Baht 30,000-100,000 million. It also gained sustainability assessment scoring 94 points which were higher than the previous year and remained in the industry’s Top Quartile. Aside, its sustainability report, which was recognized “Outstanding” in 2013 and “Excellent” in 2017, won the top prize of Sustainability Disclosure Award in 2019. The Company has also been recognized for its social and environmental programs.

With the will of creating sustainable business, the Company in determination to preserve the CG Score at the “Excellent” level (5 Stars). This had been evidenced by its CG Score in 2019 was rated excellent (5 Stars), based the Thai Institute of Directors Association’ Corporate Governance Report of Thai Listed Companies (CGR) assessment.

2.2) Greenhouse Gas (“GHG”) Emission Reduction Milestone

RATCH applies the Carbon Footprint for Organization Scheme's methodology in assessing the organization's GHG emissions. The assessment results are used to plan GHG reduction measures, covering business operations and the production process. Focus is placed on a cut in energy consumption at power plants and offices, which are significant GHG generators. In return for carbon credits, supporting activities and innovations are registered for Thailand Voluntary Emission Reduction (T-VER) scheme Thailand Greenhouse Gas Management (Public Organization)'s or TGO. The Company also supports GHG reduction at community level, through social activities designed accordingly to TGO’s Low Emission Support Scheme (LESS).

In 2019, RATCH maintained its focus on 3 approaches: GHG reduction, GHG removal and adaptation for climate change impacts driven by an increase in GHG.

2.3) Greenhouse Gas (“GHG”) Emissions Target Identification

Aside from a goal to accelerate the replacement of fossil fuels by renewable energy, RATCH is enhancing production efficiency through a cut in resources, energy conservation, promotion of community energy-conservation projects, and the conservation of forests for GHG removal.

RATCH's main business is to generate electricity as contracted by Electricity Generating Authority of Thailand (“EGAT”) and all power plants must meet the National Central Center’s requirements in terms of generating capacity and energy sources. It also set a base target accordingly to the guidelines proposed on 28 March 2019 by Thailand Greenhouse Gas Management (Public Organization), the Office of Natural Resources and Environmental Policy and Planning, the Energy Policy and Planning Office, and EGAT. The base target¹, CO2 Intensity (CI) was set at

¹ Year 2010

0.4945 tCO₂e/MWh when natural gas is used as fuel. In 2019, actual GHG emissions compared to net generated electric power were lower than the target as tabulate below.

Power plant	Fuel	Fuel consumption (mcbf)	Net electric power (MWh)	CI 2010 (tCO ₂ e/MWh)	CI 2019 (tCO ₂ e/MWh)	Emission Reduction: ER (tCO ₂ e)
Ratchaburi Power Plant	Natural Gas	113,205.70	13,183,041.89	0.4945	0.4914	41,157.72
Tri Energy Power Plant ²		2,071.15	240,631.50	0.4945	0.4925	477.08

Volume of reduced GHG from commercially operated renewable projects.

Source of energy	Unit: tCO ₂ e equivalent/year
Wind power	702,310
Solar power	100,144
Hydropower	254,627
Biomass	17,334

Section 3 Green Financing Framework

In order to achieve the commitments described above, and green financing that will deliver environmental benefits to support RATCH's vision, goals and sustainability strategies, RATCH has decided to create a Green Financing Framework and will make publicly available on RATCH's website.

The Green Financing Framework articulates how RATCH intends to raise Green Debentures, debentures or loans to finance or refinance new and existing projects with environmental benefits

This Green Financing Framework ('the Framework') is developed in alignment with the following guidelines:

- the Green Bond Principles ("GBP"), issued by the International Capital Market Association (ICMA) in June 2018³;
- the ASEAN Green Bond Standards ("GBS"), issued by the ASEAN Capital Markets Forum (ACMF) in October 2018⁴ and;
- the Green Loan Principles ("GLP") issued by the Loan Market Association (LMA) in May 2020.⁵

² Decommissioning in June 2020

³ In alignment with ICMA Green Bond Principles, June 2018, <https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>

⁴ In alignment with ACMF Green Bond Standards, October 2018, <https://www.theacmf.org/initiatives/sustainable-finance/asean-green-bondstandards>

⁵ In alignment with LMA Green Loan Principles, May 2020, <https://www.lsta.org/content/green-loan-principles/>

Below is a detailed disclosure of the Company's approach to four core components:

1. Use of proceeds
2. Process for project evaluation and selection
3. Management of Proceeds
4. Reporting

Green financing instruments issued under this Framework may take the form of private placements issued under RATCH's MTN Programme. The Company will aim to adhere to best practices in the market and will review the Framework's alignment to updated versions of the Green Bond Principles, Green Bond Standards and Green Loan Principles as and when they are released. As such, this Framework may be updated and amended in the manner described in Section 5 ("Amendments to this Framework") below.

The RATCH Green Financing Framework also follows the recommendations of the ICMA Green Bond Principles / LMA Green Loan Principles / ASEAN Green Bond Standards regarding "External Review".

3.1) Use of Proceeds

RATCH is committed to disclose the relevant Eligible Green Projects to be utilized for the respective Green Bond to be issued. The net proceeds of Green Financing instruments will be used to finance or refinance in whole or in part any Eligible Green Projects as defined below and may include new projects with disbursements after the issuance of the Green Financing instrument or existing projects with commercial operation (or acquisition closing) starting not earlier than 24 months before the issuance date of the respective instrument. The portion of the respective issuance that is not yet allocated to Eligible Assets at such time will be disclosed separately.

3.1.1) Eligible Green Project Categories

Eligible Green Projects include projects or assets in the following eligible categories:

Eligible Green Categories	Alignment with ASEAN / ICMA GBP	Eligible Projects Description	Alignment with UN SDGs / Environmental Benefit
<p>Renewable Energy</p> 	<p>Renewable Energy</p>	<p>Expenditures to support the development, installation, operation and connection of renewable energy, including:</p> <ul style="list-style-type: none"> • Wind power • Solar power • Biomass power⁶ • Hydropower under 25 MW⁷ 	 
<p>Clean Transportation</p> 	<p>Clean Transportation</p>	<p>Engineering design and construction, machinery and electrical systems, operation and maintenance of MRT Pink Line (Khae Rai-Min Buri) and MRT Yellow Line (Lat Phrao-Sam Rong), green transport projects, which promote clean transport services and modal shift towards public transportation, including Mass Rail Transport systems and Electric Vehicle infrastructure</p>	 
<p>Information & Communications Technology</p> 	<p>Energy efficiency</p>	<p>Investment in an installation of fiber optic network and related equipment to be used in communication cable relocation projects supported by the Government, covering potential areas in Thailand. The projects will create the network of the future, energy consumption reduction, more efficient and cleaner with a positive effect on environmental and society. The design and/or installation of fibre optic network and technology that are designed</p>	 

⁶ Only eligible when does not deplete existing terrestrial carbon pools, does not compete with food production, is not grown in areas of high biodiversity, and when facilities produce GHG emissions that are below 100gCO₂e/kWh

⁷ Hydropower under 25 MW which have either a lifecycle carbon intensity of ≤100gCO₂/kWh or power density ≥ 5W/m².

		to reduce energy consumption or mitigate GHG which is consistent with RATCH's goals.	
<p>Water Management</p> 	<p>Sustainable water and wastewater management</p>	<p>Improvement in water supply infrastructure in order to increase efficiency and accessibility of water delivery system</p>	  

3.1.2) Exclusions

For the avoidance of doubt, any expenditure related to the following activities will be excluded from Eligible Green Projects:

- Fossil fuel power generation projects;
- Large scale hydropower plants (>25MW capacity);
- Generation of nuclear power;
- Biomass plants, waste to energy power plants and geothermal plants with CO₂ emission level of more than 100g CO₂ /kWh
- Child labour
- Forced labour

3.2) Process of Project Evaluation and Selection

For the governance of RATCH's Green Financing Framework, the Company has set up a Green Debentures Committee ("Committee") consisting of the following members:

- Relevant unit within the Group Sustainability functions
- Relevant treasury functions
- Relevant business units
- Relevant unit within the business risk organisation
- Relevant unit within the Legal functions

The selection of Eligible Projects, evaluating and screening projects is the responsibility of the Committee. The decision as to the selection of Eligible Projects will be documented and maintained.

The Committee will select Eligible Green Projects that meet the criteria for use of proceeds described above. Projects must also comply with all applicable laws and regulations, and the Company's policies and guidelines.

The Committee will review and approve annually the projects complying with the environmental objectives and falling under one or more of the use of proceeds projects categories outlined above.

The Committee will review the allocation of the proceeds annually to ensure maximum allocation of Green Debenture proceeds and facilitate ongoing Green Debenture reporting.

Additionally, the Committee will carry out an analysis of climate and environmental issues specific to each investment decision. The Financial Planning Department will control and validate the allocation of the proceeds to Eligible Green Projects.

3.3) Management of Proceeds

RATCH anticipates Green Debentures will be issued in connection with a specific Eligible Green Projects and the allocation and tracking of the Green Financing instrument proceeds will be done by the Committee. The net proceeds of Green Financing instruments will be transferred to the dedicated green finance account of RATCH. The Company has a well laid internal tracking system which shall be used to monitor, establish and account for the allocation of the proceeds for such Eligible Green Projects. The balance of the net proceeds will be periodically adjusted to match allocations to Eligible Green Projects made during the life of the financing instruments. If for any reason some projects are no longer eligible, RATCH will use its best efforts to substitute such projects as soon as is practical, once an appropriate Eligible Green Project for substitution has been identified by the Committee.

Pending the full allocation of the net proceeds to Eligible Green Projects, any unallocated funds will be managed per RATCH's policy, at its own discretion and invested in temporary liquid instruments (cash and/or invest in other short-term liquid instruments). RATCH will aim to fully allocate the proceeds to the Eligible Green Projects within 2 years of Issue date.

Any interest and investment income earned on the above mentioned separately designated cash and investment accounts can be applied to defray costs incurred for the Eligible Green Projects and/or any reasonable administration costs associated with the management and administration of the Green Debentures.

3.4) Reporting

RATCH plans to disclose the allocation of the amount equal to the net proceeds, on an annual basis starting one year from the first Green financing instrument issuance, until the full allocation of the net proceeds to Eligible Green Project Portfolio, and as necessary in the event of any material changes. The report will be made available to investors on RATCH's website. The Company plans to disclose examples of Green Debenture Projects that have been financed or refinanced by the net proceeds of Green Debentures where appropriate and subject to confidentiality arrangements.

3.4.1) Allocation report

Where feasible, the Committee will aim to report the following information:

- The percentage of an amount equal to the net proceeds allocated to Eligible Green Projects (% financed by Green Debentures)
- The percentage of financing/refinancing of projects
- Descriptions of the projects including country/location
- Balance of the unallocated proceeds

3.4.2) Impact report

Where feasible, the Committee will aim to report annually on the estimated environmental and social impacts arising from the implementation of the Eligible Green Projects.

In case of co-financing, the Committee will aim to report on the pro rata share of impact or provide the share of financing from Green Financing instrument proceeds as a percentage of total project financing if total project impact is being reported.

The impact reporting will also provide information on the methodology and assumptions used for calculation of the impact metrics.

Examples of impact metrics that could be disclosed:

Eligible Green Categories	Examples of impact indicators
Renewable Energy	<ul style="list-style-type: none"> • Expected annual renewable energy generation (MWh/y) • Reduced and/or avoided GHG emissions (in t. CO_{2e} /year)
Clean Transportation	<ul style="list-style-type: none"> • Number of passengers per year and • Amount of CO₂ emission reductions per year
Information & Communications Technology	<ul style="list-style-type: none"> • Annual amount of energy saved (MW) • Reduced and/or avoided GHG emissions (in t. CO_{2e} /year) • # of people benefited
Water Management	<ul style="list-style-type: none"> • Million of cubic meters • # of people and cities served • # of additional people and cities served

Section 4 External Review

RATCH plans to engage a Second Party Opinion Provider or an external reviewer to provide the assessment on the alignment of the allocation of funds with Framework’s criteria until the full allocation of the proceeds. The verification report will be made available to investors on the relevant section of RATCH’s website.

Section 5 Amendments to this Framework

The Committee will review this Framework on a regular basis, including its alignment to updated versions of the Green Bond Principles, Green Bond Standards and Green Loan Principles, as and when they are released, with the aim of adhering to best practices in the market. Such review may result in this Framework being updated and amended. The updates, if not minor in nature, will be subject to the prior approval of RATCH and the independent third party viewer. Any future updated version of this Framework that may exist will either keep or improve the current levels of transparency and reporting disclosures, including the corresponding review by an External Reviewer. The updated Framework, if any, will be published on RATCH's website and will replace this Framework.