ERM

Bauhinia

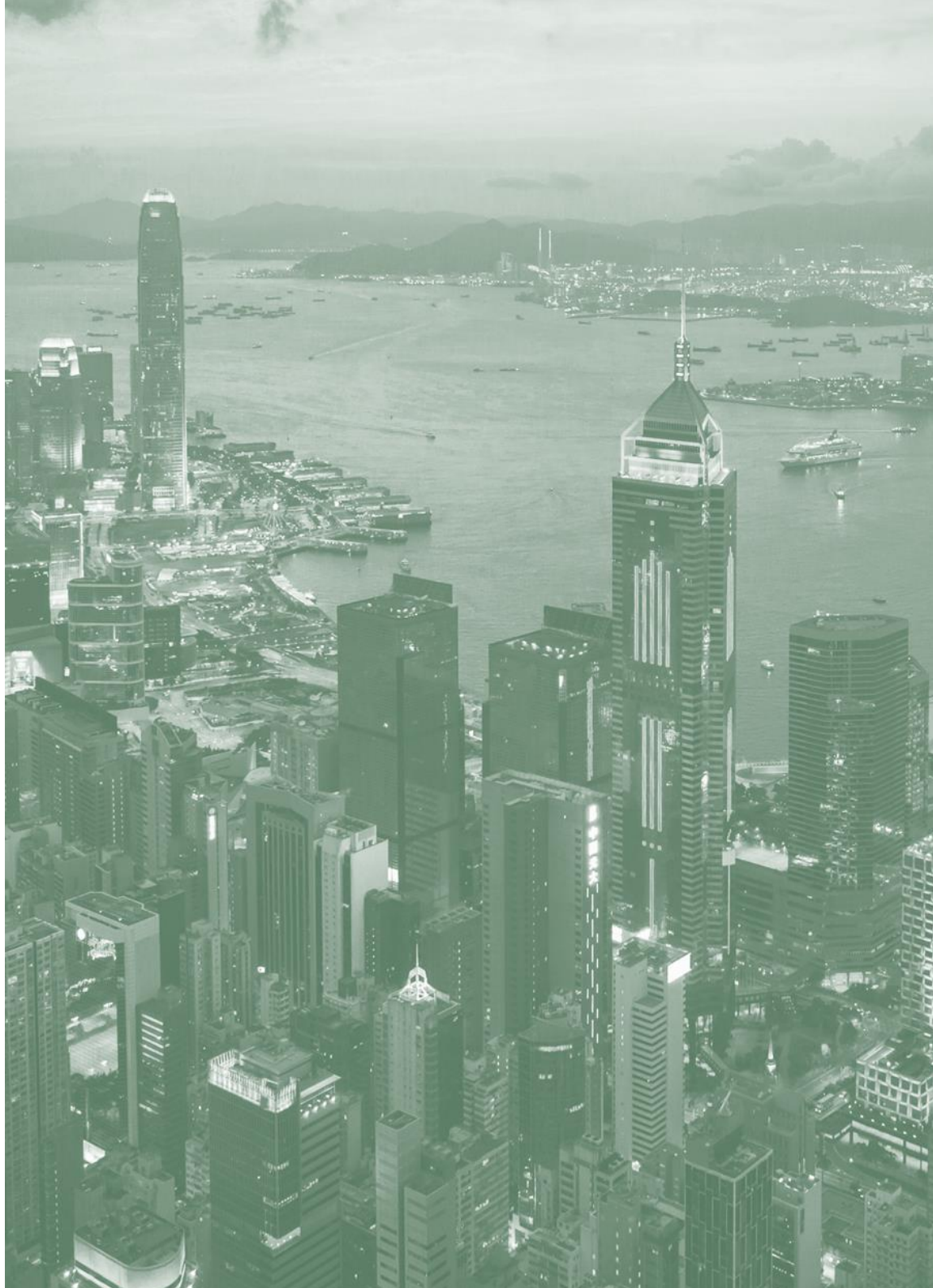
ILBS 2 Limited

Pre-issuance Impact Report

For the sustainable assets included in the Sustainability Tranche of the Bauhinia ILBS 2 Limited Note issuance

Final Impact Assessment Dated 11 September 2024

Elaborated for 香港按揭證券有限公司 The Hong Kong Mortgage Corporation Limited



About ERM

ERM is the world's largest advisory firm focused solely on sustainability, offering expertise across business and finance, operating in more than 70 jurisdictions with over 8,000 employees worldwide.

Our diverse global team of experts works with the world's leading organisations to help them set clear sustainability targets, measure progress, and operationalise strategy through deep implementation and business transformation. Within its Sustainable Finance practice, ERM has evaluated over 300 financial instruments for sustainability, including green, social, and sustainable bonds, sustainable investment funds, and goal-linked instruments.

With more than 50 years of experience, our ability to integrate sustainability solutions and our depth and breadth of technical knowledge are why organisations choose to partner with us as their trusted advisor.

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Abbreviations

CO_2	Carbon Dioxide
EF	Emission Factor
FCC	Federal Communications Commission
GEF	Grid Emission Factor
GHG	Greenhouse Gas
HKMC	The Hong Kong Mortgage Corporation Limited
ICMA	International Capital Market Association
ICT	Information and Communications Technology
IFI	International Financial Institution
Issuer	Bauhinia ILBS 2 Limited
OM	Operating Margin
PCAF	Partnership for Carbon Accounting Financials
PV	Photovoltaic
UAE	United Arab Emirates

1. Introduction

1.1 About this Report

This report was prepared by Environmental Resources Management (S) Pte Ltd ("ERM") and provides details of The Hong Kong Mortgage Corporation Limited's ("HKMC") second ILBS issuance, Bauhinia 2, and the composition of its Sustainable Asset Portfolio as of August 2024, which comprises companies and projects from several countries that are eligible and in line with the HKMC's Social, Green and Sustainability Financing Framework ("Framework"), available here. The Bauhinia ILBS 2 issuance and its sustainability tranche are managed in accordance with the Framework, which is a structured approach that outlines how HKMC can raise funds through financial instruments like bonds or loans to support projects and initiatives that deliver social, environmental, and sustainability benefits. The Framework includes criteria for selecting eligible projects/assets, guidelines for managing the proceeds, and methods for reporting on the impact and outcomes of these projects/assets. Its purpose is to ensure that the raised proceeds are used in a transparent and accountable manner to achieve positive social and environmental impacts. All bond(s) and asset-backed securities via public issuance and private placement issued under the Framework are fully aligned with the key pillars of the ICMA Green Bond Principles (June 2021 and appendix 1 updated by ICMA in June 2022), Social Bond Principles (June 2021 and appendix 1 updated by ICMA in June 2022) & Sustainability Bond Guidelines (June 2021). Therefore, they are referred as Sustainable Financing Instruments. Both the Framework and the ILBS issuance have been externally reviewed by leading ESG consultancy firms, that have issued a Second Party Opinion (SPO) to attest credibility and impact.

1.2 About The Hong Kong Mortgage Corporation

The Hong Kong Mortgage Corporation Limited ("HKMC" or "The Group"), incorporated since March 1997, is wholly owned by the Government of the Hong Kong Special Administrative Region of the People's Republic of China (the "HKSAR Government") through the Exchange Fund. The Group has three wholly owned subsidiaries: HKMC Insurance Limited, HKMC Annuity Limited and HKMC Mortgage Management Limited. HKMC's mission is to promote stability of the banking sector, wider home ownership, development of the local debt market and development of retirement planning market in Hong Kong.

The Group is committed to operating and carrying on business in a responsible and sustainable manner while applying high standards of corporate governance. This commitment is embedded in the way it operates, serves its customers, accounts to its stakeholders, cares for its staff, manages its impact on the environment and contributes to its community.

To formulate and implement its ESG strategy, the Group has established the ESG Committee (ESGC) to lead the Group's sustainability efforts and oversee ESG management as part of the Group's overall business strategy. The ESGC is responsible for reviewing, approving, and updating the Group's ESG strategy, policies, and plans, monitoring the ESG trends and issues that are material to the Group and overseeing the implementation of the Group's ESG strategy. It will also evaluate the performance of the Group in achieving its ESG-related goals and targets.

2. The Bauhinia ILBS 2 Limited's Structure

2.1 The HKMC's Social, Green and Sustainability Financing Framework

As a public sector entity and one of the major debt issuers in Hong Kong, the HKMC launched the Framework in September 2022, as an extended effort for the HKMC to expand and implement its sustainability strategy as an integral part of its business strategy. HKMC uses the Framework as the basis to structure and issue green, social and/or sustainability bond(s) and asset-backed securities via public issuance and private placement, to support the growth of assets or projects with environmental and/or social benefits.

HKMC structured its Framework following the four components of the ICMA Principles, a set of guidelines developed by ICMA to promote the integrity and efficiency of the international capital markets. They include the following key guidelines:

- Green Bond Principles (GBP): Guidelines for the issuance of green bonds, which are financial instruments intended to fund projects with clear environmental benefits.
- Social Bond Principles (SBP): Guidelines for the issuance of social bonds, which aim to finance projects with positive social outcomes, such as poverty reduction or public infrastructure improvements.
- Sustainability Bond Guidelines (SBG): Guidelines for the issuance of sustainability bonds, which combine both environmental and social benefits in their project funding.

These guidelines aim to provide transparency, disclosure, and reporting standards to support the credibility and comparability of green, social, and sustainability bonds. The key principles are:

- Use of Proceeds: This refers to how the funds raised from the bond issuance will be allocated. For green, social, or sustainability bonds, the proceeds must be dedicated to projects that provide clear environmental or social benefits, such as renewable energy projects, affordable housing, or healthcare facilities.
- Process for Project Evaluation and Selection: This involves the criteria and methods used to identify and select eligible projects for funding.
- Management of Proceeds: This pertains to how the raised funds are tracked and managed to ensure they are used exclusively for their intended purposes.
- Reporting: This involves providing regular updates on the use of proceeds and the status of funded projects.

Exclusionary Criteria:

In any case, the following assets shall not be eligible for the use of proceeds of the HKMC's Sustainable Financing Instruments:

- Nuclear energy generation related assets and projects
- Fossil fuel dedicated assets and projects
- Weapons, gambling, and casinos
- Business activities which are prohibited by laws and regulations in HKSAR
- In addition, projects under the Infrastructure Financing and Securitisation Division will be further subject to IFS Division Environmental and Social Exclusion List, available at the website of the HKMC IFS Division.

2.2 The Issuance

Bauhinia ILBS 2 Limited ("Issuer") is a Hong Kong-incorporated special purpose vehicle (SPV). The Issuer shall acquire a portfolio of loans from The Hong Kong Mortgage Corporation Limited and/or commercial banks and its notes will be listed on The Stock Exchange of Hong Kong Limited (SEHK).

As the sponsor of this transaction, HKMC sourced and constituted a loan portfolio comprising infrastructure projects across geographies and sectors, including renewable power generation, telecommunications, and social infrastructure, primarily denominated in USD. As part of the issuance, the SPV is expecting to create a sustainability tranche backed by seven sustainable assets, all operational and aligned to the sponsor's Social, Green and Sustainability Financing Framework.

To provide information regarding the potential impact of the sustainable assets and enable investors to incorporate this impact data into their decision-making alongside other customary considerations, HKMC has commissioned ERM to assist with the pre-issuance impact report for the sustainability tranche. This will cover:

- Impact metrics: Selection and preparation of relevant impact metrics, establishing the baseline and methodology.
- Standards: Alignment with the market practices (as recommended by International Capital Market Association and/or any other standards widely adopted by sustainable bond investors).
- Provide calculation methodologies to the Issuer to compute the environmental impact of its green assets and the social impact of its social assets.

For green assets (e.g. wind, solar, etc.), avoided emissions calculations are used to measure the impact. For social assets, two relevant impact metrics are envisaged. An overview of the selected green and social impact metrics is also provided in Table 1.

Table 1: Overview of the sustainable asset portfolio and Key Impact Indicators, as of the month of August 2024

Asset Type	Eligible Category	Borrower	Asset (Sector)	% Allocated	Location	Key Impact Indicators	Performance Results	UN SDG Alignment
Social	Access to Affordable Basic Infrastructure and Services	Ascend Telecom Infrastructure Private Limited	Telecommunication Towers (ICT)	5.5%	India	(a) Tower density in underserved regions (number of towers per 100,000 inhabitants)	(a) 1.38 towers	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
		PT Centratama Telekomunikasi Indonesia Tbk	Telecommunication Towers (ICT)	3.8%	Indonesia		(a) 3.63 towers	
	Access to Essential Services	Al Maqsed Development Company PJSC	University (Education)	7.6%	UAE	(a) Number of female students enrolled (b) % of female students enrolled	(a) 7,977 (b) 84.2%	4 QUALITY EDUCATION 10 REDUCED INEQUALITIES
		Manhal Development Company PJSC	University (Education)	1.7%	UAE		(a) 923 (b) 71.9%	
Green	Renewable Energy	BIM Wind Power Joint Stock Company	Wind (Renewables)	3.7%	Vietnam	(a) Installed renewable energy capacity (MW) (b) Estimated annual avoided emissions (tCO_2e)	(a) 121 MW (b) 264,865 tCO_2e	13 CLIMATE ACTION 7 AFFORDABLE AND CLEAN ENERGY
		Adani Solar Energy RJ One Private Limited	Solar (Renewables)	5.1%	India		(a) 300 MW (b) 716,711 tCO_2e	
		Adani Hybrid Energy Jaisalmer Three Limited	Solar/Wind Hybrid (Renewables)	3.9%	India		(a) 300 MW Solar / 76 MW Wind (b) 1,027,476 tCO_2e	

3. Use of Proceeds

The following sections showcase examples of the projects financed by the issuance, provide details on the methodology used to estimate the impact of the Issuer's underlying green and social assets, and present the respective performance results.

3.1 Renewable Energy Assets

The Issuer committed around USD 53.58 million on financing three renewable energy projects. Table 2 below details the main characteristics and information of the renewable energy assets.

Table 2: Main characteristics and performance results of the renewable energy assets financed by the Issuer

Borrower	Type	Country	Status	Capacity (MW)	Annual Production (MWh)	Grid Emission Factor (tCO_2e/MWh)	Attribution Factor (%)	Estimated Annual Avoided Emissions (tCO_2e)	Avoided Emissions attributed to the Issuer (tCO_2e)
Adani Solar Energy RJ One Private Limited	Solar	India	Operational	300 MW	734,335	0.976[1]	9.96%	716,711	71,380
BIM Wind Power Joint Stock Company	Wind	Vietnam	Operational	121 MW	283,764	0.9334	11.43%	264,865	30,279
Adani Hybrid Energy Jaisalmer Three Limited	Solar/Wind Hybrid	India	Operational	300 MW Solar / 76 MW Wind	1,052,742	0.976[1]	6.38%	1,027,476	65,518
TOTAL					**2,070,841**			**2,009,052**	**167,177**

[1] In line with the approach recommended by the Partnership for Carbon Accounting Financials (PCAF), the operating margin grid emission factor has been adopted in this impact report. It should be noted that the Borrower may use the weighted average emission factor of the Indian grid to estimate avoided emissions in its own disclosure of ESG information. For illustration purpose, if the average grid emission factor of India in FY 2022-23 (0.716 tCO_2e/MWh) is used, the Estimated Annual Avoided Emissions would then become 525,784 tCO_2e and 753,763 tCO_2e for Adani Solar Energy RJ One Private Limited and Adani Hybrid Energy Jaisalmer Three Limited, respectively.

Note on the selected impact metric, according to ERM methodology: Avoided GHG Emissions

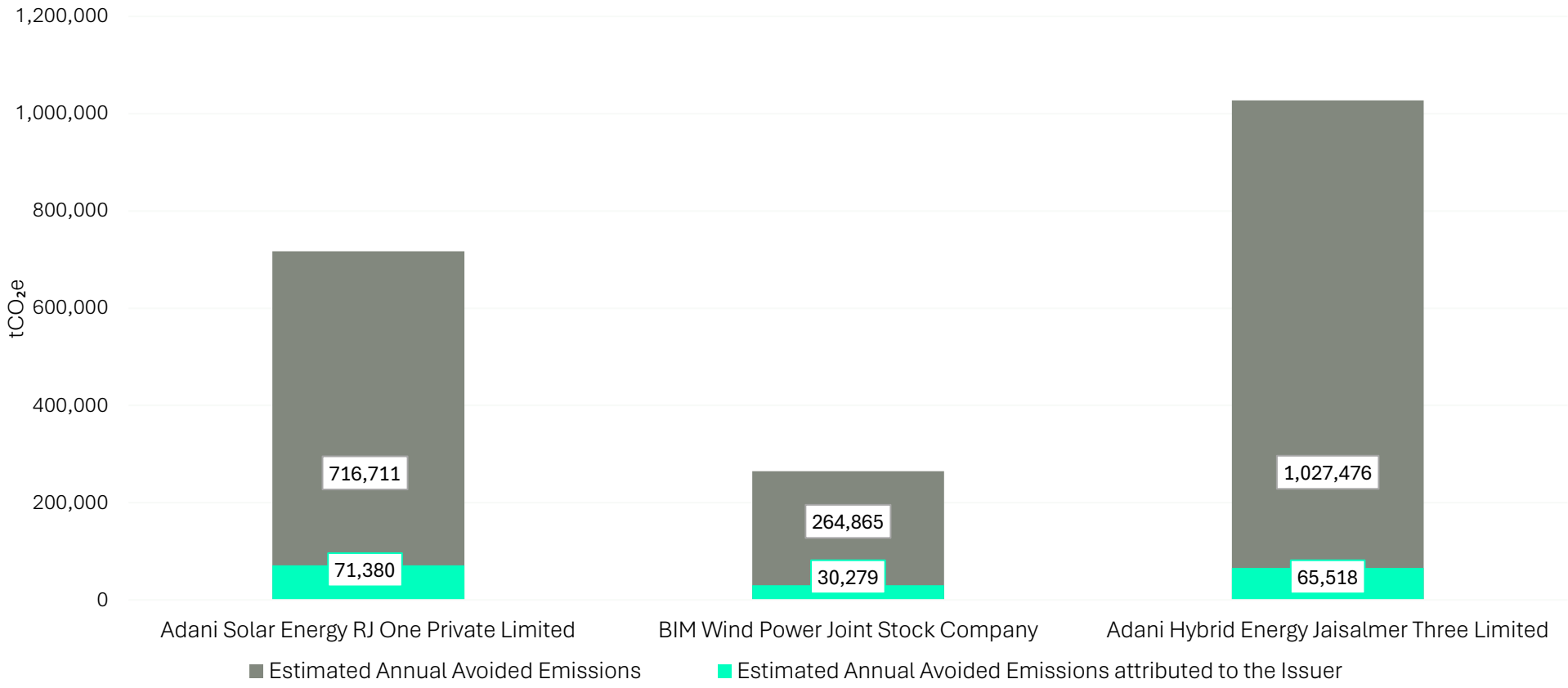
Renewable energy generation is a low GHG emissions energy source and has an environmental benefit in replacing energy generated from fossil fuel-based power generation. Energy generated from renewable sources increases clean-source electricity supply, which will displace fossil fuel sources and reduce the emissions intensity of the electricity grid. Therefore, avoided GHG emissions are the most material environmental impact of renewable energy projects.

For an operational renewable energy project, the annual avoided GHG emissions are estimated using the total power output multiplied by a consolidated operating margin (OM) electricity emission factor (EF) specific to each project's geographical location. These estimates assume that the energy generated by the projects replaces an equivalent capacity generated by the existing local power plants (with most of which fossil fuel-powered), thus offsetting the associated GHG emissions. For the calculation of the indicator, the power grid's energy mix of the location of each project was considered.

As the Issuer is not the sole lender in these assets, an attribution factor was also applied to the total avoided emissions to determine the Issuer’s share of emissions avoided. The attribution factor is measured in terms of the Issuer’s percentage share of total debt and equity financing.

Figure 1 illustrates the estimated avoided emissions for renewable energy assets financed.

Figure 1: Estimated avoided emissions for renewable energy assets financed by the Issuer



The major data inputs needed to calculate the avoided GHG emissions are summarised in Table 3. Further information and methodologies for each individual input are provided in Section 4.1.1 of the Appendix chapter.

Table 3: Input factors for calculating avoided emissions for renewable energy assets

Input	Unit	Description	Source
Annual Production	MWh	Quantity of electricity generated by renewable energy assets.	Provided by HKMC
Grid Emission Factor	tCO_2e/MWh	Operating margin: CO_2e emission factor associated with each unit of electricity provided by an electricity system in each geographic region. That refers to the amount of carbon dioxide equivalent (CO_2e) emissions produced per unit of electricity generated and supplied in a specific area. This factor is a measure of the greenhouse gas emissions resulting from the production of electricity and includes not only CO_2 but also other greenhouse gases like methane and nitrous oxide, converted to their CO_2 equivalent. This emission factor varies by region due to differences in the energy mix used to generate electricity. For example, a region that relies heavily on coal-fired power plants will have a higher CO_2e emission factor compared to a region that uses more renewable energy sources like wind or solar power.	India: Government of India, Ministry of Power – Central Electricity Authority: CO_2 Baseline Database for the Indian Power Sector Vietnam: Ministry of Natural Resources and Environment – Department of Climate Change: Final Report on the Study and Development of Emission Factor (EF) for Vietnamese Electrical Grid in 2022
Attribution Factor	%	The Issuer's percentage share of total debt and equity financing.	Calculated based on the financial data provided by HKMC

The equation for calculating the financed avoided emissions of the renewable energy assets (p) is summarised below:

$$FAEp = EGp \times GEFc \times AFp$$

Where:

$FAEp$ is the financed avoided emissions by the Issuer for the renewable energy asset p (tCO_2e)
EGp is the annual electricity generated by the renewable energy asset p (MWh)
$GEFc$ is the grid emission factor of country c where the renewable energy asset p is located (tCO_2e/MWh)
AFp is the attribution factor for the renewable energy asset p (%)

CASE STUDY 1

Hybrid Wind-Solar Projects in India

Bauhinia 2 has financed hybrid power projects. The variability of solar and wind generation poses challenges for large-scale renewable energy adoption. Combining wind and solar plants, which have complementary generation profiles, helps address this issue. Hybrid projects improve capacity utilisation and reduce costs by sharing transmission lines. Further measures, such as peak balancing, smart grids, electric vehicles, and various storage solutions, also help mitigate renewable energy variability.

Located in Jaisalmer, India, the project involves the refinancing of a fully operating hybrid project consisting of 300MW of solar and 76MW of wind power assets to create a more reliable and efficient energy solution. By integrating these two renewable sources, the project aims to enhance energy generation consistency and reduce intermittency issues associated with each technology individually.

There is a strong rationale to the Project's assets, as it supports the fulfilment of Indian government's goal of reaching 500GW of renewable power capacity by 2030. In addition, the Project will help alleviate future demand-supply constraints given increasing power needs forecasted.

Hybrid Wind-Solar Power Generation plant. | Available at Adani Green Energy..

Key metrics on environmental impact:

- Installed renewable energy capacity: 300 MW Solar / 76 MW Wind
- Estimated annual GHG emissions avoided by the project: 1,027,476 tCO_2e/year.
- Estimated annual avoided emissions attributed to the Issuer: 65,518 tCO_2e/year.

3.2 Education Assets

The Issuer committed around USD 39.24 million on financing two education projects. Table 4 details the main characteristics and information of the two educational assets.

Table 4: Main characteristics and performance results of the education assets financed by the Issuer

Borrower	Country (City)	Type of University	University	Total No. of Students	Female Students	% of Female Students
Al Maqsed Development Company PJSC	UAE (Abu Dhabi)	Public	Zayed University	9,469	7,977	84.2%
Manhal Development Co PJSC	UAE (Abu Dhabi)	Private	Sorbonne University Abu Dhabi	1,283	923	71.9%

Note on the selected impact metric: Number and % of Female Students Enrolled

Diversity and inclusion are key impact drivers for education assets. Hence, the number and percentage of female students enrolled were selected as key social impact metrics as unequal access to higher education is recognised as leading to fewer resources and opportunities available to women. Higher education institutions are also seen as incubators where improved norms for gender equality can be practised, serving as an influential tool for society in accelerating the progress towards gender equality and women's empowerment[i]. This is significant in the United Arab Emirates (UAE), where gaps related to women's economic mobility remain. The inputs used to calculate these impact indicators are reflected in Table 5 and illustrated in Figure 2.

Figure 2: Number and % of Female Students Enrolled

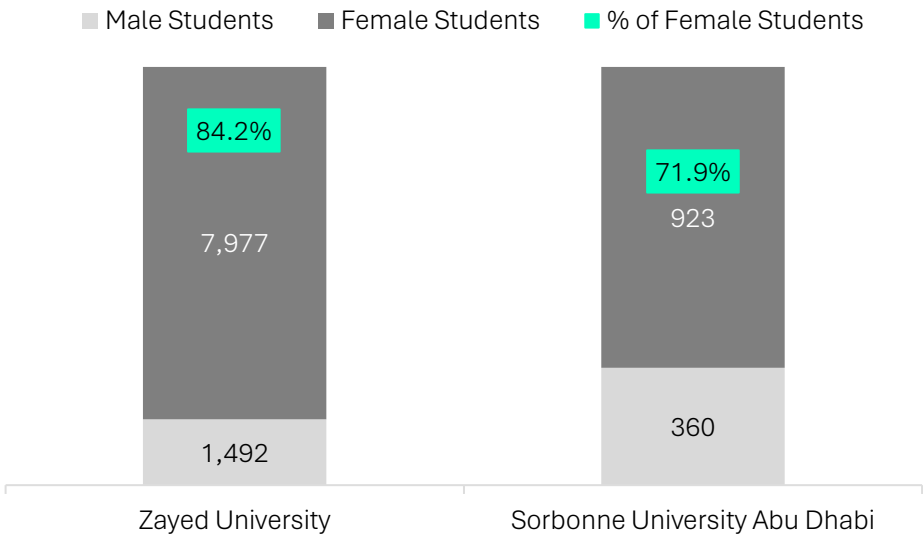


Table 5: Input factors to calculate number and percentage of female students enrolled

Input	Description	Source
(a) Number of female students	(a) Refers to the number of female students enrolled in academic year 2022-2023	University Fact Book 2022-2023
(b) Total number of students	(b) Refers to the total number of students enrolled (male and female) in academic year 2022-2023	

The equation for calculating the percentage of female students enrolled for each of the education assets is summarised below:

$$\%\ of\ female\ students = \frac{number\ of\ female\ students}{total\ number\ of\ students}$$

CASE STUDY 2

The Sorbonne University in the United Arab Emirates

Manhal Development Company PJSC developed the Sorbonne University (previous known as Paris Sorbonne University), a private university located on Al Reem Island, Abu Dhabi, including over 93,000 m^2 of teaching, recreational and accommodation facilities. The Project stems from an international agreement signed in 2006 between the French Sorbonne University and the Government of Abu Dhabi to bring the best international standards in higher education to the Emirate, echoing the UAE Government's focus on developing and raising education domestically mainly on subjects of Humanities, Sciences, Languages and Social Sciences. The Project is the first French institution of higher education in the Gulf region, and the 750-year-old Sorbonne University's first campus outside France.

The Sorbonne University Abu Dhabi at night. | Available at sorbonne-universite.fr

Sorbonne University Abu Dhabi has shown strong commitment to providing access to higher education to females in the UAE, as demonstrated by its high proportion of female enrolment and graduation. Apart from promoting gender equality in higher education, Sorbonne University Abu Dhabi is also committed to providing equal opportunities for higher education to students from other countries and those from financially disadvantaged background, through the provision of scholarships and housing assistance.

Key metrics on diversity and inclusion impact, for the Academic Year of 2022/2023 across both undergraduate and graduate programmes:

- Female enrolment rate: 71.9%
- Female graduates: 186, representing 83.4% of total graduates.
- Retention rate: 93.5% (fall-to-fall rate)
- Students sponsored by scholarships: 1,064 (83% of total students), in which 80.1% received full scholarship.
- Students who received housing assistance: 37, in which 59.46% received full assistance.
- International students' enrolment: 362 international students (28.2% of total students)
- Total nationalities of enrolled students: 32

3.3 ICT Assets

The Issuer committed around USD 39.13 million on financing two Information and Communications Technology (ICT) projects. Table 6 details the main characteristics and information of the two ICT assets.

Table 6: Main characteristics and performance results of the ICT assets financed by the Issuer

Company	Country	Region	Towers	Tower Distribution	Avg. Download Speed for Mobile Network (Mbps)	Avg. Upload Speed for Mobile Network (Mbps)	Total Population (2023)	Total Area (km^2)	Tower Density (Towers/100,000 inhabitants)	Population Density (Pop. / km^2)
The Centratama Group	Indonesia	Java	5,321	54.9%	20.73	7.80	153,539,265	78,984	3.47	1,943.93
		Kalimantan	823	8.5%	21.98	7.16	17,257,089	544,151	4.77	31.71
		Maluku	65	0.7%	20.28	6.78	3,250,778	78,897	2.00	41.20
		Papua	73	0.8%	20.28	6.78	5,644,251	416,060	1.29	13.57
		Sulawesi	1,030	10.6%	20.28	6.78	20,652,452	188,522	4.99	109.55
		Sumatra	1,862	19.2%	19.32	6.98	50,489,886	369,143	3.69	136.78
		Bali	312	3.2%	20.73	7.80	4,481,338	5,780	6.96	775.32
		Nusa Tenggara	203	2.1%	24.36	8.30	11,049,881	67,290	1.84	164.21
Ascend + Tower Vision	India	Telecom Circle Category A	5,728	32.7%	27.30	4.92	414,984,363	1,104,514	1.38	375.72
		Telecom Circle Category B	6,435	36.7%	21.85	4.01	626,747,528	1,316,734	1.03	475.99
		Telecom Circle Category C	4,424	25.3%	20.33	3.79	285,334,000	741,729	1.55	384.69
		Metros	930	5.3%	33.51	5.48	59,568,109	3,645	1.56	16,342.42

Notes on the selected impact metric, according to ERM methodology: Tower Density in Underserved and Significantly Underserved Regions

The first of two ICT assets in the sustainability tranche is a loan provided to a telecommunication tower owner and operator in Indonesia, PT Centratama Telekomunikasi Indonesia Tbk (The Centratama Group).

Indonesia has a high penetration of smartphones and a well-developed mobile infrastructure, which facilitates access to mobile internet for most of the population. The current mobile phone penetration rate[ii] is high at over 120% and is forecasted to reach 136% in 2028[iii], owing to a growing middle class and thereby higher demand for access to mobile internet. In contrast, fixed broadband is less common, especially outside urban areas, due to infrastructure challenges and higher costs. The accessibility and convenience of mobile internet make it the primary choice for most Indonesians, who are considered "mobile-first" users as they use smartphones as the main channel for internet access. Consequently, the demand for telecommunication towers in Indonesia is expected to grow rapidly.

Mobile networks have become indispensable to modern life, often surpassing traditional wired connections. They provide constant connectivity for everything from daily commutes to remote work. From accessing education and entertainment to managing finances and healthcare, mobile internet has become the primary tool for billions of people worldwide. The pandemic accelerated this trend, highlighting the benefits of flexibility, convenience, and accessibility that mobile internet offers, making it a primary means of connectivity in modern life.

As mentioned, the impact of improving access to mobile internet is particularly significant in rural areas of Indonesia, where fixed line penetration is low. Data presented by Opensignal[iv] shows that, as of the first quarter of 2024, around 52% of the population in Indonesia lives in the island of Java, and more than 40% lives in sparsely populated rural areas. As a result, network service coverage and quality in rural areas tend to be less developed, representing an operational and economic challenge for telecom companies looking to invest and improve mobile connectivity in the islands outside Java.

Thus, in this analysis it is chosen to estimate Tower Density in Underserved and Significantly Underserved Regions of Indonesia in terms of mobile network speed, since mobile internet is more widely used than fixed broadband in the country. The choice of this impact metric as the main performance indicator to assess social impact of the project speaks directly to the need of improving network coverage in rural areas and outside Java through upgrading telecommunication infrastructure, therefore ensuring that rural areas do not get left behind in Indonesia's rapid urbanisation and growth in digital connectivity.

The inputs used to calculate this impact indicator for the Indonesian ICT asset are reflected in Table 7.

Table 7: Input factors for calculating tower density in underserved and significantly underserved regions of Indonesia

Inputs	Inputs	Description	Sources
1 - Number of towers owned by Centratama Group in underserved and significantly underserved islands of the country	(a) Number of towers owned by Centratama Group in each island of the country	Refers to the number of towers operated by The Centratama Group (both owned and managed sites) across the eight main islands of the country.	The Centratama Group 2023 Sustainability Report
	(b) Indonesian islands that can be classified as underserved and significantly underserved in terms of mobile network connectivity	Refers to the comparison between the weighted average of the country's download/upload speed and the reference benchmark of a minimum of 25/3 Mbps download/upload speed, as established by the United States' Federal Communications Commission (FCC)[v]. The country that does not meet this threshold can be considered underserved in general in terms of quality internet experience, while specific regions that are below the country's weighted average internet speed is considered as significantly underserved. This is aligned with the target population definition provided in the Framework[vi].	Indonesia Mobile Network Experience Report 2024 by Opensignal[vii] and Federal Communications Commission (FCC)[viii]
2 - Total population in underserved and significantly underserved islands of the country	(a) Total population in each island of Indonesia classified as underserved and significantly underserved	Refers to total population living in islands that are considered as underserved or significantly underserved.	Badan Pusat Statistik, Republik Indonesia[ix]

In 2015, the Federal Communications Commission (FCC) of the United States raised its benchmark from 4/1 Mbps to 25/3 Mbps, citing changing broadband use patterns with multiple devices requiring broadband service within a household. It is worth noting that in March 2024, FCC announced a new increase in the broadband high-speed internet benchmark, raising it to 100/20 Mbps[x]. However, for this analysis, the minimum threshold stablished in 2015 was maintained as the reference benchmark for classifying internet experience in the islands of Indonesia, mainly for the following reasons:

- The same threshold was applied in the Bauhinia 1 Pre-issuance Impact Report, which first covered the PT Centratama Telekomunikasi Indonesia Tbk project. Since this is a precedent case and the project is repeatedly securitised in Bauhinia 2, the use of the same reference benchmark ensures alignment of the methodologies and better comparability of the results.

- The 2015 benchmark considers a period within the early stages of the era of global digital transformation, driven by advancements in technology, increased internet accessibility, and the proliferation of mobile devices – and it can be best applicable to the reality of most of the population in developing countries such as Indonesia, when compared to the fast speed of development of the fixed and mobile network in the United States.

To better illustrate, maintaining a download speed of at least 25 Mbps is highly beneficial for smooth and productive online experience. This speed enables smooth streaming, lag-free gaming, high-quality video calls, and fast web browsing. Falling below this speed can lead to significant inconveniences, such as buffering during streaming, lag in online gaming, slower web browsing, poor video call quality, and extended download times for large files.

Aligned with the target population definition provided in the Framework and based on the data presented in the Opensignal report, the weighted average download speed for mobile internet in Indonesia considering all major islands was 20.59 Mbps, in which all islands had averaged download speeds under the reference benchmark of 25 Mbps stablished by the FCC almost a decade ago. Thus, all regions analysed could be considered underserved in terms of connectivity and mobile network performance.

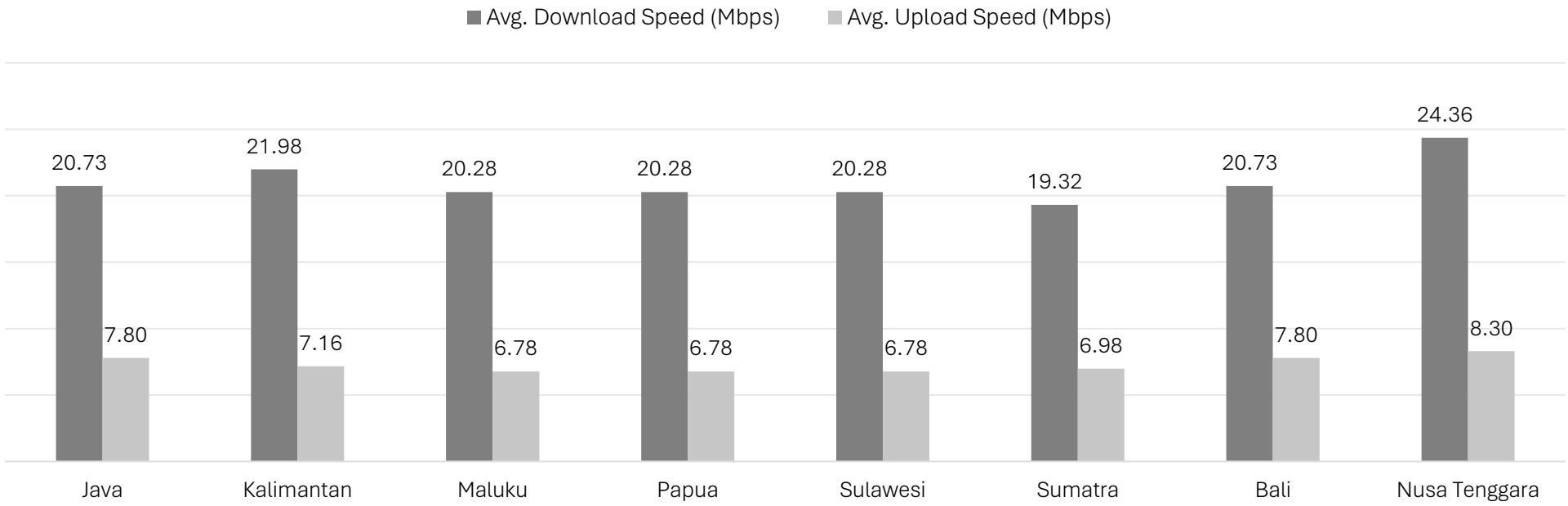
In this scenario, the weighted national average download and upload speeds – calculated for Indonesia by adjusting the speeds of each island according to its population and therefore controlling any distortion caused by the number of speed tests performed and considered in the Opensignal Report – can be used as another reference benchmark, this time to classify each major island as significantly underserved in terms of mobile network speed.

All the main results of the performance indicator for this Indonesian ICT Asset are summarised in Table 8 and illustrated in Figure 3, and all steps followed, assumptions and premises considered to compare mobile network experience of the islands of Indonesia and estimate the total number of towers owned by Centratama Group in underserved islands of the country are detailed in Section 4.1.2 of the Appendix chapter.

Table 8: Main performance results for the Indonesian ICT Asset

Island of Indonesia	**Weighted Average of Download/Upload Mobile Network Speed** (Mbps)	**Classified as Underserved according to the FCC reference benchmark** (25/3 Mbps)	**Avg. Download Speed** (Mbps)	**Avg. Upload Speed** (Mbps)	**Classified as Significantly Underserved**	**Total number of towers owned by The Centratama Group**	**Total population of the Island** (2023)	**Tower Density** (towers/100,000 inhabitants)
Java	20.59 Download 7.49 Upload	Yes	20.73	7.80	No	5,321	153,539,265	3.47
Kalimantan			21.98	7.16	No	823	17,257,089	4.77
Maluku			20.28	6.78	Yes	65	3,250,778	2.00
Papua			20.28	6.78	Yes	73	5,644,251	1.29
Sulawesi			20.28	6.78	Yes	1,030	20,652,452	4.99
Sumatra			19.32	6.98	Yes	1,862	50,489,886	3.69
Bali			20.73	7.80	No	312	4,481,338	6.96
Nusa Tenggara			24.36	8.30	No	203	11,049,881	1.84

Figure 3: Tower Density in Underserved and Significantly Underserved Regions in Indonesia



	Java	Kalimantan	Maluku	Papua	Sulawesi	Sumatra	Bali	Nusa Tenggara
Tower Density	3.47	4.77	2.00	1.29	4.99	3.69	6.96	1.84

The second ICT asset in the sustainability tranche is a secondary loan transaction to a telecommunication tower owner and operator in India, Ascend Telecom Infrastructure Private Limited (Ascend), to acquire another independent telecom tower company, Tower Vision India (Tower Vision).

The demand for mobile telecom towers in India has been growing at a rapid rate and is expected to grow even more. The wide penetration of smartphones and the availability of affordable and better mobile data plans, especially since the launch of 5G in the country, have boosted the use and quality of mobile internet in India. The mobile network infrastructure has been expanding rapidly, making mobile internet the primary source of internet access for most Indians.

Despite significant progress, a large gap remains between urban and rural areas. Fixed broadband, although available, has much lower penetration, also mainly due to infrastructure limitations in rural areas and higher costs. According to a 2023 Economic Survey from India's Ministry of Finance[xi], 65% of the country's population lives in rural areas lacking adequate internet access, which includes over 900 million people. Latest data from Telecom Regulatory Authority of India[xii] shows that mobile telephone subscribers represented 97.3% of all 1.19 billion telephone subscribers in the country as of December 2023. Rural subscribers account to 44.3% of all, with a telephone subscriber density of 58.6%, while urban telephone subscriber density surpasses 133.76%. That amounts to huge untapped potential for economic growth. Rural populations, through lack of access to internet connectivity, are often left behind in India's digital economy.

Aiming to facilitate a balanced development of the telecom sector in India, addressing both urban and rural connectivity needs, the country is divided into 22 Telecom Circles, or Licensed Service Areas (LSAs), which are categorised based on their revenue potential and existing state boundaries. These circles are grouped into four categories: Metro, Category A, Category B, and Category C. "Metro" circles include major cities including Delhi, Mumbai, and Kolkata, which have the highest population density and economic activity. Category "A" circles encompass economically prosperous states and are the largest in terms of population coverage. Category "B" circles cover regions with moderate economic activity, while Category "C" circles include the less economically developed areas. Category B and C circles not only have the smallest markets for the telecom sector in terms of population density and customer base, but they also have more challenging terrains, making logistics and infrastructure maintenance more difficult and expensive, and therefore have a lower revenue generation potential for companies in the sector. As a result, internet service coverage and quality tend to be less developed compared to other circles.

In that way, equal to the observed in Indonesia, it is also chosen to estimate Tower Density in Underserved and Significantly Underserved Regions of India in terms of mobile network speed, since mobile internet is much more widely used in India than fixed broadband. The choice of this impact metric as the main performance indicator to assess social impact of the project speaks directly to the need of improving network coverage in India's Category B and C Telecom Circles.

The inputs used to calculate this impact indicator for the Indian ICT asset are reflected in the following Table 9.

Table 9: Input factors for calculating tower density in underserved and significantly underserved regions of India

Inputs	Inputs	Description	Sources
1 - Number of towers owned by Ascend and Tower Vision in underserved and significantly underserved circles of the country	(a) Number of towers owned by Ascend and Tower Vision in each Telecom Circle of the country	Refers to the number of towers operated by Ascend and Tower Vision (both owned and managed sites) across the 22 Telecom Circles of India.	Ascend's 2022-2023 Sustainability Report; Tower Vision's Company and financial statements overview 2022; and HKMC's Investment Memorandum.
	(b) Telecom Circles that can be classified as underserved and significantly underserved in terms of mobile network connectivity	Refers to the comparison between the weighted average of the country's download/upload speed and the reference benchmark of a minimum of 25/3 Mbps download/upload speed, as established by the United States' Federal Communications Commission (FCC)[xiii]. The country that does not meet this threshold can be considered underserved in general, while specific regions that are below the country's weighted average internet speed is considered as significantly underserved. This is aligned with the target population definition provided in the Framework[xiv].	India Mobile Network Experience Report 2023 by Opensignal[xv] and Federal Communications Commission (FCC)[xvi]
2 - Total population in underserved and significantly underserved circles of the country	(a) Total population in each Telecom Circle of India classified as underserved and significantly underserved	Refers to total population living in the Telecom Circles that are considered as underserved or significantly underserved.	Office of the Registrar General & Census Commissioner, India[xvii] and Springer[xviii]

Aligned with the target population definition provided in the HKMC Framework and based on the data presented in the Opensignal report, the weighted average download and upload speed for mobile internet in India considering all Telecom Circles regions was 23.49/4.27 Mbps, a value below the reference benchmark of 25/3 Mbps stablished by the FCC almost a decade ago. Thus, all regions analysed could be considered underserved in terms of connectivity and mobile network performance. It is also worth highlighting that the Indian Ministry of Communications envisages to achieve broadband speeds up to 50 Mbps by 2024-2025[xix], a threshold that can also be used as reference benchmark for future analysis. In this scenario, the weighted national average download and upload

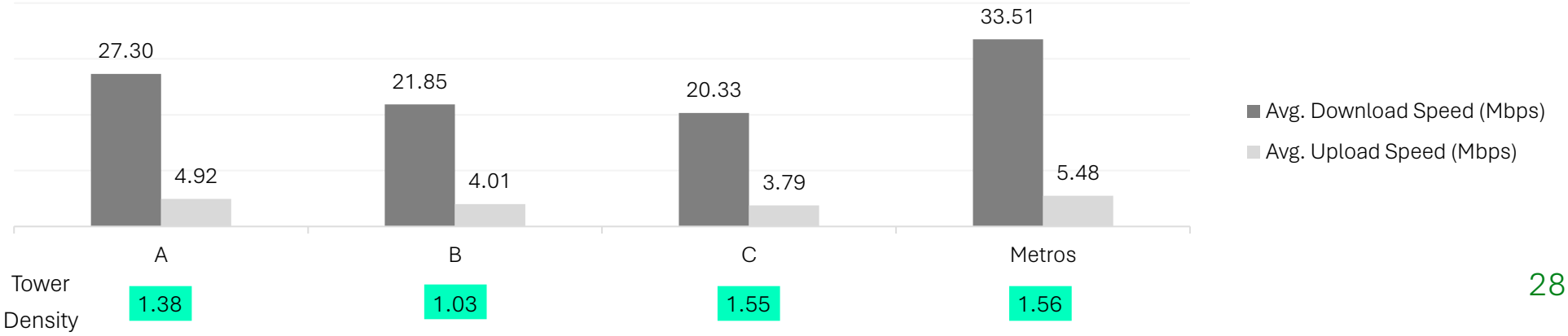
speeds – calculated for India by adjusting the speeds of each Telecom Circle according to its population – can be used as another reference benchmark, this time to classify each Telecom Circle category region as significantly underserved in terms of mobile network speed.

The main results of the performance indicator for this Indian ICT Asset are summarised in Table 10 and illustrated in Figure 4, and the steps followed and all assumptions and premises considered to compare mobile network experience of each Telecom Circle category region of India and estimate the total number of towers owned by Ascend and Tower Vision in underserved circles of the country are detailed in Section 4.1.2 of the Appendix chapter.

Table 10: Main performance results for the Indian ICT Asset

Circle Category	**Reference Benchmark for Download/Upload Mobile Network Speed** (Mbps)	**Classified as Underserved according to the FCC reference benchmark** (25/3 Mbps)	**Avg. Download Speed** (Mbps)	**Avg. Upload Speed** (Mbps)	**Classified as Significantly Underserved**	**Total number of towers owned by Ascend + Tower Vision**	**Total population of the Circle Category region** (2023)	**Tower Density** (towers/100,000 inhabitants)
A	23.49 Download 4.27 Upload	Yes	27.30	4.92	No	5,728	414,984,363	1.38
B			21.85	4.01	Yes	6,435	626,747,528	1.03
C			20.33	3.79	Yes	4,424	285,334,000	1.55
Metros			33.51	5.48	No	930	59,568,109	1.56

Figure 4: Tower Density in Underserved and Significantly Underserved Regions in India



4. Appendix

4.1 Details on the Methodology

4.1.1 Renewable Energy Assets

Calculating the input factors for estimating Avoided GHG Emissions

(a) Annual Production

The annual production is the electricity generated from each renewable asset per year. We use actual annual production data as prioritised data inputs.

The annual production data is summarised in Table 11 below.

Table 11: Renewable asset annual production data[xx]

Borrower	**Actual Production** (MWh)	**Coverage of Actual Production**	**Estimated Production for Gap Months** (MWh)	**Annual Electricity Production Considered** (MWh)
Adani Solar Energy RJ One Private Limited	734,335	12 months	N/A	734,335
BIM Wind Power Joint Stock Company	283,764	12 months	N/A	283,764
Adani Hybrid Energy Jaisalmer Three Limited	1,052,742	12 months	N/A	1,052,742

(b) Grid Emission Factor (India and Vietnam)

To calculate avoided emissions, the emissions associated with the renewable energy assets are subtracted from the baseline emissions, or the emissions from power generation had the renewable energy project not taken place (i.e. the counterfactual). In this case, the baseline is the grid emission factor in the relevant geography. The emission factor is the carbon intensity of grid-connected electricity generation that is derived from a variety of sources, such as fossil fuels. The baseline status for the renewable energy locations, including India and Vietnam is summarised below:

- In India, the fuel mix of the grid in 2023 was 78.04% fossil fuels: 75.23% coal, 2.61% natural gas, and 0.20% oil. Renewables accounted for 19.51% of total electricity generation: 7.58% hydropower, 5.76% solar, 4.17% wind and 2.00% bioenergy. Nuclear accounted for the remaining 2.45%[xxi].
- In Vietnam, the fuel mix of the grid in 2023 was 57.62% fossil fuels: 46.77% coal, 9.98% natural gas, and 0.87% oil. Renewables accounted for the remaining 42.38% of total electricity generation: 28.89% hydropower, 9.58% solar, 3.77% wind and 0.14% bioenergy[xxii].

There are very low operational emissions associated with solar, wind and hydropower energy assets. Hence, the baseline emissions are considered equivalent to the avoided emissions of these renewable energy assets.

The operating margin grid emission factor is the average CO_2e emissions emitted per unit of electricity generated. The latest localised operating margin emission factor data for India and Vietnam refers to that from December 2023 and December 2022 respectively, at the time of writing.

Table 12: Methodology on emission factors

Country	Operating Margin Emission Factor (tCO_2e/MWh)	Source
India	0.976	CO_2 Baseline Database for the Indian Power Sector
Vietnam	0.9334	Ministry of Natural Resources and Environment – Department of Climate Change: Final Report on the Study and Development of Emission Factor (EF) for Vietnamese Electrical Grid in 2022

(c) Attribution Factor

As the Issuer is not the sole lender in these renewable energy assets, it is important to determine the Issuer's share of the avoided emissions achieved from the assets. This share is calculated by taking the loan outstanding amount and dividing by the total debt and equity financing of the project:

$$Attribution\ Factor = \frac{Outstanding\ amount\ financed\ by\ the\ Issuer\ (USDm)}{Total\ debt\ and\ equity\ financing\ of\ the\ project\ (USDm)}$$

Based on the financial data provided by HKMC, we used the share of outstanding debt and equity financed by the Issuer as a percentage of the total debt and equity financing for each project as of August 2024. This is used to attribute the portion of emissions avoided because of the Issuer's debt and equity financing. According to the PCAF methodology, the total financing value including both equity and debt is recommended to be used as the denominator.

4.1.2 ICT Assets

Comparing Mobile Network Experience of Indonesia Islands

To classify the Indonesian islands as underserved in terms of network connectivity, we used the 2024 Mobile Network Experience Report for Indonesia by Opensignal[xxiii], that presents a regional analysis and data on mobile network speed by main locations in Indonesia. The data presented in the Opensignal's report is summarised on the following table.

Table 13: Average and median regional data on mobile network speed by main locations in Indonesia, based on the report by Opensignal

Region Analysed by Opensignal	**Island**	**Avg. Download Speed** (Mbps)	**Avg. Upload Speed** (Mbps)	**Med. Download Speed** (Mbps)	**Med. Upload Speed** (Mbps)
Banten	Java	21.76	7.84	19.20	8.50
Jakarta Raya	Java	23.36	8.54	21.00	8.90
Jawa Barat	Java	20.26	8.12	18.20	9.10
Jawa Tengah	Java	17.28	6.90	17.50	8.40
Jawa Timur	Java	22.26	7.98	23.30	9.50
Kalimantan	Kalimantan	21.98	7.16	23.10	8.00
Lesser Sunda Islands	Nusa Tenggara	24.36	8.30	25.50	9.80
Sulawesi	Sulawesi	20.28	6.78	19.80	7.80
Sumatra	Sumatra	19.32	6.98	21.10	7.60
Yogyakarta	Java	19.44	7.42	19.10	8.50

The only location data available of the Centratama Group's towers is the number of towers owned by the company aggregated by the 8 main islands of Indonesia. There is no public data breaking down the locations of the towers by city or province, as telecom companies consider this information sensitive due to security and infrastructure protection concerns. Given this limitation, it is assumed that all towers owned by Centratama Group are evenly distributed amongst the cities of each of the 8 main islands.

Therefore, the data extracted from the Opensignal's report was aggregated by major Indonesian Island, as well as crossed and combined with additional information on the respective island, as shown in Table 14:

Table 14: Main data by major islands of Indonesia

Island of Indonesia	**Area** (km^2)	**Population** (2023 Estimate)	**Population Density**	**Centratama's Telecommunication Towers**	**Tower Density**	**Avg. Download Speed** (Mbps)	**Avg. Upload Speed** (Mbps)
Java	78,984	153,539,265	1,943.93	5,321	3.47	20.73	7.80
Kalimantan	544,151	17,257,089	31.71	823	4.77	21.98	7.16
Maluku	78,897	3,250,778	41.20	65	2.00	20.28	6.78
Papua	416,060	5,644,251	13.57	73	1.29	20.28	6.78
Sulawesi	188,522	20,652,452	109.55	1,030	4.99	20.28	6.78
Sumatra	369,143	50,489,886	136.78	1,862	3.69	19.32	6.98
Bali	5,780	4,481,338	775.32	312	6.96	20.73	7.80
Nusa Tenggara	67,290	11,049,881	164.21	203	1.84	24.36	8.30

The islands of Papua, Maluku and Bali were not covered by Opensignal's report. Based on geographical proximity, Sulawesi data was used as proxy to Papua and Maluku, and Java data was used for Bali.

At the time of the Opensignal's report publication, the weighted average download and upload speed for Indonesia considering all major islands was 20.59/7.49 Mbps, in which all islands had average download/upload speed under the reference benchmark of 25/3 Mbps stablished by the Federal Communications Commission (FCC) in 2015. On top of that, an estimate of the national weighted average download and upload speed was used as the reference benchmark to classify the islands as significantly underserved, where all regions that do not meet the respective minimum threshold are considered "significantly underserved" in terms of mobile network connectivity.

To best compare the average values of download/upload network speed between the Islands and classify them as significantly underserved or not, the number of network speed tests conducted on each island needs to be considered. Since information on the number of tests considered by the Opensignal analysis is not available, it is assumed that these numbers are proportional to the population of each region. Therefore, a technique of weighting in which the speeds of each island were adjusted according to the population (as a proxy for number of tests performed) was used, according to the following equation:

$$Weighted\ Average = \frac{\sum(v_i\ X\ w_i)}{\sum w_i}$$

Where v_i is the speed on an island and w_i is the weight based on population.

The following table summarises the results of the weighted national average estimate and island classifications:

Table 15: Classification by major islands of Indonesia

Islands of Indonesia	**Island Weight** (population based)	**Avg. Download Speed** (Mbps)	**Avg. Upload Speed** (Mbps)	**Reference Benchmark** (Weighted Avg. Download/Upload Speed)	**Classified as Significantly Underserved**
Java	57.6%	20.73	7.80	20.59 Download 7.49 Upload (Mbps)	No
Kalimantan	6.5%	21.98	7.16		No
Maluku	1.2%	20.28	6.78		Yes
Papua	2.1%	20.28	6.78		Yes
Sulawesi	7.8%	20.28	6.78		Yes
Sumatra	19.0%	19.32	6.98		Yes
Bali	1.7%	20.73	7.80		No
Nusa Tenggara	4.1%	24.36	8.30		No

Comparing Mobile Network Experience of India Telecom Circles

To classify the Indian Telecom Circles as underserved in terms of network connectivity, we used data available in the 2023 Mobile Network Experience Report for India by Opensignal[xxiv], that presents a regional analysis and data on mobile network speed by each of the 22 telecom circles in India. The data presented in the Opensignal's report is summarised on Table 16. Information on population projection and total area is also presented.

Table 16: Average regional data on mobile network speed by Telecom Circle in India, based on the report by Opensignal

Telecom Circle	Circle Category	Area (km^2)	Population (2023 Estimate)	Avg. Download Speed (Mbps)	Avg. Upload Speed (Mbps)	Med. Download Speed (Mbps)	Med. Upload Speed (Mbps)
Andhra Pradesh	A	275,047	91,246,000	28.50	4.30	22.90	4.55
Gujarat	A	196,846	71,507,000	27.60	5.05	20.90	5.60
Karnataka	A	191,791	67,692,000	29.33	5.63	23.70	6.70
Maharashtra	A	310,280	106,302,363	23.75	4.50	21.20	5.15
Tamil Nadu	A	130,550	78,237,000	27.30	5.13	23.65	5.70
Haryana	B	44,212	30,209,000	23.80	4.68	21.10	5.75
Kerala	B	38,882	35,845,000	22.23	3.28	18.45	3.75
Madhya Pradesh	B	443,444	116,759,000	21.13	3.85	19.60	4.55
Punjab	B	50,476	31,961,000	22.10	4.38	18.35	5.35
Rajasthan	B	342,239	81,025,000	23.98	4.38	21.85	5.35
Uttar Pradesh (East)	B	240,928	235,687,000	21.40	3.90	17.55	4.30
Uttar Pradesh (West)	B	53,483	11,637,000	21.60	4.15	18.80	4.90
West Bengal	B	103,070	83,624,528	18.60	3.50	18.00	4.10
Assam	C	78,438	35,713,000	21.78	3.60	19.85	3.80
Bihar	C	173,879	166,222,000	21.20	3.98	16.50	4.65
Himachal Pradesh	C	55,673	7,468,000	16.40	3.53	16.55	4.65
Jammu & Kashmir	C	101,387	13,903,000	23.08	3.93	19.35	4.70
North-East	C	176,645	15,752,000	16.15	2.90	14.55	3.15
Odisha (Orissa)	C	155,707	46,276,000	23.35	4.80	22.75	5.35
Delhi	Metros	1,483	21,359,000	36.33	5.20	33.60	5.40
Kolkata	Metros	1,027	16,551,472	29.95	5.03	21.45	5.75
Mumbai	Metros	1,135	21,657,637	34.23	6.20	25.40	5.70

The only location data available for Ascend's towers is the number of towers owned by the company aggregated by the 22 main Telecom Circles of India. There is no public data breaking down the locations of the towers by city or province, as telecom companies consider this information sensitive due to security and infrastructure protection concerns. Given this limitation, it is assumed that all towers owned by Ascend are evenly distributed through the respective Telecom Circle. The total number of towers in each Telecom Circle was then aggregated by circle category (A, B, C or Metros), to match the maximum level of aggregation available for the data regarding Tower Vision, as described next.

As for Tower Vision, there is no public data on the number of towers in each of the 22 telecom circles, since the company does not public any official reports on its operation. The best available data as of the month of writing is the estimate on the total number of towers owned by Tower Vision (9,297 as of September 2023[xxv]), as well as the geographical distribution of the towers by each Telecom Circle category (A, B, C or Metros), provided by HKMC trough the project's Investment Memorandum: 10% in Metros, 30% in Circle A, 41% in Circle B and 19% in Circle C category. It is assumed that this distribution is still valid, and that all towers owned by Tower Vision are evenly distributed through the respective Telecom Circles.

Therefore, the data extracted from the Opensignal report was aggregated by Telecom Circle Category, as well as crossed and combined with additional information on the respective category as shown in Table 17 below:

Table 17: Main data by Telecom Circle of India

Circle Category	**Area** (km^2)	**Population** (2023 Estimate)	**Population Density**	**Ascend's Towers**	**Tower Vision's Towers**	**Ascend + Tower Vision Towers**	**Tower Density**	**Avg. Download Speed** (Mbps)	**Avg. Upload Speed** (Mbps)	**Med. Download Speed** (Mbps)	**Med. Upload Speed** (Mbps)
A	1,104,514	414,984,363	375.72	2,939	2,789	5,728	1.38	27.30	4.92	22.47	5.54
B	1,316,734	626,747,528	475.99	2,623	3,812	6,435	1.03	21.85	4.01	19.21	4.76
C	741,729	285,334,000	384.69	2,658	1,766	4,424	1.55	20.33	3.79	18.26	4.33
Metros	3,645	59,568,109	16,342.42	-	930	930	1.56	33.51	5.48	26.82	5.62

At the time of the Opensignal's report publication, the weighted average download and upload speed for India considering all Telecom Circles was 23.49/4.27 Mbps, in which most Telecom Circles had median download/upload speed under the reference benchmark of 25/3 Mbps stablished by the FCC in 2015. On top of that, an estimate of the national weighted average download and upload speed was used as the reference benchmark to classify the Telecom Circles as significantly underserved, where all regions that do not meet the respective minimum threshold are considered "significantly underserved" in terms of mobile network connectivity.

To best compare the average values of download/upload network speed between the circles and classify them as significantly underserved or not, the number of network speed tests conducted on each Telecom Circle needs to be considered. Since information on the number of tests considered by the Opensignal analysis is not available, it is assumed that these numbers are proportional to the population of each region. Therefore, a technique of weighting in which the speeds of each island were adjusted according to the population (as a proxy for number of tests performed) was used, according to the following equation:

$$Weighted\ Average = \frac{\sum(v_i\ X\ w_i)}{\sum w_i}$$

Where v_i is the speed on a Telecom Circle and w_i is the weight based on population.

The average network speed values of each Telecom Circle were then aggregated by Telecom Circle Category (A, B, C or Metros), so that each major category could be evaluated considering the minimum threshold. The results are summarised in Table 18:

Table 18: Classification by Telecom Circle of India

Circle Category	**Circle Weight** (population based)	**Avg. Download Speed** (Mbps)	**Avg. Upload Speed** (Mbps)	**Reference Benchmark** (Weighted Avg. Download/Upload Speed)	**Classified as Significantly Underserved**
A	29.9%	27.30	4.92	23.49 Download 4.27 Upload (Mbps)	No
B	45.2%	21.85	4.01		Yes
C	20.6%	20.33	3.79		Yes
Metros	4.3%	33.51	5.48		No

4.2 Recommendations for Future Data Collection and Calculation

ICT Assets

The assessment in this report is based on the best available data that could be collected during the writing of the report. The impact assessment can be improved in the future with increased data availability for indicators that consider both outputs and outcomes that is relevant to the target population of the ICT assets. The recommendations for data quality improvement includes:

- Updated data on the average and median mobile internet download and upload speeds for the target populations of both ICT assets.
- Greater transparency and disaggregation of mobile internet speed data for the target populations as well as location data for telecommunications towers of all companies related to the projects (ideally disaggregated by city of the respective country).
- Updated and publicly available information on the distribution of telecoms towers around the Telecom Circles of India.

4.3 References

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