

ADB GREEN BOND

Issue No. 4

ADB

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CHANGING LANDSCAPE AND CHALLENGES

Asia and the Pacific is the fastest-growing region over the recent decades in economic terms and it is expected to account for more than half of global production by 2050. However, this exceptional development has come at steep environmental costs, undermining the prospects for sustained economic growth and social development within and beyond the region.¹

In 2015, Asia and the Pacific accounted for 50% of global domestic material consumption and 55% of global material footprint, but only 32% of global gross domestic product.² Troubling signs can be seen in findings that 100 of the

world's most polluted cities are in Asia and the Pacific.³ Climate change and disasters also threaten the long-term sustainability of development in the region. Of the 10 countries worldwide with the highest estimated disaster risk, seven are developing member countries (DMCs) of the Asian Development Bank (ADB).⁴

Given the size of the region's population, meeting key Sustainable Development Goals on poverty, hunger, and lack of access to social services will depend critically on Asia and the Pacific's success.⁵ The region has an opportunity to shape global efforts to reduce the rate of

¹ ADB. 2019. *Strengthening the Environmental Dimensions of the Sustainable Development Goals in Asia and the Pacific: Stocktake of National Responses to Sustainable Development Goals 12, 14, and 15*. Manila.

² United Nations Economic and Social Commission for Asia and the Pacific. 2017. *Sustainable Management of Natural Resources in Asia and the Pacific: Trends, Challenges and Opportunities in Resource Efficiency and Policy Perspectives*. Bangkok.

³ United Nations, ADB, and United Nations Development Programme. 2017. *Asia-Pacific Sustainable Development Goals Outlook*. Bangkok.

⁴ Kirch et al. 2017. *WorldRiskReport: Analysis and Prospects 2017*. Berlin: Bündnis Entwicklung Hilft.

⁵ World Bank. PovcalNet (accessed 11 October 2017); United Nations Economic and Social Commission for Asia and the Pacific et al. 2016. *Transformations for Sustainable Development: Promoting Environmental Sustainability in Asia and the Pacific*; Food and Agriculture Organization et al. 2017. *The State of Food Security and Nutrition in the World 2017: Building Resilience for Peace and Food Security*. Rome. Based on the latest estimates, Asia and the Pacific is home to 43% of the developing world's extreme poor (using \$1.90/day at 2011 purchasing power parity; developing world refers to all low- and middle-income countries in the PovcalNet database using the World Bank country classification), 64% of the world's undernourished people, 35% of the global population without access to electricity, 42% of the global population without access to improved water, and 63% of the global population without access to basic sanitation.

Climate change, environmental stress, and natural hazards



7 of 10 countries

in the world with the highest estimated disaster risk are ADB developing member countries (*Bangladesh, Cambodia, the Philippines, Solomon Islands, Timor-Leste, Tonga, and Vanuatu*).

Source: ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific*. Manila.

increase of greenhouse gas (GHG) emissions; it is the fastest-growing source of GHG emissions, accounting for 48% of global carbon dioxide emissions in the energy sector in 2016.⁶

Under Strategy 2030, ADB will sustain its efforts to eradicate extreme poverty, given the region's unfinished poverty agenda, and expand its vision to achieve a prosperous, inclusive, resilient, and sustainable Asia and the Pacific. ADB's aspirations for Asia and the Pacific are aligned with major global commitments that both DMCs and ADB have pledged to support—the Sustainable Development Goals and the related Financing for Development agenda, the Paris Agreement on climate change, and the Sendai Framework for Disaster Risk Reduction.

Tackling Climate Change, Building Climate and Disaster Resilience, and Enhancing Environmental Sustainability as an Operational Priority

Scaling up support to address climate change, disaster risk, and environmental degradation is one of ADB's key operational priorities to achieve the vision of Strategy 2030, along with upholding its environmental and social safeguards. ADB will ensure that climate change, disaster risk, and environment considerations are fully mainstreamed in its operational strategies, country programming, and project design, implementation, monitoring, and evaluation. It will facilitate DMCs' access to cleaner and smarter technologies, foster green economic growth, and continue to screen its projects rigorously for safeguards, climate- and disaster-related risks.

Building on its strong performance in integrating climate change mitigation and adaptation into project design, 75% of the number of ADB's committed operations (on a 3-year rolling average, including both sovereign and nonsovereign operations) will be supporting climate change mitigation and adaptation by 2030. Climate finance from ADB's own resources will reach \$80 billion cumulatively from 2019 to 2030.

ADB will scale up its support for climate change mitigation by prioritizing investments in energy projects with low GHG emissions, implementing sustainable transport and urban transport strategies, and encouraging DMCs to shift to a low carbon development path in line with their nationally determined contributions under the Paris Agreement. ADB will also assist DMCs in (i) improving their environmental management, including efforts to improve air and water quality; and (ii) investing in the conservation and restoration of natural capital. The bank will strengthen eco-sensitive project planning and design to prevent ecosystem degradation and mitigate pollution impacts through a variety of approaches, including the use of payments for ecosystem services, nature-based solutions (e.g., mangrove plantations to combat storm surges and rising sea levels), and community-led approaches.



At least 75% of the number of ADB's committed operations (on a 3-year rolling average, including sovereign and nonsovereign operations) will be supporting climate change mitigation and adaptation by 2030. Climate finance from ADB's own resources will reach **\$80 billion during 2019–2030**.

⁶ BP plc. 2017. *BP Statistical Review of World Energy 2017*. London. Carbon emissions refer only to emissions from the consumption of oil, gas, and coal for combustion-related activities and are based on default carbon dioxide emission factors for combustion listed in the national GHG inventories of the Intergovernmental Panel on Climate Change. This does not allow for carbon that is sequestered, for other sources of carbon emissions, or for emissions of other GHGs. The estimate for Asia is based on BP's country grouping.

HIGHLIGHTS OF ADB GREEN BONDS

ADB continues to help finance climate change mitigation and adaptation projects, raising \$5 billion since the green bond program was launched in 2015. The bank's green bond issuances have been diverse, with transactions printed in both public offering and private placement formats, and across currencies including Australian dollars, Hong Kong dollars, Indian rupees, Swedish kronor, and Turkish lira.

In July 2018, ADB launched its first green bond denominated in euros, with an issue size of €600 million (\$700 million equivalent) and maturity in July 2025. A total of SKr2.5 billion (\$286 million) in Swedish kronor green bonds were also raised in 2018.

The bank launched its fourth benchmark issuance (following the inaugural 10-year bond in 2015, dual tranche 3- and 10-year bond in 2016, and dual tranche 5- and 10-year bond in 2017), raising a 10-year \$750 million green bond in September 2018.

ADB intends to maintain a regular presence in the green bond market consistent with its commitment to scaling up climate financing. The bank's inclusion criteria for eligible investments have been independently verified by the Center for International Climate and Environmental Research - Oslo (CICERO).

Eligible Project Selection Criteria

Green bonds have proven to be an effective tool to promote ADB's climate change strategy, and more recently its Climate Change Operational Framework 2017–2030. The strategy identifies five priority areas:

- (i) expanding the use of clean energy;
- (ii) encouraging sustainable transport and urban development;

- (iii) managing land use and forests for carbon sequestration;
- (iv) promoting climate-resilient development; and
- (v) strengthening policies, governance, and capacities.

Mitigation projects include those that fall under the following sectors:

- (i) renewable energy,
- (ii) energy efficiency, and
- (iii) sustainable transport (excluding roads).

Climate change adaptation projects include those that fall under the following sectors:

- (i) energy,
- (ii) water and other urban infrastructure and services, and
- (iii) transport.

Eligible green bond projects are identified by ADB energy, climate change, and environmental specialists on a continuous basis. This is done using the joint multilateral development bank approach for tracking and reporting climate change mitigation and adaptation finance,⁷ and additional selection criteria for "green" projects that deliver environmentally sustainable growth, as defined by ADB's Green Bond Framework.⁸

Use of Proceeds

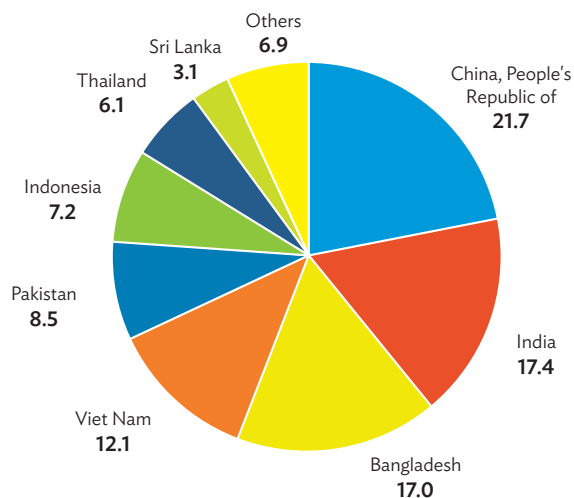
Green bond net proceeds are allocated within ADB's treasury to a special subportfolio that is linked to ADB's lending operations to eligible projects. So long as the green bonds are outstanding, the balance of the subportfolio will be reduced at the end of each quarter in respect of eligible projects. Pending such disbursements, the subportfolio will be invested in liquid instruments, consistent with ADB's liquidity policy.

⁷ ADB. 2018. MDB Climate Finance Hit Record High of \$35.2 Billion in 2017. News release. 13 June.

⁸ ADB. *Green Bond Framework*. Manila.

Green Bond Commitment by Country

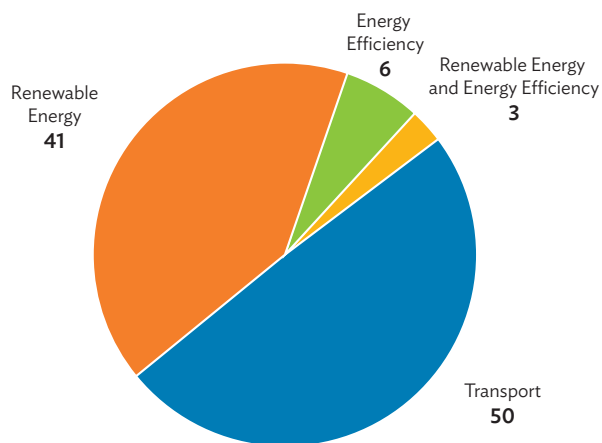
(%)



Source: Treasury Department, ADB.

Green Bond Commitment by Sector

(%)



Source: Treasury Department, ADB.

Outstanding Green Bond Issuances (as of 31 December 2018)

Format	Issue Date	Maturity Date	Issue Size
Global	19 March 2015	19 March 2025	\$500,000,000
Global	16 August 2016	16 August 2019	\$800,000,000
Global	16 August 2016	14 August 2026	\$500,000,000
Private Placement	30 March 2017	30 March 2027	\$50,000,000
Private Placement	25 May 2017	26 May 2022	A\$43,200,000
Private Placement	25 May 2017	26 May 2022	\$10,200,000
Private Placement	25 May 2017	26 May 2021	TL105,200,000
Public Offering	24 May 2017 ^a	24 February 2021	₹5,000,000,000
Global	10 August 2017	10 August 2022	\$750,000,000
Global	10 August 2017	10 August 2027	\$500,000,000
Private Placement	15 November 2017	15 November 2027	A\$25,000,000
Private Placement	26 January 2018	26 January 2028	SKr250,000,000
Private Placement	22 March 2018	22 March 2020	HK\$100,000,000
Private Placement	30 April 2018	30 April 2020	HK\$100,000,000
Private Placement	26 June 2018 ^b	26 June 2023	SKr2,250,000,000
Global	16 July 2018	16 July 2025	€600,000,000
Global	26 September 2018	26 September 2028	\$750,000,000

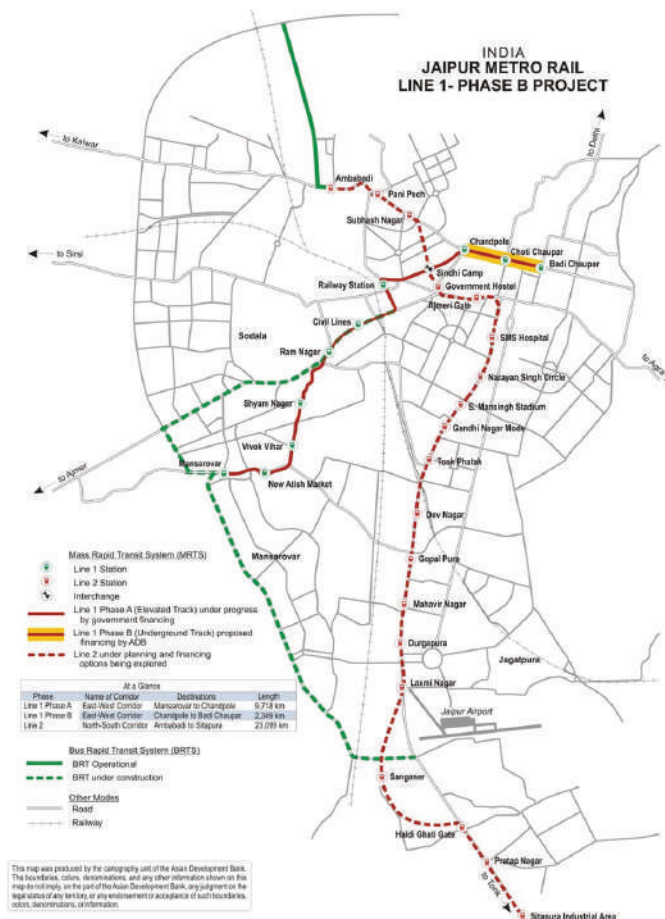
^a Reopened on 1 September 2017.

^b Reopened on 13 September 2018.

CASE STUDY

India: Jaipur Metro Rail Project

ADB loan package: \$176 million



System map of the Jaipur rapid transit system. Marked in yellow is the ADB-financed Metro Rail Line 1-Phase B.

The ADB-financed Jaipur Metro Rail Line 1-Phase B project will improve the mass rapid transit system in Jaipur, capital of India's Rajasthan State. The project will finance the extension of Line 1-Phase A with a 2.3 kilometer underground portion from Chandpole to Badi Chopar. Line 1-Phase A and Phase B comprise a single and continuous urban railway system and will integrate with feeder routes of a bus rapid transit system that is also under construction.

The underground location will minimize physical congestion in the busy central business district and preserve Jaipur's cultural heritage and historic architecture. The metro rail network is expected to provide mass rapid transit capacity for the city's major mobility corridors, aiming to reverse the rising shift to private cars and achieve a vision of an improved public transport system in Jaipur—optimizing general mobility, enhancing quality of life, and making the city more pleasant to live and work in.



Transport sector development. Metro rail tunnel under construction. The project to increase mass rapid transit capacity in Jaipur, India, is expected to improve general mobility and make the city more pleasant to live and work in.

Specifically, the project will have the following outputs:

- (i) Financing of Line 1-Phase B, comprising the underground rail infrastructure and two stations. Total project cost is estimated at \$259 million, financed through a loan of \$176 million from ADB and an \$83 million interest-free loan from the Government of Rajasthan. Key activities include procurement and execution of contracts for works, equipment installation, and testing; and commissioning for the alignment and formation of the tunnel, standard gauge permanent way, traction system, signal and train control, telecommunication, and station facilities.
- (ii) Updated Line 2 plans through provision of consulting services.

Significant development impacts include (i) improved access to markets and basic social and other services, contributing to improved health and education outcomes, particularly among women and children; (ii) better transport facilities by providing a safe, comfortable, and reliable mode of public transport, reducing journey time considerably and providing better access to markets; and (iii) increased employment by providing job opportunities for women in the operation and maintenance of the metro rail systems, such as ticketing staff and station personnel, as well as in the technical aspects of driving the trains and other engineering-related jobs.

List of ADB Green Bond Eligible Projects by Sector Target Impacts and Committed and Allocated Amounts

A. Renewable Energy and Energy Efficiency (As of 31 December 2018)

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	RE or EE	Project Life (Years) ^b	Annual Energy Savings (MWh) ^b	Annual Energy Produced (MWh) ^b	Renewable Capacity Added (MW) ^b	Annual GHG Emissions Avoided (tons of CO ₂ equivalent) ^b	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
1	http://www.adb.org/projects/40061-013/main?page-2=1	Indonesia: Java-Bali Electricity Distribution Performance Improvement (2619/FY2010): Reduce distribution system losses, and with an energy efficient lighting program, reduce demand-side energy consumption.	M	EE	40	400,000	na	na	330,000	<ul style="list-style-type: none"> • Deferral of new distribution network investment by \$100 million • Overall distribution loss reduced to 7% from 8.4% in 2008 • System average interruption frequency index reduced to 3 times per year per customer from 6.8 in 2008 • Fully disbursed 	120.00	50.00	16.70	16.70
2	http://www.adb.org/projects/40682-013/main?page-3=1	China, People's Republic of: Integrated Renewable Biomass Energy Development Sector (2632/FY2010): Improve performance of biogas subsector through the demonstration of an integrated renewable biomass energy system in poor rural areas of Heilongjiang, Henan, Jiangxi, and Shandong provinces in the PRC.	M	RE	15	27,222	92,000	--	1,000,000	<ul style="list-style-type: none"> • About 90% of the wastes of the subproject farms is collected and treated via the project biogas plant • About 70 million m³ of biogas produced every year for rural energy use • About 41,000 households, including 8,000 poor households, benefit from improved access to clean energy • About 27,000 farmers increased their incomes through expanded contract farming • About 9,000 poor households benefit from the use of organic fertilizer and sales of organic products • GHG emissions reduced by about 1 million tons of CO₂ equivalent 	152.54	66.08	60.06	37.73
3	http://www.adb.org/projects/41504-023/main?page-2=1&page-3=1	Papua New Guinea: Town Electrification Investment Program, Tranche 1 (2713/FY2010): Increase generation and use of RE in provincial areas.	M	RE	30	na	35,600	6	35,000	<ul style="list-style-type: none"> • Installation of six additional small hydropower plants in target provincial areas by end 2016 • Reduced power outages by 20% in target provincial urban areas by end 2016 • Reduced fuel costs for PNG Power Limited power generation by 60% in target provincial areas by end 2016 	71.60	40.90	37.90	30.39

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	RE or EE	Project Life (Years) ^b	Annual Energy Savings (MWh) ^b	Annual Energy Produced (MWh) ^b	Renewable Capacity Added (MW) ^b	Annual GHG	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
									Emissions Avoided (tons of CO ₂ equivalent) ^b					
4	http://www.adb.org/projects/42016-013/main?page-2=1&page-3=1	China, People's Republic of: Qinghai Rural Water Resources Management (2738/FY2011): Increase water use efficiency, convert existing lift irrigation to gravity irrigation, improve agricultural extension services, and empower farmer associations to use and manage irrigated agricultural service.	M	EE	--	49,410	na	na	43,649	<ul style="list-style-type: none"> • Spring wheat yield increased from 4.6 t/ha in 2009 to 5.7 t/ha by 2016, and winter wheat yield increased from 5.8 t/ha in 2009 to 7.2 t/ha by 2016 • High-value crops diversified on additional 3,000 ha by 2016 • Irrigation water use efficiency increased from 35% in 2009 to 56% by 2016 • Gravity irrigation cover increased from 26% to 89% of the irrigated areas in project countries • Average operation and maintenance cost including electricity reduced from CNY0.168/m³ for lift irrigation to CNY0.033/m³ for gravity irrigation 	223.60	60.00	45.32	34.94
5	http://www.adb.org/projects/44431-013/main?page-2=1&page-3=1	India: Gujarat Solar Power Transmission (2778/FY2011): Develop the transmission infrastructure to evacuate power from the solar power generation plants to be located in the 2,500 ha Charanka Solar Park located in Patan district of Gujarat; the solar park will host over 500 MW of both solar photovoltaic and concentrated solar power plants.	M	RE	40	na	na	na	na	<ul style="list-style-type: none"> • Up to 500 MW of power can be evacuated from the Charanka Solar Park over the transmission link to the Gujarat and national grid commencing in 2014 (2010 baseline: 0 MW) 	133.69	100.00	68.00	49.14
6	http://www.adb.org/projects/46906-014/main	China, People's Republic of: Everbright Environmental Energy Limited (Municipal Waste to Energy Project) (7368/2899/2900/FY2012): Increase power generation from municipal solid waste, a form of RE resource.	M	RE	40	na	496,000	84	255,200	<ul style="list-style-type: none"> • 70% of municipal solid waste in the PRC is properly treated, with 30% incinerated in cities, by 2020 (2010 baseline: 63.5% properly treated, with 14.7% incinerated in cities) • Total installed capacity of municipal WTE plants in the PRC reaches 3 GW by 2020 (2010 baseline: about 500 MW) • Approximately an additional 7,300 tons per day of waste is treated by 2018 • Fully disbursed 	200.00	100.00	80.00	80.00

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	RE or EE	Project Life (Years) ^b	Annual Energy Savings (MWh) ^b	Annual Energy Produced (MWh) ^b	Renewable Capacity Added (MW) ^b	Annual GHG	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
									Emissions Avoided (tons of CO ₂ equivalent) ^b					
7	https://www.adb.org/projects/46914-014/main#project-pds	Regional: Southeast Asia Energy Efficiency Project (Cofely Southeast Asia Pte) (7371/2919/FY2012): Support the investment program to expand and upgrade energy efficiency services in Cambodia, Indonesia, the Lao PDR, Malaysia, the Philippines, Thailand, and Viet Nam by removing financial constraints and information barriers that inhibit the development of the energy efficiency market.	M	EE	20	150,000	na	na	90,000	<ul style="list-style-type: none"> The project achieves annual energy savings of at least 150,000 MWh equivalent from energy efficiency projects by 2019 The project results in average annual avoidance of 90,000 tons of carbon emissions by 2019 The project generates an average annual net savings of \$10 million from energy efficiency projects by 2019 	200.00	20.00	20.00	9.08
8	http://www.adb.org/projects/45224-003/main?page-2=1	India: Rajasthan Renewable Energy Transmission Investment Program-Tranche 1 (3052/FY2013): Support transmission facilities to evacuate RE from the renewable energy park to the state and national grid.	M	RE	40	na	na	na	na	<ul style="list-style-type: none"> Bulk RE-dedicated power transmission system expanded Institutional capacity for renewable energy parks and transmission system developed 	279.00	62.00	58.09	49.20
9	http://www.adb.org/projects/46930-014/main?page-2=1	China, People's Republic of: Dynagreen Waste-to-Energy Project (7377/2960/FY2012): Increase power generation from municipal solid waste, a form of RE resource.	M	RE	40	na	610,000	120	450,000	<ul style="list-style-type: none"> 2.8 million tons on average per annum of municipal solid waste treated by 2018 About 610 GWh of clean energy is produced annually by WTE plants by 2018 CO₂ emissions are reduced by approximately 450,000 tons per annum by 2018 Up to 700 local workers employed by nine WTE plants during operation CNY45 million of local goods and services on average per annum procured during operations starting 2018-2019 	378.50	100.00	100.00	67.81
10	http://www.adb.org/projects/46058-002/main?page-2=1	China, People's Republic of: Qinghai Delingha Concentrated Solar Power Thermal Project (3075/FY2013): Increase solar power generation using concentrated solar power technology; increase the share of RE in the total primary energy consumption.	M	RE	25	na	197,000	50	154,446	<ul style="list-style-type: none"> 50 MW Qinghai Delingha plant operates reliably delivering designed output (baseline: 0 MW in 2013) 197 GWh of clean electricity generated annually, thereby avoiding 154,446 tons of CO₂ per year by 2017 (baseline: 0 GWh in 2013) 	322.26	150.00	150.00	114.36

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									Emissions Avoided (tons of CO ₂ equivalent) ^b					Target Results ^b
11	http://www.adb.org/projects/42916-014/main?page=2=1	Indonesia: Sarulla Geothermal Power Development Project (7397/3089/FY2013): Increase the use of geothermal resources for power generation.	M	RE	30	na	2,529,000	320	1,300,000	<ul style="list-style-type: none"> • Annual electricity production of 2,529 GWh from 2018 onward • Net reduction of 1.3 million tons of CO₂ equivalent emissions per year from 2018 onward • Annual corporate tax paid averages at least \$20 million per annum • Employment equivalent to 100 full-time skilled or semiskilled jobs provided during operations by 2020 • Women comprise at least 20% of the technical or laboratory and administrative positions during operations by 2020 • Indigenous peoples comprise 20% of the semiskilled labor from the affected area (Pahae Jae and Pahae Julu) and the North Tapanuli Regency during operations by 2020 	1,239.30	250.00	250.00	250.00
12	http://www.adb.org/projects/48209-001/main?page=2=1	India: ACME-EDF Solar Power (3175/FY2014): Increase solar power generation capacity by 20 MW.	M	RE	25	na	38,000	20	35,340	<ul style="list-style-type: none"> • 38,000 MWh generated annually from 2018 onward • 35,340 tons of CO₂ avoided annually from 2018 onward • FTE employment of 14 people for operation and maintenance services from 2018 onward 	199.00	9.79	9.79	9.28
13	http://www.adb.org/projects/48209-001/main?page=2=1	India: ACME-EDF Solar Power (3176/FY2014): Increase solar power generation capacity by 20 MW.	M	RE	25	na	38,000	20	35,340	<ul style="list-style-type: none"> • 38,000 MWh generated annually from 2018 onward • 35,340 tons of CO₂ avoided annually from 2018 onward • FTE employment of 14 people for operation and maintenance services from 2018 onward 	part of # 12	9.81	9.81	9.39
14	http://www.adb.org/projects/48209-001/main?page=2=1	India: ACME-EDF Solar Power (3177/FY2014): Increase solar power generation capacity by 20 MW.	M	RE	25	na	38,000	20	35,340	<ul style="list-style-type: none"> • 38,000 MWh generated annually from 2018 onward • 35,340 tons of CO₂ avoided annually from 2018 onward • FTE employment of 14 people for operation and maintenance services from 2018 onward 	part of # 12	9.79	9.79	9.28

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	RE or EE	Project Life (Years) ^b	Annual Energy Savings (MWh) ^b	Annual Energy Produced (MWh) ^b	Renewable Capacity Added (MW) ^b	Annual GHG	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
									Emissions Avoided (tons of CO ₂ equivalent) ^b					
15	http://www.adb.org/projects/48209-001/main?page-2=1	India: ACME-EDF Solar Power (3178/FY2014): Increase solar power generation capacity by 20 MW.	M	RE	25	na	38,000	20	35,340	<ul style="list-style-type: none"> • 38,000 MWh generated annually from 2018 onward • 35,340 tons of CO₂ avoided annually from 2018 onward • FTE employment of 14 people for operation and maintenance services from 2018 onward 	part of # 12	9.81	9.81	9.39
16	http://www.adb.org/projects/48209-001/main?page-2=1	India: ACME-EDF Solar Power (3179/FY2014): Increase solar power generation capacity by 20 MW.	M	RE	25	na	38,000	20	35,340	<ul style="list-style-type: none"> • 38,000 MWh generated annually from 2018 onward • 35,340 tons of CO₂ avoided annually from 2018 onward • FTE employment of 14 people for operation and maintenance services from 2018 onward 	part of # 12	10.79	10.79	10.37
17	http://www.adb.org/projects/48209-001/main?page-2=1	India: ACME-EDF Solar Power (3180/FY2014): Increase solar power generation capacity by 100 MW.	M	RE	25	na	190,000	100	176,700	<ul style="list-style-type: none"> • 190,000 MWh generated annually from 2018 onward • 176,700 tons of CO₂ avoided annually from 2018 onward • FTE employment of 70 people for operation and maintenance services from 2018 onward 	part of # 12	50.00	50.00	-
18	http://www.adb.org/projects/46453-002/main?page-2=1	Cook Islands: Renewable Energy Sector Project (3193/FY2014): Increase solar power generation capacity by 3 MWp.	M	RE	25	na	4,870	3	2,930	<ul style="list-style-type: none"> • By end of 2016, solar photovoltaic power system of core subprojects (780 kW of installed capacity) connected to the existing power grid on Mangaia, Mauke, and Mitiaro islands • By end of 2017, solar photovoltaic power system of noncore subprojects (2,400 kW) connected to the existing power grid on Atiu, Aitutaki, and Rarotonga islands • By end of 2017, energy efficiency policy implementation plan is developed • Capacity of Office of Energy Commissioner and Renewable Energy Development Division (REDD) (10 staff in total) for RE technology assessments and tariff setting in private sector-funded projects developed 	24.28	11.19	11.19	6.79

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	RE or EE	Project Life (Years) ^b	Annual Energy Savings (MWh) ^b	Annual Energy Produced (MWh) ^b	Renewable Capacity Added (MW) ^b	Annual GHG	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
									Emissions Avoided (tons of CO ₂ equivalent) ^b					
22	http://www.adb.org/projects/49263-001/main	Thailand: Northeastern Thailand Wind Power Project (7462/3366/FY2015): Increase wind power generation and diversify electricity generation mix.	M	RE	20	na	411,000	260	222,000	<ul style="list-style-type: none"> • Wind power facilities (including transmission line and substation) with 260 MW of capacity commissioned by the second quarter of 2018 • Employment for more than 250 people generated during construction by 2018 • Local purchase of goods and services amounts to more than B3,000 million (\$82 million) during construction 	not disclosed ^g	157.50	157.50	-
23	https://www.adb.org/projects/49241-001/main	India: Mytrah Energy (India) Limited (Mytrah Wind and Solar Development Project) (7474-7479/3379-84/FY2016): Comprises 476 MW of wind projects in four SPVs in Rajasthan, Madhya Pradesh, Andhra Pradesh, and Karnataka and 100 MW of solar projects in two SPVs in Telangana and Punjab.	M	RE	20 (wind) 25 (solar)	na	1,200,000	576.2	1,185,165	<ul style="list-style-type: none"> • 241 MW wind farm project commissioned by 2016 • 234 MW of additional wind capacity commissioned by 2017 • 100 MW of solar capacity commissioned by 2016 • 1,200 GWh generated annually • 1,185,165 tons of CO₂ avoided annually • At least 64 FTE local jobs and 415 contractual jobs are created for operations • Direct contribution (corporate tax) to government revenues amounts to an average of ₹890 million (\$13 million equivalent) annually 	669.50	175.00	175.00	95.31
24	https://www.adb.org/projects/49366-001/main	Thailand: Stumpf Energy Solutions (Thailand) and Stumpf Energy Tranche B (Distributed Commercial Solar Power) (7483/3412/FY2016): The project involves the rollout of multiple solar photovoltaic installations, each with a capacity ranging from 400 kWp to 5 MWp, on rooftops or elsewhere on the premises of commercial and/or industrial buildings owned or leased by host companies in Thailand, up to an aggregate capacity of 100 MW, and installed with no upfront cost to the host companies.	M	RE	25	na	120,000	100	73,200	<ul style="list-style-type: none"> • Rollout and operation of multiple solar photovoltaic installations on rooftops or elsewhere on the premises of commercial and/or industrial buildings, with a total capacity of up to 100 MW • 73,200 tons of CO₂ avoided annually 	125.40	47.00	47.00	-

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									Avoided (tons of CO ₂ equivalent) ^b					
25	https://www.adb.org/projects/48224-002/main	India: Demand-Side Energy Efficiency Sector Project (3436/FY2016): ADB will provide a loan to Energy Efficiency Services Limited (EESL) to support demand-side energy efficiency investments in several states of India. ADB's loan will cover high-priority areas under EESL's energy services company through the use of more efficient LED municipal street lighting equipped with remote operating technology; more efficient domestic lighting through replacement of incandescent lights with LEDs; and more energy efficient agricultural water pumps.	M	EE	11 (LED) 10 (pumps)	3,800,000	na	na	3,000,000	<ul style="list-style-type: none"> Efficiency of street lighting in one or more municipalities in eligible states (including Goa, Maharashtra, Rajasthan, and Telangana) enhanced; 1.5 million streetlights replaced with LED lamps Efficiency of bulbs, tube lights, and electric fans in households and institutions in utility service areas in eligible states (including Andhra Pradesh, Maharashtra, Rajasthan, and Uttar Pradesh) enhanced; 42 million LED lamps, ceiling fans, and LED tube lights installed Efficiency of agricultural water pumps in utility service areas in eligible states (including Andhra Pradesh, Karnataka, Maharashtra, and Rajasthan) improved; 225,000 inefficient agricultural water pumps replaced with more efficient models Electricity consumption in subproject areas reduced by 3,800 GWh per annum Additional aggregate GHG emissions reduced by 3 million tons CO₂ equivalent per year 	400.00	200.00	200.00	59.79
26	https://www.adb.org/projects/50200-001/main	Pakistan: Triconboston Consulting Corporation (Private) Limited (Triconboston Wind Power) (7487/3448/FY2016): The project involves the construction, commissioning, and operation of three 50 MW wind power projects located in Thatta District, Sindh Province in Pakistan.	M	RE	20	na	520,000	150	380,000	<ul style="list-style-type: none"> 150 MW of wind capacity commissioned 520 GWh generated annually 380,000 tons of CO₂ avoided annually At least 35 FTE local jobs created during operations 	360.00	75.00	75.00	66.00

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									Emissions Avoided (tons of CO ₂ equivalent) ^b					
27	https://www.adb.org/projects/49056-002/main	Pakistan: Access to Clean Energy Investment Program (3476/FY2016): The project involves expanding access to RE, notably microhydropower plants in rural off-grid areas and decentralized solar plants for education and primary health care facilities in Khyber Pakhtunkhwa and Punjab; providing women and girls with increased opportunities to obtain energy services and benefits; enhancing institutional capacity to foster sustainability; and promoting public sector energy efficiency in Punjab.	M	RE & EE	25	na	149,300	182	74,800	By 2021: <ul style="list-style-type: none"> Power generation capacity from clean energy sources increased by 182 MW At least 26,587 sites have RE-based power plants installed Girls' schools account for at least 30% of schools with solar plant installed Households headed by women account for at least 7% of target households that are newly connected to electricity 500 primary health care facilities used by women for delivery or antenatal care are equipped with solar plants 3,000 women are trained to equip them in using energy benefits By 2019: <ul style="list-style-type: none"> Energy audits are conducted on 100% of identified public sector buildings and a model net-zero energy building is constructed 	376.45	325.00	247.00	57.07
28	https://www.adb.org/projects/50156-001/main	Indonesia: PT Supreme Energy Muara Laboh (Muara Laboh Geothermal Power) (3487/FY2016): The project will develop geothermal steam resources through production and injection facilities in the Liki Pinangawan Muaralaboh concession area and construct, operate, and maintain a single power generation unit with a total capacity of approximately 80 MW.	M	RE	30	na	630,000	80	471,240	<ul style="list-style-type: none"> Total of project-installed electricity generation capacity increased to 80 MW Electricity generated and delivered to offtaker increased to 630 GWh per year Annual emission reductions reached 471,240 metric tons of CO₂ equivalent At least 190 jobs provided during operation 	590.9	70.00	70.00	48.30
29	https://www.adb.org/projects/49087-001/main	Thailand-Thai-Sunseap Asset Company Limited (Grid Parity Rooftop Solar) (7494/3490/FY2016): The project involves the rollout of multiple solar photovoltaic installations, each with a capacity ranging from 400 kWp to 10 MWp, on rooftops or elsewhere on the premises of commercial and/or industrial buildings owned	M	RE	25	na	120,000	100	61,056	<ul style="list-style-type: none"> 100 MW of solar panels installed More than 120,000 MWh of solar power generated annually 61,056 tons of CO₂ emissions avoided annually 15 FTE local jobs created during operation 	116.15	43.56	43.56	-

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									Emissions Avoided (tons of CO ₂ equivalent) ^b						
		or leased by host companies in Thailand, up to an aggregate capacity of 100 MW, and installed with no upfront cost to the host companies.													
30	https://www.adb.org/projects/50248-001/main	Cambodia: Sunseap Asset (Cambodia) Co. Ltd. (Cambodia Solar Power) (7498/3495/FY2016): The project is the first utility-scale solar power plant in Cambodia, and the first competitively tendered RE independent power producer project in the country. It is a build-own-operate, public-private partnership transaction for a 10 MW solar power plant to be located in Bavet City in Svay Rieng Province, about 150 km from the capital Phnom Penh.	M	RE	25	na	14,000	10	9,500	<ul style="list-style-type: none"> • 10 MW of solar power capacity commissioned by July 2017 • 5.5 km transmission line connecting the plant to the substation completed by June 2017 • More than 14 GWh of power dispatched to Electricité du Cambodge per annum by 2018 • Annual amount of emissions reductions reached 9,500 tons of CO₂ equivalent on average during the first 10 years of operation • Number of FTE jobs provided during operation phase to reach at least 10 by 2018 • Direct contribution (corporate tax) to government revenues amounts to at least \$25,000 equivalent per annum by 2023 	not disclosed ^g	3.60	3.60	3.25	
31	https://www.adb.org/projects/50195-001/main	India: ReNew Power Ventures Private Limited (ReNew Clean Energy Project) (7495/3488,7504-09/3514-3519/FY2016): ADB will provide funding to seven SPVs established by ReNew for developing 709 MW of solar and wind projects in the states of Andhra Pradesh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, and Telangana.	M	RE	20 (wind) 25 (solar)	na	1,400,000	709	1,200,000	<ul style="list-style-type: none"> • 398 MW of solar capacity commissioned by 2018 • 311 MW of wind capacity commissioned by 2017 • 1,400 GWh generated annually • 1.2 million tons of CO₂ avoided annually • Number of jobs provided during operation to reach at least 200 • Direct contribution (corporate tax) to government revenues amounts to an average of \$11.6 million per year, during project life 	778.2	194.60	194.60	48.33	
32	https://www.adb.org/projects/49214-002/main	India: Solar Transmission Sector Project (3521/FY2017): Develop high-voltage transmission systems to evacuate electricity generated by new mega solar parks to the interstate grid, and improve the reliability of the national grid system.	M	RE	40	--	--	--	--	<ul style="list-style-type: none"> • 201 km of transmission systems (765 kV and 400 kV) constructed to help evacuate 2,500 MW of power from solar parks in Bhadla, Rajasthan • 95 km of transmission systems (400 kV) constructed to help evacuate 700 MW of power from solar parks in Banaskantha, Gujarat 	450	175.00	175.00	49.45	

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										<ul style="list-style-type: none"> • 195 km of transmission systems (400 kV) constructed to help evacuate 1,000 MW of power from solar parks in Tumkur, Karnataka • High Voltage Direct Current terminals (500 kV) between Rihand and Dadri rehabilitated to provide an efficient power supply with a capacity of 1,500 MW • POWERGRID's Environment and Social Policy and Procedures adopted by ADB, and additional actions implemented by POWERGRID from 2016 onward • POWERGRID's Works and Procurement Policy and Procedures adopted by ADB, and additional actions implemented by POWERGRID from 2017 onward 				
33	https://www.adb.org/projects/50146-001/main	Armenia: Electric Networks of Armenia (ENA) Distribution Network (7514/3540/ FY2017): Improve the quality of the distribution network and services of ENA's multisite operations across the country; reduce electricity losses and operational expenses; improve technical maintenance and safety conditions; modernize the metering system; rehabilitate, reinforce, and augment the distribution network; connect new customers; and introduce international standards of management and an automated control system.	M	EE	40	26,500	na	na	11,400	<ul style="list-style-type: none"> • 400 km of distribution lines upgraded to 10/0.4 kV overhead lines • 900 10/0.4 kV transformers upgraded • 550 substations upgraded • 250,000 automatic metering devices for end consumers installed 	201.24	80.00	80.00	35.00

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									Emissions Avoided (tons of CO ₂ equivalent) ^b					Target Results ^b
34	https://www.adb.org/projects/41504-025/main	Papua New Guinea: Town Electrification Investment Program—Tranche 2 (3544-45/FY2017): Rehabilitate two hydropower plants, Yonki Toe of Dam Hydropower Plant and Warangoi Hydropower Plant, which are currently operating below their full capacities; construct Ramazon run-of-river small hydropower plant with a capacity of 3 MW.	M	RE	25	na	84,000	3	70,000	<ul style="list-style-type: none"> • PNG Power Limited rehabilitates three aging hydropower plants to bring them back to their rated capacity of 28 MW • PNG Power Limited constructs and connects to the grid 3 MW of hydropower capacity • Capacity building undertaken for implementing agency and project beneficiaries • The program management unit renders efficient project management services 	76.6	60.90	60.90	11.82
35	https://www.adb.org/projects/49339-001/main	Samoa: Jarcon PTY Limited and Sun Pacific Energy Limited (Solar Power Development-Samoa) (7515/3553/FY2017): Increase supply of clean, carbon-negative solar energy generated through an independent power producer.	M	RE	25	na	5,500	4	1,644	<ul style="list-style-type: none"> • 4 MW solar power system commissioned by the end of 2017 • Up to 20 construction jobs and 5 permanent jobs for operations and maintenance of the project created • Fully disbursed 	7.00	2.00	2.00	2.00
36	https://www.adb.org/projects/50373-002/main	Sri Lanka: Solar Rooftop Power Generation Project(3571/FY2017): Install rooftop solar power generation systems, develop rooftop solar market infrastructure and a bankable subproject pipeline, and build capacity and increase awareness of stakeholders in Sri Lanka.	M	RE	25	na	75,600	50	55,600	<ul style="list-style-type: none"> • 6,400 rooftop solar subprojects financed utilizing a \$50.0 million loan and \$9.8 million leveraged from the private sector • 10 PFIs for handling debt funding of rooftop solar systems by commercial and domestic sectors selected • Pipeline of bankable subprojects with 50 megawatts capacity developed • Project technical guidelines and standards to be followed by borrowers, vendors, and accredited engineers established • Technical verification during preinstallation and post-installation conducted • An analytical report on identified technical shortcomings and failures prepared • At least 80 workshop participants (30% of them women) from the MOFMM, PFIs, and developers reported improved knowledge on rooftop solar systems 	59.80	50.00	50.00	-

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										<ul style="list-style-type: none"> • A comprehensive database of all installations, including online technical performance information of selected rooftop solar photovoltaic systems, established and maintained • At least 150 representatives from the MOFMM, PFIs, and developers attended awareness campaigns 				
37	https://www.adb.org/projects/49067-001/main#project-pds	Thailand: Chana Green Company Limited (Southern Thailand Waste-to Energy Project) (7524/3581/FY2017): Entails the construction and operation of a 25 MW biomass WTE power project located in Chana, Songhla Province, Southern Thailand. It will convert approximately 825 tons per day of agricultural waste into renewable electricity generation.	M	RE	40	na	166,000	25	72,874	<ul style="list-style-type: none"> • Total installed renewable electricity generation capacity of 25 MW • 300 jobs generated during construction 	not disclosed ^g	33.60	33.60	18.33
38	https://www.adb.org/projects/49345-002/main	Sri Lanka: Wind Power Generation Project (3585/FY2017): Includes wind power generation development, consisting of construction of a 100 MW wind farm; wind park internal infrastructure, internal cabling, access roads, and other arrangements; an RE dispatch control center to forecast, control, and manage intermittent wind power generation; improvement of power system reactive power management; and project engineering design review and supervision support in Mannar Island of the Northern Province.	A&M	RE	20	na	345,600	100	265,700	<ul style="list-style-type: none"> • 100 MW wind power park constructed • Wind park internal infrastructure, including 31 km of 33 kV underground cables and access roads, developed • RE dispatch control center to forecast, control, and manage intermittent 100 MW wind power generation established • 100 MVA reactive reactors at Anuradhapura grid substation (North Central Province) installed • 50 MVA reactive reactor at Mannar grid substation (Northern Province) installed • Engineering oversight of wind turbine installation, commissioning and testing, and technical certification over the construction period delivered 	256.70	200.00	200.00	13.00

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									Emissions Avoided (tons of CO ₂ equivalent) ^b					
39	https://www.adb.org/projects/50174-001/main	Pakistan: Zorlu Solar Pakistan (Private) Limited (Zorlu Solar Power) (7530/3596/FY2017): Involves design, construction, operation, and maintenance of a 100 MW solar power plant and its associated infrastructure.	M	RE	--	na	163,100	100	100,000	<ul style="list-style-type: none"> Solar power generation capacity increased by 100 MW Number of jobs provided during construction at least 400 Total payment to government provided during construction and early operation at least \$0.20 million Total domestic purchases during construction and early operation at least \$20 million 	75-90 ^f	20.00	20.00	-
40	https://www.adb.org/projects/51209-001/main	Indonesia: PT Energi Bayu Jeneponto (Eastern Indonesia Renewable Energy-Phase 1) (7533/3606/FY2017): Involves the construction, operation, and maintenance of a portfolio of RE projects by the Equis Group of East Indonesia. Phase 1 is a 72 MW wind power plant in Jeneponto, South Sulawesi.	M	RE	20	na	234,000	72	159,000	<ul style="list-style-type: none"> Installed project's wind capacity reaches 72 MW At least 500 jobs provided during construction phase At least 50 jobs provided for women during construction phase Payments to the government of Indonesia during construction and early operation reach \$4 million Domestic purchases during construction and early operations reach \$41 million 	not disclosed ^g	56.35	56.35	56.33
41	https://www.adb.org/projects/50371-001/main	Viet Nam: China Everbright International Limited (Municipal Waste-to-Energy Project) (7534/3607/FY2017): Supports the construction and operation of a series of WTE plants with advanced clean technologies, including flue gas emission control to meet European Union standards, in multiple municipalities. Each plant incinerates municipal solid waste, recovers waste heat for power generation, and supplies electricity to the local grid.	M	RE	40	na	790,000	110	787,300	<ul style="list-style-type: none"> 110 MW installed power capacity from municipal WTE plants commissioned by 2022 7,500 tons per day of municipal solid waste treatment capacity from municipal WTE plants commissioned by 2022 \$250 million of local purchase of goods and services during construction by 2022 1,500 jobs provided during construction phase by 2022 Number of jobs provided to women during construction to reach at least 75 	not disclosed ^g	100.00	100.00	-

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	RE or EE	Project Life (Years) ^b	Annual Energy Savings (MWh) ^b	Annual Energy Produced (MWh) ^b	Renewable Capacity Added (MW) ^b	Annual GHG	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
									Emissions Avoided (tons of CO ₂ equivalent) ^b					
42	https://www.adb.org/projects/51210-001/main	India: Ostro Kutch Wind Private Limited (Kutch Wind Project) (7539/3622/FY2017): Involves the installation of 125 V-110 Vestas turbines of 2 MW wind capacity each. Ostro Kutch has signed four power purchase agreements with PTC India Limited for the sale of 250 MW wind power produced by the project. Facilitating the delivery of the country's first wind auctioned project, the project demonstrates the commercial viability of competitively bid wind projects and encourages long-term private sector financing in this sector. The project will also help reduce the country's dependence on fossil fuels and promote RE development.	M	RE	20	na	762,000	250	669,036	<ul style="list-style-type: none"> • 250 MW wind power capacity installed • Electricity generated and delivered to offtaker increased to 762 GWh per year • Contribution to government revenue amounts to an annual average of ₹50 million, increasing to ₹250 million by 2032 • Local purchase of goods and services amounts to \$271.1 million during construction 	not disclosed ^g	100.00	100.00	-
43	https://www.adb.org/projects/51186-001/main#project-pds	China, People's Republic of: Sinopec Green Energy Geothermal Development (Geothermal District Heating) (7540/3638/FY2017): Supports the construction, acquisition, rehabilitation, and operation of a series of urban district heating system based on geothermal energy.	M	RE	30	14,293	--	--	7,000,000	<ul style="list-style-type: none"> • At least 20 municipalities or counties are connected by Sinopec Green Energy to geothermal-based district heating by 2021 • At least CNY7.9 billion spent domestically during construction by 2021 • At least 2,000 jobs provided during construction phase by 2021 	not disclosed ^g	200.00	200.00	-
44	https://www.adb.org/projects/50088-002/main	Mongolia: Upscaling Renewable Energy Sector Project (3708/FY2018): The project will develop a 41 MW, first-of-its-kind distributed RE system with a variety of RE technologies supplying clean electricity and heat in geographically scattered load centers in the less-developed region of Western Mongolia. Once completed, the project will generate 99 GWh of clean electricity yearly, thereby enabling the country to reduce its CO ₂ emissions by 87,968 tons per year.	M	RE	20 (wind) 25 (solar)	na	99,000	41	87,968	<ul style="list-style-type: none"> • Core subprojects install 10 MW of distributed RE capacity in the western grid system, and 15.5 MW capacity with battery storage in the Altai-Uliastai grid system by 2021 • Noncore subprojects install 15 MW of distributed RE capacity in Altai-Uliastai grid system by 2022 • 500 kW of shallow-ground heat pumps are installed in the five selected <i>aimag</i> (province) centers by 2023 • Capacity development training provided for at least 50 counterpart engineers and operators for Western Region Energy System State-Owned 	66.22	40.00	40.00	-

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									Emissions Avoided (tons of CO ₂ equivalent) ^b					
										Joint Stock Company and Altai–Uliastai Region Energy System State-Owned Joint Stock Company by 2023				
45	https://www.adb.org/projects/50330-001/main	Indonesia: Rantau Dedap Geothermal Power Project (Phase 2)(3647/FY2018): Construct, operate, and maintain the project, with a design gross capacity of 98.4 MW and net capacity of 90.9 MW, in South Sumatra Province. It is located 225 km southwest of Palembang across the administrative areas of Muara Enim Regency, Lahat Regency, and Pagar Alam City.	M	RE	30	na	702,500	90.9	403,000	<ul style="list-style-type: none"> • Total installed electricity generation capacity of project reached 90.9 MW • Cumulative number of jobs provided during construction totaled 1,000 • Total domestic purchases during construction and early operation reached \$200 million • Total payments to the government provided during construction and early operation totaled at least \$20 million • Women participating and benefiting from training on livelihood and skills development accounted for at least 30% of total trainees • Five women's groups provided technical and financial support on livelihood opportunities and skill development in at least five of the project villages • At least five women entrepreneurs from the surrounding communities receive support to supply some of the project requirements 	709	177.50	177.50	22.02
46	https://www.adb.org/projects/51209-002/main	Indonesia: Eastern Indonesia Renewable Energy Project (Phase 2) (7550/3653-56/FY2018): Involves the construction, operation, and maintenance of projects by Equis Energy in Eastern Indonesia. Phase 2 consist of a 21 MW solar power plant and associated infrastructure in Likupang, North Sulawesi; and three 7 MW solar power plants and associated infrastructure in Pringgabaya, Selong, and Sengkol in Lombok, West Nusa Tenggara. Equis Energy will develop and implement phase 2 under four 20-year build-own-operate power purchase agreements.	M	RE	25	na	61,000	42	41,400	<ul style="list-style-type: none"> • Total installed solar electricity generation capacity reached 42 MW • At least 800 jobs provided during the construction phase • At least 30 jobs provided to women during the construction phase • Payments to the Government of Indonesia during construction and early operation reached \$1.15 million • Domestic purchases during construction and early operation reached \$14.2 million • One capacity-building training in RE and entrepreneurial skills targeting women entrepreneurs conducted annually for the first 4 years 	53.56	12.49	12.49	12.49

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									Avoided (tons of CO ₂ equivalent) ^b					
										<ul style="list-style-type: none"> • At least five training participants given technical support in starting small businesses • At least five training participants employed by the services sector 				
47	https://www.adb.org/projects/51250-001/main#project-overview	Kazakhstan: Baikonyr Solar Power Project (7556/3658/FY2018): The project comprises the design, construction, commissioning, operation, and maintenance of a 50 MWp ground-mounted solar power plant (along with associated infrastructure) and its integration into the grid. The main project components will include 150,822 photovoltaic panels, 14 central inverter stations, and a substation. The project is located in southern Kazakhstan approximately 30 km east of Kyzylorda and will cover 150 ha.	M	RE	25	na	73,000	50	40,800	<ul style="list-style-type: none"> • Solar power generation capacity is increased by 50 MWp (nominal power) • Number of jobs provided during construction phase reached at least 150 • Total payments provided to the government during construction amounted to at least \$1 million • Total domestic purchases during construction amounted to at least \$80 million • Number of jobs provided during operation is at least 30, with 5% for women • Annual domestic purchase of goods and services is more than \$0.5 million during operation 	72	12.00	12.00	-
48	https://www.adb.org/projects/51327-001/main#project-overview	Viet Nam: Floating Solar Energy Project (7571/3723/FY2018): The project will install 47.5 MW floating solar photovoltaic panels on the reservoir of the existing Da Mi Hydropower Plant. Additional facilities include a floating central inverter; a grounded substation; and a new 3.5 km, 110 kV transmission line to connect with the national grid.	M	RE	25	na	63,138	47.5	30,302	<ul style="list-style-type: none"> • Total installed electricity generation photovoltaic capacity of project increased to 47.5 MW • Total transmission line increased by 3.5 km • Number of jobs provided during construction phase was at 40 • Number of jobs provided during operations was at least 10 • Annual domestic purchase of goods and services amounted to more than \$25 million during operations • Total payment to the government during construction and early operations was at least \$200,000 annually • Total domestic purchases during construction and early operation was at least \$25 million 	62.00	20.00	20.00	-

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	RE or EE	Project Life (Years) ^b	Annual Energy Savings (MWh) ^b	Annual Energy Produced (MWh) ^b	Renewable Capacity Added (MW) ^b	Annual GHG	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e	
									Emissions Avoided (tons of CO ₂ equivalent) ^b					Target Results ^b
49	https://www.adb.org/projects/51399-001/main	China, People's Republic of: Eco-Industrial Park Waste-to-Energy Project (7576/3750/FY2018): The project will support the construction and operation of a portfolio of WTE plants using clean, state-of-the-art technology, including advanced flue gas emission control systems that can meet stringent environmental standards. Each WTE will help meet municipalities' need to treat waste and supply electricity to the local grid, with potential to supply power and steam to treat various waste types within a park.	M	RE	40	na	275,000	60	737,154	<ul style="list-style-type: none"> • Total installed electricity generation capacity form WTE plants increased to 60 MW • Municipal solid waste treatment capacity increased to 3,000 tons per day • At least 40 jobs provided during construction phase • Technical training provided to at least 50 female staff • Domestic purchases during construction and early operation total at least \$23 million • At least 150 new jobs provided during operations • At least 31 jobs provided to women during operation • Annual domestic purchases of goods and services amounted to more than \$11 million during operations 	400	100.00	100.00	-
50	https://www.adb.org/projects/52292-001/main	Thailand: Thailand Green Bond Project (7579/3753 & 7579/3754/FY2018): The project involves the issuance of corporate bonds for the construction and refinancing of 16 utility-scale solar power plants in Thailand. Total installed capacity of the 16 plants is 98.5 MW, of which nine plants totaling 67.7 MW are completed and operational, while seven plants totaling 30.8 MW are under construction. B. Grimm will issue corporate bonds to which ADB will subscribe.	M	RE	25	na	45,000	30.8	20,115	<ul style="list-style-type: none"> • Additional solar capacity of 30.8 MW in total for seven plants installed in Thailand by B. Grimm • Assurance report issued for green bond compliance, and climate bond certificate application submitted and approved by 2019 • Five additional FTE local staff employed during operation by 2020 	154.68	154.68	154.68	-

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	RE or EE	Project Life (Years) ^b	Annual Energy Savings (MWh) ^b	Annual Energy Produced (MWh) ^b	Renewable Capacity Added (MW) ^b	Annual GHG		Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
									Emissions Avoided (tons of CO ₂ equivalent) ^b	Target Results ^b				
51	https://www.adb.org/projects/49450-008/main	Vanuatu: Energy Access Project (3572/FY2017): Assist Vanuatu to install hydropower generation to replace diesel generation in Malekula and extend the distribution grid in both Malekula and Espiritu Santo.	M	RE	30	na	2,800	0.4	600	<ul style="list-style-type: none"> • 400 kW hydropower generated by February 2023 • 1,050 new customers in Espiritu Santo and Malekula connected by October 2023, including subsidized connections to 100 households headed by females • 21 km transmission line and 79 km distribution line constructed on Espiritu Santo and Malekula by October 2023 • 10 training workshops conducted for newly connected households including power safety household utility budget and business skills training (including 40% women participation) by October 2019 • Training activities conducted for project management unit staff and government management, including gender awareness training 	15.1	2.50	2.50	-
52	https://www.adb.org/projects/50059-002/main	Nepal: Power Transmission and Distribution Efficiency Enhancement Project (3542/FY2017): Enhance the distribution capacity and improve reliability and quality of electricity supply in the Kathmandu Valley by reducing distribution system overloads and technical and commercial losses, and strengthen associated transmission lines through the NEA.	M	EE	30	6,500	na	na	54,400	<ul style="list-style-type: none"> • Two new 220/132 kV 160 MVA each and one 132/11 kV 45 MVA substations installed to complete the New Khimti–Kathmandu transmission link • Three new 132/11 kV substations established in Kathmandu Valley each with 45 MVA capacity • 300 km of 11 kV feeders constructed and/or reinforced • 600 km of 0.4 kV distribution lines constructed and/or reinforced • 1,000 new distribution transformers installed with added capacity of 200 MVA • 90,000 smart meters and associated communications facilities deployed and installed • 100 NEA staff (at least 30% women) and 20 senior NEA staff trained on new technologies, operational and financial management, and medium-to long-term distribution efficiency enhancement program • 100 local stakeholders, including those from the private sector, trained and oriented on various smart grid technologies and their roles 	189.00	150.00	150.00	4.91

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	RE or EE	Project Life (Years) ^b	Annual Energy Savings (MWh) ^b	Annual Energy Produced (MWh) ^b	Renewable Capacity Added (MW) ^b	Annual GHG Emissions Avoided (tons of CO ₂ equivalent) ^b	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
										<ul style="list-style-type: none"> • At least 150 staff of NEA/ESSD trained on the use of NEA-approved GESI strategy, GESI operational guidelines, and effective GESI mainstreaming in social safeguards of energy projects • At least 300 members of electricity user cooperatives (40% women) oriented on GESI mainstreaming and compliance with social safeguards' requirements in energy projects • At least 500 women (covering different social groups and profiles) of electricity user cooperatives trained on energy-based enterprises 				
										Total eligibility for green bonds and total allocated for RE and energy efficiency		4,071.18	1,507.13	

ADB = Asian Development Bank, CO₂ = carbon dioxide, EE = energy efficiency, ESSD = Environment and Social Studies Department, FY = fiscal year, FTE = full-time equivalent, GESI = gender equality and social inclusion, GHG = greenhouse gas, GW = gigawatt, GWh = gigawatt-hour, ha = hectare, km = kilometer, kW = kilowatt, kWp = kilowatt peak, kV = kilovolt, Lao PDR = Lao People's Democratic Republic, LED = light emitting diode, m³ = cubic meter, MOFMM = Ministry of Finance and Mass Media, MVA = megavolt-ampere, MW = megawatt, MWh = megawatt-hour, MWp = megawatt peak, NEA = Nepal Electric Authority, na = not applicable, PFI = private financial institution, PRC = People's Republic of China, RE = renewable energy, SPV = special purpose vehicle, t/ha = ton/hectare, WTE = waste-to-energy.

^a Column indicates whether the project aims to mitigate climate change (M) or adapt to climate change (A).

^b "--" means not measured or not reported for this project. Expected impacts or results are based on ex-ante estimates. GHG emission reductions presented in this report use the multilateral development banks' harmonized approach to GHG accounting.

^c This is the share of the total project cost that is financed by ADB and funded by regular ordinary capital resources.

^d Adjusted for any cancellation.

^e This represents the amount of green bond proceeds that has been allocated to disbursements to the project.

"-" means no disbursements as of 31 December 2018.

^f These are estimated figures.

^g Total project cost cannot be disclosed due to nondisclosure agreement.

Source: Asian Development Bank.

B. Sustainable Transport

(As of 31 December 2018)

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
1	http://www.adb.org/projects/43441-013/main?page=2=1	Turkmenistan: North-South Railway (2737/FY2011): Increase accessibility, regional trade, contribute to economic growth, and develop an integrated and efficient railway system in the region.	M	<ul style="list-style-type: none"> • Total national transit tonnage increased to 6 million tons (2008 baseline: 3 million tons) • About 1.6 million tons of minerals transported on the project railway in 2015 • Performance tracking system developed for periodic inspection, supervision, and testing • CO₂ emissions reduced to 26,800 tons by 2020 (2008 baseline: estimated at 37,000 tons) • Fully disbursed 	166.70	125.00	44.33	44.43
2	http://www.adb.org/projects/40080-013/main?page=2=1&page=3=1	Viet Nam: Ha Noi Metro Rail System (Line 3: Nhon-Ha Noi Station Section) (2741/FY2011): Facilitate public transport connectivity, greatly enhance access in five districts of Ha Noi, and be an important integral part of an improved public transport system, which aims to achieve increased public modal share through low-carbon transport that reduces GHG emissions.	M	<ul style="list-style-type: none"> • Peak loading of 785,000 passenger-km per day and 5,800 passengers per hour per direction on line 3 by 2020 • Weighted average travel time per passenger along the project corridor reduced by 25% from 2011 baseline level of 52 minutes by 2020 	856.00	293.00	293.00	27.21
3	http://www.adb.org/projects/43332-043/main	China, People's Republic of: Railway Energy Efficiency and Safety Enhancement Investment Program—Tranche 3 (2765/FY2011): Improve energy efficiency, environmental protection, and safety in railways in the People's Republic of China.	M	<ul style="list-style-type: none"> • Energy efficiency, environmental protection, and safety enhancement equipment installed • Safety audit of a nominated railway administration completed • Capacity building provided 	300.00	250.00	240.00	228.57
4	http://www.adb.org/projects/36330-023/main?page=3=1	India: Railway Sector Investment Program—Tranche 1 (2793/FY2011): Improve transport system and greater mobility through an efficient, safe, reliable, and environment-friendly railway system.	M	<ul style="list-style-type: none"> • Expanded physical infrastructure and enhanced efficiency of infrastructure use • Improved operational efficiency • Implementation support provided to the Ministry of Railways for mitigation and carbon credit activities 	150.00	150.00	150.00	123.67
5	http://www.adb.org/projects/42169-013/main?page=3=1&page=4=1	Bangladesh: Greater Dhaka Sustainable Urban Transport Project (2862/FY2012): Provide a holistic solution for integrated urban mobility through an energy-efficient sustainable urban transport system in Gazipur City Corporation areas, which forms part of north Greater Dhaka.	M	<ul style="list-style-type: none"> • Project saves an average of 40,000 tons CO₂ equivalent/year (versus without-project scenario) • Air pollutants (PM10) annual level decreases by 20% (2006 baseline: 76.72 µg/m³) • Gazipur City Corporation walkability index rating improves from 39 (2010 baseline) to 60 out of 100 • Residents' positive perception of public transport and urban life quality improves by 50% from 2012 baseline • BRT achieves 100,000 passengers/day ridership (at least 30% women) during the first year of operation • Modal share of public transport increases from 40% 2011 baseline to 50% 	255.00	100.00	100.00	24.05

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
6	http://www.adb.org/projects/39256-024/main	Mongolia: Urban Transport Development Investment Program–Tranche 1 (2934/FY2012): Increase the use of BRT system that reduces traffic congestion, travel time, fuel use, and excessive vehicle emissions, including GHGs.	M	By 2020: <ul style="list-style-type: none"> • Bus travel time in BRT corridors is decreased by 30% during peak hours in the central business district compared to 2011 • Traffic delay is decreased by 30% during peak hours at major road intersections in BRT corridors compared to 2011 • Traffic accidents and casualties are reduced by 15% compared to 176 fatalities and 515 injuries in 2010 	61.40	29.70	29.70	0.15
7	http://www.adb.org/projects/39500-033/main?page-2=1	Viet Nam: Ho Chi Minh City Urban Mass Rapid Transit Line 2 Investment Program–Tranche 2 (2956/FY2012): Establish a sustainable urban transport system for Ho Chi Minh, including the integration of MRT and public bus system to improve the urban environment along the MRT2 corridor and reduce GHGs.	M	<ul style="list-style-type: none"> • Construction of the first stage of MRT Line 2 completed, from Ben Thanh to Tham Luong with 10 stations, and the remaining depot site works, including twin bored tunnels, underground stations, elevated station, transition, viaduct, spur line, track work, and third rail 	971.60	500.00	500.00	3.99
8	http://www.adb.org/projects/45023-002/main?page-2=1&page-3=1	China, People's Republic of: Hubei-Yichang Sustainable Urban Transport Project (3014/FY2013): Improve overall traffic flow, reduce congestion and associated emissions as well as noise level along the main corridor in the city center by building BRT corridors, including BRT depots, improving provision of pedestrian and bicycles facilities, establishing parking management plan, and other traffic demand management measures.	M	By 2018: <ul style="list-style-type: none"> • Bus traffic speed increased from 15 km/h (2011) to 25 km/h on BRT corridors • Passenger travel time reduced from 20 minutes on average (2011) to 10 minutes • Freight travel time between inland ports and logistics centers reduced by 20% by 2011 • Pass-dam transshipment freight travel time to logistics centers reduced from 2 hours (2011) to 1 hour 	515.10	150.00	107.60	107.55
9	http://www.adb.org/projects/46417-001/main?page-2=1&page-3=1	India: Jaipur Metro Rail Line 1–Phase B Project (3062/FY2013): Provide mass rapid transit capacity for the city's major mobility corridors, aiming to reverse the rising shift to private cars, and achieve a vision of an improved public transport system in Jaipur—optimizing general mobility, enhancing quality of life, and making the city more pleasant to live and work in.	M	<ul style="list-style-type: none"> • Average daily number of passengers using Line 1–Phase B reaches 126,000 in the first year of operation (2018–2019) • Underground rail infrastructure of 2.3 km and two stations completed by 2018 	259.00	176.00	176.00	78.07
10	http://www.adb.org/projects/43332-053/main	China, People's Republic of: Railway Energy Efficiency and Safety Enhancement Investment Program–Tranche 4 (3082/FY2013): Provide significant environmental and safety benefits by introducing environmental protection and railway safety enhancement equipment, such as antiseismic bridge bearings, enhanced railway fasteners, heavy duty switches, and signaling system facilities.	M	<ul style="list-style-type: none"> • Transport capacity expanded in the southwestern PRC to 470 billion ton-km for freight and 150 billion passenger-km for passengers in 2020 • Cost of travel reduced from 35 fen/km in 2008 to 15 fen/km in 2020 • A 20% reduction in rate of accidents per billion traffic by 2020 from 2008 	547.60	180.00	180.00	171.90

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
11	http://www.adb.org/projects/32234-053/main	Bangladesh: Railway Sector Investment Program –Tranche 3 (3097/FY2013): Improve railway transport capacity in the mainline network of Bangladesh Railway.	M	<ul style="list-style-type: none"> • Number of daily passenger trains increased by 10 (2011 baseline: 289) • Number of annual passengers increased by 10% (2011 baseline: 66 million) • Fully disbursed 	100.00	100.00	72.65	72.65
12	http://www.adb.org/projects/43332-054/main	China, People's Republic of: Railway Energy Efficiency and Safety Enhancement Investment Program–Tranche 5 (3109/FY2014): Support the development of a sustainable, energy-efficient, safe, reliable, affordable, and environment-friendly railway system in the PRC by the procurement and installation of railway electrification system, railway electric power supply system, track safety operation and maintenance equipment, enhanced railway fasteners, antiseismic bridge bearings, railway telecommunication system, and railway signaling system.	M	<ul style="list-style-type: none"> • Transport capacity expanded in the southwestern PRC to 470 billion ton-km for freight and 150 billion passenger-km for passengers in 2020 • Energy consumption by PRC railways per unit of revenue is reduced by 23% from 2009 to 2020 	580.15	170.00	155.00	140.84
13	http://www.adb.org/projects/46168-001/main?page-2=1	Bangladesh: South Asia Subregional Economic Cooperation Railway Connectivity: Akhaura–Laksam double track (3169/FY2014): Increase the capacity of the Dhaka–Chittagong corridor by completing double tracking on the entire corridor, which accounts for more than 40% of all passenger journeys by railway in Bangladesh, and upgrading and reconstruction of the existing track.	M	<ul style="list-style-type: none"> • Number of daily passenger trains from Dhaka to Chittagong increased to 17 (2013 baseline: 14 trains per day and direction) • Journey time of trains between Akhaura and Laksam reduced by 20% (2013 baseline: 77 minutes) 	805.00	400.00	400.00	124.57
14	http://www.adb.org/projects/49094-001/main?page-2=1	Bangladesh: Railway Rolling Stock Project (3301/FY2015): Increase railway transport capacity in the main line network of Bangladesh Railway.	M	<ul style="list-style-type: none"> • Number of daily passenger trains increased by 10 (2011 baseline: 289) • Number of annual passengers increased by 10% (2011 baseline: 66 million) 	294.00	200.00	200.00	42.90
15	http://www.adb.org/projects/40080-025/main?page-2=1	Viet Nam: Ha Noi Metro Line System Project (Line 3: Nhon–Hanoi Station Section) (Additional Financing) (3363/FY2015): Facilitate public transport connectivity, greatly enhance access in five districts of Ha Noi, and be an important integral part of an improved public transport system, which aims to increase public modal share through low-carbon transport that reduces GHGs.	M	<ul style="list-style-type: none"> • Peak loading of 785,000 passenger-km per day and 5,800 passengers per hour per direction on line 3 by 2020 • Weighted average travel time per passenger along the project corridor reduced by 25% from the 2011 baseline level of 52 minutes by 2020 	385.20	59.00	59.00	0.17
16	https://www.adb.org/projects/32234-063/main	Bangladesh: Railway Sector Investment Program–Tranche 4 (3376/FY2016): Improve efficiency and safety of railway transport in Bangladesh.	M	<ul style="list-style-type: none"> • Number of daily passenger trains from Tongi to Bhairab Bazar increased by 25% (2011 baseline: 44) • Number of annual passengers increased by 10% (2011 baseline: 66 million) • Fully disbursed 	52.47	50.00	22.71	22.71

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
17	https://www.adb.org/projects/46452-003/main	Bangladesh South Asia Subregional Economic Cooperation Chittagong–Cox’s Bazar Railway Project, Phase 1–Tranche 1 (3438/FY2016): Support the construction of a new 102 km Dohazari–Cox’s Bazar railway corridor in southeastern Bangladesh, and strengthen the capacity of the railway sector in project management and implementation to improve the national and subregional railway network.	M	By 2024: <ul style="list-style-type: none"> • 10 passenger trains operate daily between Chittagong and Cox’s Bazar (2016 baseline: no train services) • 2.9 million annual passengers transported between Chittagong and Cox’s Bazar (2016 baseline: 0) • Cox’s Bazar district connected to the national and subregional railway network (2016 baseline: not connected) 	400.04	210.00	210.00	111.22
18	https://www.adb.org/projects/47279-002/main#project-pds	Pakistan: Karachi Bus Rapid Transit Project/Project Design Advance (6008/FY2016): Provide a holistic solution for integrated urban mobility through a BRT.	M	<ul style="list-style-type: none"> • Improved public transport in Karachi, benefiting a population of 1 million • This project design advance will finance consulting services and will result in a procurement-ready project 	200.00	9.70	9.70	3.50
19	https://www.adb.org/projects/48289-002/main#project-pds	Pakistan: Peshawar Sustainable Bus Rapid Transit Corridor Project/Project Design Advance (3543/FY2017): Provide urban mass transit, a BRT, to improve mobility and urban public space.	M	<ul style="list-style-type: none"> • Improved public transport in Peshawar, directly benefiting a population of at least 0.5 million • The project design advance will result in a procurement-ready project • Covers consulting services for engineering, procurement, and construction management; the operational design and business model; and project management, coordination, and capacity building 	587.00	335.00	335.00	271.68
20	https://www.adb.org/projects/42019-013/main#project-pds	China, People’s Republic of: Mountain Railway Safety Enhancement Project (3556/FY2017): Help the government build a safer, more reliable, and more efficient rail transport system in the mountainous southwest region of the PRC.	M	<ul style="list-style-type: none"> • Railway signaling, communication, and power supply system developed, including signaling and communication equipment to improve train operation safety, such as centralized train dispatching and monitoring, automatic block signaling, interlocking devices, and train control systems; this will also cover the procurement of electric power supply, and bridge bearings for the safety of railway bridges • Tunnel safety operation and monitoring system installed, including cover lighting, ventilation, firefighting and fire control systems, and emergency rescue and disaster management systems • Institutional capacity for railway safety management enhanced, with about 100 staff from executing and implementing agencies trained, and technical exchanges on advanced technologies and new maintenance techniques organized to familiarize staff in these areas 	860.00	180.00	180.00	-
21	https://www.adb.org/projects/50010-002/main#project-pds	China, People’s Republic of: Shandong Spring City Green Modern Trolley Bus Demonstration Project (3583/FY2017): Improve the urban transport environment in Jinan, Shandong Province by reducing emissions and congestion in the city through the development of a modern trolley bus network.	M	<ul style="list-style-type: none"> • 111.2 km of prioritized high-quality BRT lanes served by electric trolley buses over 39 routes, 93 new and 65 upgraded median stations with real-time passenger information systems, 8 upgraded and 8 new bus depots, and 36 new traction substations and power lines 	422.00	150.00	150.00	-

#	Link to More Information	Project Name (No./Year Loan Approved and Description)	A/M ^a	Target Results ^b	Total Project Cost (\$ million)	Loan Approval (\$ million) ^c	Eligibility for Green Bonds (\$ million) ^d	Allocated Amount (\$ million) ^e
22	https://www.adb.org/projects/50312-003/main	Bangladesh: Railway Rolling Stock Operations Improvement (3645-46/FY2018): Improve the operational efficiency of Bangladesh Railway through the procurement of modern rolling stock, preparation of investment projects to enhance its rolling stock maintenance capacity, and support the ongoing railway reform.	A&M	<p>By 2021:</p> <ul style="list-style-type: none"> 40 broad gauge locomotives procured (2016 baseline: Not applicable); 75 meter gauge and 50 broad gauge luggage vans procured (2016 baseline: Not applicable); 400 meter gauge and 300 broad gauge bogie covered wagons procured (2016 baseline: Not applicable); 80 meter gauge and 120 broad gauge bogie open wagons procured (2016 baseline: Not applicable) Detailed designs of four maintenance facilities for locomotives and diesel electric multiple units completed. 100 Bangladesh Railway locomotive drivers trained on APU operations (2016 baseline: 0) <p>By 2022:</p> <ul style="list-style-type: none"> Vehicle-km per coaching vehicle-day on line increased by 10% (2016 baseline: 469 for broad gauge passenger carriages, 194 for broad gauge other coaching vehicles, 262 for meter gauge passenger carriages, 89 for meter gauge other coaching vehicles) Vehicle-km per freight wagon-day on line increased by 10% (2016 baseline: 58.7 for broad gauge freightwagons, 10.1 for meter gauge freight wagons) Passenger-km increased by 10% (2016 baseline: 9,167 million) Ton-km increased by 10% (2016 baseline: 675 million) Operating ratio without public service obligation improved by 15% (2016 baseline: 246%) Fuel consumption of APU-equipped diesel locomotives reduced by 10% (2016 baseline: 350 liters per locomotive per day without APU) 	453.37	360.00	360.00	-
Total eligibility for green bonds and allocated for sustainable transport							3,974.69	1,599.84

APU = auxiliary power unit, CO₂ = carbon dioxide, BRT = bus rapid transit, FY = fiscal year, GHG = greenhouse gas, km = kilometer, km/h = kilometers per hour, MRT = mass rapid transit, PDA = project design advance, PM₁₀ = particulate matter, PRC = People's Republic of China, tCO₂ = total CO₂, µg/m³ = the concentration of an air pollutant (eg., ozone) in micrograms (one-millionth of a gram) per cubic meter air.

^a Column indicates whether the project aims to mitigate climate change (M) or to adapt to climate change (A).

^b Expected impacts/results are based on ex-ante estimates. GHG emission reductions presented in this report use the International Financial Institutions harmonized approach to GHG accounting.

^c This is the share of the total project cost that is financed by ADB and funded by regular ordinary capital resources.

^d Adjusted for any cancellation.

^e This represents the amount of green bond proceeds that has been allocated to disbursements for the project.

“-” means no disbursements as of 31 December 2018.

Source: Asian Development Bank.

About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members —49 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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Note: In this publication, “\$” refers to United States dollars.

Cover photo: Solar panels gathering sun power and turbines harvesting wind power at the Burgos Wind and Solar Farm in Burgos, Ilocos Norte in the Philippines.
All photos by ADB.



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Publication Stock No. ARM190208