

ENERGIZING FINANCE REPORT 2024

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24



ENERGIZING FINANCE
RESEARCH SERIES



ENERGIZING FINANCE 2024

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01

EXECUTIVE SUMMARY

ELECTRICITY SECTOR: EXECUTIVE SUMMARY



Commitments to the electricity sector peaked in 2018 and have yet to return to the same levels.

- Total commitments to 20 tracked countries between 2014 and 2022 reached USD 83.4 billion.
- 2022 saw the largest decline in eight years. It is important to monitor this low level of commitments to see whether the trend continues or not.



The decline in finance commitments in the early 2020s is still evident at per capita level in 20 countries (weighted average), although there are variations among countries.

- At per capita level, while Bangladesh and Pakistan still received larger commitments than many other countries, the gaps are smaller for the other countries.
- It is necessary to pay attention to the distributional imbalance between countries at per capita level.
- Per capita commitment for unelectrified populations in lower electricity access countries needs to be increased to achieve SDG7.



Strong regional disparities in finance commitments for electricity exist between Asia and Sub-Saharan Africa

- Between 2014 and 2022, five Asian countries attracted 1.8 times more ODA commitments to electricity access than 15 countries tracked in Sub-Saharan Africa.



Despite their larger number, least developed countries (LDCs) received far lower commitments than low- or middle-income countries (LMICs).

- Five LMICs received 55% of the total cumulative commitment, while 15 LDCs received the remaining 45%.



Primary financial instruments are debt financing (ODA loans and non-export credits) across sectors and purposes.

- A significantly lower share of grants and equity investments (10%) indicates the importance of developing appropriate instruments to reduce the uncertainty of debt financing.



Bangladesh, India and Pakistan attracted the largest amount of investment between 2014 and 2022.



While Asia received strong commitments for renewable electricity generation, the region's non-renewable sector also received a strong commitment.



More ODA grants are provided to LDCs than LMICs, but loans (ODA loans and credits) remain the main instruments for both categories of countries.



Mini-grid investments are highly concentrated; the top five countries received 79% of the total commitments between 2014 and 2022.

- While Bangladesh, India and Pakistan together received 87% of the total for the top five countries, India alone received 66% of that commitment, which is 51% of the total for 20 countries.

CLEAN COOKING SECTOR: EXECUTIVE SUMMARY



Commitments to clean cooking have been highly volatile, with a significant peak in 2020 followed by a sharp decline.

- Total commitments to 20 tracked countries between 2014 and 2022 reached USD 544 million.
- 2020 saw an exceptional spike of USD 309 million, but commitments dropped to USD 27 million in 2022, raising concerns about funding sustainability.



Strong regional disparities exist, with China receiving the majority of commitments.

- Between 2014 and 2022, China alone attracted 60% of commitments, while the rest of Asia received 21% and Sub-Saharan Africa only 19%.



China, India and Bangladesh attracted the largest amount of investment between 2014 and 2022.

- Many countries received minimal or no funding over the nine-year period, highlighting significant inequities in funding distribution.



International public finance for clean cooking is not flowing sufficiently to countries with the largest access gaps.

- LMICs and LDCs together received only 40% of total commitments, despite having the greatest needs.



Multilateral Development Finance Institutions (DFIs) dominate clean cooking financing.

- Multilateral DFIs provided 87% of cumulative commitments, while international governments contributed only 13%.
- Philanthropic foundations' contributions were negligible at 0.01% of total commitments.



LPG fuels and distribution received the majority of clean cooking investments.

- LPG alone accounted for 74% of total investments between 2014 and 2022, mainly due to a large project in China.
- Limited funding (1%) went to market support activities, suggesting clean cooking is not yet a policy priority for most countries and donors.



Other official flows (OOF) are the primary financial instrument, with limited use of ODA grants and loans.

- OOF accounted for 74% of cumulative commitments, while ODA grants and loans together made up only 26%.
- This financing structure may not be optimal for supporting early-stage and high-risk clean cooking initiatives, particularly in LDCs and LMICs.



Clean cooking appliances and market support initiatives received limited attention across all regions.

- This underscores the need for a more comprehensive approach to clean cooking, one that addresses the entire value chain and creates an enabling environment.



02

**INTRODUCTION:
BACKGROUND AND OBJECTIVES**

INTRODUCTION: BACKGROUND AND OBJECTIVES

- Sustainable Development Goal 7 (SDG7) aims to ensure access to affordable, reliable, sustainable and modern energy for all. As investment and finance are the essential components of achieving SDG7, Sustainable Energy for All (SEforALL) has produced the **Energizing Finance: Understanding the Landscape** report annually since 2017, providing a comprehensive analysis of tracked finance commitments flowing to two key areas of SDG7.1 energy access: electrification and clean cooking.
- This sixth edition of the report tracks finance for electricity and clean cooking committed from 2014 to 2022. This report is a special edition that focuses on selected Sub-Saharan African and Asian countries – 20 tracked countries based on the 2021 Energizing Finance report – to see the trends in recent years, including those countries that are no longer High-Impact Countries (HICs) as defined by the Tracking SDG7 report series.
- The objectives of this report are to understand the finance flows and identify the gaps that need to be filled to achieve the two energy access goals. The report focuses on the trends in public sector finance on energy access by analyzing the data obtained from the Organization for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC).
- The report covers:
 - Analysis of international public finance commitments for electricity access and clean cooking access in the 20 tracked countries
 - Breakdown of commitments by region, country, development status, financier type, technology and financial instrument
 - Case studies on electricity access in Bangladesh and Kenya along with an overview of policy and regulatory environments in these countries
 - Analysis of trends and challenges in energy access financing. The two case study countries were selected based on historical performance on attracting financing, regional diversity and electricity access levels.





03

**ELECTRICITY SECTOR
INSIGHTS**

SECTION SUMMARY



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- At per capita level, while Bangladesh and Pakistan still received larger commitments than many other countries, the gaps are smaller for the other countries.
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Mini-grid investments are highly concentrated; the top five countries received 79% of the total commitments between 2014 and 2022.

- While Bangladesh, India and Pakistan together received 87% of the total for the top five countries, India alone received 66% of that commitment, which is 51% of the total for 20 countries.

20 TRACKED COUNTRIES: ELECTRICITY

The 2024 report tracks the trends for 20 countries that the 2021 report identified as High-Impact Countries (HICs). Although this list includes some countries that are no longer HICs, this special edition included them to see the changes and trends that have occurred in them in recent years. The countries analyzed in this report are listed below in alphabetical order:

Africa


 Angola

 Burkina Faso

 Chad

 Democratic Republic of Congo

 Ethiopia


 Kenya


 Madagascar


 Malawi

 Mozambique

 Niger

 Nigeria

 South Sudan


 Sudan

 Tanzania


 Uganda

Asia

 Bangladesh

 Democratic People's Republic of Korea

 India

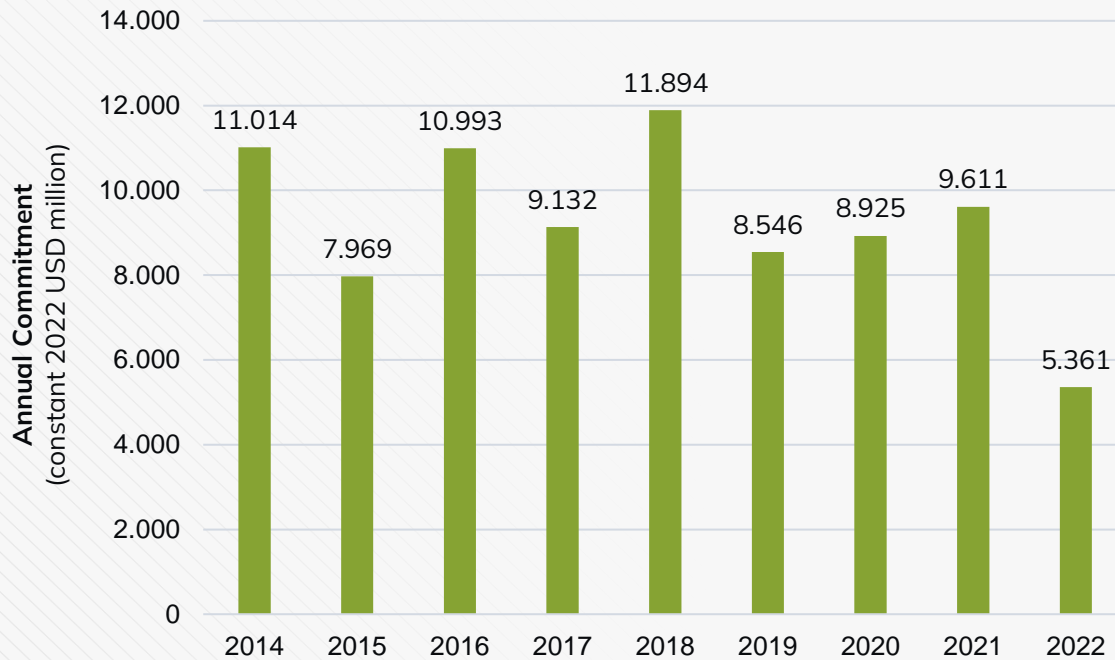
 Myanmar

 Pakistan



OVERVIEW: 20 COUNTRIES TOTAL

Annual Commitments (Constant 2022 USD million)



COMMITMENTS PEAKED IN 2018 AND HAVE NOT RETURNED TO THE SAME LEVELS SINCE.

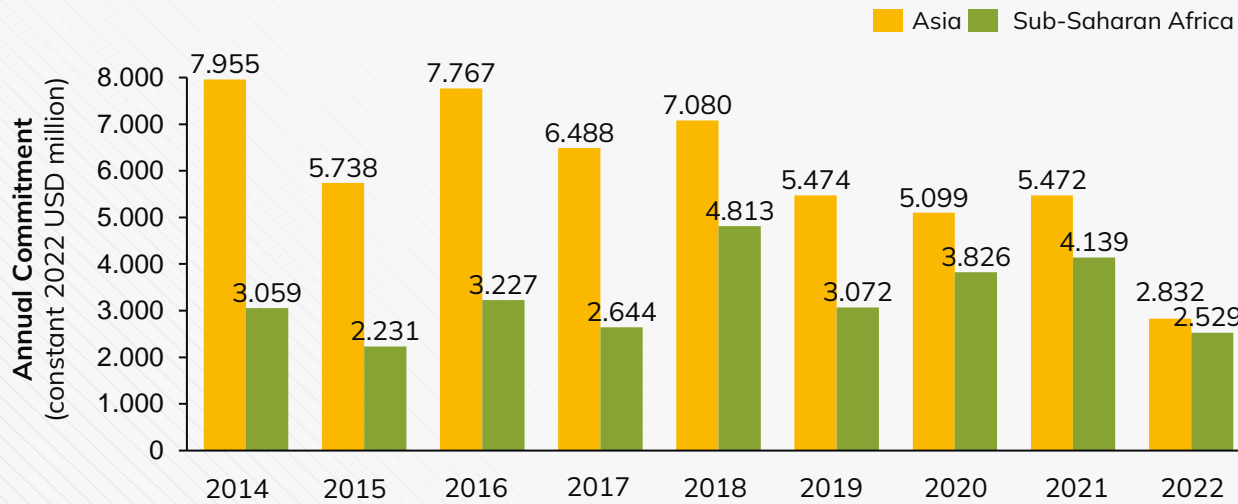
- Total commitments to 20 tracked countries between 2014 and 2022 reached USD 83.4 billion.
- 2022 saw the largest decline in eight years. It is important to monitor this low level of commitment to see if the trend continues or not.

-
- Annual commitments have not exceeded USD 10 billion since 2019. Many countries, especially those with low access rates, still need strong support to achieve universal electricity access; commitments need to increase for these countries.

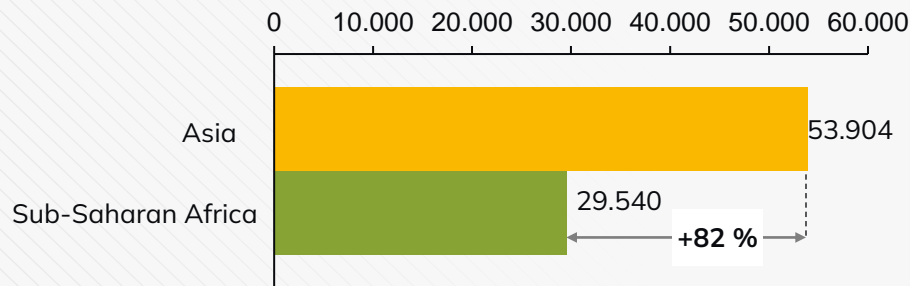
Source: SEforALL analysis
Data Source: OECD DAC database

OVERVIEW BY REGION (2014-2022)

Annual Commitments by Region (Constant 2022 USD million)



Cumulative Investments (2014-2022) by Region (constant 2022 USD million)

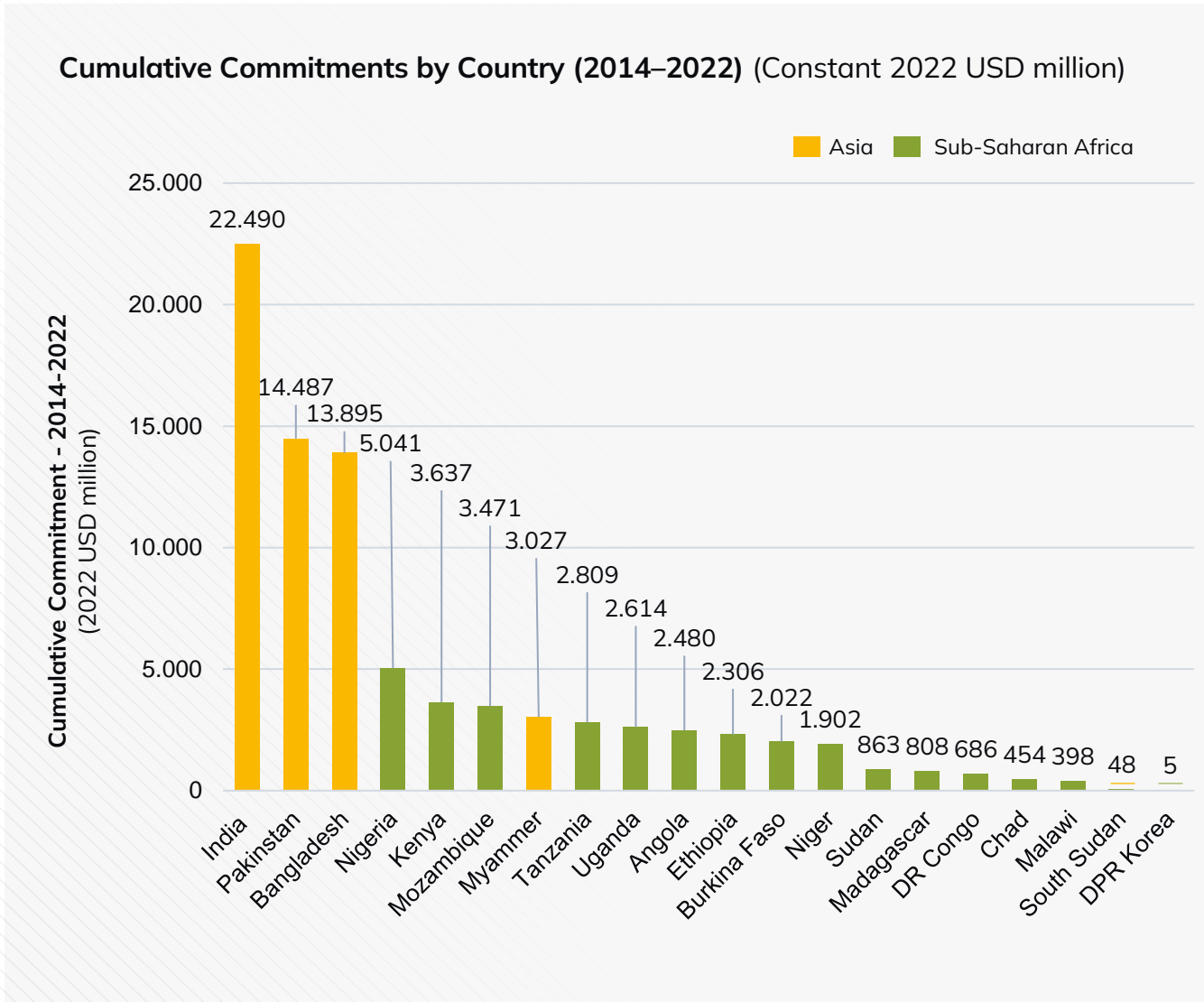


STRONG REGIONAL DISPARITIES EXIST BETWEEN ASIA AND SUB-SAHARAN AFRICA

- Between 2014 and 2022, five Asian countries attracted 1.8 times more ODA commitments to their electricity sector than 15 countries tracked in Sub-Saharan Africa.
- Total ODA commitments to five Asian countries tracked consistently surpassed those of 15 Sub-Saharan countries between 2014 and 2022.
- The gap between the two regions has narrowed over the years mainly as a result of a decline in finance commitments to three heavily populated Asian countries – Bangladesh, India and Pakistan (see slide [18](#)).

Source: SEforALL analysis
Data Source: OECD DAC database

OVERVIEW BY COUNTRY (2014-2022)



BANGLADESH, INDIA AND PAKISTAN ATTRACTED THE LARGEST AMOUNT OF INVESTMENT BETWEEN 2014 AND 2022.

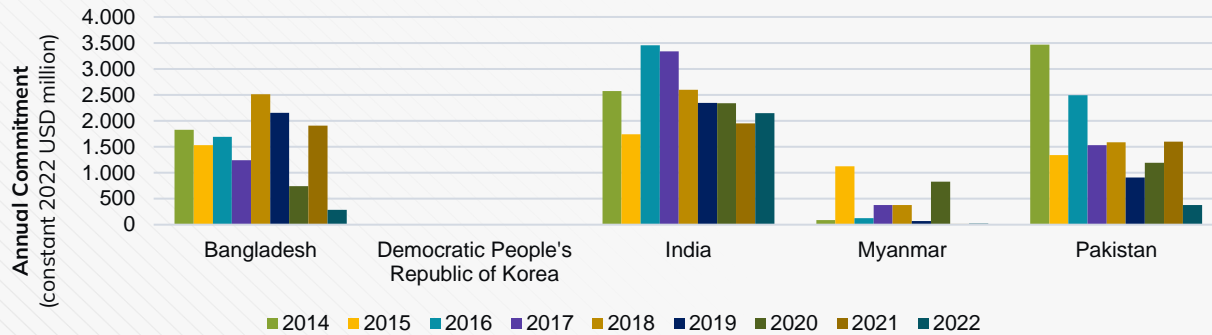
- India achieved near universal access with a 99.2% access rate in 2022, jumping from 85% in 2014.
- Bangladesh had a 62% electricity access rate in 2014 and achieved near universal access of 99.4% in 2022.
- Pakistan's electricity access rate was 90% in 2014 and increased to 95% in 2022.

- Across the 20 tracked countries, India had the highest investment over the years, amounting to USD 22,490 million, while DPR Korea recorded the lowest investment of USD 5 million.
- Meanwhile, Sub-Saharan countries with much lower electricity access rates received much lower commitments in general.
 - Nigeria, Kenya and Mozambique were the only countries that received more than USD 3 billion in total in Africa.

Source: SEforALL analysis
Data Source: OECD DAC database

OVERVIEW BY COUNTRY (2014-2022)

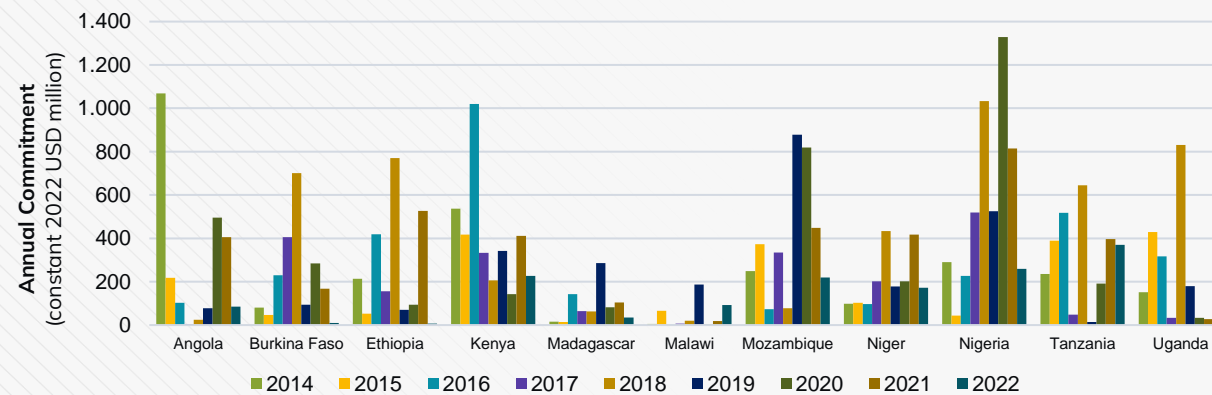
Annual Commitment by Country – Asia (Constant 2022 USD million)



BANGLADESH AND PAKISTAN SHOW A STRONG DECLINE IN ANNUAL COMMITMENTS IN THE 2020S COMPARED TO INDIA.

- Since 2019 India has sustained a consistent level of support of between USD 2 billion and 2.5 billion.

Annual Commitment by Country – select Sub-Saharan African countries (Constant 2022 USD million)



- Commitment peak year and patterns vary across countries, and it is difficult to see any consistent patterns across countries between 2014 and 2022, except strong declines following a year when a large commitment was made.

Source: SEforALL analysis
Data Source: OECD DAC database

PER CAPITA LEVEL OF INVESTMENT (2014-2022)

Annual Commitments per capita by Country (Constant 2022 USD Million)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022 Electricity Access Rate
Angola	39.4	7.7	3.5	0.2	0.8	2.4	14.8	11.7	2.4	48.5 %
Bangladesh	11.7	9.7	10.6	7.7	15.4	13.0	4.4	11.3	1.7	99.4 %
Burkina Faso	4.5	2.5	12.0	20.5	34.4	4.5	13.2	7.6	0.4	19.0 %
Chad	0.0	0.0	3.1	0.0	0.0	0.7	7.5	0.7	14.7	11.7 %
DPR Korea	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	54.7 %
DR Congo	1.1	0.0	0.4	3.9	0.0	0.0	0.1	0.5	1.8	21.5 %
Ethiopia	2.1	0.5	4.0	1.4	6.9	0.6	0.8	4.4	0.1	55.4 %
India	2.0	1.3	2.6	2.5	1.9	1.7	1.7	1.4	1.5	99.2 %
Kenya	11.7	8.9	21.3	6.8	4.1	6.7	2.8	7.8	4.2	76.0 %
Madagascar	0.7	0.6	5.6	2.4	2.3	10.4	2.9	3.6	1.2	36.2 %
Malawi	0.3	3.9	0.1	0.4	1.1	9.9	0.1	0.9	4.6	14.0 %
Mozambique	9.5	13.9	2.6	11.7	2.7	29.0	26.2	14.0	6.6	33.2 %
Myanmar	1.7	21.9	2.5	7.2	7.2	1.3	15.5	0.3	0.3	73.7 %
Niger	5.1	5.1	4.6	9.3	19.2	7.6	8.3	16.5	6.6	19.5 %
Nigeria	1.6	0.2	1.2	2.7	5.2	2.6	6.4	3.8	1.2	60.5 %
Pakistan	16.7	6.4	11.7	7.1	7.2	4.1	5.2	6.9	1.6	95.0 %
South Sudan	2.7	0.1	0.0	1.4	0.0	0.0	0.0	0.0	0.1	5.4 %
Sudan	0.0	2.0	0.0	4.7	0.1	5.2	0.4	7.5	0.0	63.2 %
Tanzania	4.6	7.4	9.5	0.9	11.1	0.2	3.1	6.2	5.7	45.8 %
Uganda	4.2	11.5	8.2	0.8	20.0	4.2	0.7	0.6	12.9	47.1 %
20-country Average	4.5	3.2	4.4	3.6	4.6	3.2	3.3	3.5	1.9	

THE DECLINE IN COMMITMENTS IN THE EARLY 2020S IS STILL EVIDENT AT PER CAPITA LEVEL IN THE 20-COUNTRY WEIGHTED AVERAGE, ALTHOUGH THERE ARE DIFFERENCES AMONG COUNTRIES.

- At per capita level, while Bangladesh and Pakistan received larger commitments than many other countries, the gaps are smaller for other countries.
 - It is necessary to pay attention to the distributional imbalance between countries at the per capita level.
-
- No clear, detectable long-term trends are seen for each country as the level of commitments fluctuates annually.
 - Many countries with low electricity access rates received very small commitments per capita annually. They need stronger commitments if they are to achieve SDG7.1

PER CAPITA LEVEL OF INVESTMENT (2014–2022)

Annual Commitments per capita of Unelectrified Population by Country
(Constant 2022 USD million)

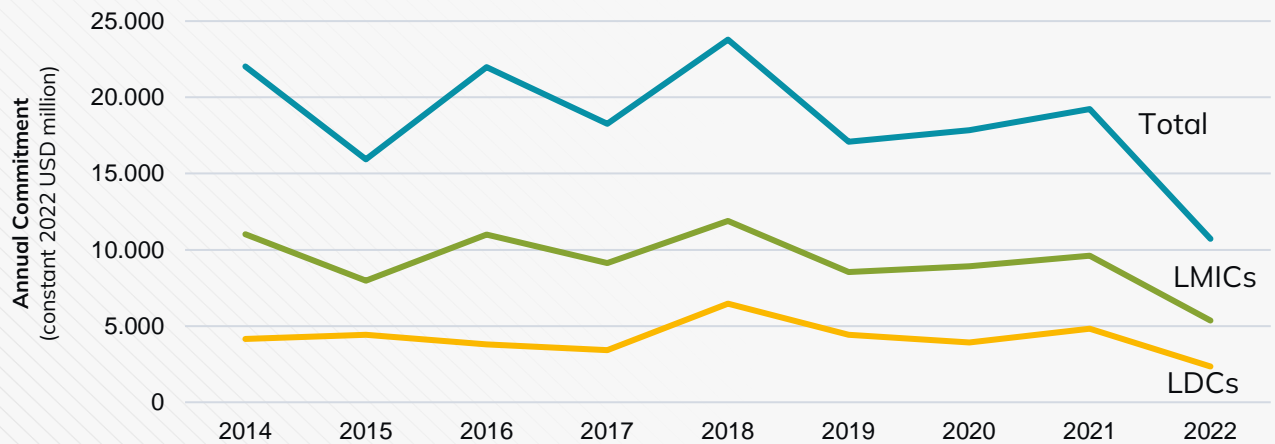
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022 Electricity Access Rate
Angola	57.9	13.3	6.1	0.3	1.4	4.4	27.9	22.7	4.6	48.5 %
Burkina Faso	5.5	3.0	14.3	24.7	40.1	5.4	16.2	9.4	0.5	19.0 %
Chad	0.0	0.0	3.4	0.0	0.0	0.8	8.5	0.8	16.6	11.7 %
DPR Korea	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	54.7 %
DR Congo	1.3	0.0	0.5	4.8	0.1	0.0	0.1	0.6	2.3	21.5 %
Ethiopia	2.9	0.7	7.0	2.6	12.6	1.2	1.6	9.5	0.1	55.4 %
Kenya	18.3	15.3	45.4	15.4	10.6	22.2	9.7	33.1	17.5	76.0 %
Madagascar	0.8	0.8	7.2	3.2	3.7	15.1	4.3	5.6	1.9	36.2 %
Malawi	0.3	4.3	0.1	0.5	1.3	11.1	0.1	1.1	5.3	14.0 %
Mozambique	12.7	18.3	3.6	15.5	3.9	41.2	37.8	20.4	9.9	33.2 %
Myanmar	3.6	55.3	5.5	23.8	21.3	4.0	52.3	1.1	1.3	73.7 %
Niger	6.1	6.1	5.6	11.3	23.3	9.3	10.2	20.3	8.2	19.5 %
Nigeria	3.5	0.5	3.0	5.9	12.0	5.8	14.3	9.4	3.0	60.5 %
South Sudan	2.8	0.1	0.0	1.5	0.0	0.0	0.0	0.0	0.1	5.4 %
Sudan	0.0	3.9	0.0	10.0	0.1	12.4	1.1	19.7	0.0	63.2 %
Tanzania	8.1	12.7	18.2	1.8	26.8	0.6	7.5	15.8	14.8	45.8 %
Uganda	3.9	11.1	8.7	0.9	22.0	4.8	0.9	0.8	17.2	47.1 %
20-country Average	4.5	3.2	4.4	3.6	4.6	3.2	3.3	3.5	1.9	

COMMITMENTS PER CAPITA OF UNELECTRIFIED POPULATION IN LOWER ELECTRICITY ACCESS COUNTRIES NEEDS TO BE INCREASED TO ACHIEVE SDG7.

- Kenya has received higher annual commitments per capita of unelectrified population over the years and has a relatively high access rate.
- Some countries received negligible amounts of commitment per capita of unelectrified population over the years and have very low access rates, e.g., Chad, DR Congo, Malawi and South Sudan.
- However, it is difficult to find a clear relationship between annual commitments per capital of unelectrified population and access rates for the research years. For example, DPR Korea and Ethiopia show higher access rates with low per capita commitments.

OVERVIEW BY COUNTRY DEVELOPMENTAL STATUS (2014-2022)

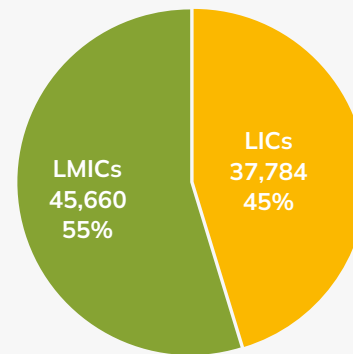
Annual Commitments by Development Status (constant 2022 USD million)



OECD Country Development Category

- **Least Developed Countries (LDCs):** Angola, Bangladesh, Burkina Faso, Chad, DR Congo, Ethiopia, Madagascar, Malawi, Mozambique, Myanmar, Niger, South Sudan, Tanzania, Uganda
- **Low- and Middle-Income Countries (LMICs):** DPR Korea, India, Kenya, Nigeria, Pakistan

Cumulative Commitments (2014-2022) (constant 2022 USD million)



DESPITE THEIR LARGER NUMBER, LEAST DEVELOPED COUNTRIES (LDCs) RECEIVED FAR LOWER COMMITMENTS THAN LOW- AND MIDDLE-INCOME COUNTRIES (LMICs).

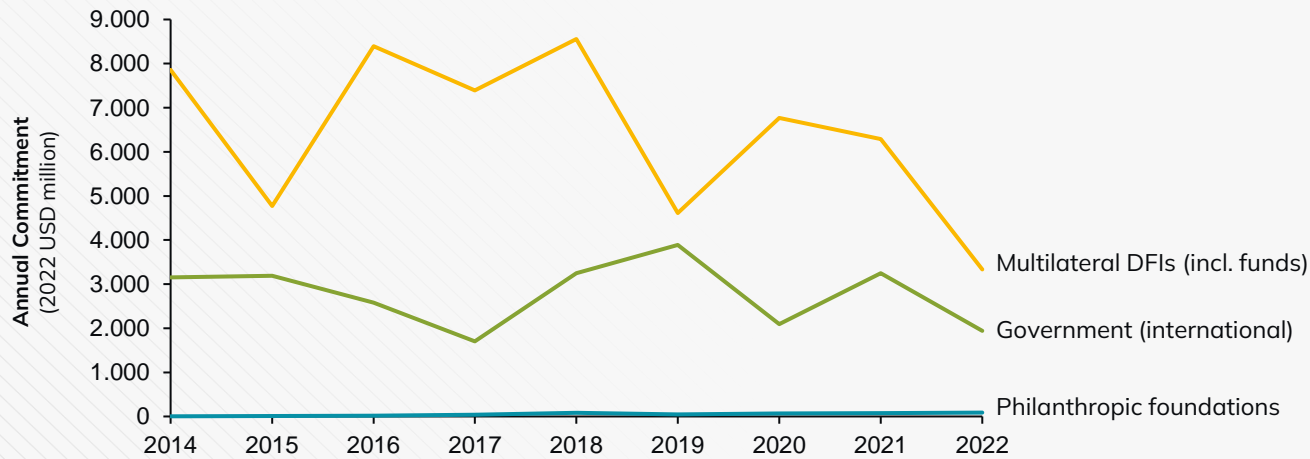
- Five LMICs received 55% of the total cumulative commitment, while 15 LDCs received the rest.

- No clear, detectable long-term trends are seen for each category of income groups as the level of commitments fluctuates annually.
- Commitments peaked in 2018 and have yet to return to the same levels. 2022 saw a large decline in commitments in both LDCs and LMICs due to COVID-19.

Source: SEforALL analysis; OECD <https://www.oecd.org/dac/transition-finance-toolkit/LMIC-to-UMIC.pdf>
Data Source: OECD DAC database

OVERVIEW BY FINANCIER (2014-2022)

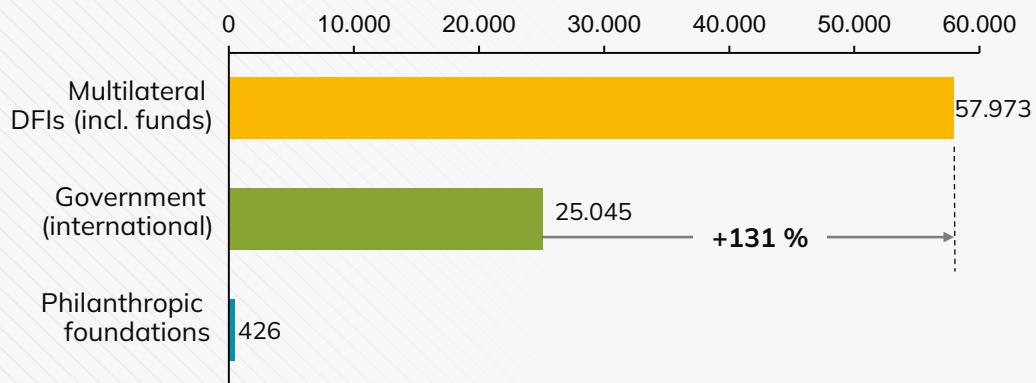
Annual Commitments by Financier (constant 2022 USD million)



MULTILATERAL DFIS ARE THE LARGEST FINANCIERS (APPROX. 70%), FOLLOWED BY GOVERNMENTS OF MOSTLY OECD COUNTRIES.

- DFIs contributed more than twice as much as governments, reaching USD 58 billion between 2014 and 2022.

Cumulative Commitments by Financier (2014-2022) (constant 2022 USD million)

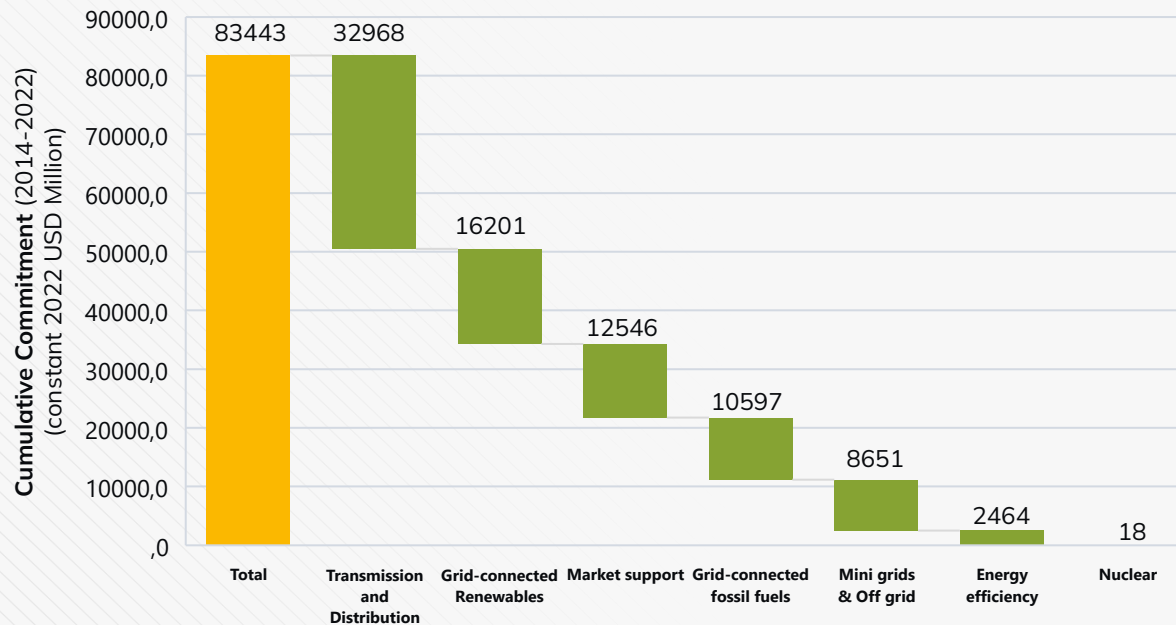


- There are no clear long-term trends seen for each category of financiers as the level of commitments fluctuates annually
- Philanthropic foundations' contributions only constitute 1% of the total commitments.

Note: See Appendix for the lists of organizations and countries for each category of financiers
 Source: SEforALL analysis
 Data Source: OECD DAC database

OVERVIEW BY PURPOSE/SECTOR

Cumulative Investments by Purpose/Sector (2014–2022)
(constant 2022 USD million)



Note: types of investment included in each category:

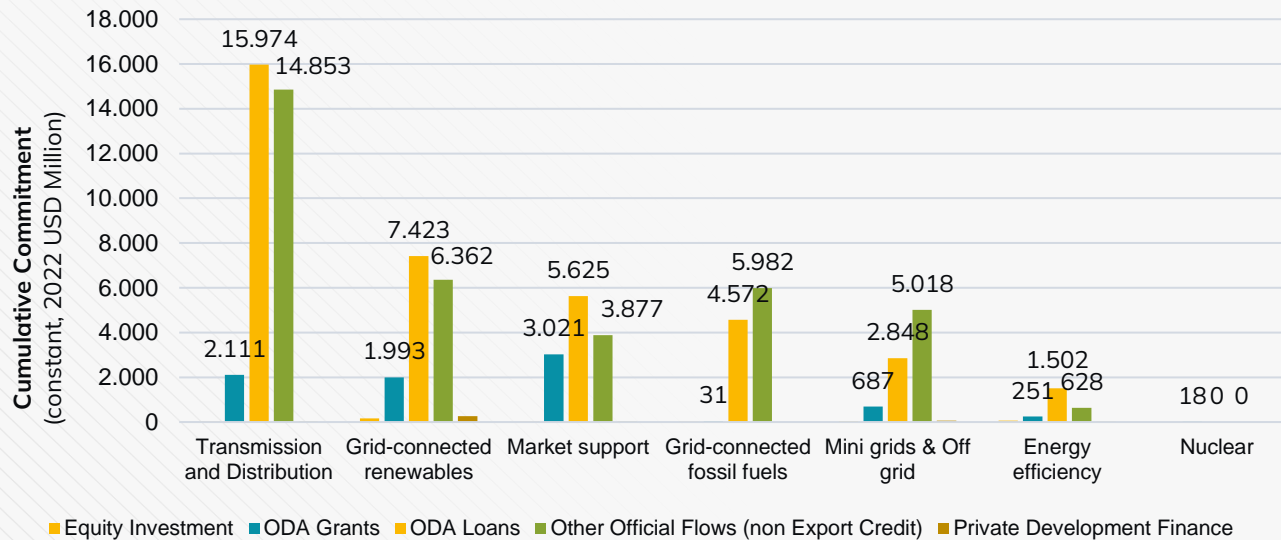
- **Energy efficiency:** Energy conservation and demand-side efficiency and hybrid electric power plants
- **Market support:** Electric mobility infrastructures, Energy research, Energy education and training and Energy policy and administrative management
- **Grid connected renewables:** Wind energy, Hydro-electric power plants, geothermal energy, and Bio-fuel powered plants
- **Grid connected fossil fuels:** Energy manufacturing fossil fuels, Oil-fired electric power plants, coal-fired electric power plants, Non-renewable waste –fired electric power plants and hybrid energy electric power plants
- **Mini grids and off grids:** Solar energy (for centralized and isolated and stand-alone grids)
- **Transmission and Distribution:** Centralised and isolated electric power transmission and distribution

TRANSMISSION AND DISTRIBUTION ATTRACTED THE LARGEST INVESTMENTS, FOLLOWED BY GRID-CONNECTED RENEWABLES.

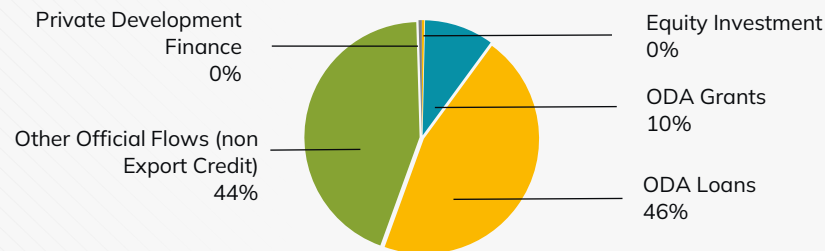
- Energy efficiency investments constitute only 3% of the total investments, highlighting a significant challenge to advance the transition to clean energy and achieve SDG7.3.
- The amount invested in grid development is more than twice that for grid-connected renewables. Grid development is particularly important to remove bottlenecks of delivering electricity to consumers from existing and new power generation plants as well as integrating renewable electricity generation.
- Fossil fuel power plants still received more than USD 10 billion, while mini-grid and off-grid development only received USD 8.7 billion in investments.

OVERVIEW BY PURPOSE/SECTOR AND BY FINANCIAL INSTRUMENT

Cumulative Commitments by Instrument & Sector (2014–2022)
(constant 2022 USD million)



Cumulative Investments by Instrument (2014–2022)
(constant 2022 USD million)



PRIMARY FINANCIAL INSTRUMENTS ARE DEBT FINANCING (ODA LOANS AND NON-EXPORT CREDITS) ACROSS SECTORS AND PURPOSES.

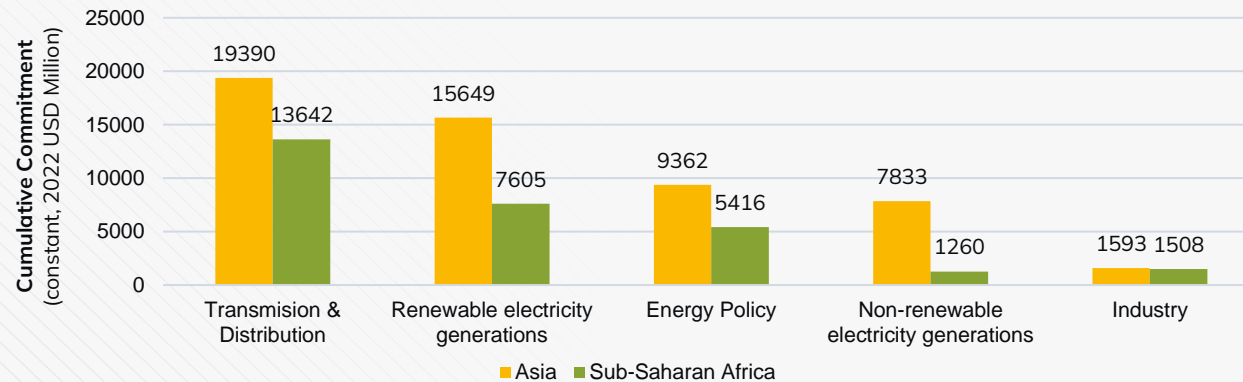
- A significantly lower share of grants and equity investments (10%) indicates the importance of better constructing instruments to reduce the uncertainty of debt financing.

- Lending is an important factor in debt (loans and credits). The lack of local-currency lending pushes up borrowing costs and the cost of capital, squeezing previous funds from the borrowing countries' development.
- Concessional terms of debt financing are critical to reduce debt burdens of borrowing countries for them to advance electricity access and accelerate the energy transition.

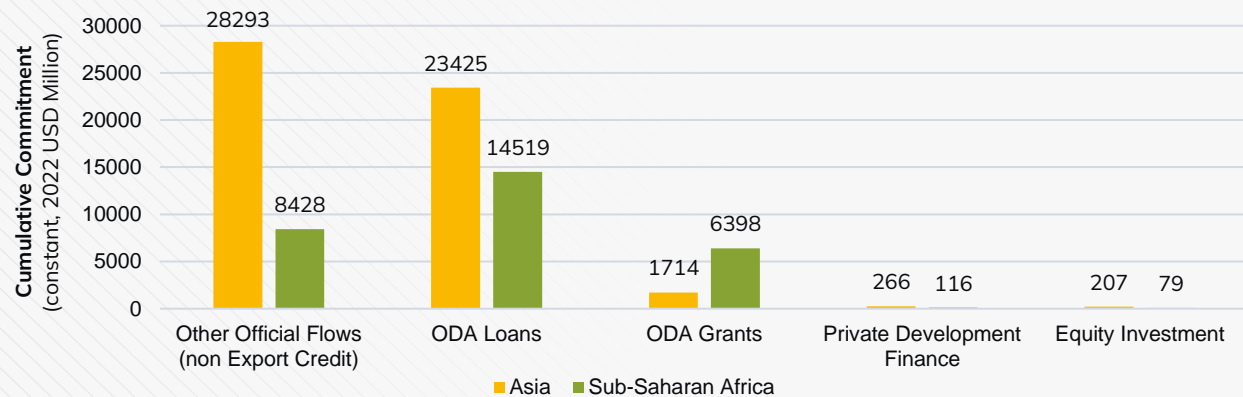
Source: SEforALL analysis
Data Source: OECD DAC database

REGIONAL COMPARISON BY SECTOR AND BY FINANCIAL INSTRUMENT

Cumulative Commitments by Sector and by Region (2014–2022)
(constant 2022 USD million)



Cumulative Commitments by Financial Instrument and by Region (2014–2022)
(constant 2022 USD million)



WHILE ASIA RECEIVED STRONG COMMITMENTS FOR RENEWABLE ELECTRICITY GENERATION, THE REGION'S NON-RENEWABLE SECTOR ALSO RECEIVED SIGNIFICANT SUPPORT.

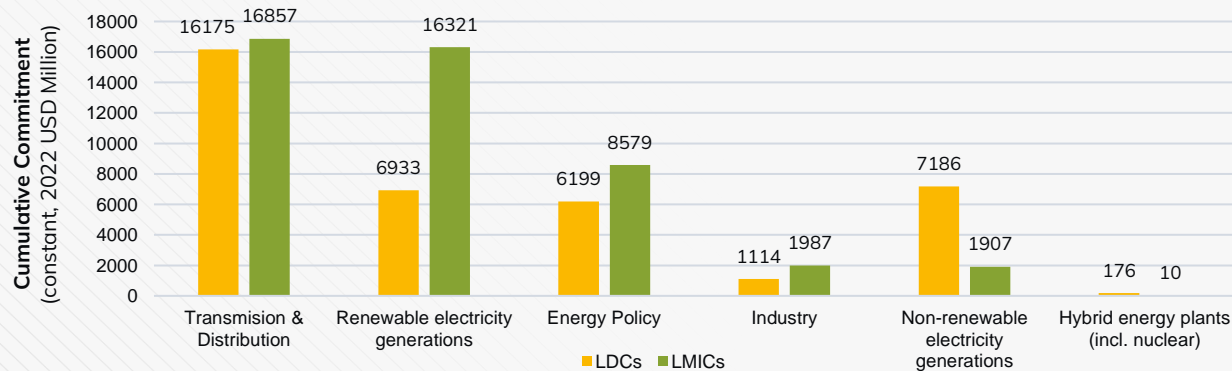
- This pattern seems to be the result of strong economic growth that called for the non-renewable sector development to meet the growing demand but signifies a worrisome trend for clean energy transition in the region.

- While non-export credits are the most used instrument for Asian countries, more grants were provided to Sub-Saharan Africa countries than to Asia.

Source: SEforALL analysis
Data Source: OECD DAC database

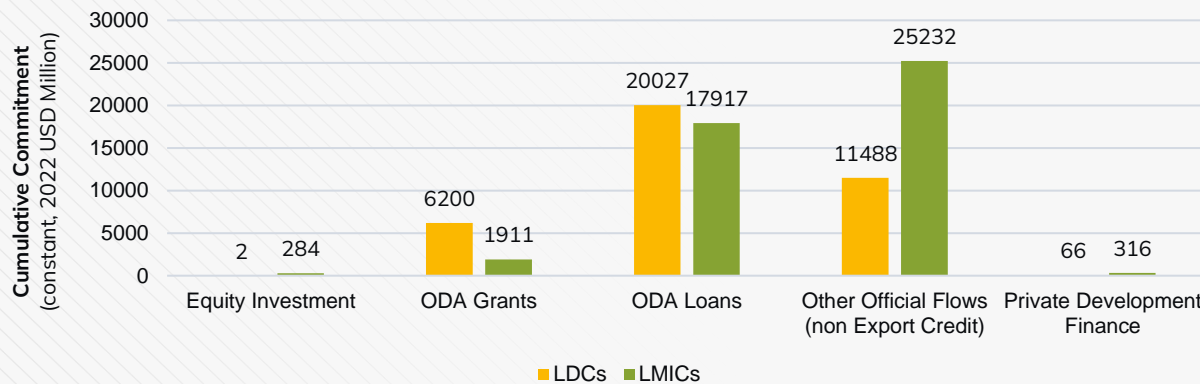
COMPARISON: DEVELOPMENT STATUS, SECTOR AND FINANCIAL INSTRUMENT (2014–2022)

Cumulative Commitments by Sector and by Country Development Status (2014–2022) (constant 2022 USD million)



MORE ODA GRANTS ARE PROVIDED TO LDCs THAN LMICs, BUT LOANS (ODA LOANS AND CREDIT) REMAIN THE MAIN INSTRUMENTS FOR BOTH CATEGORIES OF COUNTRIES.

Cumulative Commitments by Financial Instrument and by Country Development Status (2014–2022) (constant 2022 USD million)

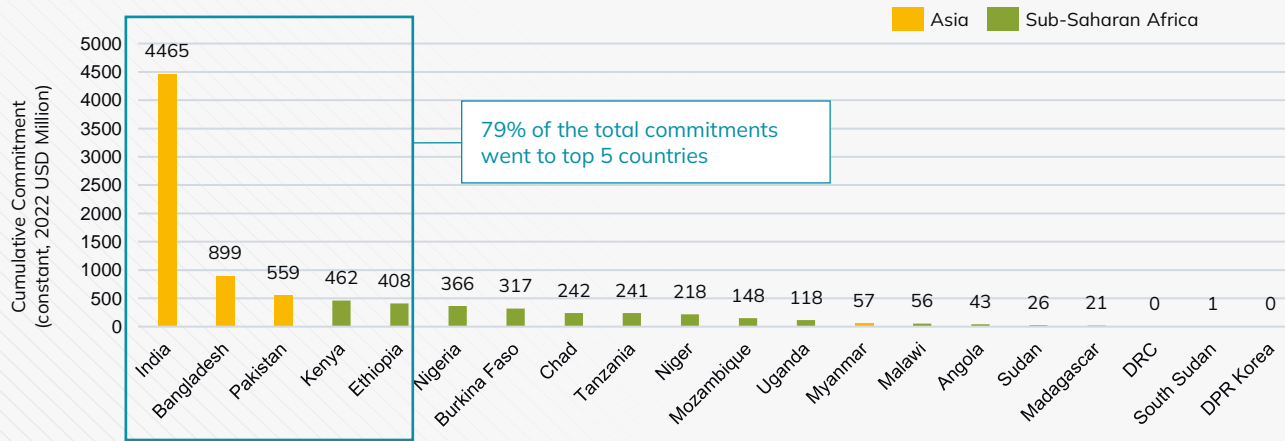


- Commitments to LMICs across all sectors except hybrid energy plants surpassed those to LDCs. There is a need to increase the investment to LDCs as more countries are in this category.
- At the same time, commitments to non-renewable energy sources in LDCs are much larger than those in LMICs. These commitments should be directed to cleaner sources.

Source: SEforALL analysis
Data Source: OECD DAC database

MINI-GRID INVESTMENT (2014-2022)

Cumulative Commitments to Mini-grid by Country (2014-2022)
(constant 2022 USD million)

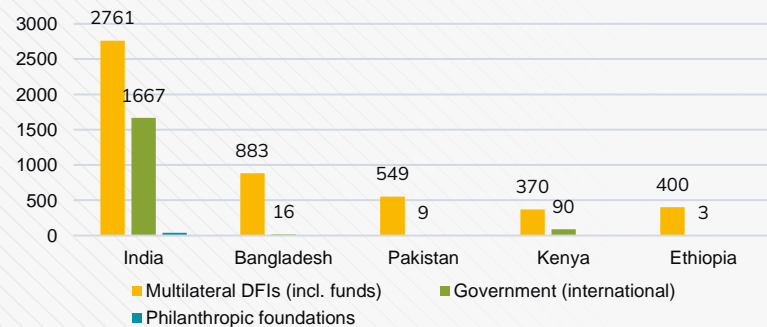


MINI-GRID INVESTMENTS ARE HIGHLY CONCENTRATED; FIVE COUNTRIES RECEIVED 79% OF TOTAL COMMITMENTS BETWEEN 2014 AND 2022.

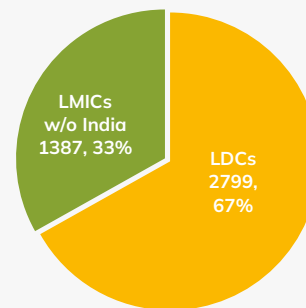
- While Bangladesh, India and Pakistan received 87% of the total commitments to the top five countries, India alone received 66% of that and 51% of the total for 20 countries.

Cumulative Commitments to Mini-grid (2014-2022) (constant 2022 USD million)

Top 5 Countries by Financial Instrument



Countries without India by Country Developmental Status



- Mini-grid commitments by multilateral DFIs make them the largest financier for all top five countries.
- India received a large amount of commitment from governments, making the country quite a unique outlier with the massive amount of commitments made by both DFIs and governments.
- Mini-grid commitments to LMICs not including India made up 33% of the total for 19 countries.

Source: SEforALL analysis
Data Source: OECD DAC database



04

**CLEAN COOKING SECTOR
INSIGHTS**

SECTION SUMMARY



Commitments to clean cooking have been highly volatile, with a significant peak in 2020 followed by a sharp decline.

- Total commitments to 20 tracked countries between 2014 and 2022 reached USD 544 million.
- 2020 saw an exceptional spike of USD 309 million, but commitments dropped to USD 27 million in 2022, raising concerns about funding sustainability.



Strong regional disparities exist, with China receiving the majority of commitments.

- Between 2014 and 2022, China alone attracted 60% of commitments, while the rest of Asia received 21% and Sub-Saharan Africa only 19%.



China, India and Bangladesh attracted the largest amount of investment between 2014 and 2022.

- Many countries received minimal or no funding over the nine-year period, highlighting significant inequities in funding distribution.



International public finance for clean cooking is not flowing sufficiently to countries with the largest access gaps.

- LMICs and LDCs together received only 40% of total commitments, despite having the greatest needs.



Multilateral Development Finance Institutions (DFIs) dominate clean cooking financing.

- Multilateral DFIs provided 87% of cumulative commitments, while international governments contributed only 13%.
- Philanthropic foundations' contributions were negligible at 0.01% of total commitments.

SECTION SUMMARY



LPG fuels and distribution received the majority of clean cooking investments.

- LPG alone accounted for 74% of total investments between 2014 and 2022, mainly due to a large project in China.
- Limited funding (1%) went to market support activities, suggesting clean cooking is not yet a policy priority for most countries and donors.



Other official flows (OOF) are the primary financial instrument, with limited use of ODA grants and loans.

- OOF accounted for 74% of cumulative commitments, while ODA grants and loans together made up only 26%.
- This financing structure may not be optimal for supporting early-stage and high-risk clean cooking initiatives, particularly in LDCs and LMICs.













Clean cooking appliances and market support initiatives received limited attention across all regions.

- This underscores the need for a more comprehensive approach to clean cooking, one that addresses the entire value chain and creates an enabling environment.











20 TRACKED COUNTRIES: CLEAN COOKING

The 2024 report tracks the trends for 20 countries that the 2021 report identified as High-Impact Countries (HICs). Although this list includes some countries that are no longer HICs, this special edition includes them to see the changes and trends that have occurred in them in recent years. The countries analyzed in this report are listed below in alphabetical order:

Africa

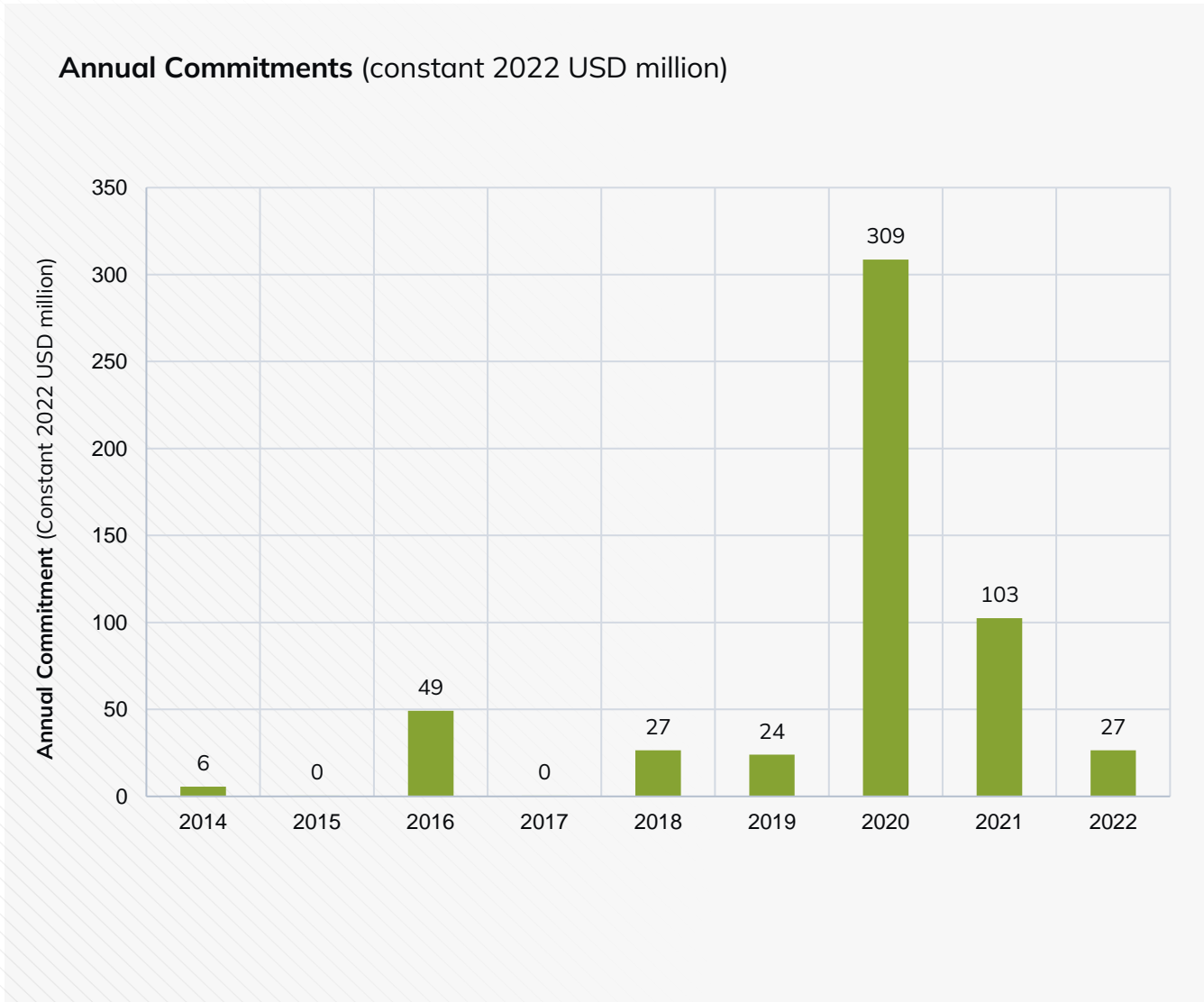
 Democratic Republic of Congo	 Mozambique
 Ethiopia	 Niger
 Ghana	 Nigeria
 Kenya	 Tanzania
 Madagascar	 Uganda

Asia

 Afghanistan	 Indonesia
 Bangladesh	 Myanmar
 China	 Pakistan
 Democratic People's Republic of Korea	 Philippines
 India	 Viet Nam



OVERVIEW: 20 COUNTRIES TOTAL



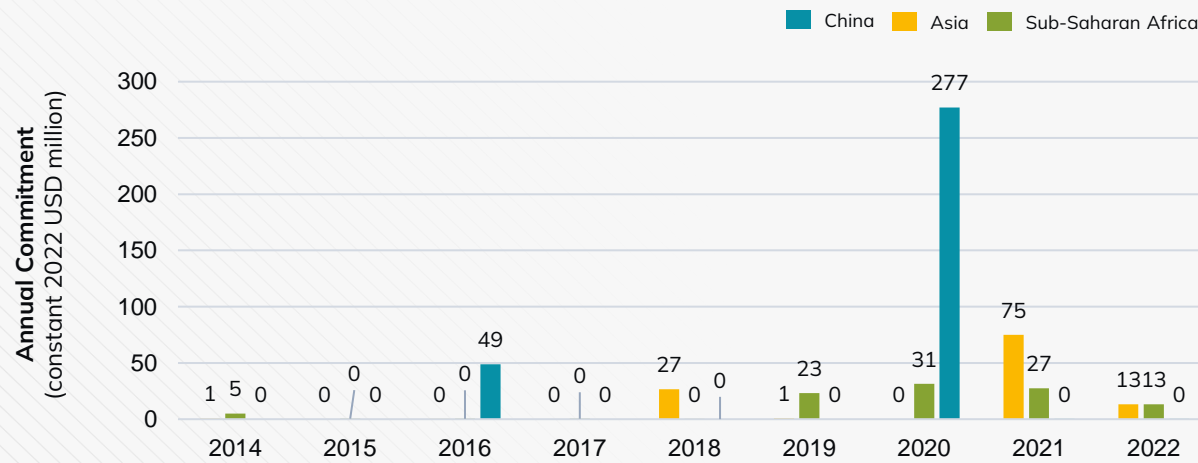
ANNUAL COMMITMENTS FOR CLEAN COOKING IN THE 20 TRACKED COUNTRIES HAVE BEEN HIGHLY VOLATILE, WITH A SIGNIFICANT PEAK IN 2020

- Annual commitments reached USD 309 million in 2020 but had fallen to USD 27 million by 2022.
- The 20 countries tracked in the report saw an average of USD 60 million in international public finance commitments to the clean cooking sector over the reporting period of 2014–2018; mainly driven by finance commitments to China, followed by the rest of Asia.
- The sharp decline in commitments after 2020, dropping to USD 27 million in 2022, raises concerns about the sustainability and consistency of funding for clean cooking initiatives.
- The volatile nature of these commitments may hinder long-term planning and implementation of clean cooking programmes in the tracked countries.
- The commitments fall far short of the IEA estimate of USD 8 billion annually required for countries to transition away from traditional methods of cooking to modern and cleaner cooking solutions.

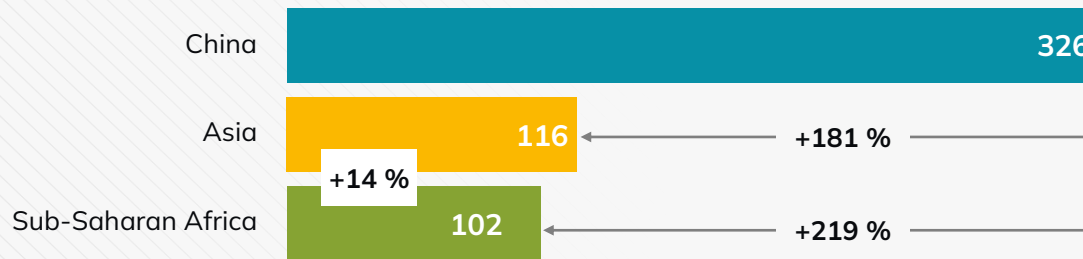
Source: SEforALL analysis
Data Source: OECD DAC database

OVERVIEW BY REGION (2014-2022)

Annual Commitments by Region (constant 2022 USD million)



Cumulative Investments (2014-2022) by Region (constant 2022 USD million)

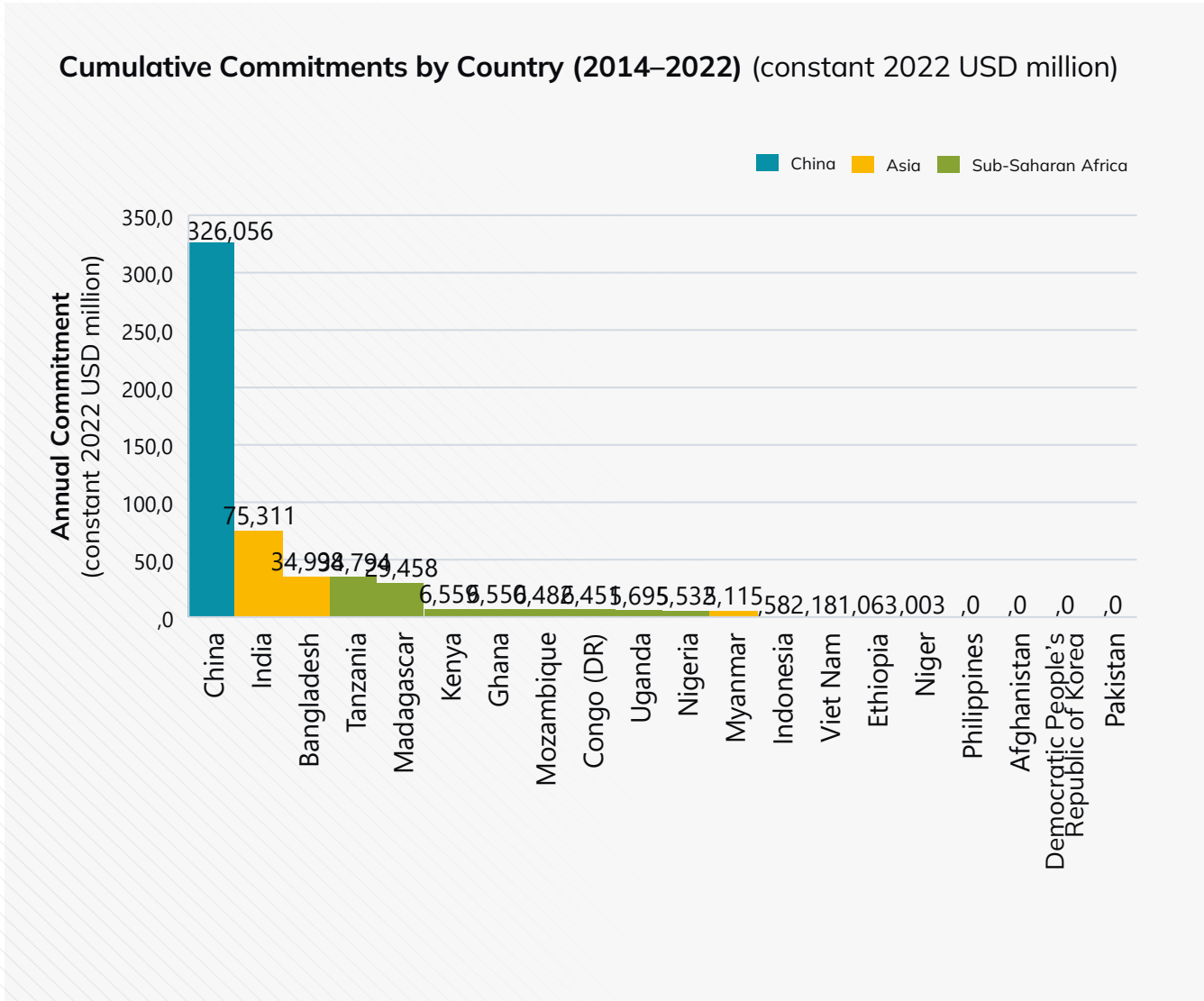


CHINA HAS RECEIVED THE LARGEST SHARE OF CLEAN COOKING COMMITMENTS, FOLLOWED BY ASIA AND SUB-SAHARAN AFRICA, WITH SIGNIFICANT YEAR-ON-YEAR FLUCTUATIONS.

- China received a cumulative commitment of USD 326 million between 2014 and 2022, 181% more than Asia (USD 116 million) and 219% more than Sub-Saharan Africa (USD 102 million).
- China has been the primary recipient of international public finance commitments to clean cooking amongst the 20 tracked countries. Most of this can be attributed to one single LPG programme funded by a development bank in 2020.
- Sub-Saharan Africa, despite having high needs for clean cooking solutions, received the least cumulative investment among the three regions.
- The uneven distribution of commitments across regions means that they are not aligned with the level of financing required for accelerating access to clean cooking solutions.

Source: SEforALL analysis
Data Source: OECD DAC database

OVERVIEW BY COUNTRY (2014–2022)



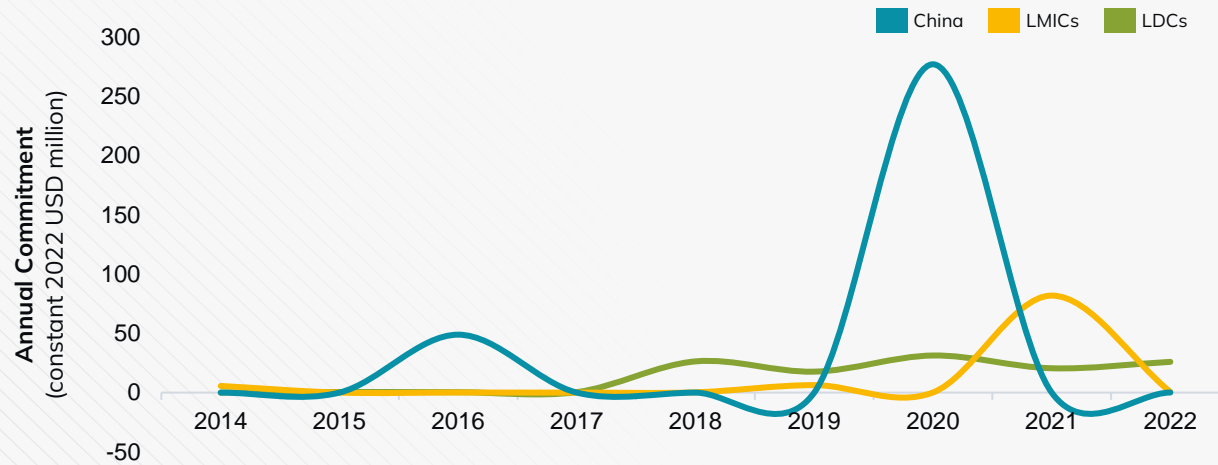
THE DISTRIBUTION OF CLEAN COOKING COMMITMENTS AMONG THE 20 TRACKED COUNTRIES IS HIGHLY UNEVEN, WITH CHINA RECEIVING THE LION'S SHARE.

- China received USD 326 million, India USD 75 million, and Bangladesh USD 35 million in cumulative commitments over the eight-year period
- Among the 20 countries tracked; China, India, and Bangladesh stand out as the top recipients of clean cooking commitments over the period 2014–2022.
- There is a significant disparity in the distribution of clean cooking commitments across the 20 countries, highlighting the need for more targeted support in regions with lower levels of investment.
- Many countries received minimal or no funding over the nine-year period, raising concerns about the equity of clean cooking investments.

Source: SEforALL analysis
Data Source: OECD DAC database

OVERVIEW BY COUNTRY DEVELOPMENTAL STATUS (2014-2022)

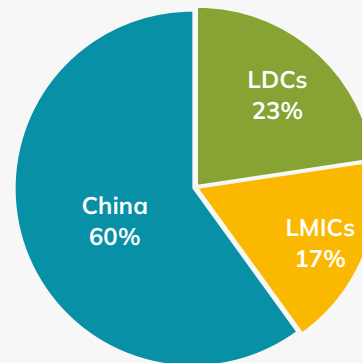
Annual Commitments by Development Status (constant 2022 USD million)



OECD Country Development Category

- **Least Developed Countries (LDCs):** Afghanistan, Bangladesh, Congo (DR), Ethiopia, Madagascar, Mozambique, Myanmar, Niger, Tanzania, Uganda
- **Low- and Middle-Income Countries (LMICs):** Ghana, India, Indonesia, Kenya, Nigeria, Pakistan, Philippines, Viet Nam
- **China is the only Upper Middle-Income Country amongst the countries tracked, hence it is shown separately**

Cumulative Commitments (2014-2022) (constant 2022 USD million)



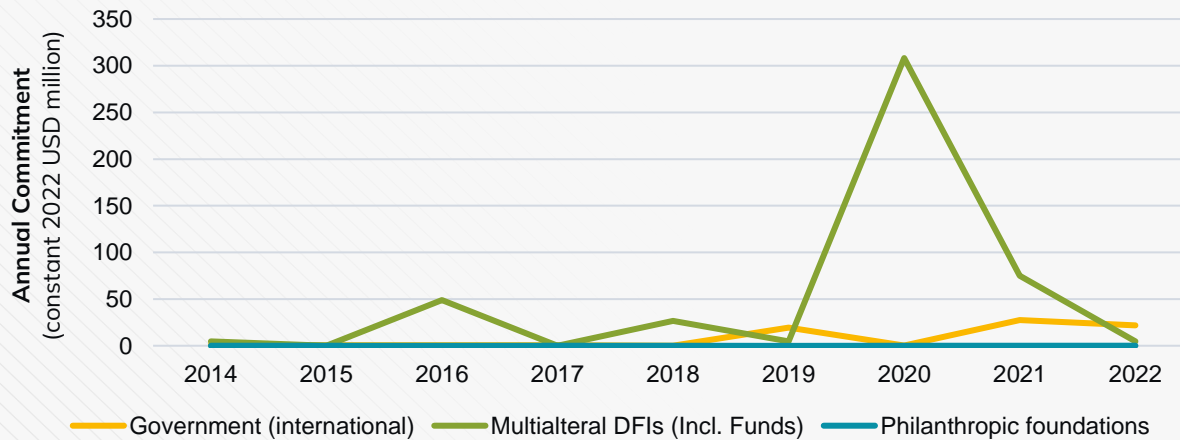
INTERNATIONAL PUBLIC FINANCE FOR ACCESS TO CLEAN COOKING IS NOT FLOWING TO LMICs AND LDCs, WHICH HAVE THE LARGEST ACCESS GAPS

- China received 60% of the cumulative commitments between 2014 and 2022, while LMICs and LDCs received 24% and 18%, respectively.
- The distribution of funding commitments amongst countries is highly disproportionate.
- LMICs received the least funding, which could hinder their transition to clean cooking and potentially slow their overall development progress.
- There is a need to reassess the allocation of clean cooking commitments to ensure that support reaches the countries with the greatest needs.

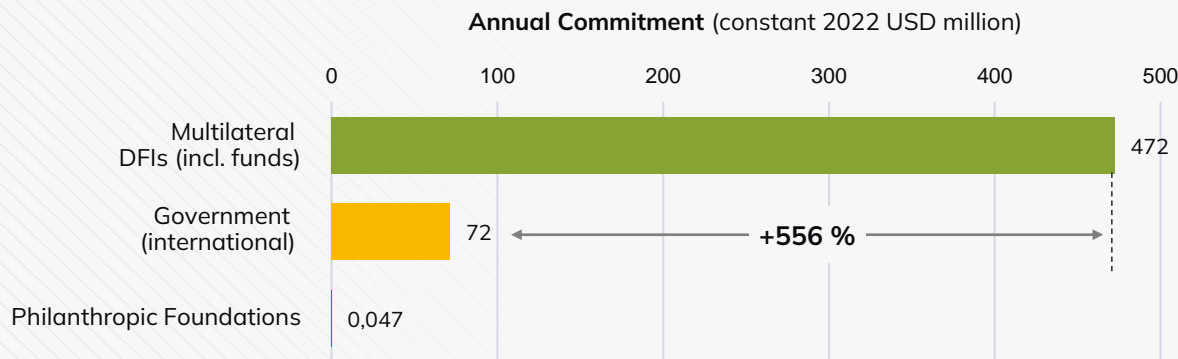
Source: SEforALL analysis; OECD <https://www.oecd.org/dac/transition-finance-toolkit/LMIC-to-UMIC.pdf>
Data Source: OECD DAC database

OVERVIEW BY FINANCIER (2014-2022)

Annual Commitments by Financier (constant 2022 USD million)



Cumulative Commitments by Financier (2014-2022) (constant 2022 USD million)



MULTILATERAL DEVELOPMENT FINANCE INSTITUTIONS (DFIS) HAVE BEEN THE PRIMARY SOURCE OF PUBLIC INTERNATIONAL FINANCE COMMITMENTS TO CLEAN COOKING.

- Multilateral DFIs provided USD 472 million in cumulative commitments between 2014 and 2022, while international governments contributed USD 72 million.
- Bilateral sovereign donors have provided a significantly smaller portion of commitments and funding from philanthropy was largely absent during the reporting period.
- The concentration of financing from multilateral DFIs may limit the range of approaches and priorities in clean cooking initiatives, potentially overlooking local needs and contexts.
- The limited diversity in funding sources could make the clean cooking sector vulnerable to shifts in priorities or budget constraints of multilateral DFIs. Diversifying the financier base could help create a more resilient and sustainable funding ecosystem for clean cooking initiatives.

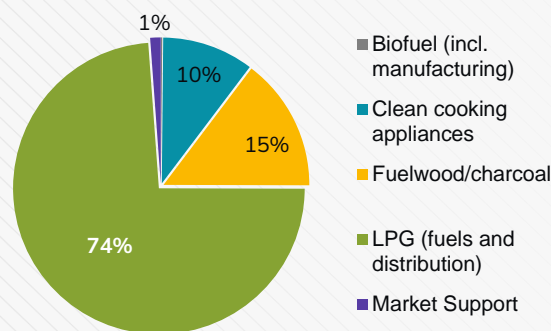
Note: See Appendix for the lists of organizations and countries for each category of financiers
 Source: SEforALL analysis
 Data Source: OECD DAC database

OVERVIEW BY TECHNOLOGY AND FUEL

Cumulative Investments by Purpose/Sector (2014–2022)
(constant 2022 USD million)

Commitment purpose	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Biofuel (incl. manufacturing)	0	0	0	0	0	0	0	0	1	1
Clean cooking appliances	0	0	0	0	0	1	18	23	13	55
Fuelwood/charcoal	5	0	0	0	26	22	14	1	12	80
LPG (fuels and distribution)	0	0	49	0	0	0	277	75	0	401
Market Support	1	0	0	0	0	1	0	4	1	6
Total	6	0	49	0	27	24	309	103	27	544

Cumulative Investments by Purpose/Sector (2014–2022)
(constant 2022 USD million)



Note: types of investment included in each category:

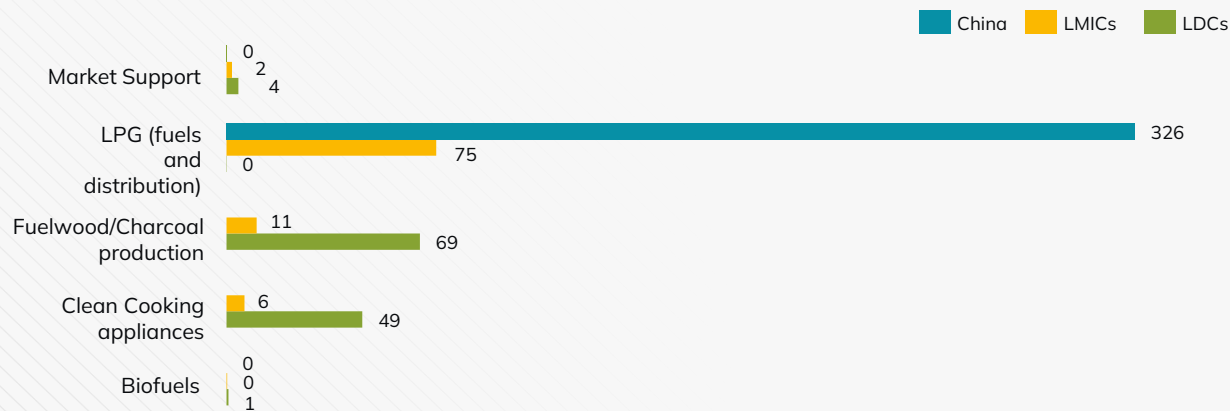
- **Biofuel (incl. manufacturing):** Includes biogas, liquid biofuels and pellets for domestic and non-domestic use. Excludes raw fuelwood and charcoal.
- **Clean Cooking appliances:** Includes manufacturing and distribution of efficient biomass cooking stoves, gasifiers, liquid biofuels stoves, solar stoves, gas and biogas stoves, electric stoves.
- **Fuelwood/Charcoal Production:** Sustainable forestry development whose primary purpose is production of fuelwood and charcoal.
- **LPG (fuels and distribution):** urban infrastructure for the delivery of urban gas and LPG cylinder production, distribution and refill.
- **Market support:** Energy research, energy education and training and energy policy and administrative management.

LPG FUELS AND DISTRIBUTION RECEIVED THE MAJORITY OF CLEAN COOKING INVESTMENTS, WITH LIMITED FOCUS ON OTHER TECHNOLOGIES AND MARKET SUPPORT.

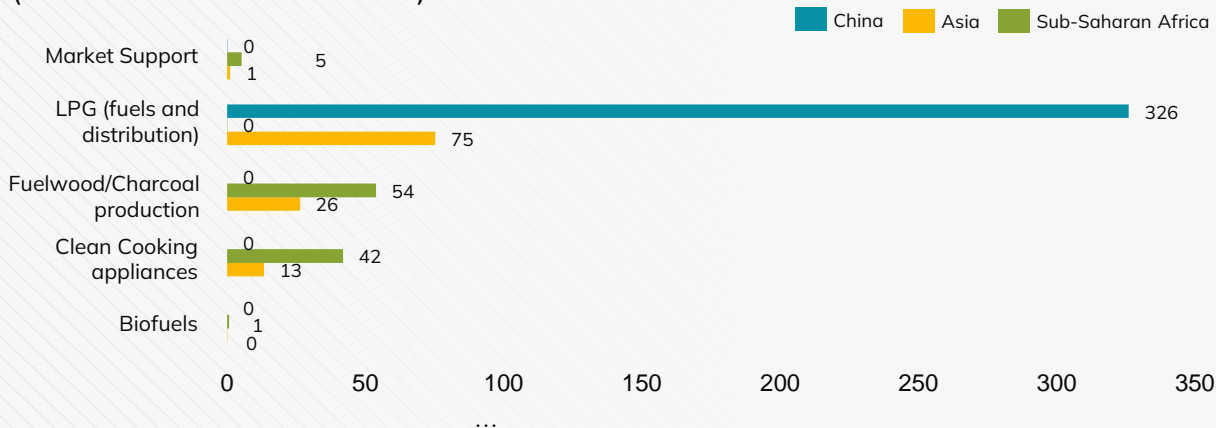
- LPG alone accounted for 74% (USD 401 million) of total investments between 2014 and 2022 followed by funding for sustainable charcoal production and manufacturing support for cookstoves.
- The distribution of commitments across different clean cooking technologies and fuels has been very uneven, with LPG dominating the landscape, mainly due to a large project in China.
- Clean cooking appliances and sustainable fuelwood/charcoal production have received some attention, however there is a need for increased investments in all fuels and technologies to promote a more comprehensive and balanced approach to clean cooking.
- Limited funding to market support activities (1%) demonstrate that clean cooking is still not taken as a policy priority amongst most countries and donors.

OVERVIEW OF COMMITMENTS IN DIFFERENT TECHNOLOGIES AND FUELS BY DEVELOPMENT STATUS AND BY REGION

Cumulative Investments in technology and fuel by development status (2014–2022) (constant 2022 USD million)



Cumulative Investments in technology and fuel by region (2014–2022) (constant 2022 USD million)



LIMITED ATTENTION GIVEN TO CLEAN COOKING TECHNOLOGIES AND MARKET SUPPORT INITIATIVES ACROSS ALL REGIONS (EXCEPT THE CHINA LPG PROGRAMME) UNDERSCORES THE NEED FOR A MORE COMPREHENSIVE APPROACH TO CLEAN COOKING.

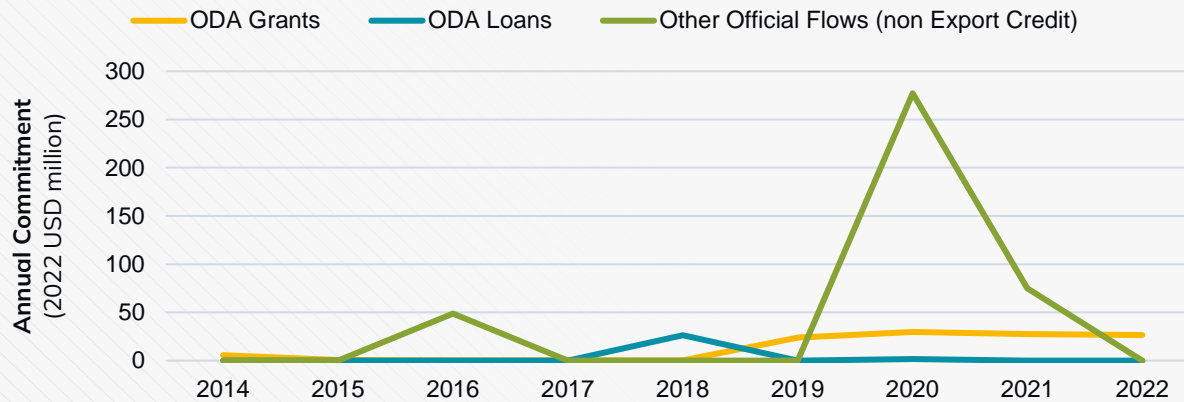
- China received USD 326 million for LPG, while LDCs and LMICs received more diverse but smaller investments across technologies.

- Clean cooking commitments to China focus on LPG supply chains, while LDCs and LMICs have more diverse investments across technologies and fuels. Asia has received some funding for LPG while Sub-Saharan Africa has received no support.
- Limited attention to clean cooking appliances across regions indicates a potential value chain gap.
- Funding for market support activities lags across all regions with LDCs and Sub-Saharan Africa receiving some miniscule support.

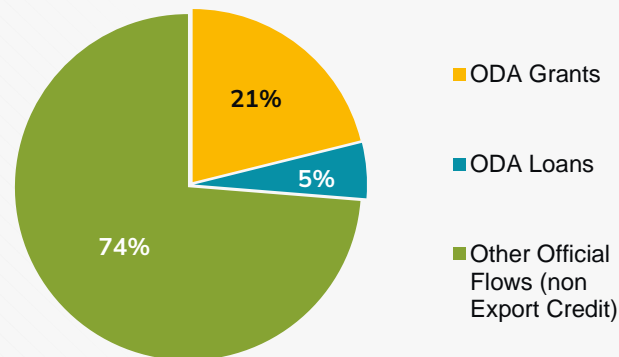
Source: SEforALL analysis
Data Source: OECD DAC database

OVERVIEW OF FINANCIAL INSTRUMENTS

Financial Commitments by Instrument type (2014–2022)
(constant 2022 USD million)



Cumulative Investments by Instrument (2014–2022)
(constant 2022 USD million)



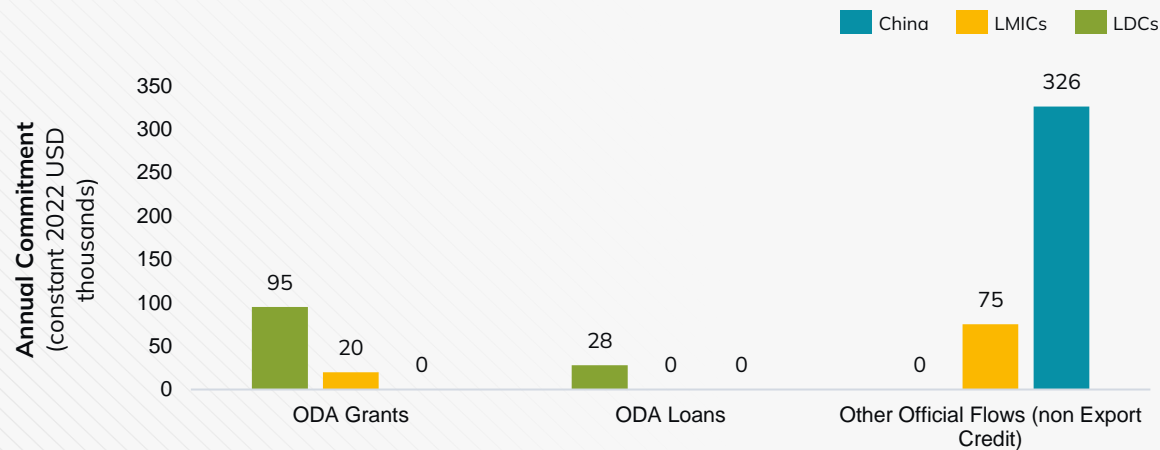
DEBT FINANCING AND NON-ODA LOANS (OOF) HAVE BEEN THE PRIMARY FINANCIAL INSTRUMENT FOR CLEAN COOKING COMMITMENTS, FOLLOWED BY ODA GRANTS.

- OOF accounted for USD 401 million in cumulative commitments between 2014 and 2022, while ODA grants accounted for USD 257 million.
- Debt financing and non-ODA loans have consistently been the largest source of financing, highlighting the role of development finance institutions in supporting clean cooking initiatives.
- The financing structure may not be optimal for supporting early-stage and high-risk clean cooking initiatives, particularly in LDCs and LMICs.
- Limited use of ODA grants and loans may hinder support for clean cooking in less developed markets where market-based approaches are less viable and concessional financing is crucial.

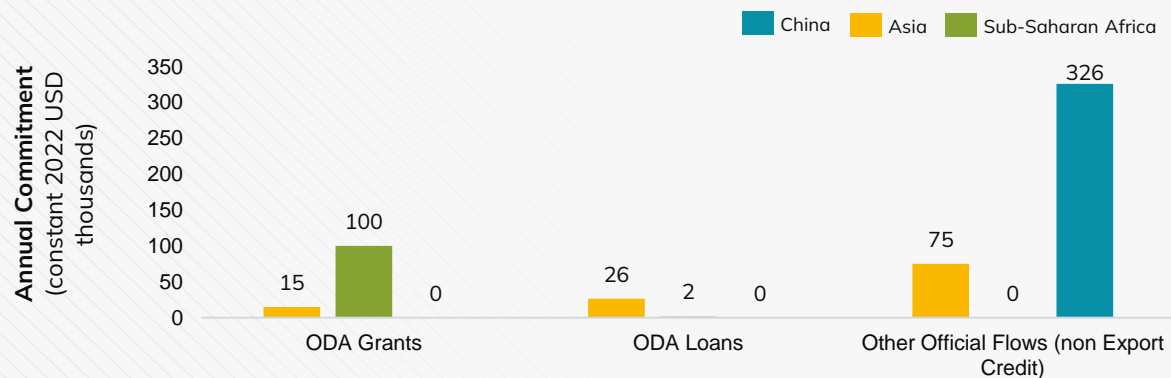
Source: SEforALL analysis
Data Source: OECD DAC database

OVERVIEW OF FINANCIAL INSTRUMENTS IN DIFFERENT TECHNOLOGIES AND FUELS

Cumulative Commitments by instrument type and development status (2014–2022) (constant 2022 USD million)



Cumulative Commitments by instrument type and by region (2014–2022) (constant 2022 USD million)



- There is a stark disparity in the distribution of financial instruments for clean cooking commitments across regions and development status.
- Critically, ODA loans, which are essential for supporting clean cooking initiatives in less developed markets, are not flowing sufficiently to these regions.
- LMICs and LDCs receive very few ODA loans, with LMICs not receiving any funding. A silver lining is that the majority of grant funding has been directed to LDCs, where it is most needed.

- The reliance on grants in LDCs and Sub-Saharan Africa, while important for supporting early-stage market development and capacity building, is not sufficient to scale up clean cooking solutions and attract private investment in these regions.
- The limited role of ODA loans across regions may indicate a need to explore more innovative financing mechanisms, such as blended finance or results-based financing, to unlock additional resources and incentivize private sector investment in clean cooking solutions.

Source: SEforALL analysis
Data Source: OECD DAC database

05

CASE STUDY:
ELECTRICITY



INTRODUCTION

OBJECTIVES

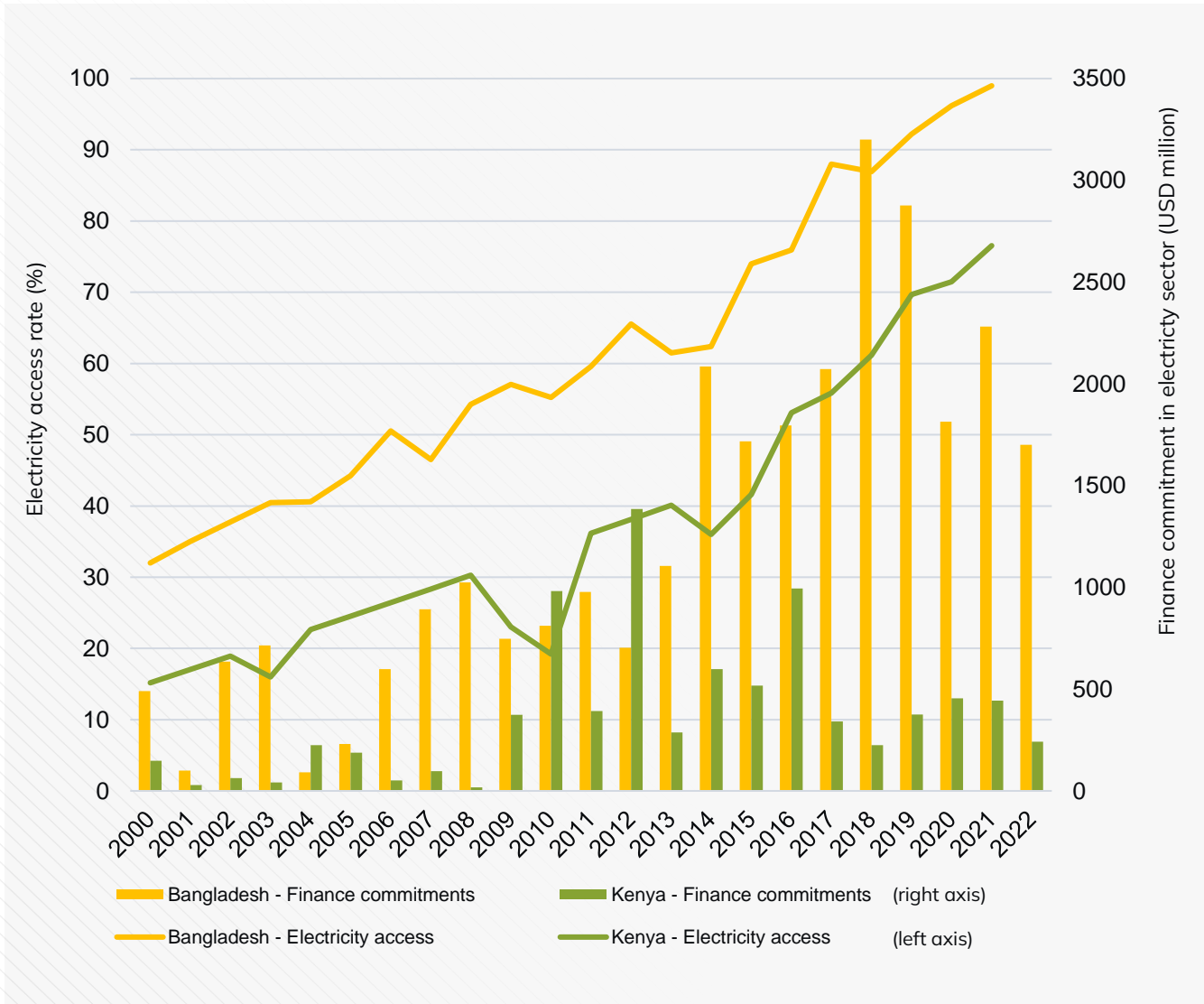
- The objective of this section is to analyze the context of two countries in different regions that have successfully increased electricity access rates by around 70% over the past two decades, focusing in particular on tracking the enabling policy and regulatory framework of electricity access.
- The analysis sets out to see how the enabling environment improvement, together with financial commitments, have impacted the subsequent rate of increase in electricity access qualitatively. Although much deeper analysis, including interviews with local players, will be necessary to understand the causes of increase, this analysis tried to examine the overall picture in policy, regulation and finance, and the importance of their concerted efforts.
- Bangladesh and Kenya were chosen for this case study because they have had very similar rates of electricity access increase over the past two decades, as shown in the next slide. Another reason is their different geographic locations and backgrounds.

METHODOLOGY OF ANALYSIS

- In addition to a brief introduction and overall macro picture, the analysis engages in tracking the establishment and implementation of policy and regulatory frameworks, including players in the sector, which are important to increasing electricity access.
- Policies and regulations in the enabling environment are categorized into different types and their timeline of implementation is combined with annual financial commitments.
- The analysis, then, qualitatively tries to examine the impact of different framework elements and how they, in turn, impact financial commitments.



BANGLADESH & KENYA: OVERVIEW OF ELECTRICITY ACCESS RATE AND FINANCE COMMITMENTS TO ELECTRICITY SECTOR



BOTH COUNTRIES HAVE SIGNIFICANTLY INCREASED ELECTRICITY ACCESS RATES SINCE 2000.

- Bangladesh achieved near universal access in 2021. Starting from electricity access rates of only 32% in Bangladesh and 15% in Kenya in 2000, today they stand at 99.9% and 76.5% respectively.
- Meanwhile, the commitment amounts and patterns of the two countries are quite different.

- **Kenya:** Commitments have varied greatly year by year but finance flowing to the sector has markedly improved since 2008. This has impacted the access rate, which accelerated from 2011.
- **Bangladesh:** Commitments increased until 2018. The highest amounts committed were from 2017 to 2019. The access rate in Bangladesh accelerated from 2014, increasing from 55.3% in 2010 to 96.2% in 2020.

Source: World Bank Group, 2024

SECTION SUMMARY (1/3)



Both countries have significantly increased their electricity access rates since 2000 with similar growth trajectories.

- Bangladesh and Kenya are both lower middle-income countries with a population of around 171 and 54 million, respectively (2022).
- ODA commitment amounts and patterns are quite different; Bangladesh achieved near universal access in 2021. Starting from electricity access rates of only 32% in Bangladesh and 15% in Kenya in 2000, today they stand at 99.9% and 76.5% respectively.



There are lots of similarities between the two countries in creating the pathways toward increasing electricity access.

1) Concerted efforts in improving the enabling environment in policy and finance in both countries:

- Bangladesh has begun to make serious efforts towards developing a regulatory and policy framework indicated by its RISE scores of electricity access improvement from 25 (2010) to 62 (2021). The Bangladesh Rural Electrification Board (BREB) was established in 1997 to accelerate electricity access. The Bangladesh Energy Regulatory Commission (BERC) was established with the BERC Act in 2004 for the country to have an independent and impartial regulatory commission for the energy sector. Bangladesh also has a renewable energy (RE) policy, and an RE development act and guidelines for Remote Area Power Supply Systems. The Integrated Energy and Power Master Plan is also being drafted. Bangladesh's success was strongly supported by:
 - 1) **political will** to prioritize universal electricity access;
 - 2) **strong and continuous efforts to fortify the regulatory and policy framework** of the electricity sector;
 - 3) having a **dedicated entity** with a mandate for rural electrification – the BREB; and
 - 4) **on-going efforts in fortify grid systems** to deliver electricity to consumers.
- Kenya has a relatively mature regulatory and policy environment for the electricity sector, as indicated by an overall RISE score of 73. Sessional Paper 4 (2004) endorsed the liberalization of the electricity sector. The Energy Act (2006) brought reforms including establishing the Electricity Regulatory Commission and the Rural Electrification Authority (renamed Rural Electrification and Renewable Energy Corporation (REREC) in 2019) to accelerate rural electrification. The Energy Act was further revised in 2019 to consolidate and expand the mandate of several entities. Kenya also has a least-cost development plan, the National Electrification Strategy 2018 and a policy for RE auctions. Kenya's success was strongly supported by:
 - 1) strong and continuous efforts that created a **mature policy and regulatory environment for electricity access**;
 - 2) a **dedicated entity with a mandate for rural electrification** – the Rural Electrification and Renewable Energy Corporation; and
 - 3) a **prudent ODA focus on renewable energy and grid development**.

SECTION SUMMARY (2/3)



2) Increasing financial commitments

- **Finance commitments** to Bangladesh have significantly increased since 2014. Between 2000 and 2022, Bangladesh received a total of USD 28.67 billion in ODA commitments to the energy sector. Finance has mainly been through non-concessional financing (OOF) and concessional loans. Commitments increased until 2018. The highest amounts committed were from 2017 to 2019. As seen with the generation mix, the largest amount, USD 10.96 billion, went to grid-connected fossil fuels followed by transmission and distribution projects.
- **Finance commitments** to Kenya have significantly increased since 2009. Between 2000 and 2022, Kenya received a total of USD 8.47 billion in ODA commitments to the energy sector. Finance has mainly been through concessional loans. The amount varies greatly year by year but finance flowing to the sector has markedly improved since 2008. As seen with the generation mix, renewables received around three times more financing than fossil fuels. The largest amount, USD 3.17 billion, went to transmission and distribution grid projects.

3) Focus on transmission and distribution network development and persisting system-level inefficiency

- **Both countries wisely focused on increasing transmission and distribution network development during the 2010s.**
 - The transmission length in Bangladesh as of 2022–23 was 14,717 km, around 42% growth compared to 2016–17. A similar growth trend was seen in Kenya. The transmission length in Kenya as of 2020–21 was 7,676 km, around 58% growth compared to 2016–17. Transmission substation installed capacity has increased around 2.5 times in Bangladesh since 2016-17, whereas in Kenya it has only increased by around 25%.
 - **ODA finance supported these developments:** between 2000 and 2022, Bangladesh and Kenya spent large amounts for transmission and distribution projects, USD 6.82 billion and USD 3.17 billion, respectively.
- **Both countries still have very high levels of system inefficiency.**
 - In Bangladesh there is a large difference between the installed power generation capacity and system peak demand, 24.9 GW and 15.6 GW respectively. This margin of 60% indicates an inefficient system structure. In Kenya there is also a large difference between the installed power generation capacity of 2.9 GW in 2020–21 with a 990 MW difference from system peak demand. The margin of 50% shows a rather inefficient overall power system.
 - **Both Bangladesh and Kenya need to focus on further enhancement of their networks to reduce the high level of margins and increase system-level efficiency through proper finance.**

SECTION SUMMARY (3/3)



Bangladesh and Kenya have different opportunities and challenges moving forward.

- **Cleaner electricity and stronger energy security in Bangladesh:**

- Looking ahead, one of the major challenges in Bangladesh's power sector is a shortage of primary fuels with a sharply declining indigenous natural gas supply in a generation mix dominated by fossil fuels, threatening energy security. At the same time, the country has received the largest amount of ODA for fossil-fuelled power generation. **To achieve the dual objectives of a cleaner electricity supply and energy security, the opportunities lie in cross-border trading with South Asian countries, especially for hydropower, and in finalizing the integrated power master plan.** Meanwhile, imbalance between generation capacity and grid network capacity persists. The Integrated Power master plan **should contribute to reduce this system-level inefficiency as well.** In addition, projects for modernization and capacity enhancement of distribution networks should be prioritized to **reduce technical losses and increase system-level efficiency.**

- **Universal access and affordability in Kenya:**

- Looking ahead, it is important to increase affordability and efficiency at both system and business level. The opportunities to tackle the challenges lie in: strengthening mechanisms to holding the entities created under the Energy Act accountable for their specified objectives; identifying and prioritizing those in greatest need of financial support to access the grid; encouraging increased electricity consumption at the household level; and enhancing community and cross-departmental engagement through county governments to inform prioritization of locally applicable solutions. There are several challenges to achieving the target:
 - 1) low population density and low incomes in rural areas along with low electricity consumption amongst Kenyan households leads to higher investment requirements;
 - 2) a lack of detailed socioeconomic data in gender, income levels and age makes it difficult to subsidize targeted households as the cost of electricity access is still high for many; and
 - 3) overzealous projections of electricity consumption in the past caused overinvestment in electricity generation, leading to rising consumer costs due to underutilized infrastructure.



06

BANGLADESH

BANGLADESH: COUNTRY PROFILE

BASICS

Total Population (2022)	Land Area (2023)	GDP per Capita (PPP 2022)	Annual GDP Growth Rate (2022)	Net ODA received (2022 Current USD)	WB Income Group (2024)	Number of households (2022)
171,186,370 Urban (40%), Rural (60%)	148,460 km ²	USD 7,397.5	5.8 %	USD 5.2 Billion (1.1% of GNI)	Lower-middle income	41 Million

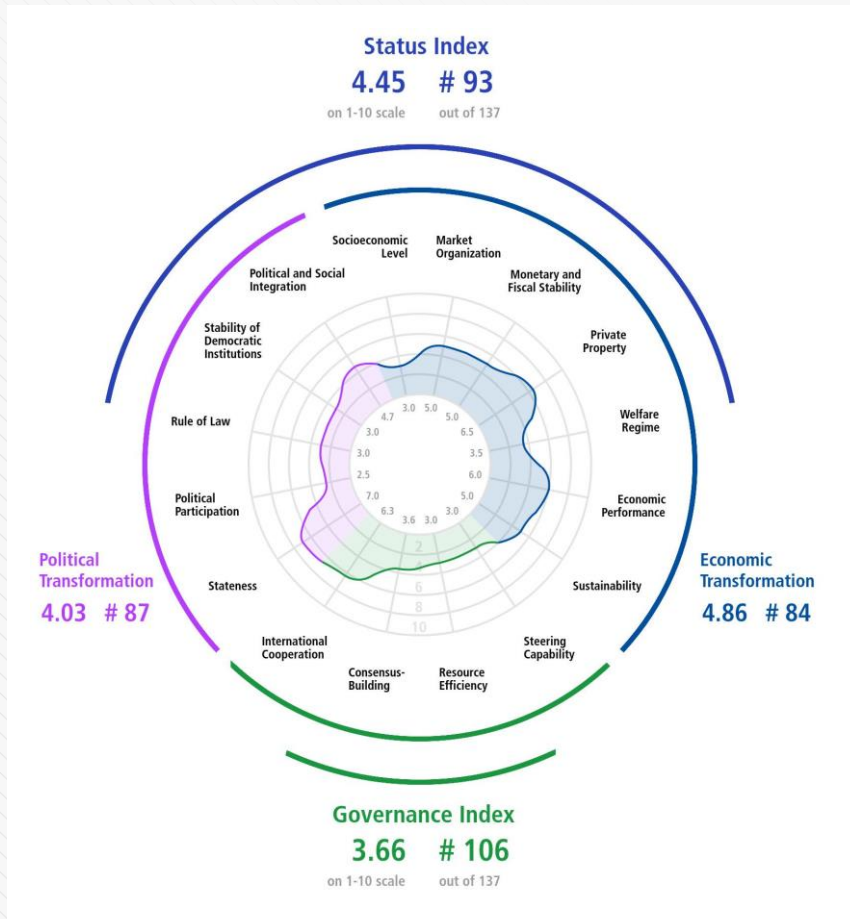
- Bangladesh is a heavily populated central Asian country with lower-middle income status as defined by the World Bank.
- Bangladesh has a strong track record of growth and development, even in times of elevated global uncertainty. A robust demographic dividend, strong ready-made garment (RMG) exports, resilient remittance inflows and stable macroeconomic conditions have supported rapid economic growth over the past two decades.
- Bangladesh's post-pandemic recovery faces continued headwinds. Real GDP growth slowed to 5.8 percent in FY23, down from 7.1 percent in the previous year. The introduction of a multiple exchange rate regime in September 2022 disincentivized foreign exchange inflows, leading to a financial account deficit. Foreign exchange rationing measures were implemented to restrict imports, which resulted in shortages of key intermediate goods, capital goods, gas and energy.



Source: Bangladesh Bureau of Statistics, 2022; World Bank Group, 2024b, 2024c, 2024d, 2024e, 2024f, 2024g, 2024h, 2024i; WorldAtlas, 2023a

BANGLADESH'S POLITICAL AND ECONOMIC CONTEXT

Bertelmann's Transformation Index 2024

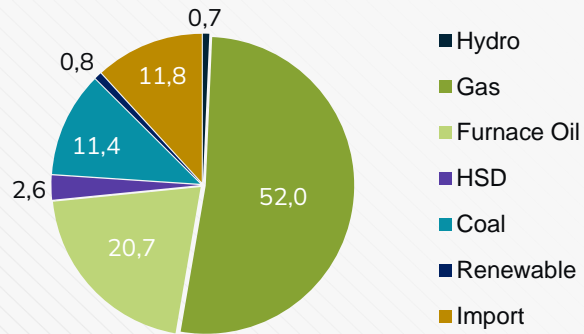


- Bangladesh has a strong bureaucracy and local government system. The state provides basic amenities, including health care and education.
- Bangladesh faces challenges related to market organization and economic freedom, according to a report from the Centre for Policy Dialogue (CPD), a Dhaka-based think tank. The report highlights the high barriers to doing business in Bangladesh, including the need for 28 licenses to start a business. This means the country suffers from long transaction times and high costs.
 - The economic barriers in business include an undeveloped and undercapitalized financial sector, an inefficient and chronically loss-making public sector, illegal transfers of government funds, a decision-averse bureaucracy, and a generally inefficient judicial system regarding the resolution of business disputes.
- Until 2022, Bangladesh was known for its remarkable economic growth. However, a large part of its economic success began to unravel in the second half of 2022. Rising inflation, price hikes, depleted foreign exchange reserves and the energy crisis have hampered the country's economy.

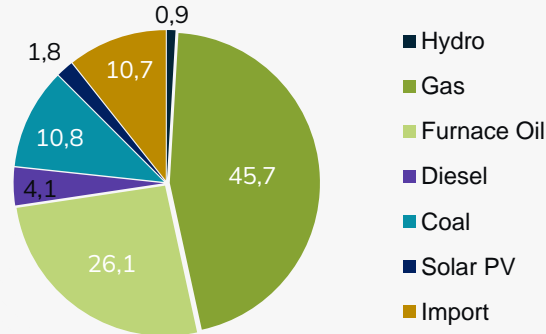
Source: BTI Transformation Index, 2024a

OVERVIEW OF BANGLADESH'S ELECTRICITY GENERATION SECTOR

Energy Mix – Electricity Generation 2023 (%)



Power Mix - Installed Capacity 2023 (%)

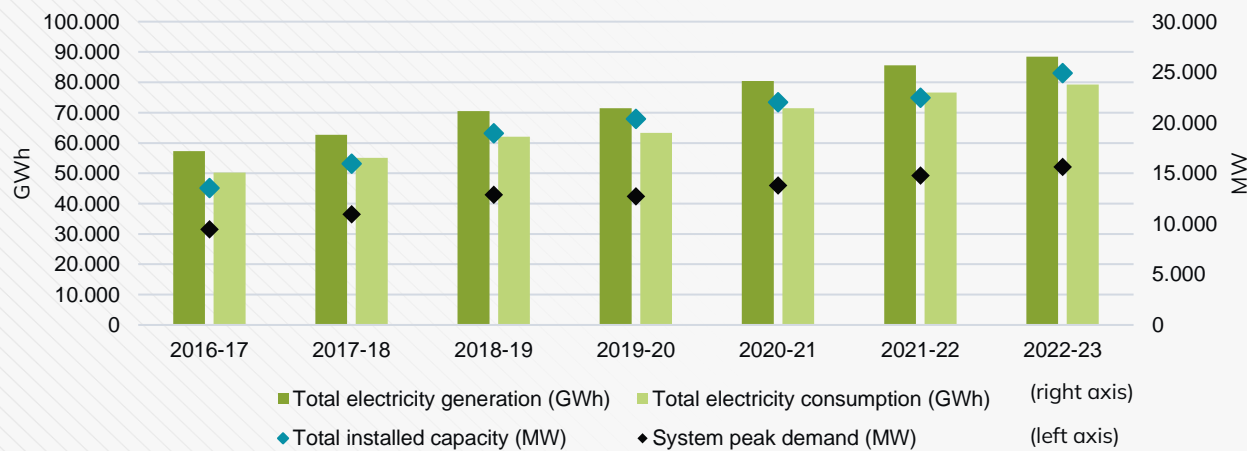


ELECTRICITY GENERATION IN BANGLADESH IS MAINLY FROM FOSSIL FUELS.

- Around half of the electricity generation in Bangladesh is from gas power plants, followed by oil and coal power plants, together **totalling around 84% of the generation.**

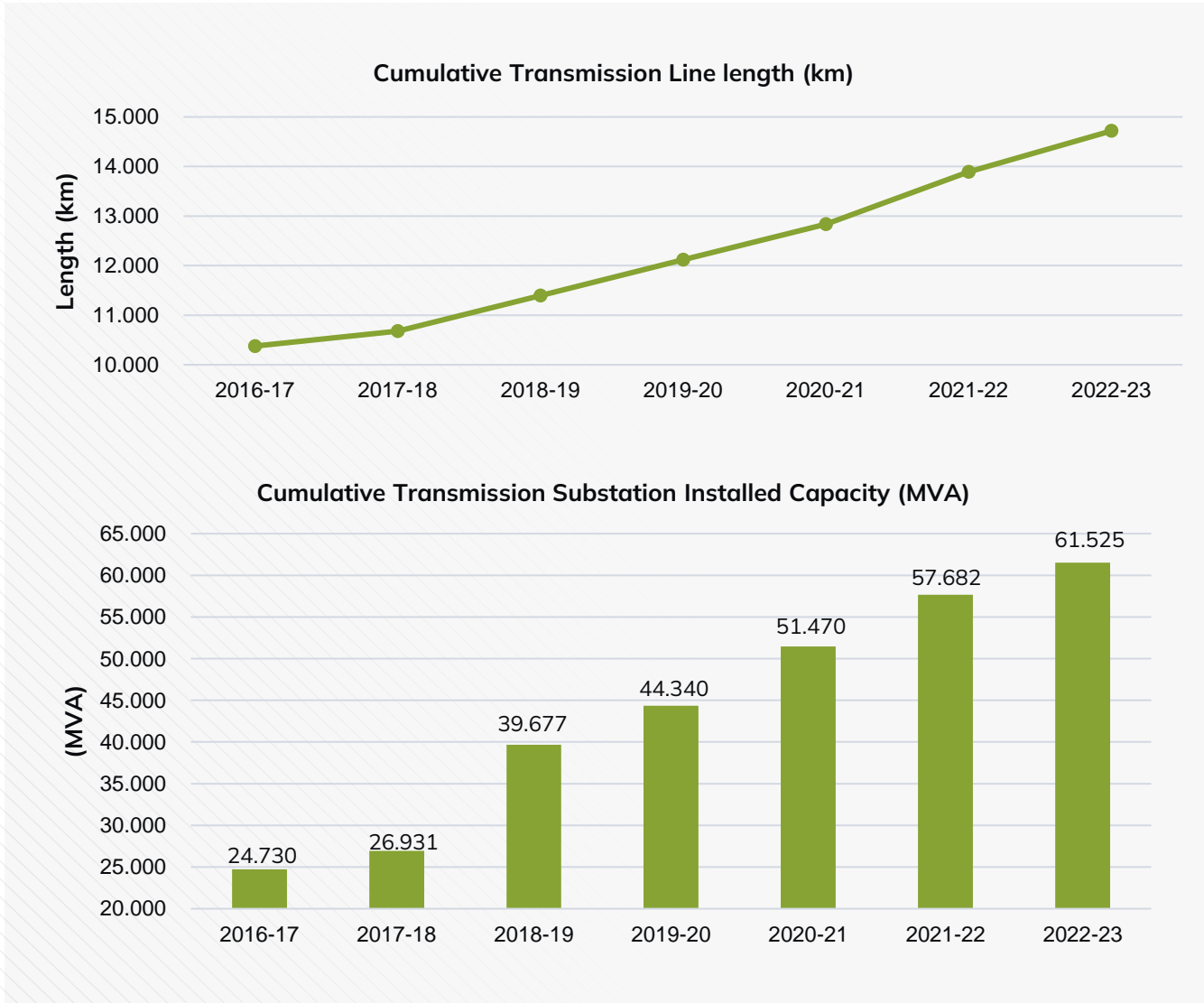
- There is a very small share of renewables from hydro power and solar PV.
- There is a large difference between the installed capacity and system peak demand, 24.9 GW and 15.6 GW respectively. **This high margin of 60% indicates inefficient system structure overall, e.g., a locational mismatch between the supply and demand centres without a proper grid system to deliver.**
- The electricity generation and consumption are 88,450 GWh and 79,270 GWh respectively. The country also imports around 12% of its electricity.
- Per capita electricity consumption is around 463 kWh/capita (2023).

Installed capacity vs peak demand & generation vs consumption



Source: Bangladesh Power Development Board, 2023

OVERVIEW OF BANGLADESH'S ELECTRICITY TRANSMISSION SECTOR

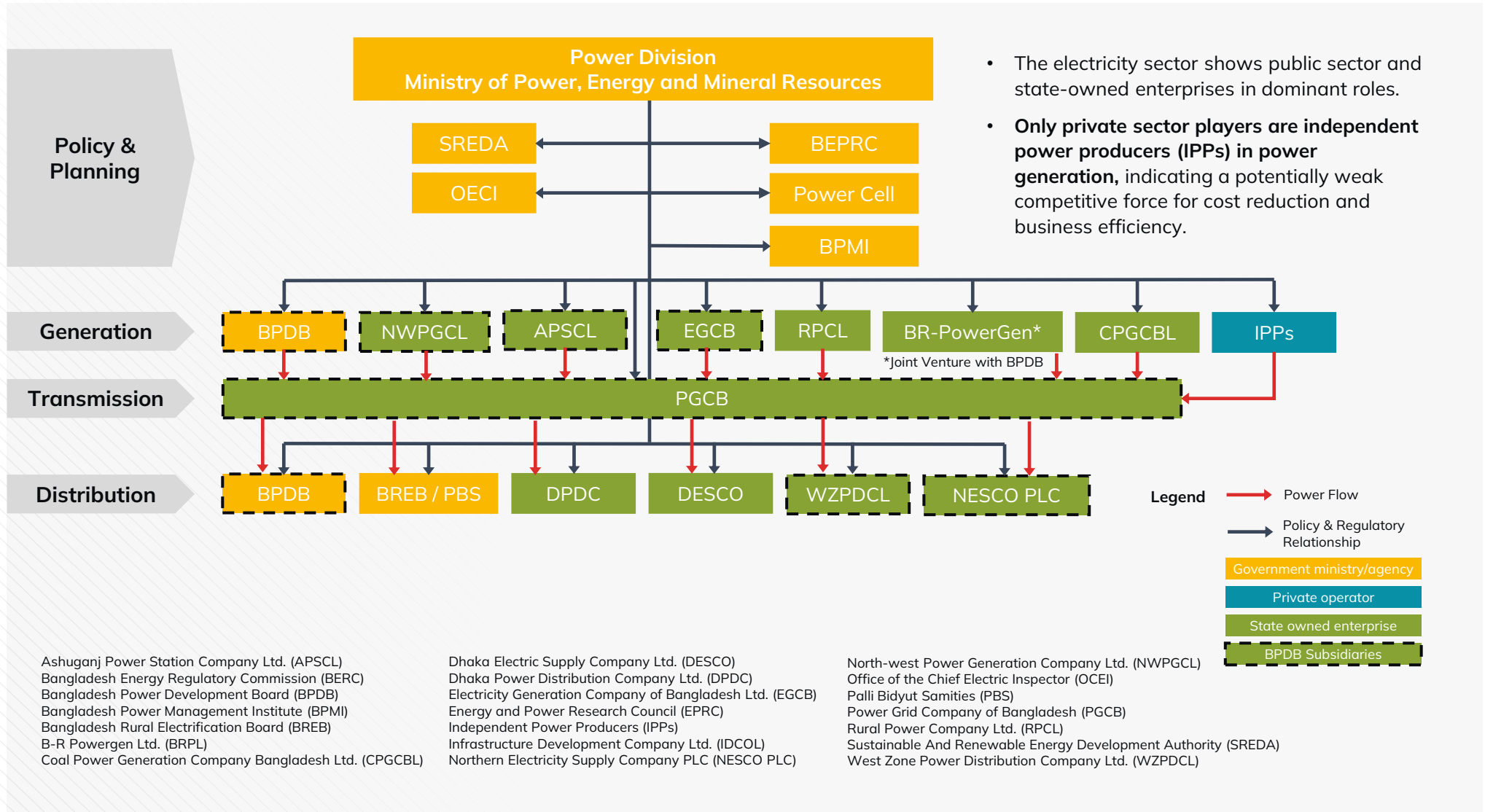


BANGLADESH'S ELECTRICITY TRANSMISSION SYSTEM HAS SIGNIFICANTLY IMPROVED SINCE 2016-17.

- The transmission length in Bangladesh as of 2022-23 was 14,717 km. This is around 42% growth in line length compared to 2016-17.
- Transmission substation installed capacity stood at 61,525 MVA as of 2022-23. It has increased around 2.5 times from 2016-17.
- In 2017-18, there was a sharp increase in transmission line length while substation capacity dramatically increased in 2018-19.
- Between 2000 and 2022, the transmission and distribution sub-sector received the second highest commitments in the electricity sector. Between 2014 and 2022, the highest ODA commitments to the transmission and distribution sub-sector were made in 2014 (USD 1.26 billion), followed by 2018 (USD 809 million), 2015 (USD 703 million), 2020 (USD 549 million) and 2017 and 2019 (around USD 500 million), which seems to be a big contributing factor of this sub-sector's development from 2018, considering time lags for disbursement.

Source: Bangladesh Power Development Board, 2023; Sharif, 2020

BANGLADESH: CURRENT ELECTRICITY SECTOR STRUCTURE, KEY ACTORS AND THEIR ROLES (1/3)



Source: Power Division, 2023



BANGLADESH: CURRENT ELECTRICITY SECTOR STRUCTURE, KEY ACTORS AND THEIR ROLES (2/3)

Policymaking & Implementation: The **Ministry of Power, Energy & Mineral Resources** has two divisions, the Power Division and the Energy & Mineral Resources Division. The Power Division oversees all policies and affairs concerning the generation, transmission and distribution of electricity.

Regulations: **Bangladesh Energy Regulatory Commission (BERC)** is the regulator. It develops codes and standards to uphold compliance, transparency and efficiency in the management and operations of the electricity, gas and petroleum sectors in Bangladesh (South Asia Regional Initiative for Energy Integration 2020).

Bangladesh has unbundled generation, transmission and distribution sectors.

- **Generation:** The generation entities are shown in the figure. **This is the only area where private sector players can participate.**
- **Transmission:** The country has a single transmission entity called the **Power Grid Company of Bangladesh (PGCB).**
- **Distribution:** The Bangladesh Power Development Board (BPDB) is responsible for urban distribution outside of greater Dhaka. It is a single buyer for all IPPs and state generators. There are several other distribution companies as shown in the figure (Power Division 2023).

Electricity Access: There are several agencies responsible for electricity access in Bangladesh.

- The **Bangladesh Rural Electrification Board (BREB)**, established in 1977, is responsible for the electrification of rural areas in Bangladesh. It serves as a power distribution company for rural areas and constructs electric lines and substations.
- A subsidiary of BREB, known as **Palli Bidyut Samities (PBS)**, functions as a consumer cooperative.
- BREB provides managerial, technical and financial support to PBS (NSDI 2024).





BANGLADESH: CURRENT ELECTRICITY SECTOR STRUCTURE, KEY ACTORS AND THEIR ROLES (3/3)

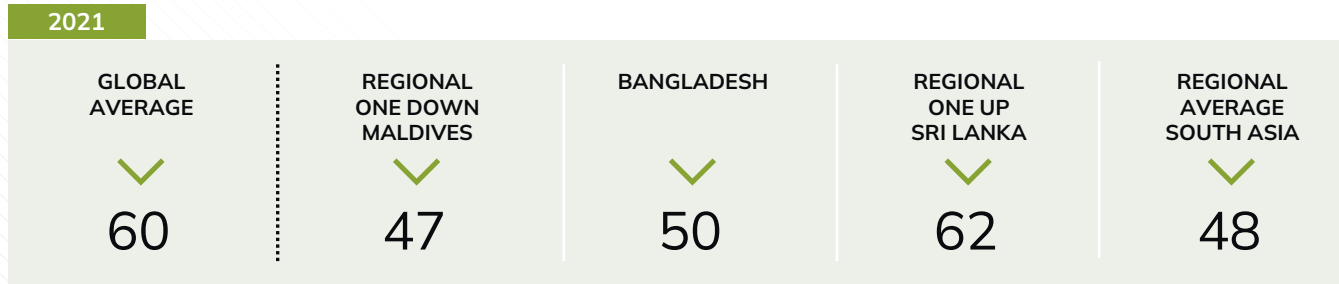
- **The Infrastructure Development Company Ltd. (IDCOL)** is a government-owned development financial institution financing off-grid projects. IDCOL implemented the Solar Home System (SHS) programme to engage the private and non-governmental sectors to accelerate electricity access (The World Bank 2021a).

Other relevant players under the Ministry of Power, Energy & Mineral Resources:

- The **Sustainable and Renewable Energy Development Authority (SREDA)**, formed in 2012, is the nodal agency for renewable energy development and is tasked with increasing renewable energy (RE) production in Bangladesh.
- **Power Cell** was established in 1996 and is responsible for promoting and reforming the power sector.
- The **Energy and Power Research Council (EPRC)** supports research and development in the power sector.
- The **Office of the Chief Electric Inspector (OCEI)** ensures the safety and effective management of assets involved in power generation, transmission and distribution (South Asia Regional Initiative for Energy Integration 2020).
- The **Bangladesh Power Management Institute (BPMI)**, established in 2017, aims to enhance technical and managerial expertise and elevate the quality of human resources within the power sector through specialized education and training (Bangladesh Power Management Institute 2020).



BANGLADESH'S POLICY AND REGULATORY ENABLING ENVIRONMENT: RISE INDICATOR

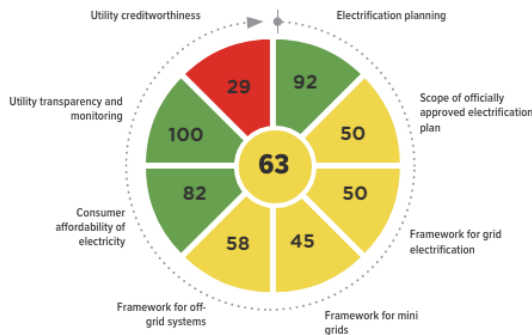


RISE scores (out of 100) per pillar 2021

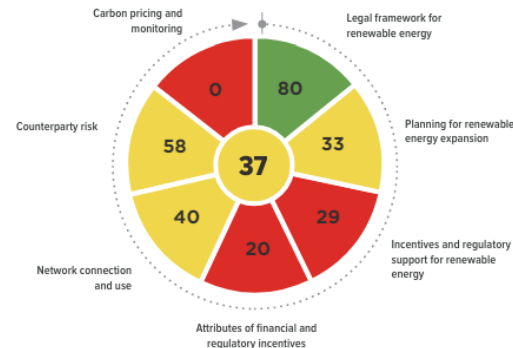
BANGLADESH'S LATEST OVERALL RISE SCORE IS 50, WHICH IS AROUND THE REGIONAL AVERAGE.

- The RISE score for electricity access improved from 25 (2010) to 62 (2021).
- Electricity access (63) and clean cooking (59) show a better enabling environment than renewable energy (37) and energy efficiency (41), which are bringing the overall score down.

ELECTRICITY ACCESS



RENEWABLE ENERGY



- **Electricity access:** As of 2021, utility creditworthiness has been the weakest part of the electricity access enabling environment, while electrification planning, care for consumer affordability and utility transparency scored high. All on-grid, mini-grid and off-grid frameworks can improve further for last-mile electrification.
- **Renewable Energy (RE):** RE has a poor overall score of 37, with only the legal framework for RE scoring high. Incentives and regulatory supports need a much stronger framework.

Source: RISE, 2022a

OVERVIEW OF BANGLADESH'S ELECTRICITY SECTOR POLICY AND REGULATORY ENVIRONMENT (1/2)

1

Electricity Access Programmes under the Bangladesh Rural Electrification Board (BREB) (1997): BREB, a distribution utility for the rural areas, was established in 1997 and is responsible for universal access to electricity in Bangladesh.

- o Currently, out of 462 *upazilas* (a sub-unit of a district for administrative purposes), only one is off grid and the rest are grid-connected.
- o BREB has undertaken several projects for providing universal access, such as the Area Coverage Rural Electrification Project, the Intensification and Expansion of PBS, the Rural Power for Poverty Reduction Programme, the Rural Electrification through Solar Energy Programme, the Rural Electrification Expansion Programme, the Up-gradation Rehabilitation and Intensification of Distribution System Programme and the Distribution Network Expansion for 100% Rural Electrification Programme.

2

Guidelines for Remote Area Power Supply System (RAPSS) (2008): The guidelines were established in 2008, focusing on rural power supply and recognizing the critical role of electricity supply in fostering socioeconomic development and poverty alleviation. Through these guidelines, Bangladesh prioritizes the development of the power sector and aims to ensure universal access to electricity by 2020. The RAPSS Fund was also established under the guidelines to provide capital cost subsidies to new rural connections.

3

Bangladesh Energy Regulatory Commission Act (2003): This Act established an independent and impartial regulatory commission for the energy sector, the Bangladesh Energy Regulatory Commission (BERC). BERC enacted the Licensing Regulation for Generation in 2006 and the Generation Tariff Regulations in 2008. The Power Transmission and Distribution Tariff Regulations were issued in 2016.

4

National Energy Policy of 2004: The policy aimed to ensure proper exploration, production, distribution and rational use of energy resources for meeting the growing demand of different consumer types and zones. Launched first in 1996, it was updated in 2004 and one of its objectives was to achieve universal electricity access by 2020.

5

Renewable Energy Policy of Bangladesh (2008): To make efficient utilization of renewable energy resources commercially available, rational policy on renewable energy usage was essential. The 2008 Policy explored objectives, institutional arrangements, resource technology and programme development, investments and fiscal incentives, and regulatory policy.

OVERVIEW OF BANGLADESH'S ELECTRICITY SECTOR POLICY AND REGULATORY ENVIRONMENT (2/2)

6

Sustainable and Renewable Energy Development Authority Act (2012): This Act established the Sustainable and Renewable Energy Development Authority (SREDA). The objectives of the SREDA are to promote, develop and coordinate renewable energy and energy efficiency programmes in the country to ensure energy security.

7

The Electricity Act of 2018: This Act is an amendment of the Electricity Act, 1910 with modifications for developing and reforming the sectors of power generation, transmission, supply and distribution and meeting the increasing demand for electricity with better delivery of service.

Bangladesh Delta Plan 2100 (2018): The Plan aims to: 1) eliminate extreme poverty by 2030, 2) achieve upper middle-income status by 2050 and 3) for Bangladesh to become a high-income country by 2041. The plan is important for power system development to support economic development and has policy recommendations for rural electrification. Given its long-term perspective extending until the end of the 21st century, the plan's strategy remains flexible and subject to review every five years.

8

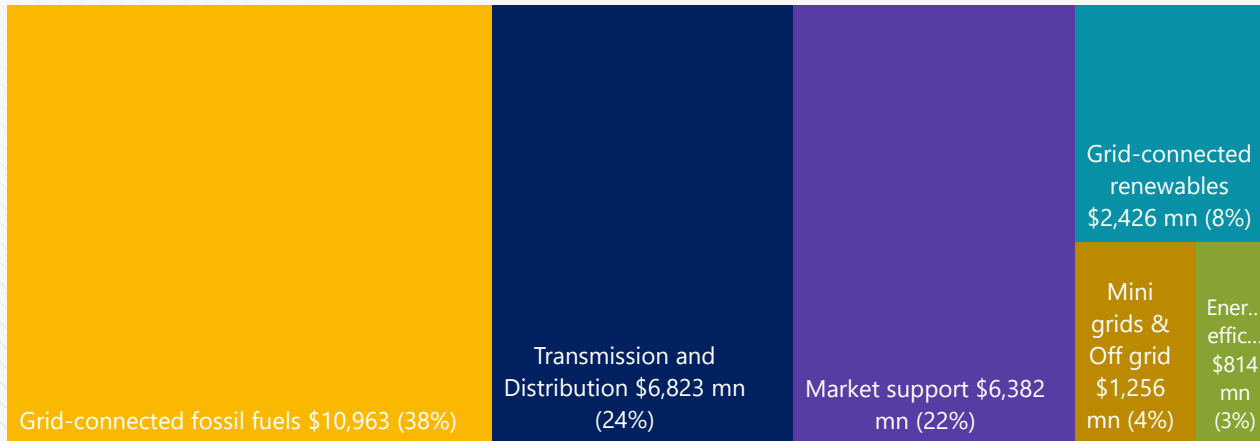
Vision 2041 and Perspective Plan of Bangladesh 2021–2041 (2021): To realize Bangabandhu Sheikh Mujibur Rahman's vision, Vision 2041 is a Sheikh Hasina government initiative that aims to eradicate extreme poverty, attain upper middle-income status by 2031, and for Bangladesh to become a high-income country by 2041. **The Perspective Plan of Bangladesh 2021–2041 converts Vision 2041 into a development strategy, focusing on several sectoral strategies for achieving its goals, including sustainable power and energy.** Since near universal electricity access has been achieved under Vision 2021, the current plan aims to strengthen the power system through adopting a least-cost power generation path; ensuring a balanced investment between generation, transmission and distribution; developing the required infrastructure for primary fuel; promoting private investment in energy; expanding power trade; etc.

9

Integrated Energy and Power Master Plan (IEPMP) draft (2023): Bangladesh is aggressively pursuing economic growth under Vision 2041, aiming to become a high-income country by its 70th year as an independent country. With plans to expand its economy fivefold, energy demand is set to rise. Furthermore, to address climate concerns, Bangladesh aims for up to 40% clean energy in its generation mix. To consolidate existing long-term energy plans, Bangladesh prepared a draft IEPMP for a comprehensive national plan and a roadmap until 2050. The draft IEPMP aims for a clean and efficient energy system, focusing on “S plus 3E” or Safety, Energy Security, Economic Efficiency and Environment.

FINANCIAL COMMITMENTS

Energy Sector ODA Commitment by Sub-Sector
(2000-22, constant 2022 million USD)



BETWEEN 2000 AND 2022, BANGLADESH RECEIVED A TOTAL OF USD 28.67 BILLION IN ODA COMMITMENTS TO THE ENERGY SECTOR.

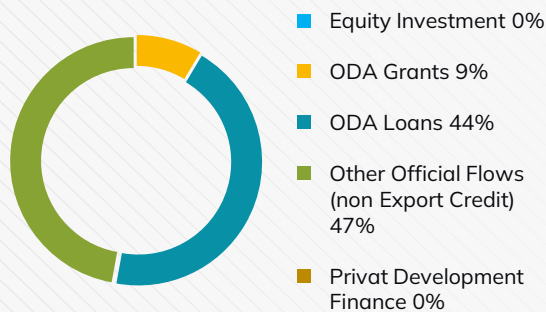
- There was an increasing trend in the amount of the commitments until 2018. This included a steep increase that started in 2012. The highest amounts committed were from 2017 to 2019.

- The largest share of commitments, USD 10.96 billion, went to grid-connected fossil fuels. This was followed by transmission and distribution grids, market support, grid-connected renewables, mini-grids, off grids and energy efficiency.

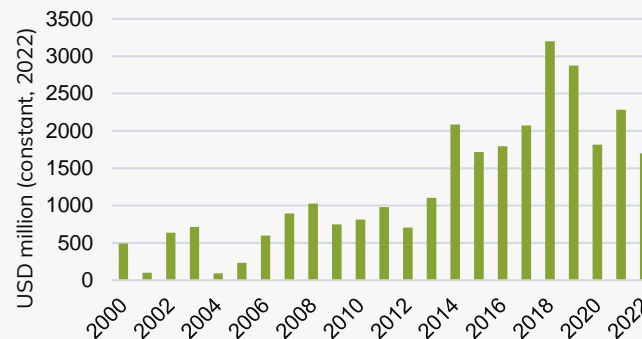
- **Bangladesh received far lower commitments for renewables during this period, while fossil fuel sources received significant amounts of financing.**

- **Finance has mainly been through non-concessional financing (OOF) and concessional loans, followed by some amounts of grants. There are insufficient data to comment on private financing levels.**

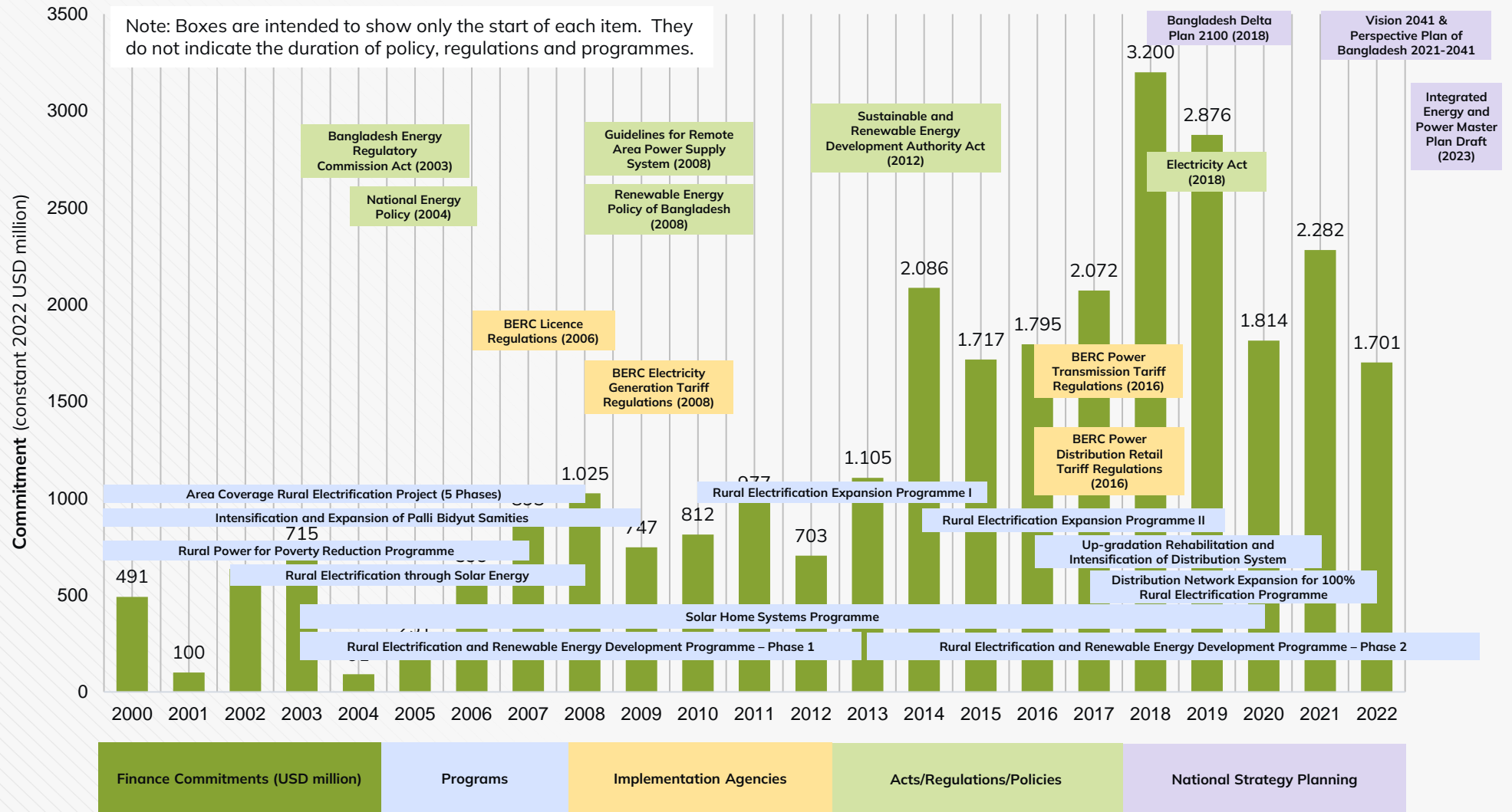
Financial Instruments (2000-22)



Commitment Trend (2000-2022)



BANGLADESH: ELECTRICITY ACCESS POLICY IMPLEMENTATION AND ODA COMMITMENT TIMELINE



Source: own analysis

BANGLADESH SWOT ANALYSIS: ENABLING ENVIRONMENT CONTRIBUTED TO NEAR UNIVERSAL ACCESS

STRENGTHS

Strengthening of Policy and Regulatory Enabling Environment over the years as shown by RISE score of electricity access improvement from 25 (2010) to 62 (2021). Some of the contributing factors are:

- **Political will** to prioritize universal electricity access through Vision 2021 and overall power sector development through Bangladesh Delta Plan and Perspective Plan of Bangladesh, while engaging in sector reform efforts
- **Efforts towards developing a regulatory and policy framework:** Integrated Energy and Power Master Plan draft, Sustainable and Renewable Energy Development Authority Act and power system master plans
- **Dedicated entity with a mandate for rural electrification:** Bangladesh Rural Electrification Board (BREB)
- BREB, PBS and Solar Home Systems **programmes for rural electrification**
- Ongoing **projects for modernization and capacity enhancement of distribution networks, in addition to past transmission network fortification**

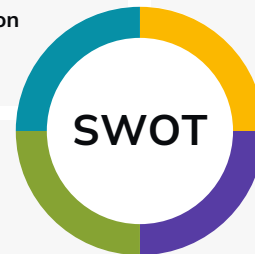
OPPORTUNITIES

Integrated Planning and Coordination

- Cross-border electricity trading with South Asian Countries, especially for hydropower
- Finalizing the integrated power master plan to achieve dual objectives of reducing fossil fuel usage while securing energy supply for further economic development while balancing power generation and network capacities

Improving Competitiveness

- Further sector reform for privatization and liberalization
- Encouraging increased electricity consumption at the household level
- Possibility of off-shore gas and oil exploration *only if utilization is done with clear fossil fuel phase-out planning*



WEAKNESSES

Sector Reform

- Despite sector reform efforts like unbundling, the sector did not benefit from competition, innovation and cost reduction.

Technical Capacity

- Fault-prone power transmission and distribution network
- Vulnerable system stability
- Lack of uniformity in protection settings among system components
- Significant transmission and distribution losses, along with commercial losses

System-Level Imbalance

- Mismatched and uncoordinated development works in the generation, transmission, and distribution sectors – High margin of power system capacity
- Improved coordination between on-grid and off-grid projects

Affordability

- Limitations in purchase capabilities by consumers

THREATS (BARRIERS/CHALLENGES)

Barriers for Cleaner & Efficient Resource Utilization & Energy Security

- Fault prone power transmission and distribution network, preventing variable renewables and efficient utilization of the power system assets
- Commission of upcoming large capacity power plants in a weaker national grid infrastructure with capacity to impact grid stability
- A large volume of technical and commercial losses
- Power sector and its ODA dominated by fossil fuels
- Shortage of primary fuel with sharply declining domestic natural gas supply threaten energy security, while large quantities of good quality coal reserves and possible off-shore gas and oil exploration can threaten the transition to clean energy

LEARNING FROM BANGLADESH

Concerted efforts in improving the enabling environment in policy and finance for electrification contributed to a strong increase in access.



In the commendable story of Bangladesh’s universal electricity access, there are a few key factors:

- 1) political will to prioritize universal electricity access;
- 2) strong and continuous efforts to fortify regulatory and policy framework of electricity sector;
- 3) dedicated entity with a mandate for rural electrification – Bangladesh Rural Electrification Board (BREB); and
- 4) on-going efforts in fortify grid system to deliver electricity to consumers.

Finance commitments to Bangladesh have significantly increased since 2014. It is noteworthy that during the same period, several electrification programmes were undertaken by BREB such as the Rural Electrification Expansion programme, the Up-gradation Rehabilitation and Intensification of Distribution System, and the Distribution Network Expansion for 100% Rural Electrification programme. In parallel, an increase in the rate of electricity access in Bangladesh is noticeable from 2014.

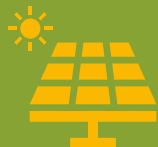
The Solar Home System (SHS) programme in Bangladesh is one of the largest nationwide off-grid electrification programme. Around 3.1 million households had a SHS by 2020. The project started in 2003, and sales were highest during 2012–2014. Due to unforeseen rapid grid expansion from 2014, sales then dropped. Improved coordination between on-grid and off-grid projects is required to use resources optimally.

Distribution network as the key for system efficiency



While Bangladesh has achieved universal electricity access with strong transmission and distribution sub-sector expansion in recent years, the transmission and distribution networks are fault prone with vulnerable system stability. There are also significant transmission and distribution losses, along with commercial losses. Therefore, BREB is currently undertaking projects for modernization and capacity enhancement of distribution networks. This effort should be prioritized to increase system-level efficiency and avoid unnecessary asset development and associated investment by utilizing the existing assets better.

Toward cleaner electricity and stronger energy security



Looking ahead, one of the major challenges in Bangladesh’s power sector is a shortage of primary fuels with a sharply declining indigenous natural gas supply in a generation mix dominated by fossil fuels, threatening energy security. At the same time, the country has received the largest amount of ODA for fossil-fuelled power generation. To achieve the dual objectives of a cleaner electricity supply and energy security, the opportunities lie in cross-border trading with South Asian countries, especially for hydropower, and in finalizing the integrated power master plan. Meanwhile, imbalance between generation capacity and grid network capacity persists. The Integrated Power master plan should contribute to reduce this system-level inefficiency as well.

07

KENYA



KENYA: COUNTRY PROFILE

BASICS

Total Population (2022)	Land Area (2023)	GDP per Capita (PPP 2022)	Annual GDP Growth Rate (2022)	Net ODA received (2022 Current USD)	WB Income Group (2024)	Number of households (2022)
54,027,490 Urban (29%) Rural (71%)	569,140 km ²	USD 5,765.8	4.8 %	USD 2.6 Billion (2.4% of GNI)	Lower-middle income	12.2 Million

- Kenya’s economy is the largest and most diversified in East Africa.
- Significant policy, structural and economic reforms have led to sustained economic growth and social development over the past two decades.
- Kenya’s key development challenges remain poverty, inequality, climate change, persistently weak private sector investment, and the economy’s vulnerability to internal and external shocks.

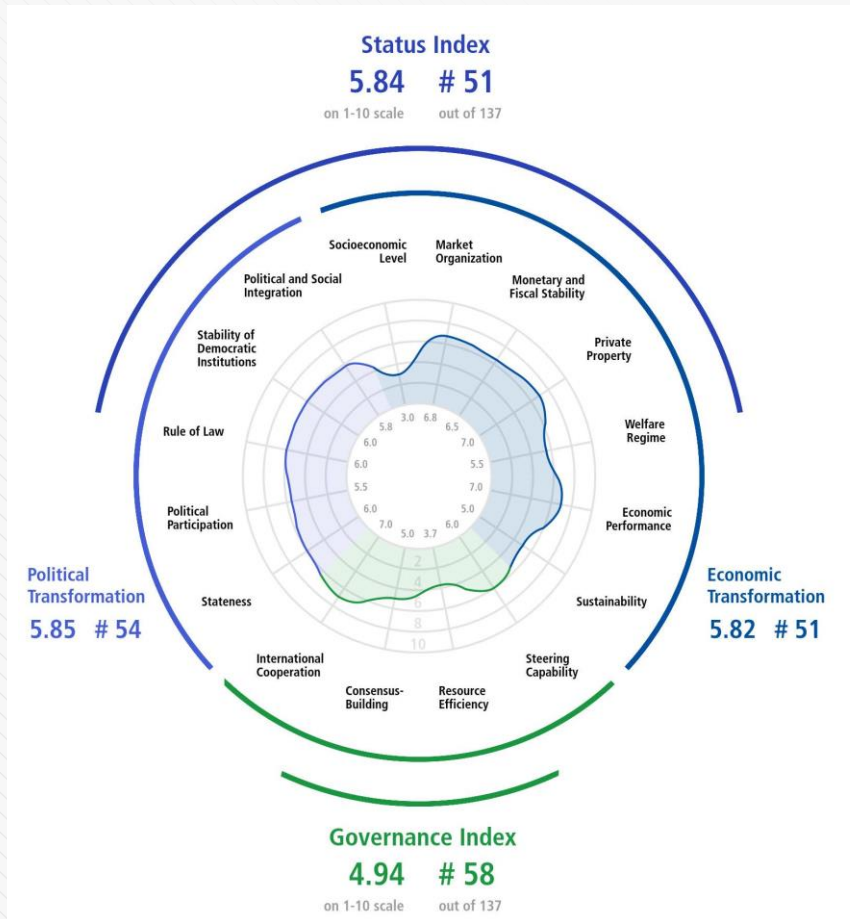
LOCATION



Source: Centre for Affordable Housing Finance in Africa, 2020; World Bank Group, 2024b, 2024c, 2024d, 2024e, 2024f, 2024g, 2024h, 2024j; WorldAtlas, 2023b

KENYA'S POLITICAL AND ECONOMIC CONTEXT

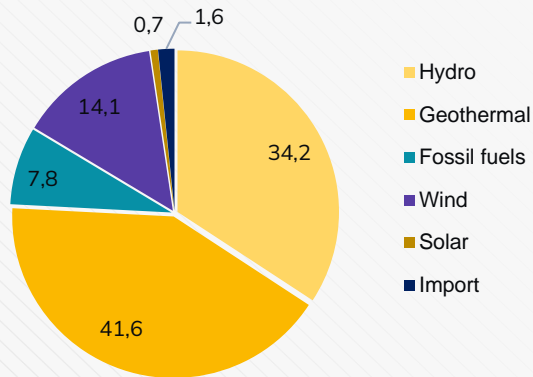
Bertelmann's Transformation Index 2024



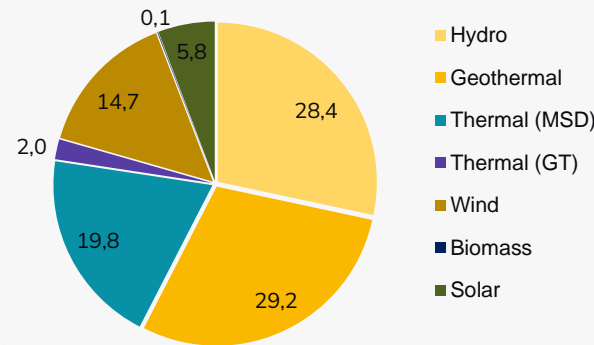
- In Kenya, basic administrative structures exist to provide justice, taxation and law enforcement, as well as the management of communications, transport and basic infrastructure, such as water, education and health services. However, the quality and effectiveness of these functions can vary from region to region and locality to locality.
 - Kenya has a well-established legal system that provides jurisdiction and law enforcement at both national and county levels. The judicial system includes several courts and tribunals responsible for interpreting and enforcing the law.
- The country has made significant political and economic reforms that have contributed to sustained economic growth, social development, and political stability gains over the past decade.
 - Kenya's robust growth before the COVID-19 pandemic was largely driven by the public sector, resulting in debt vulnerabilities which have exacerbated amid tightening global financing conditions.
 - Its key development challenges still include poverty, inequality, youth unemployment, transparency and accountability, climate change, continued weak private sector investment, and the vulnerability of the economy to internal and external shocks.
- Kenya's growth performance over the past two decades has been strong. The economy achieved broad-based growth, averaging 4.8% per year between 2015 and 2019, similar to the LMIC average of 4.8% and above the Sub-Saharan Africa average of 2.4%.

OVERVIEW OF KENYA'S ELECTRICITY GENERATION SECTOR

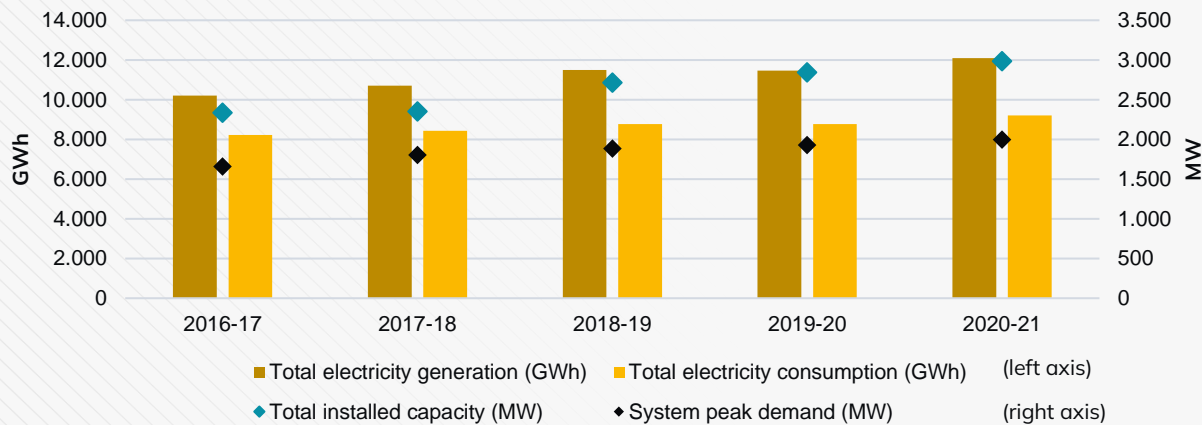
Energy Mix – Electricity Generation 2021 (%)



Power Mix - Installed capacity mix 2021(%)



Installed capacity vs peak demand & generation vs consumption

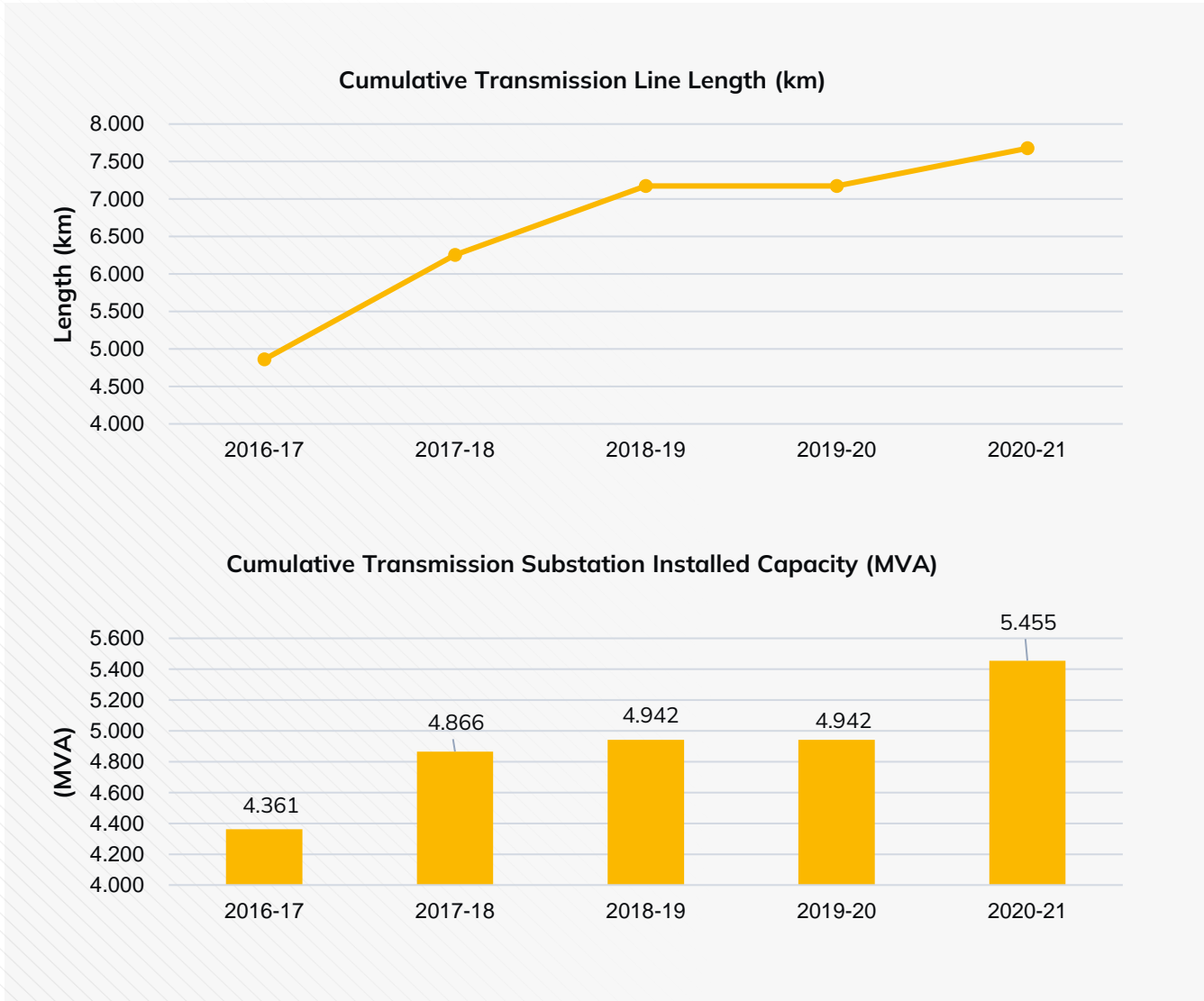


KENYA IS FORTUNATE TO HAVE STRONG RENEWABLE ENERGY SOURCES.

- Overall, around 90% of the generation mix is from three renewable resources.
- Geothermal and hydro are the major electricity sources for Kenya, constituting around 41% and 34%, respectively, of the country's electricity generation mix.
- Although the installed capacity of thermal power plants ranks third, the electricity generation from wind is higher than that of thermal, **representing how the country is prioritizing the use of renewables**. However, while solar represents 5.8% of the installed capacity, it is responsible for only 0.7% of the generation mix.
- The installed capacity was 2.9 GW in 2020-21 with 990 MW difference from system peak demand. **The margin of 50% shows a rather inefficient overall power system.**
- The total electricity generation and consumption were 12,100 and 9,200 GWh, respectively (2020-21).
- Per capita electricity consumption is around 170.3 kWh/capita (2020-21).

Source: Ministry of Energy, 2022

OVERVIEW OF KENYA'S ELECTRICITY TRANSMISSION SECTOR

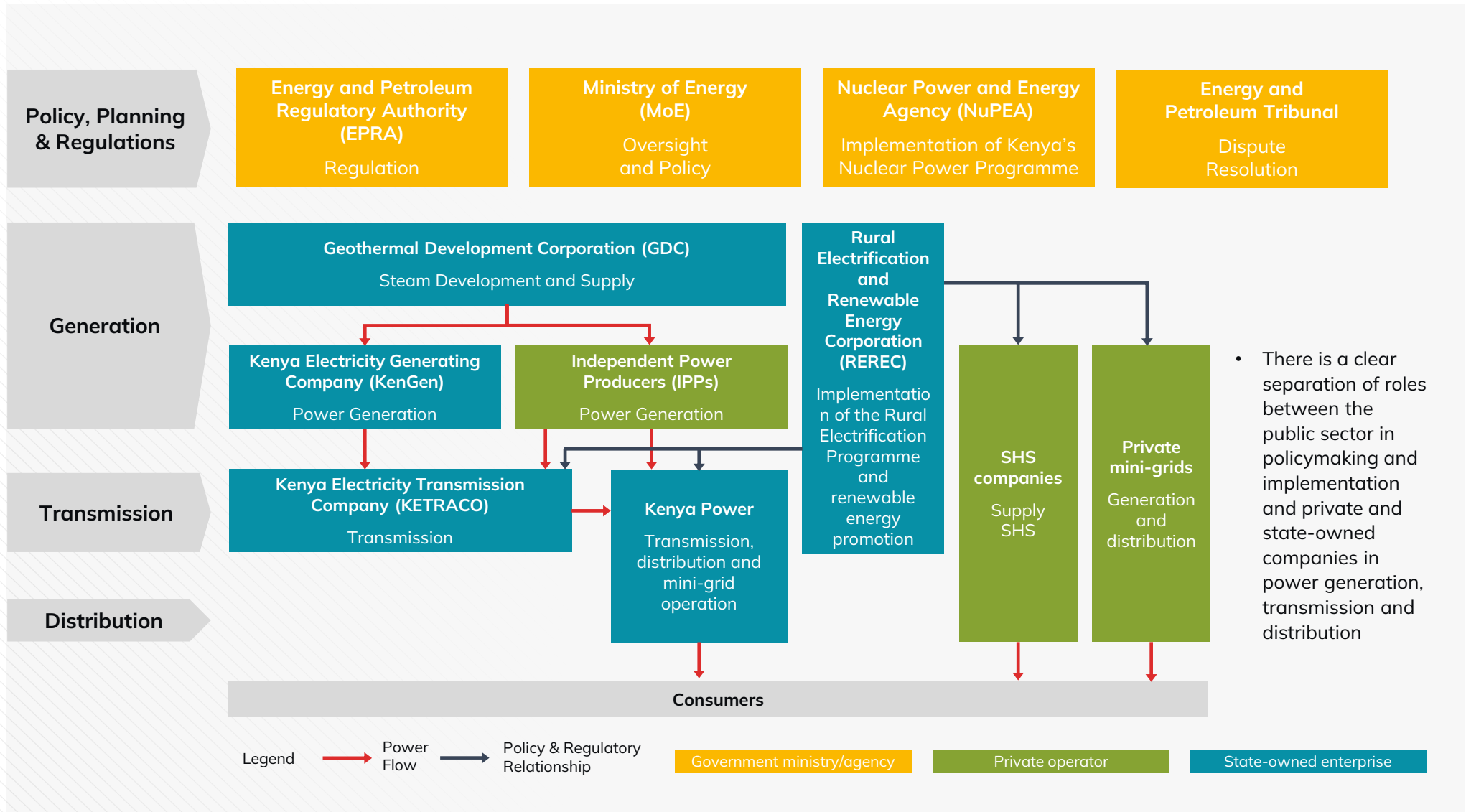


KENYA'S TRANSMISSION SYSTEM HAS SIGNIFICANTLY IMPROVED SINCE 2016–17.

- The transmission length in Kenya as of 2020–21 was 7,676 km. This is around 58% growth in line length compared to 2016–2017.
- Transmission substation installed capacity stood at 5,455 MVA as of 2020-21.
- Transmission substation capacity has increased around 25% from 2016-17.
- Between 2000 and 2022, the transmission and distribution sub-sector received the highest commitments in the electricity sector. Between 2014 and 2021, the highest ODA commitments to the transmission and distribution sub-sector were made in 2015 (USD 305 million) followed by 2016 (USD 247 million), 2017 (USD 158 million) and 2019 (USD 136 million). This seems to have been a big contributing factor in this sub-sector's development, considering time lags for disbursement.

Source: Ministry of Energy, 2022

KENYA'S ELECTRICITY SECTOR STRUCTURE, KEY ACTORS AND THEIR ROLES (1/2)



Source: SEforALL analysis based on Nyaware, 2022



KENYA'S ELECTRICITY SECTOR STRUCTURE, KEY ACTORS AND THEIR ROLES (2/2)

Energy and Petroleum Regulatory Authority (EPRA) regulates and monitors the electricity sector and implements policies and regulations developed by the Ministry of Energy. It replaced the Energy Regulatory Commission in 2019.

Kenya's electricity sector has been restructured with separate **public utilities** responsible for generation. The **Kenya Electricity Generating Company (KenGen)** and the **Kenya Electricity Transmission Company (KETRACO)** are, respectively, responsible for generation and transmission and distribution and the **Kenya Power and Lighting Company (KPLC; also known as Kenya Power)** is the sole distributor of grid electricity in Kenya*.

- **KenGen** is now partially privatized following an initial public offering of 30% of its equity on the Nairobi Stock Exchange and generates power alongside several Independent Power Producers (IPPs).
- **KETRACO**, fully owned by the government (KETRACO 2020) is mandated to design, construct, operate and maintain new high-voltage transmission lines. Kenya Power operated the transmission lines prior to the establishment of KETRACO in 2008 (Get Invest 2024). It is also the major distribution company in Kenya, with a 50.1% government shareholding (Kenya Power 2016).
- KenGen and IPPs have long term Power Purchase Agreements with Kenya Power as the single buyer of electricity on the market.

In addition, the sector has **two specialized public state-owned enterprises**

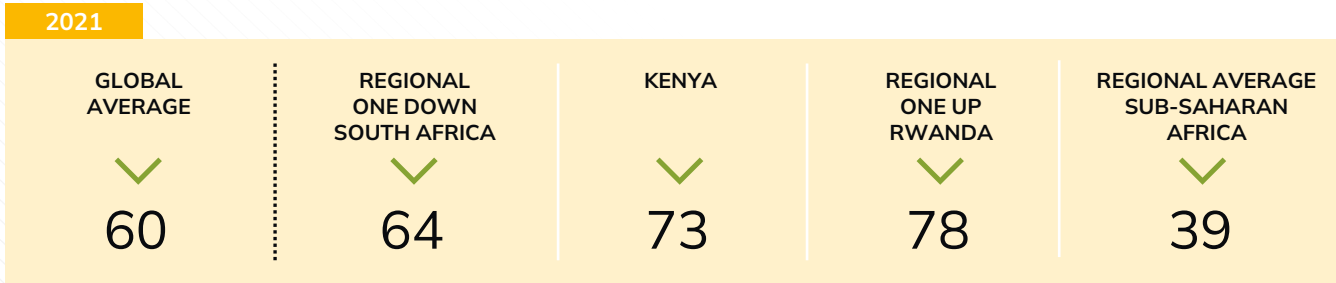
- **Rural Electrification and Renewable Energy Corporation (REREC)** and **Geothermal Development Company (GDC)**. REREC, previously the Rural Electrification Agency (REA), is responsible for rural electrification efforts and renewable energy. It coordinates with Kenya Power for rural electrification projects (REREC 2020a).
- GDC, a fully government-owned company, accelerates the development of geothermal resources in Kenya (Geothermal Development Company 2024).

Note*: [Kenya Power](#) also owns and operates transmission lines. However, as of Dec 2023, the cabinet has ordered that Kenya Power's transmission assets be transferred to KETRACO by December 2024 – this process is underway.

Source: Geothermal Development Company, 2024; Get Invest, 2024; Kenya Power, 2016; KETRACO, 2020; REREC, 2020



KENYA'S POLICY AND REGULATORY ENABLING ENVIRONMENT: RISE INDICATOR

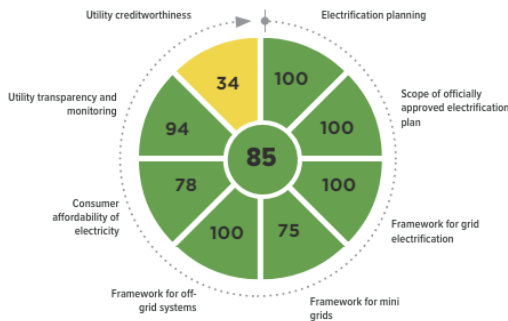


RISE scores (out of 100) per pillar 2021

KENYA'S LATEST OVERALL RISE SCORE IS 73, WHICH IS CLOSE TO THE HIGHEST IN THE REGION AND INDICATES A RELATIVELY MATURE REGULATORY AND POLICY ENVIRONMENT.

- RISE score for electricity access improved from 25 (2010) to 85 (2021)
- Electricity access (85) and clean cooking (83) show a better enabling environment than renewable energy (58) and energy efficiency (65), which are pushing the overall score down.

ELECTRICITY ACCESS



RENEWABLE ENERGY



- **Electricity access:** Since 2021, utility creditworthiness has been the weakest part of the electricity access enabling environment, while all other aspects score very highly.
- **Renewable Energy:** Renewable energy (RE) has an overall score of 65; counterparty risk and legal framework for RE have medium scores and carbon pricing and monitoring score poorly.

Source: RISE, 2022b

OVERVIEW OF KENYA'S ELECTRICITY SECTOR POLICY AND REGULATORY ENVIRONMENT (1/2)

1

Restrictive Trade Practices, Monopolies and Price Control Act of 1989: The enactment of this Act in 1989 opened the economy, allowing for more competition and private sector participation in sectors such as energy and trade.

2

Sessional Paper 4 (2004): This paper endorsed the liberalization of the electricity sector. It is a policy framework covering the period 2004 to 2023 and aims to provide affordable and quality electricity to Kenyans. **The creation of the Geothermal Development Corporation (GDC) and the Kenya Electricity Transmission Company (KETRACO) was provided for in Sessional Paper No 4 of 2004 on energy.**

3

Energy Act of 2006: This Act brought reforms and saw the establishment of various bodies charged with various tasks in the energy sector dealing with generation, regulation, transmission, distribution and supply.

- The Act allowed for the formation of **the Rural Electrification Authority (REA)**, the Energy Tribunal and **the Electricity Regulatory Commission**. The Geothermal Development Corporation (GDC) was formed in 2008. **The role of the REA was to accelerate rural electrification.** A Rural Electrification Plan was therefore developed. It is updated annually and has three phases: 2008–2012, 2013–2022 and 2022–2030.

4

Vision 2030 (2008): In 2008, the Government of Kenya launched its Vision 2030 national development plan, a long-term socioeconomic blueprint. Vision 2030 aspires to elevate the country to become a newly industrialized, middle-income nation where every citizen enjoys a high quality of life. The implementation of the Vision is through five-year rolling medium-term plans.

5

Feed-in-Tariffs (FiTs) (2008): The FiTs policy in Kenya became effective in 2008 following approval by the Public Procurement Oversight Authority. It included biomass, wind and small hydro power plants with capacity limits of 10 MW, 50 MW and 40 MW, respectively. The policy was later revised and published in 2012 to include solar PV, biogas and geothermal energy. The publication includes rules on connection and standardized Power Purchasing Agreements (PPAs). The Solar Photovoltaics Systems Regulations help in regulating the solar market.

6

Kenya's Public Private Partnerships Act of 2013: Under this Act, a public private partnership (PPP) is defined as an arrangement in which a private party performs a public function and is compensated using public funds, fees collected from the use of the service provided or a combination of both. The Act provides regulatory, legal and institutional frameworks for private sector engagement in the energy sector.

OVERVIEW OF KENYA'S ELECTRICITY SECTOR POLICY AND REGULATORY ENVIRONMENT (2/2)

7

Least-Cost Development Plan 2017–2037 (2017): This is a 20-year energy development plan. It is a merger of the updated version of the 2015–2035 Electricity Sector Masterplan and the FiT. The plan contains load forecasts, generation and transmission planning and recommendations moving forward to enable the fast tracking of Kenya's Vision 2030.

8

Kenya Electricity Sector Investments Prospectus 2018–2022 (2018): The paper identifies the types of finance and financing models in Kenya's electricity sector. The models are: PPPs, private models, balance-sheet financing, engineering, procurement and construction financing, and public and concessional financing.

9

National Energy Policy (2018): The National Energy Policy (2018) aims to ensure an affordable, competitive, sustainable and reliable supply of energy at the least cost to achieve national and country development needs sustainably. It provides policy recommendations for coal; renewables; the power sector; energy efficiency and conservation; land, environment, health and safety; and energy financing, pricing and socioeconomic issues.

10

Kenya National Electrification Strategy (2018): The Government of Kenya launched its National Electrification Strategy in 2018 to accelerate the achievement of universal electricity access by 2022. To ascertain the optimal approach for providing universal electricity access, a geospatial electrification planning exercise was conducted to identify the least-cost technology options. The strategy acknowledges the significant role of off-grid solutions, mini-grids and standalone solar systems, which supplement grid expansion and enhancement efforts.

11

Energy Act of 2019: The Energy Act of 2006 was amended and signed in 2019 to align electricity laws with the Constitution of Kenya 2010. This enabled the integration of county and national energy plans, consolidating and expanding the mandates of different entities. The policy specifies the county and national government roles with regard to energy planning and development.

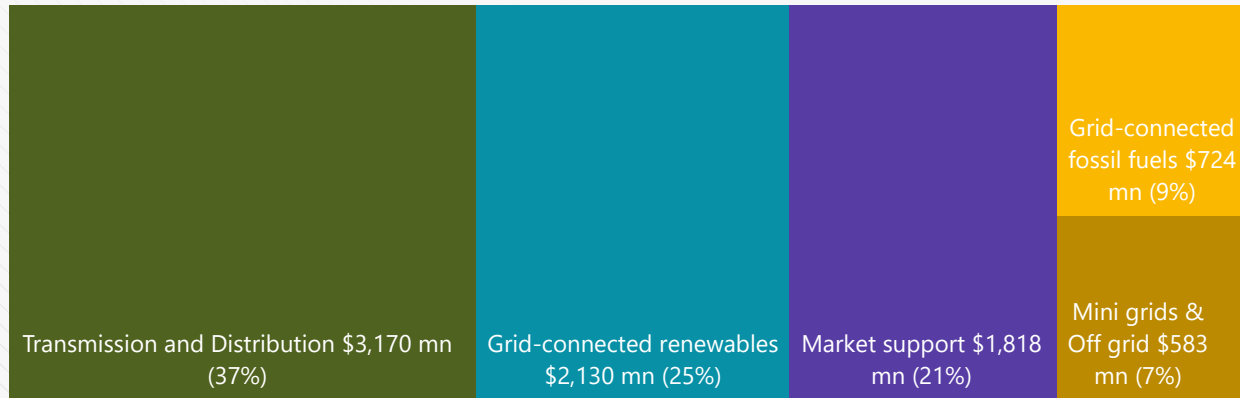
- The ERC became the Energy and Petroleum Regulatory Authority (EPRA), the Kenya Nuclear Electricity Board (KNEB) changed to the Nuclear Power and Energy Agency (NuPEA), REA to the Rural Electrification and Renewable Energy Corporation (REREC), and the Energy Tribunal to the Energy and Petroleum Tribunal. The Renewable Energy Resource Advisory Committee (RERAC) and consolidated energy fund were also established.

12

Renewable Energy Auctions Policy (2021): This policy aims to promote Kenya's renewable energy generation.

FINANCIAL COMMITMENTS

Energy Sector ODA Commitment by Sub-Sector
(2000-22, constant, 2022 million USD)

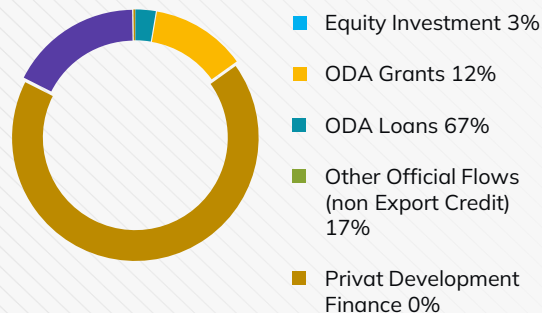


BETWEEN 2000 AND 2022, KENYA RECEIVED A TOTAL OF USD 8.47 BILLION IN ODA COMMITMENTS TO THE ENERGY SECTOR.

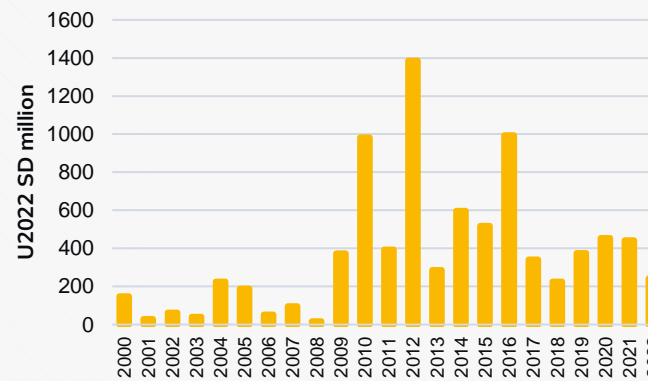
- The amount fluctuates annually but finance flowing to the sector has markedly improved since 2008.

- **The largest amount, USD 3.17 billion, went to transmission and distribution grid projects**, followed by grid-connected renewables, market support, grid-connected fossil fuels, and mini-grids and off grids.
- **Renewables received around three times more financing than fossil fuels.**
- Kenya received very little financing for nuclear and energy efficiency during this period.
- **Finance has mainly been through concessional loans**, followed by some amounts of non-concessional financing (OOF). There are insufficient data to comment on private financing levels.

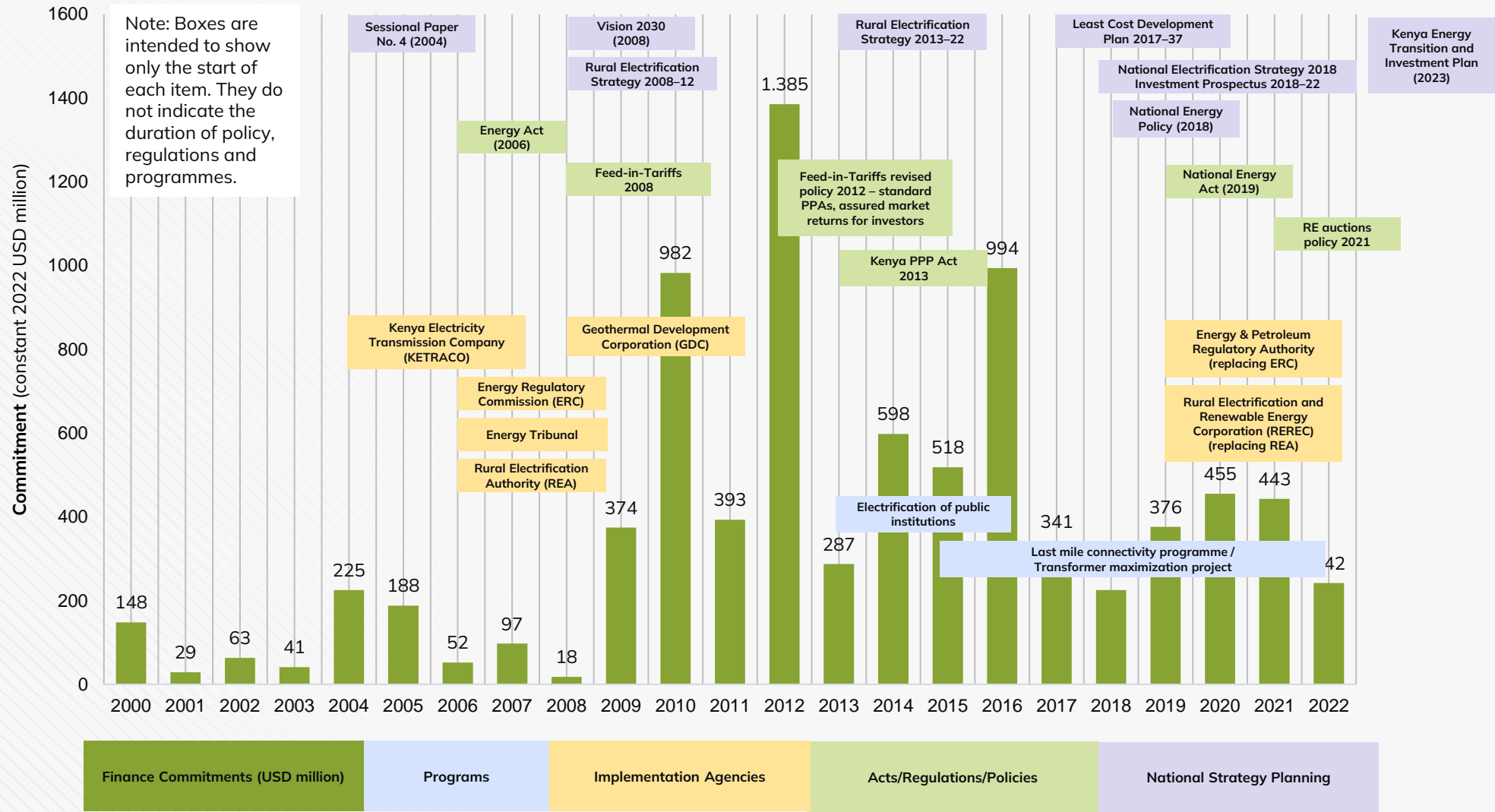
Financial Instruments (2000-22)



Trend over time (2000-2022)



KENYA'S ELECTRICITY ACCESS POLICY IMPLEMENTATION AND ODA COMMITMENT TIMELINE



Source: Authors' analysis

KENYA SWOT ANALYSIS: ENABLING ENVIRONMENT CONTRIBUTED TO GREAT IMPROVEMENT IN ACCESS

STRENGTHS

Strengthening of Policy and Regulatory Enabling Environment over the years as shown by RISE score of electricity access improvement from 25 (2010) to 85 (2021). Some of the contributing factors are:

- **National strategic planning:** Least-cost power development plan, integrated electrification plan and rural electrification strategy
- **Dedicated entity with a mandate for rural electrification:** Rural Electrification and Renewable Energy Corporation
- **Focused programme:** Last-mile connectivity LaBua, which contributed to overcome the difficulty of last-mile connections

ODA wisely focused on existing resource/capacity utilization

- Close to two-thirds of ODA (62%) contributed to both grid development and renewable energy, contributing utilization of clean and available renewable resources

WEAKNESSES

Technical Capacity

- Frequent power interruptions

Business Efficiency

- High margin of power system capacity, pointing to inefficient systems
- Long waiting periods for electricity connections
- Low customer confidence

Economics

- Tariff setting and high electricity prices
- Unwillingness to pay for electricity
- Rise in prosumers, threatening utility revenues – need for business model transformation

Sector Reform

- Despite sector reform efforts, the sector still has lots of room to improve competition, business efficiency and cost reduction

OPPORTUNITIES

Financial Support / Affordability

- Identifying those in greatest need of financial support to access the grid

Demand Cultivation

- Encouraging increased electricity consumption at the household level

Prioritization

- Enhancing community and cross-departmental engagement through county governments to inform prioritization of locally applicable solutions

Advancing Reform Efforts for System and Business Efficiency

- Strengthening mechanisms to holding the entities created under the Energy Act accountable for their specified objectives to focus on system-level efficiency

THREATS (BARRIERS/CHALLENGES)

High Finance and Investment Need

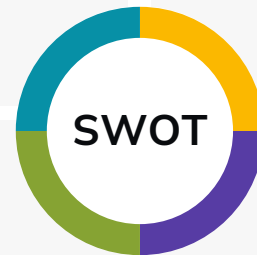
- Public funding constraints: low population density and low incomes in rural areas lead to higher investment requirements

Data

- A lack of detailed socioeconomic data in gender, income levels and age, prohibiting efficient targeting in business

Vicious Cycle of Low Consumption, Overinvestment and Affordability

- Cost of electricity access is still high for many households
- Low electricity consumption amongst Kenyan households
- Overzealous projections of electricity consumption caused overinvestment in electricity generation, leading to rising consumer costs due to underutilized infrastructure



LEARNINGS FROM KENYA

Concerted efforts in improving the enabling environment in policy and finance for electrification contributed to a strong increase in access.

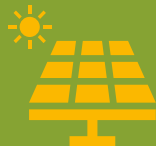


In the commendable story of Kenya’s electricity access, there are a few key factors:

- 1) strong and continuous efforts that created a **mature policy and regulatory environment for electricity access**;
- 2) a **dedicated entity with a mandate for rural electrification** – the Rural Electrification and Renewable Energy Corporation; and
- 3) a **prudent ODA focus on renewable energy and grid development**.

Finance commitments to Kenya have significantly increased since 2009. It is noteworthy that the Energy Act was launched in 2006. The Energy Act brought reforms and saw the establishment of various bodies, clarifying responsibilities and roles of the energy sector players in generation, regulation, transmission, distribution and supply, while allowing for the formation of the Rural Electrification Authority, Energy Tribunal, Electricity Regulatory Commission and Geothermal Development Corporation, spurring the enabling institutions to accelerate electrification by drawing finance commitments.

Last-Mile Challenges



With an electricity access rate of 77% in 2021, Kenya still has a long way to go to achieve universal electricity access. There are several challenges to overcome to achieve the target.

1. Low population density and low incomes in rural areas along with low electricity consumption amongst Kenyan households leads to higher investment requirements.
2. A lack of detailed socioeconomic data in gender, income levels and age makes it difficult to subsidize targeted households as the cost of electricity access is still high for many. There is an unwillingness to pay for electricity.
3. Overzealous projections of electricity consumption in the past caused overinvestment in electricity generation, leading to rising consumer costs due to underutilized infrastructure.

Toward Universal Access and Affordability



Moving forward, it is important to increase affordability and efficiency at both system and business level.

The opportunities to tackle the challenges lie in: strengthening mechanisms to holding the entities created under the Energy Act accountable for their specified objectives; identifying and prioritizing those in greatest need of financial support to access the grid; encouraging increased electricity consumption at the household level; and enhancing community and cross-departmental engagement through county governments to inform prioritization of locally applicable solutions.



08

RECOMMENDATIONS FOR REDUCING TECHNICAL & COMMERCIAL LOSSES

RECOMMENDATIONS FOR REDUCING TECHNICAL AND COMMERCIAL LOSSES & NEED FOR FINANCING

Technical loss reduction

Technical loss reduction can be achieved by several short-term measures:

- In developing countries, distribution networks are typically expanded in an ad-hoc manner resulting in a high zigzag factor – the ratio between the total length of feeder to the bee-line distance. Through network reconfiguration, the zigzag factor can be reduced.
- Another measure is network reconductoring where the existing conductors on the feeders are replaced with optimal conductor sizes.
- Better load balancing and load management among the three phases of the distribution lines and feeders.
- Installing capacitors to reduce the power factor in areas close to low power factor loads.
- In addition, employing auto voltage boosters, laying additional link lines, relocating distribution transformers at load centres, adding new distribution transformers, improving joints, increasing HT:LT ratio, adopting high voltage distribution systems (HVDS) and regular maintenance of distribution networks are important to reduce technical losses.

In the long term, plans for phased strengthening and improvement of the distribution systems along with the associated transmission systems will have to be prepared and implemented on a regular basis.



Finance is the key

There are several measures to reduce technical and commercial losses. Finance is crucial to carry out the strengthening activities of the transmission and distribution systems

Commercial loss reduction

- Accurate metering, efficient billing and prompt collections can reduce commercial losses.
- Technological aids such as aerial bunched cables, insulated/partially insulated LT lines, and new metering technologies – remote metering, pre-paid metering, meters with recording features, etc. should be adopted.
- Local government and franchisees could be used for billing and collection.



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ANNEX 1: METHODOLOGY

METHODOLOGY

- 01 The study involved the analysis of OECD DAC data for the period 2014–2022. Deflated data sets were used to factor in several macro- and microeconomic factors across different regions.
- 02 Only international public finance commitments were tracked for the HICs and were classified into government commitments (international), multilateral development DFIs and philanthropic foundations flows.
- 03 The data trends were validated with a publicly available IEA report (World Energy Investment 2023).
- 04 The study classified the 20 HICs into LCDs, LMICs and other LICs based in Sub-Saharan Africa and Asia.
- 05 The study further tracked financial commitments by financier, by purpose and by investment type, i.e., equity, ODA grants, ODA loans and OOF (non-export credit).
- 06 Finally, the study tracked commitments according to energy efficiency and market support, whether they were grid-connected fossil fuels, grid-connected renewables, mini-grids or off grid or used for nuclear transmission and distribution.
- 07 For Clean Cooking, the study tracked commitments in different fuels and technologies such as LPG, biofuel, fuelwood and charcoal and cookstove appliances including improved cookstoves and electric cookstoves. The study also tracked international public finance commitments to market support activities in the clean cooking sector.
- 08 For LPG investments, the study only tracked those projects in the OECD database that explicitly mention clean cooking as the primary objective of the commitment. The study was able to identify a total of seven projects across China (three), India (three) and Mozambique (one).



LISTS OF FINANCIERS

Philanthropic foundations	Multilateral DFIs (Incl. funds)	Government (International)	
Bezos Earth Fund	African Development Bank	Australia	Netherlands
Bloomberg Family Foundation	African Development Fund	Austria	New Zealand
Charity Projects Ltd (Comic Relief)	Arab Bank for Economic Development in Africa	Belgium	Norway
Children's Investment Fund Foundation	Arab Fund (AFESD)	Canada	Poland
Conrad N. Hilton Foundation	Asian Development Bank	Czechia	Portugal
David and Lucile Packard Foundation	Asian Infrastructure Investment Bank	Denmark	Romania
Dutch Postcode Lottery	Climate Investment Funds	Finland	Saudi Arabia
Foundation Botner	EU Institutions	France	Slovak Republic
Food and Agriculture Organization	Global Environment Facility	Germany	Spain
Ford Foundation	Global Green Growth Institute	Hungary	Sweden
IKEA Foundation	Green Climate Fund	Iceland	Switzerland
John D. and Catherine T. MacArthur Foundation	International Bank for Reconstruction and Development	Ireland	Thailand
La Caixa Banking Foundation	International Development Association	Italy	Türkiye
Mastercard Foundation	International Finance Corporation	Japan	United Arab Emirates
Oak Foundation	Islamic Development Bank	Korea	United Kingdom
The Rockefeller Foundation	Nordic Development Fund	Kuwait	United States of America
UNDP	OPEC Fund for International Development		
United Nations Industrial Development Organization	World Trade Organization (WTO)		
William and Flora Hewlett Foundation			

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ABOUT SEforALL

Sustainable Energy for All (SEforALL) is an independent international organization that works in partnership with the United Nations and leaders in government, the private sector, financial institutions, civil society and philanthropies to drive faster action on Sustainable Development Goal 7 (SDG7) – access to affordable, reliable, sustainable and modern energy for all by 2030 – in line with the Paris Agreement on climate change.

SEforALL works to ensure a clean energy transition that leaves no one behind and brings new opportunities for everyone to fulfil their potential. Learn more about our work at www.SEforALL.org

