Driving the Transition to Green and Low-Carbon Energy in the Global South

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Global South Research Center

Authors

Wang Jinzhao	Global South Research Center
Zhou Taidong	Global South Research Center
Li Cangshu	Global South Research Center
Zhu Mengshu	Global South Research Center
Zhou Yuanbing	Deputy Secretary-General of Global Energy Interconnection Development and Cooperation Organization
Xiao Jinyu	President of Global Energy Interconnection Economic & Technology Research Institute
Shi Xiehong	Senior Research Fellow of Global Energy Interconnection Economic & Technology Research Institute
Arkebe Oqubay	Former Special Adviser to the Prime Minister of Ethiopia
Boscow Okumu	Deputy Director of Public Debt Management Office, The National Treasury of Kenya
Zulfikar Yurnaidi	Head of Energy Modelling and Policy Planning Department, ASEAN Centre for Energy
Khalid Waleed	Head of Energy and Climate at Sustainable Development Policy Institute (SDPI), Pakistan

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Summary

Energy is a critical foundation for the industrialization and modernization of Global South countries. Energy demand in these countries is substantial, and fossil fuels continue to play an important role in their modernization processes. In recent years, however, new energy technologies, primarily wind and solar PV, have advanced rapidly, with costs dropping by over 80% and economic viability improving markedly. Given their abundant clean energy resources, Global South countries are well-positioned to develop clean energy, which can enhance energy security while significantly stimulating investment and employment, thereby supporting green economic growth.

Looking ahead, Global South countries could develop their energy strategies in line with their resource endowments and stages of development. Low-income and small island states could prioritize energy access and the basic needs of their citizens. The development of distributed energy and specialized industries could be strategically coordinated. To lay a solid energy foundation for economic growth, countries ready for industrialization could prioritize the energy needs of their secondary industries, accelerate the development of new energy, and use traditional energy as a reliable backup. High-income Global South countries, or those with abundant energy resources, could prioritize optimizing their energy mix and transitioning towards a green and low-carbon economy.

Global South countries can accelerate improvements in energy supply policies, promoting innovation and reform in new energy market mechanisms and institutions, and optimizing the green investment and financing policy framework, thereby establishing a systematic and sustainable policy support system. The international community can provide comprehensive support to the Global South by optimizing trade and economic rules, working together to reduce barriers to the circulation of green products, improving mechanisms for green technology cooperation and talent development, increasing green investment in Global South countries, and deepening the localization of clean energy industries.

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Acronyms and Abbreviations

ASEAN	Association of Southeast Asian Nations
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GEIDCO	Global Energy Interconnection Development and Cooperation Organization
GSRC	Global South Research Center
IEA	International Energy Agency
IFC	International Finance Corporation
ILO	International Labour Organization
IRENA	International Renewable Energy Agency
LCOE	Levelized Cost of Electricity
NEVs	New Energy Vehicles
PV	Photovoltaic
R&D	Research and Development
RCEP	Regional Comprehensive Economic Partnership
SDPI	Sustainable Development Policy Institute
UNSD	United Nations Statistics Division
USD	United States Dollar

Driving the Transition to Green and Low-Carbon Energy in the Global South

Energy is a critical foundation for the industrialization and modernization of Global South countries. Under the dominance of fossil fuels, countries have long struggled to balance energy security, affordability, and sustainability, a challenge often referred to as the Energy Trilemma. Over the past decade, however, new energy technologies, primarily wind and solar PV, have advanced rapidly, with costs dropping by over 80% and economic viability improving markedly. In this context, the Energy Trilemma is increasingly evolving into “Energy Possible Trinity”, where it is becoming feasible in more cases to simultaneously enhance energy security, reduce energy costs, and advance the green and low-carbon transition. Building on their unique resource endowments and development stages, Global South countries can develop energy systems that are more secure, affordable, and environmentally sustainable, thereby providing reliable energy support for modernization.

1.

ENERGY DEMAND AND PROSPECTS OF NEW ENERGY TECHNOLOGY INNOVATION IN THE GLOBAL SOUTH

1.1

The substantial and growing energy demand of the Global South

Energy access remains a major challenge in the Global South. By 2024, the population without access to electricity had reached 685 million globally, an increase of 10 million since 2021, with almost all of them in the Global South. Sub-Saharan Africa alone is home to 570 million people without access to electricity, representing over 80% of the global total. At the same time, 2.1 billion people worldwide lacked access to clean cooking fuels and technologies, predominantly in Asia and Sub-Saharan Africa. By 2030, it is estimated that approximately 660 million people will still lack access to electricity, and 1.8 billion people will still have no access to clean cooking (IEA 2024). From 2015 to 2022, per capita installed low-carbon power capacity in the Global South increased from 155 W to 293 W, compared with an increase from 691 W to 1,073 W in the Global North (Figure 1). In addition, within

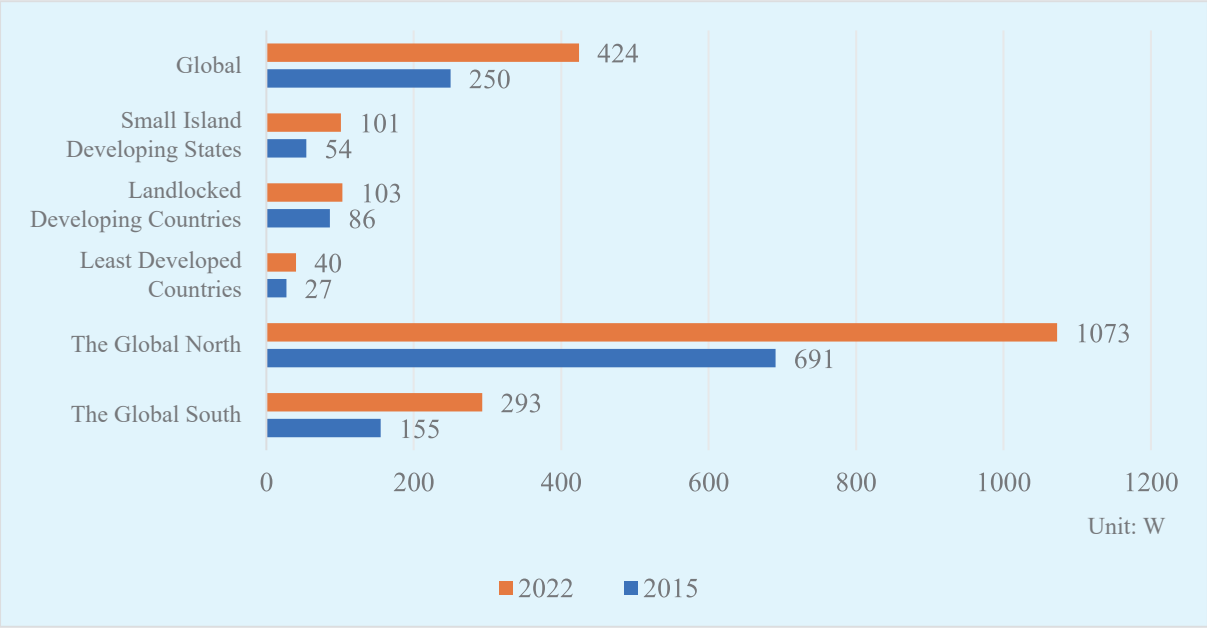

FIGURE 1

Per capita installed clean energy capacity globally and by region

Data source: Global Energy Interconnection Development and Cooperation Organization (GEIDCO)

the Global South, clean energy development in low-income, landlocked, and small island developing states lags significantly behind that of other countries. At the current pace, it would take these economies about four decades to reach the Global South's 2022 average (UNSD 2024).

Electricity demand continues to grow in the Global South. Electricity holds a central place in any energy system. As the most universal and scalable form of energy, it serves not only as the key link for energy conversion and end-use but also as a fundamental driver of economic and social development. Electrification is the leading indicator and key engine of modernization. In fact, GDP per capita is closely correlated with electricity consumption per capita (Figure 2). The accessibility, affordability, and sustainability of electricity directly determine the extent to which Global South countries can overcome development bottlenecks and achieve sustained economic growth.

By region, electricity consumption in Asia reached 15.4 trillion kWh in 2024, with per capita consumption of approximately 3,197 kWh and an average annual growth rate of 4.6% over the past decade (Figure 3). By 2035, Asia's total electricity consumption is projected to reach 24.4 trillion kWh, with an average annual growth rate of about 4.3%, accounting for 60% of global total electricity consumption. In Africa, electricity consumption reached 0.8 trillion kWh in 2024, and per capita consumption was approximately 512 kWh, with an average annual growth rate of 2% over the past decade (Figure 4). By 2035, its electricity consumption is projected to reach 1.1 trillion kWh, with an average annual growth rate of about 3.3%, accounting for 3% of the global total. In Latin America and the Caribbean, the total electricity consumption reached 1.3 trillion kWh in 2024, and per capita consumption was approximately 2,349 kWh, with an average annual growth rate of 1.6% over the past decade (Figure 5). By 2035, this region's electricity consumption is estimated to increase to 1.7 trillion kWh, with

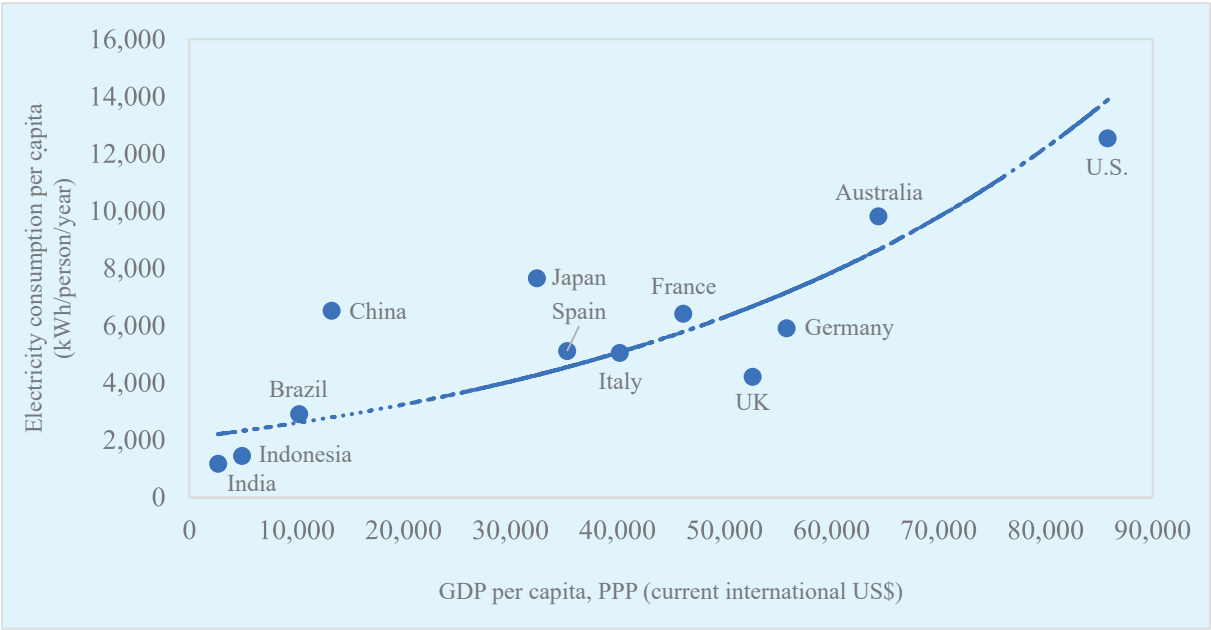

FIGURE 2

GDP per capita and electricity consumption per capita by country, 2023

Data sources: World Bank, International Energy Agency (IEA)

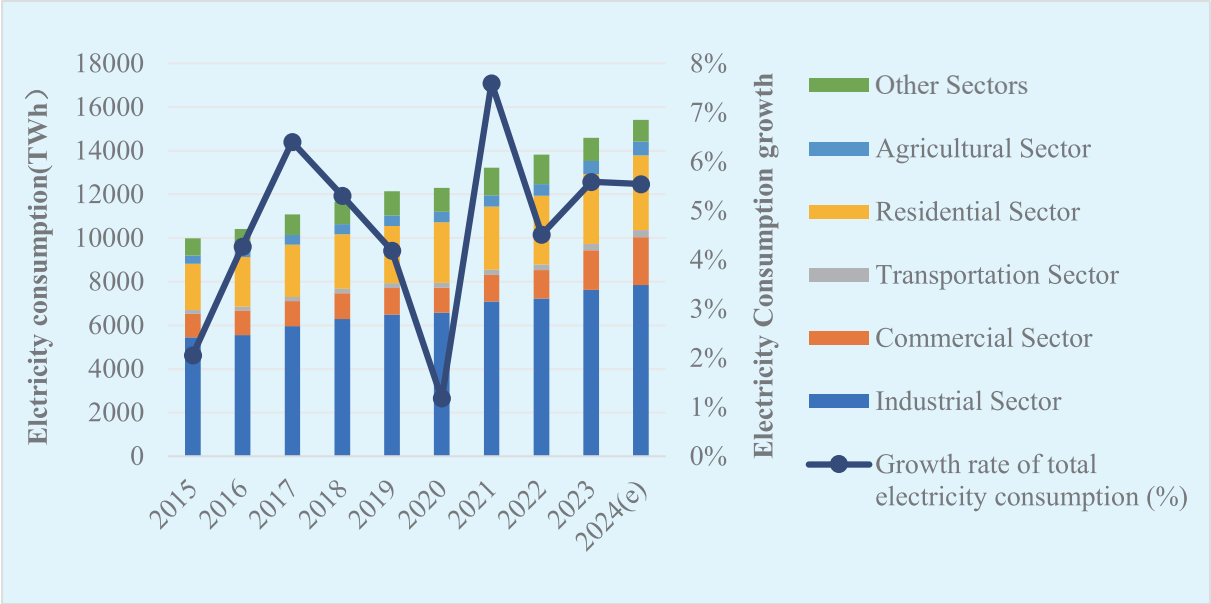

FIGURE 3

Changes in final electricity consumption in Asia, 2015–2024

Data source: GEIDCO

Note: e indicates estimated value.

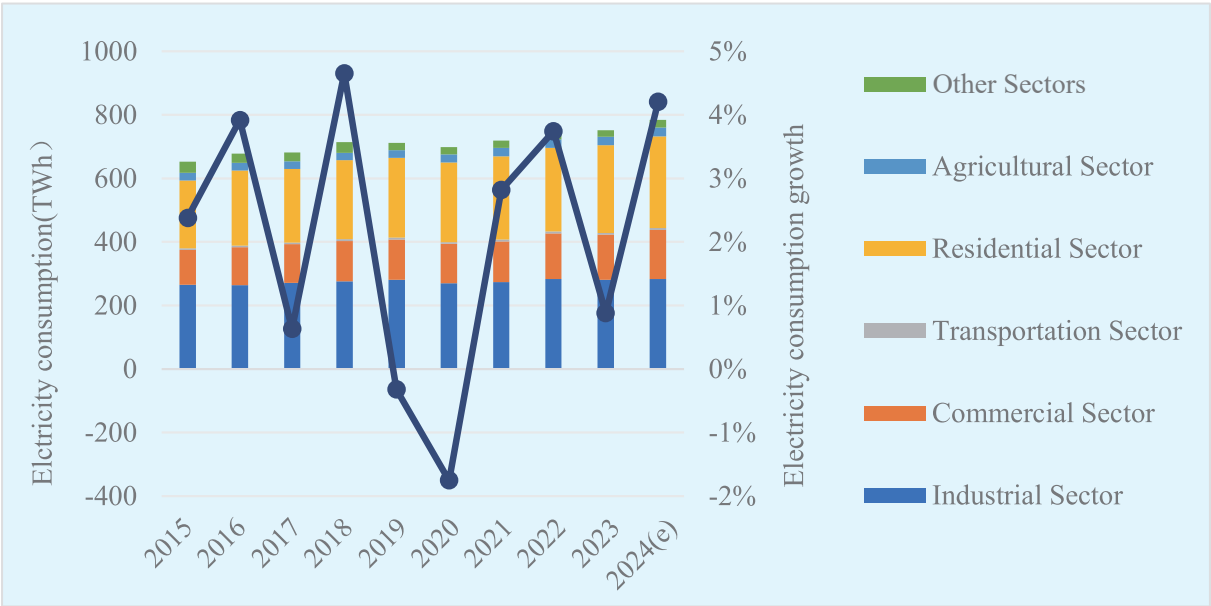

FIGURE 4

Changes in final electricity consumption in Africa, 2015–2024

Data source: GEIDCO

Note: e indicates estimated value.

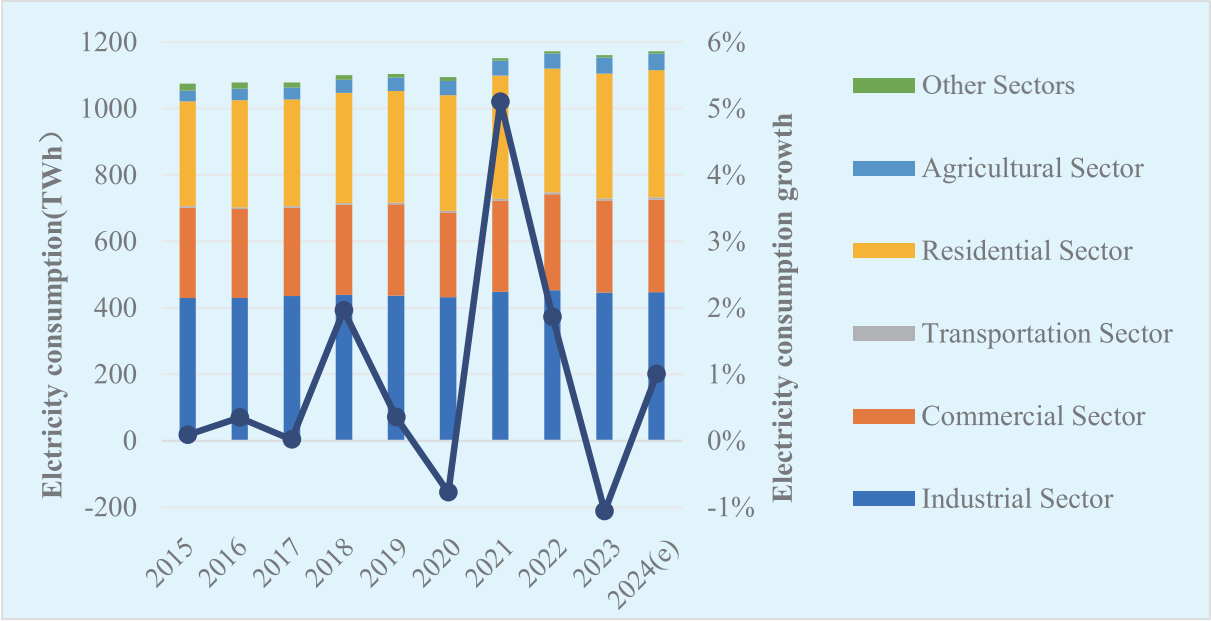

FIGURE 5

Changes in final electricity consumption in Latin America and the Caribbean, 2015–2024

Data source: GEIDCO

Note: e indicates estimated value.

an average annual growth rate of approximately 2.6%, accounting for approximately 4% of the global total.

1.2

Fossil fuels continue to play a key role in industrialization and modernization, while improvements in the cost competitiveness of new energy technologies are creating new opportunities for the Global South

Fossil fuels remain central to industrialization and modernization in the Global South. First, on the energy supply side, fossil fuels remain a foundational source of energy underpinning industrialization. Owing to its high energy density, stable dispatchability, and capacity for large-scale and continuous power supply, fossil fuels meet the essential demand of industries such as steel, building materials, and non-ferrous metallurgy for high-temperature operations and high-intensity energy, while providing stable and reliable power for transportation and electricity generation. Second, fossil fuels remain an integral component of the core industrial feedstock system. Coal, oil, and natural gas serve a dual purpose: they are not only primary energy sources for transportation and power but also crucial raw materials for fertilizers, basic chemicals, and industrial heating, directly shaping agricultural productivity, manufacturing cost structures, and the national economic supply base. These roles are particularly significant for Global South countries that are still in phases of industrial expansion. Furthermore, strong lock-in effects created by existing infrastructure and established industrial chains, together with the high barriers to technological substitution, make a rapid or complete phase-out of fossil fuels unlikely in the short term. Many developing countries have already built mature

systems centered on fossil energy—including power generation, refining, transmission and distribution, ports, and transport networks—alongside associated fiscal revenues, employment structures, and networks of industrial chains. Given the differences in resource endowments, technological levels, and financing capabilities, fossil energy will continue to play a key supporting and transitional role at various stages of development in the Global South.

The continuous advancement of new energy technologies, coupled with their accelerated large-scale application, is driving down development costs and enhancing their cost competitiveness. In 2023, the average levelized cost of electricity (LCOE) of photovoltaic power generation was USD 0.044/kWh, representing a decrease of approximately 90% from USD 0.46/kWh in 2010. The average LCOE of onshore wind power was USD 0.033/kWh, down 70% from USD 0.111/kWh in 2010. For offshore wind power, the average LCOE was USD 0.075/kWh, a 63% decrease from USD 0.203/kWh in 2010 (Table 1). Between 2010 and 2023, the cost of photovoltaic solar power generation shifted from being 414% higher than fossil fuels to being 56% lower. Similarly, onshore wind power shifted from 23% higher to 67% lower, and offshore wind power shifted from 126% higher to 25% lower. This decline in clean energy costs significantly reduces the cost of adopting clean energy and enhances its economic efficiency. Consequently, the energy transition is moving from being primarily policy-driven to increasingly market-driven and is becoming a mainstream solution.

TABLE 1

Costs of renewable energy technologies, 2010-2023

	Total installed cost (US$/kW)			Capacity factor (%)			LCOE (US$/kWh)		
	2010	2023	Change	2010	2023	Change	2010	2023	Change
Bioenergy	3,010	2,730	-9%	72	72	0%	0.084	0.072	-14%
Geothermal	3,011	4,589	52%	87	82	-6%	0.054	0.071	31%
Hydropower	1,459	2,806	92%	44	53	20%	0.043	0.057	33%
Photovoltaics	5,310	758	-86%	14	16	14%	0.460	0.044	-90%
Concentrated solar power	10,453	6,589	-37%	30	55	83%	0.393	0.117	-70%
Onshore wind power	2,272	1,160	-49%	27	36	33%	0.111	0.033	-70%
Offshore wind power	5,409	2,800	-48%	38	41	8%	0.203	0.075	-63%

Data source: International Renewable Energy Agency (IRENA)

Rich in clean energy resources, the Global South has huge clean energy potential. Countries located near the equator could benefit from abundant solar irradiation, creating favorable conditions for the deployment of solar PV. According to the Global Solar Atlas, regions such as Sub-Saharan Africa and India receive an average annual solar irradiation of 4.5–6.5 kWh/m²/day, placing them among the world's highest solar resource zones and making them well-suited for large-scale solar PV deployment. The International Finance Corporation (IFC) estimates that Africa also has abundant wind resources, with a total potential of around 180,000 TWh per year, equivalent to 250 times the continent's current electricity demand. Roughly one-third of the region experiences average annual wind speeds above 8.5 m/s, indicating significant wind power potential. Large agricultural countries such as Brazil and Indonesia have advantages in developing biomass energy. Leveraging these abundant and readily accessible resources, the Global South is deploying renewable energy at a faster pace than the Global North. Between 2020 and 2024, the share of solar and wind in total electricity generation in the Global South grew by an average of 23% per year, compared to just 11% in the Global North. Around a fifth of Global South countries have already surpassed the Global North in key indicators, including adoption levels of solar and wind energy and electrification.[1]

Developing new energy sources is vital for energy security. Many Global South countries lack domestic oil and gas resources, leaving them heavily dependent on fossil fuel imports. The World Bank's Energy Statistics Database[2] uses the "net energy imports as a share of total energy consumption" indicator to assess a country's dependence on imported fossil fuels. Data show that in some countries across Asia, Africa, and small island states, this indicator exceeds 20% (Figure 6). This dependence on fossil fuels exposes them to supply risks from geopolitical conflicts, security risks in critical transit routes, and volatility in energy financial markets. They often face severe economic pressure due to high oil and gas prices. In 2023, Ethiopia spent nearly USD 6 billion on imported fossil fuels, over half of which was used by gasoline-powered vehicles. Ethiopia has since announced a ban on gasoline-powered vehicle imports and is vigorously developing clean energy while promoting the adoption of electric vehicles, significantly reducing foreign exchange outflows. By developing domestic clean energy at a comparatively low cost, Global South countries can reduce fossil fuel import expenses and mitigate the impact of price fluctuations in global energy markets, thereby improving energy security and strategically moving towards energy independence.

With a long and complex value chain involving diverse technologies and business models, the new energy sector can be a significant driver of investment and employment. In 2024, global investment in the low-carbon energy transition increased by 11% to USD 2.1 trillion, with record-breaking investments in electrified transportation, renewable energy, energy storage, and power grids. Global South countries are leveraging diverse policy tools and market incentives, including energy subsidies, environmental regulations, and poverty alleviation policies, to boost investment in a clean and inclusive energy transition and promote coordinated economic,

1 IRENA, *Renewable power generation costs in 2023*.

2 https://data.worldbank.org/indicator/EG.IMP.CONS.ZS World Bank Open Data https://databank.worldbank.org/source/world-development-indicators

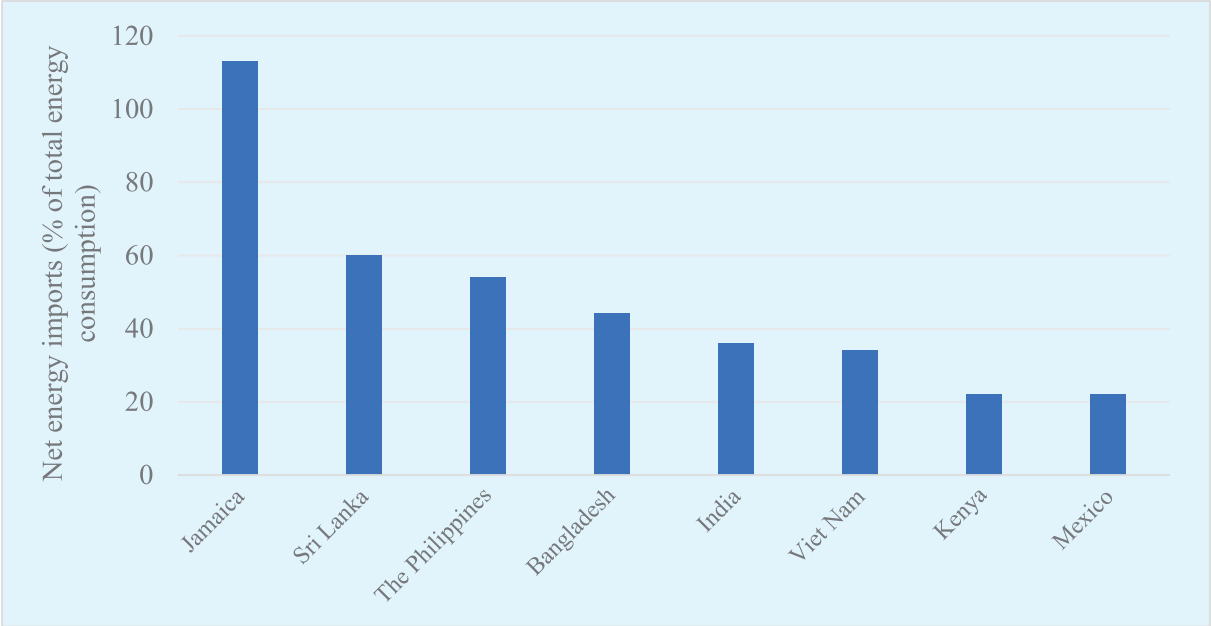

FIGURE 6

Dependence on energy imports of selected Global South countries, 2023

Data source: World Bank Energy Statistics Database

social, and environmental development. In 2023, global clean energy jobs reached 16.2 million[1], doubling the number from a decade ago, with Global South countries contributing the lion's share. China accounts for 7.4 million clean energy jobs (46% of the global total) and led the world in solar photovoltaics (4.59 million jobs) and wind power (745,000 jobs). In Brazil, renewable energy supported 1.56 million jobs. The country's biofuels sector, built on its sugarcane value chain, accounted for almost one million of these jobs, serving as an example of how industrializing agriculture can help alleviate poverty. In India, the clean energy sector created 1.02 million new jobs, including 453,000 in hydropower and 319,000 in solar photovoltaics. By doing so, the sector has helped the country expand rural electrification and develop local skills. Many Global South countries are turning their natural resources into jobs through local manufacturing and renewable energy projects. In Kenya, geothermal and wind power together account for over 90% of installed generation capacity, and the energy services and maintenance of these systems directly support jobs in remote areas. In Southeast Asia, which produces 15% of the world's photovoltaic modules, over one million workers are employed in the photovoltaic manufacturing industry.

1 IRENA and ILO, *Renewable energy and jobs: Annual review 2024*.

2.

FUTURE PATHWAYS: TAILORING ENERGY STRATEGY TO SUPPORT MODERNIZATION IN THE GLOBAL SOUTH

Global South countries should develop their energy strategies in line with their resource endowments and stages of development. These strategies could prioritize their own development needs while ensuring the security and affordability of energy supply. They could seize the strategic opportunity presented by increased affordability of new energy to secure a stable energy supply for modernization. Building on national industrial development characteristics, countries could promote the deep integration of energy with livelihoods, agriculture, industry, and modern services, fostering a virtuous cycle in which energy supply and economic and social development mutually reinforce and advance in tandem.

2.1

Low-income and small island states could prioritize energy access and the basic needs of their citizens.

Energy scarcity and limited access remain major challenges for some Global South countries. Regions such as Sub-Saharan Africa, South Asia, and other low-income and small island states face significant challenges due to inadequate electricity infrastructure. This makes large-scale grid construction difficult and leaves hundreds of millions of people without access to modern energy services. As a result, energy access has become a major constraint on their modernization efforts. For these countries, improving electricity access is the top priority. Expanding electricity access and enhancing the reliability of power supply to ensure citizens' quality of life could be the primary goals of their energy development strategies.

Developing distributed energy is an effective way to improve energy access. Promoting distributed energy systems in areas with limited access to large power grids and scarce traditional energy sources provides opportunities to effectively address energy supply shortages. These areas could develop distributed energy and microgrids based on solar photovoltaics, promote flexible models such as household photovoltaic systems, solar microgrids, and energy storage, and prioritize basic electricity needs of households, schools, and healthcare facilities in off-grid areas. At the same time, productive-use energy systems, such as solar water pumps, could be deployed to support agricultural irrigation and stimulate rural economic development. Regions with abundant wind resources (such as coastal, island, and mountainous areas) could consider deploying small wind power projects and developing distributed wind systems with unit capacities below 100 kW. Hybrid power models, with wind power as the main energy source and solar power as a supplementary source, are an effective way to leverage the complementarity of the two sources to ensure a reliable, continuous energy supply. Rural areas could integrate biomass gasification

and biogas projects into their energy systems to make full use of agricultural and forestry waste, and establish a multi-layered clean energy system combining photovoltaics, wind power, and biomass. Such systems can help them comprehensively improve both energy access and reliability.

The development of distributed energy and specialized industries could be strategically coordinated. Low-income and small island states could tackle energy poverty by deploying distributed energy systems and community-integrated microgrids. This will not only expand energy access but also strengthen the foundation for industrial development. They could also coordinate electrification with the development of specialized industries and drive the growth of agriculture, forestry, animal husbandry, fisheries, and value-added processing. Distributed or decentralized energy ensures a stable power supply for traditional agriculture, facilitating the integration of green electricity and modern farming practices. This integration helps address inefficiencies caused by energy shortages and supports a transition to cleaner, more sustainable agricultural practices, thereby increasing overall productivity. The tourism sector can leverage green energy to enable green tourism models such as low- or zero-carbon tourist islands and resorts. This will not only reduce energy costs and enhance the visitor experience but also deliver broader environmental, economic, and social benefits. The public sector can leverage the independent operation and energy storage capabilities of distributed energy sources such as wind and solar PV to ensure a reliable energy supply. For example, emergency power is provided for health and medical facilities to ensure uninterrupted electricity for vaccine cold chains, emergency care, and diagnostic equipment; stable power is supplied to schools and educational infrastructure in remote areas; and water systems are equipped with solar-powered pumps and energy storage to replace diesel generators and secure safe drinking water.

2.2

To lay a solid energy foundation for economic growth, countries positioned for industrialization could prioritize the energy needs of their secondary industries, accelerate the development of new energy, and use traditional energy as a reliable backup.

Insufficient energy supply has become a key bottleneck hindering the industrialization process in many Global South countries. Many low- and middle-income economies in the Global South, particularly in Southeast Asia, have rudimentary industrial bases. While some of these countries are experiencing accelerated development, their growth is constrained by inadequate power infrastructure and insufficient industrial energy supply. Energy shortages and power supply instability severely constrain industrial growth. To overcome this, these countries could prioritize building an energy supply that is adequate, affordable, and stable.

Locally-tailored energy development could be adopted to prioritize economically viable new energy while maintaining traditional fossil fuels as a crucial backup to support ongoing industrial expansion. Global South countries could pursue a cost-effective and sustainable energy mix to ensure an adequate and reliable supply. They could build on their resource endowments and prioritize renewable energy sources such as wind and solar power. Where viable, they could incorporate hydropower (e.g., in Brazil and Ethiopia) or nuclear power (e.g., in Viet Nam). Throughout the critical phases of industrialization, however, a portion of thermal power capacity could be retained to provide reliable baseload power and meet peak demand. These countries could also pursue centralized and distributed energy systems simultaneously and scientifically plan clean energy clusters. These clusters will unlock economies

of scale, lower electricity costs, and boost supply chain efficiency. They could accelerate the construction of large-scale power grids, strengthen interconnection between regional grids, and bolster system resilience and dispatch capabilities, thereby ensuring a secure and stable energy supply for industrial growth.

A safe, affordable, and reliable energy supply is the engine that drives industrialization. Global South countries need an adequate energy supply to drive industrial upgrading. They may consider pursuing a development model that allows them to scale up and move up the value chain simultaneously. They could accelerate energy efficiency, promote the circular economy, and support the high-quality development of resource-based industries like mining, building materials, chemicals, and equipment manufacturing. In the transportation sector, priorities could include promoting new energy vehicles (NEVs), including new energy heavy trucks, and accelerating the electrification of both public and private transportation. To support this, integrated projects that combine power generation, grid load, storage, and charging could be deployed along major highways. These measures are designed to support real-time optimization of energy supply and demand in the transportation sector. Within the industrial sector, these countries could focus on building a resilient green power supply. This involves improving energy efficiency, strengthening storage and regulation capabilities, and using dynamic scheduling to guarantee stable power for industrial production. Furthermore, Global South countries could promote distributed solar and wind power within industrial parks, creating a localized model of on-site generation and consumption. They could coordinate clean energy clusters with mining, metallurgical centers, and industrial parks. Such coordination is fundamental to building an integrated electricity market covering generation, transmission, and consumption and forging an integrated value chain that spans from mining and smelting to deep processing. They could accelerate energy development to drive industrial clustering, leverage industrial parks to stimulate regional economic growth, and integrate into global value chains through international trade. Ultimately, this strategy simultaneously solves two critical challenges: providing reliable electricity for industrial development while creating a robust electricity market.

2.3
Pivotal role of middle- and high-income countries in accelerating clean energy technologies innovation and green and low-carbon transition

High-income Global South countries, or those with abundant energy resources, could prioritize optimizing their energy mix and transitioning towards a low-carbon economy. While they typically have high electricity penetration and sufficient power for industry and transportation, high-income countries often depend heavily on fossil fuels, leaving the share of renewables in their energy mix relatively low. For these countries, the strategic priority could be advancing the transition towards clean, low-carbon, and intelligent energy systems. This entails a threefold approach: enhancing energy efficiency, diversifying the energy mix, and cultivating clean energy value chains. Such a strategy ensures that energy supply continues to meet the demands of economic growth while successfully harmonizing energy security with carbon reduction goals.

To promote the high-quality development of clean energy and drive breakthroughs in green, low-carbon technologies, high-income Global South countries could prioritize building a new, safe, and reliable energy system that integrates wind, solar, hydropower, storage,

and hydrogen. This includes: (i) steadily increasing the share of clean energy in both installed capacity and power generation and leveraging digital and smart technologies to upgrade the entire energy value chain; (ii) developing clean energy megaprojects, including multi-gigawatt energy clusters that integrate wind, solar, storage, and transmission, deep-sea wind power clusters, and green hydrogen value chains, while improving their economic efficiency and market competitiveness; and (iii) planning R&D for next-generation energy technologies and establishing a comprehensive innovation system that spans from basic research to industrial application.

High-income Global South countries could foster the development of cutting-edge technology to support the development of zero-carbon industries. Efforts could be made in promoting technological innovation, building a development model driven by technology-led systemic transformation, and striving for breakthroughs in low-carbon, zero-carbon, and negative-carbon technologies. These countries could focus on advancing green solutions and helping industries move up global value chains by adopting smart and digital technologies. For high-energy-consuming industries, efforts could focus on promoting technological innovation, energy substitution, and process reengineering, building a new industrial system underpinned by clean energy, circular economy principles, electrified processes, and digitalized management, decoupling industrial growth from carbon emissions, supporting the promotion of mature low-carbon technologies such as electric arc steelmaking and hydrogen- and oxygen-based metallurgy, and strongly supporting the research, development, and commercialization of hydrogen metallurgy and inert anodes. In the data center sector, the priority could be developing green digital infrastructure that ensures a clean power supply, efficient computing capacity, and intelligent management through direct supply of clean energy, energy efficiency optimization, and system coordination, aligning computing loads with renewable energy output, promoting the integrated operation of energy sources, grids, loads, and storage systems, and enhancing the integration of renewable energy. High-income Global South countries could also work to coordinate green electricity with the green production of hydrogen, ammonia, and methanol to enable localized production and deployment. This will enhance the resilience of their zero-carbon energy supply chains and support the transformation and upgrading of strategic industries such as NEVs, green hydrogen–based chemicals, civil aviation, shipbuilding and marine engineering, and new energy storage.

3. STRENGTHENING THE INSTITUTIONAL FOUNDATIONS FOR THE TRANSITION TO GREEN AND LOW-CARBON ENERGY

The Global South could establish appropriate institutions and mechanisms to create a supportive environment for the transition to green and low-carbon energy. This includes accelerating improvements in energy supply policies, promoting innovation and reform in new energy market mechanisms and institutions, and optimizing the green investment and financing policy framework, thereby establishing a systematic and sustainable policy support system.

First, improve energy policy support system and strengthen the planning and development of new energy projects. The Global South could prioritize: (i) establishing comprehensive national and regional energy development plans to coordinate the development of wind, photovoltaic, hydro, nuclear, and energy storage projects and clearly define installed capacity targets, construction timelines, and necessary support; (ii) promoting the standardization of project feasibility studies and optimizing preliminary designs to enhance project design capabilities, engineering efficiency, and resource utilization; (iii) improving approval processes and supporting infrastructure policies, such as those related to land use and grid access, to accelerate project implementation and steadily increase new energy supply capacity; and (iv) accelerating the formulation of plans and investment policies for the construction of transmission and distribution networks and cross-regional energy transmission projects, coordinating the planning of transmission corridors and energy storage projects, enhancing system resilience, and promoting regional energy connectivity.

Second, gradually end fossil fuel subsidies and reform new energy markets and related institutions. The key priorities include: (i) phasing out subsidies for coal, oil, and natural gas to create energy price signals that accurately reflect environmental costs and resource scarcity, thereby guiding the optimization of energy consumption structures and the efficient allocation of market resources; (ii) improving the pricing system for new energy sources, establishing a market mechanism that effectively aligns prices, investment, and returns to ensure new energy projects have reasonable return expectations; (iii) improving the capacity pricing mechanism for thermal power to safeguard the system's essential baseload and peak-shaving capabilities; (iv) optimizing transmission and distribution pricing policies to provide grid companies with reasonable investment returns, and supporting the integration of renewable energy and the development of crucial transmission infrastructure; (v) accelerating the development of energy storage and flexibility regulation mechanisms, improving capacity pric-

ing and ancillary service compensation systems, and enhancing the safety and economic efficiency of system operations; and (vi) improving pricing policies, investment policies, and institutional safeguards, and fostering a market environment with stable expectations, sound mechanisms, and reasonable returns, enhancing the attractiveness of new energy to investors, and promoting the sustainable development of the sector.

Third, leverage financial markets to establish a multi-tiered green incentive mechanism. The Global South's priorities include: (i) improving green finance policy and encouraging regional and national development banks and policy financial institutions to increase medium- and long-term credit support for key sectors, including new energy, power grids, and energy storage; (ii) leveraging diverse financing channels such as green bonds, carbon emissions reduction support instruments, and green funds to broaden project capital sources; (iii) exploring new financial products, such as those based on renewable energy revenue rights and carbon assets, to enhance the liquidity and investment appeal of new energy assets; (iv) improving green incentive and regulatory mechanisms, and streamlining policies related to green electricity pricing, green credit, and green tax to guide social capital towards green and low-carbon energy sectors; and (v) improving project assessment, risk management, and information disclosure standards, fostering a transparent and predictable green investment environment, and enhancing the financial system's ability and efficiency in supporting green and low-carbon development.

The international community can provide comprehensive support to the Global South by optimizing trade and economic rules, working together to reduce barriers to the circulation of green products, improving mechanisms for green technology cooperation and talent development, increasing green investment in Global South countries, and deepening localization of clean energy industries.

First, reduce barriers to the trade of green products. This includes: (i) uphold and strengthen the existing multilateral trading system by developing a list of green products and services, and granting tariff reductions or exemptions to products included on the list. This would allow green products such as electric vehicles, lithium batteries, and solar photovoltaic cells to enter international markets more freely, facilitating the wider global circulation and application of clean energy products and technologies; (ii) remove unnecessary trade barriers for green technologies and products to ensure the smooth circulation and accessibility of key products such as high-performance computing chips.

Second, improve technology transfer and talent development mechanisms. This includes: (i) increasing investment in the industrialization and application of clean energy technologies in the Global South, facilitating trade, and promoting applicable technologies in Global South countries; (ii) establishing a platform to support international cooperation in green and low-carbon technology, and promoting information sharing, technical exchanges, and collaboration among governments, businesses, and research institutions, thereby accelerating technology transfer and adoption; (iii) leveraging free trade agreements, such as the Regional Comprehensive Economic Partnership (RCEP), to promote regional trade in clean products and accelerate the transfer of green and advanced technologies; and (iv) strengthening skills training for green technology professionals in the Global South to promote local talent development and capacity building.

Third, increase green investment in the Global South. This includes: (i) encouraging foreign aid projects to target key areas of green transformation; (ii) strengthening the role of multilateral

development banks and regional cooperation platforms in helping direct global public funds, sovereign wealth funds, and policy-based financing toward green projects; (iii) encouraging developed and emerging economies to establish green investment funds to provide long-term, low-cost funding to the Global South; and (iv) promoting green finance innovation and using tools like green equity investment and green bonds to leverage more private capital for green and low-carbon development.

Fourth, increase support for the development of local clean energy industries in Global South countries. This includes: (i) guiding FDI towards clean energy industries, building factories in Global South countries to support local employment, and enhancing the market adaptability of green products; (ii) assisting Global South countries in improving their capabilities in designing and developing clean energy projects, including planning, feasibility studies, technology route selection, investment evaluation, and risk management; and (iii) supporting capacity building and providing technical assistance to strengthen the capabilities of Global South countries in project implementation, industrialization, and market expansion.

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Introduction to the Global South Research Center

The Global South Research Center (GSRC) was announced by Chinese President Xi Jinping at the Conference Marking the 70th Anniversary of the Five Principles of Peaceful Coexistence in June 2024, and formally launched in March 2025.

The GSRC is an international research platform involving experts and scholars from South and North countries and international organizations. The GSRC's primary responsibilities are to consolidate research resources from around the world, particularly from Global South countries and relevant international and regional organizations, and to carry out research, consultation, and exchange activities concerning key and major issues related to the development and cooperation of the Global South.

The GSRC establishes a Council, chaired by the Minister of the Development Research Center of the State Council (DRC) Lu Hao. The Secretariat of the Council is hosted at the Center for International Knowledge on Development (CIKD).

Council of the GSRC

CHAIRMAN

Lu Hao	Minister of the Development Research Center of the State Council, Chairman of the GSRC Council

VICE CHAIRPERSON

Zhang Qi	Vice Minister of the Development Research Center of the State Council, Vice Chairperson of the GSRC Council

COUNCIL MEMBERS

Yose Damuri	Executive Director of Centre for Strategic and International Studies (CSIS) Indonesia

Kishore Mahbubani	Former Singapore Ambassador to the United Nations
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Fyodor Voytolovsky	Director of the Primakov National Research Institute of World Economy and International Relations of the Russian Academy of Sciences (IMEMO)
Peter Nolan	Founding Director of the Center for Development Studies at the University of Cambridge
Carlos Oya	Head of the Department of Development Studies and Professor of Political Economy of Development at SOAS University of London
Dani Rodrik	Ford Foundation Professor of International Political Economy at the Harvard Kennedy School
Kaushik Basu	Former Senior Vice President and Chief Economist of the World Bank, Carl Marks Professor of International Studies at Cornell University
Kevin Gallagher	Director of the Center for Global Development Policy at Boston University
Carlos Correa	Executive Director of the South Center
Pedro Manuel Moreno	Deputy Secretary-General of UN Trade and Development (UNCTAD)
Zhou Qiangwu	Vice-President and Chief Administrative Officer of the New Development Bank (NDB)
Tetsuya Watanabe	President of the Economic Research Institute for ASEAN and East Asia (ERIA)
Clarems Endara	Permanent Secretary of Latin American and Caribbean Economic System (SELA)
Federico Bonaglia	Deputy Director of the OECD Development Center
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Ye Hailin	President of the China-Africa Institute (CAI)
Chai Yu	Director-General of the Institute of Latin American Studies in the Chinese Academy of Social Sciences (CASS)

SECRETARY GENERAL

Wang Jinzhao	Executive Vice President of Center for International Knowledge on Development, Secretary General of the GSRC Council

Contact: Zhu Qingyi, zhu.qingyi@cikd.org

www.gsrc-web.net