

Ensure access to affordable, reliable, sustainable and modern energy for all

I. SUMMARY

Across the Sustainable Development Goals (SDGs), the greatest progress made in the Asia-Pacific region has been towards Goal 7. There has been considerable success in providing electricity access to urban and rural populations. South and South-West Asia performed exceptionally on electricity access, which helped accelerate progress on SDG 7. There has also been increased international financial support flowing to developing countries for research and development on clean energy, renewable energy production and the electrification of transport. Nevertheless, renewable energy as a share of total energy consumption in the region declined and has remained relatively static. While the region has made significant progress on affordable and clean energy, the pace has been too slow to reach the 2030 goal.



I. SUMMARY

In addition, while the target of universal access to electricity by 2030 is on track, reaching the remaining 125 million people in mostly rural areas and poorer countries will require more intense efforts by national governments and a wide set of stakeholders, especially the private sector. Energy is intrinsically interconnected with most other SDGs and is essential to enable poverty reduction, food security, health, education, water and more. Indeed, 125 of 169 targets – two thirds of all targets – included in the SDGs are linked to energy.¹ One such interlinkage, particularly important to the Asia-Pacific region, is energy and air pollution. The increased consumption of energy, especially fossil fuels, has significant local and regional social and environmental consequences and costs. For example, air pollution is disrupting people's health and adversely affecting the growth potential of entire cities and economies.

II. CURRENT STATUS

This section presents an evidence-based assessment of progress towards achieving SDG7 in the Asia-Pacific region based on the most recent data.

As the Asian Development Bank notes, "the battle against climate change will be won or lost in Asia and the Pacific".² Asia-Pacific accounts for more than half of global energy consumption and more than half of global greenhouse gas (GHG) emissions. It is estimated that energy accounts for approximately three quarters of total GHG emissions. Therefore, achieving SDG 7 in Asia-Pacific will be fundamentally important to addressing the climate crisis and advancing progress on other SDGs.

Based on the latest data (also summarized in Figure 1), **progress on SDG 7 in the Asia-Pacific region is mixed.** The region is on track to achieve universal access to electricity by 2030. It has an average electrification rate of 97.3 per cent, with 34 out of 55 countries (62 per cent) already showing a 100 per cent electrification rate. Progress has also been made with international support for clean and renewable energy in least developed countries. However, trends showing the proportion of the population with primary reliance on clean fuels and technologies (including energy for clean cooking) has been lagging, particularly in small island developing states (SIDS). Other targets where progress is stagnant include 7.3.1 (energy intensity) and 7.b.1 (renewable electricity per capita). The region is regressing on adoption of renewable energy, as measured by indicator 7.2.1 (share of renewable energy in the total final **II. CURRENT STATUS**

energy consumption). Urgent action by governments, communities and relevant partners will be needed to accelerate progress in these areas to achieve envisioned 2030 targets. Regarding data availability, there is sufficient data to report on all targets at the aggregated regional level.





Source: Asia and Pacific Progress Report 2023, ESCAP.³

A. AREAS WHERE PROGRESS IS BEING MADE

7.1 BY 2030, ENSURE UNIVERSAL ACCESS TO AFFORDABLE, RELIABLE AND MODERN ENERGY SERVICES

With a 97.3 per cent electrification rate, the Asia-Pacific region has made remarkable progress on electricity access.⁴ Several countries, such as the Republic of Korea, Turkey and Japan, are already showing 100 per cent electrification rates. Meanwhile, more populous countries such as Bangladesh, India, Indonesia and the Philippines are on track to achieve universal electricity access. Timor-Leste is the region's fastest electrifying nation – with a 5.8 per cent electrification rate between 2010 and 2020 – and has seen an increase in its electrification level from just 38 per cent in 2010 to 96 per cent in 2020. Cambodia (5.5 per cent), Afghanistan (5.5 per cent) and Bangladesh (4.1 per cent) are among other countries with high electrification rates. Electrification is also contributing positively to energy resilience in the region – for example, when electrification supports access to energy in rural and disaster-prone communities.

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The growing electrification rates can be attributed to significant government efforts to expand and upgrade national power grids while reaching decentralized households and community systems in hard-to-reach areas, often with the help of the private sector. This political momentum has been complemented by increased international support for clean energy in the Asia-Pacific region, with India (US\$786 million), Turkey (US\$360 million) and Nepal (US\$332 million) the largest beneficiaries. Levels of international support for clean and renewable energy vary considerably year by year, but the figures for 2015 compared to 2019 are US\$610 million to US\$612 million for South-East Asia and US\$2.68 billion to US\$1.93 billion for South and South-West Asia, respectively.⁵ However, figures have declined recently, from a peak of US\$9.3 billion in 2017 to US\$3.4 billion in 2019.¹ Therefore, progress on SDG 7, particularly in countries that are lagging furthest behind, will require more significant investments from government and various stakeholders across the international scene, such as donors, the private sector and civil society.

B. AREAS REQUIRING ATTENTION AND ASSOCIATED KEY CHALLENGES

7.1 BY 2030, ENSURE UNIVERSAL ACCESS TO AFFORDABLE, RELIABLE AND MODERN ENERGY SERVICES

Reaching end-of-the-line and off-grid households of the region with adequate, reliable and affordable electricity is the greatest challenge to achieving universal access in the Asia-Pacific region. Although significant progress has been made on electrification (target 7.1.1), approximately 126 million people remain without access to electricity, especially in low- and lower-middle-income countries and mostly in rural areas. In addition, last-mile electrification remains a challenge, as does the quality and reliability of the existing electricity supply needed to support productive and sustainable livelihoods.

¹ The financial flows monitored by OECD and IRENA include loans, grants and equity investments received by developing countries from foreign governments and multilateral agencies for the purpose of clean energy R&D and renewable energy production.

II. CURRENT STATUS

Higher tiers of electricity access are needed. As the region moves towards universal electricity access, policy attention should be paid to assuring equitable and high-quality access. Even if a household is considered electrified, the quality and affordability of the energy service may fall short of the levels needed to meet social and economic development needs. Moreover, an electrical connection is just an initial step in meeting the energy access challenge⁶ – greater efforts are required to improve service and provide higher-tier electricity access levels. In the Lao People's Democratic Republic, for example, the United Nations Development Programme is actively supporting local communities to access high tiers of energy, enabling them to implement multiple income-generating or productive use activities (see example from the Lao People's Democratic Republic in Case Study 1).

A reliable and quality electricity supply is critical to unlocking higher tiers of electricity access. For example, rural areas are more prone to power outages – especially those with low-capacity decentralized systems – because of poor system operation or insufficient equipment maintenance. Rural communities also pay higher rates for electrification, further widening both affordability and socioeconomic opportunity gaps. Expanded national electrification plans are needed to ensure service affordability and unlock high tiers of electrification at the community level, particularly in rural and hard-to-reach communities where challenges are most pronounced.

Progress on clean cooking remains slow (indicator 7.1.2). The complex and multifaceted aspects of the clean cooking challenge – technology, household decisionmaking, cultural preference, affordability and convenience, combined with low levels of investment – means that progress is slow, and the region is far from being on track to achieve universal access by 2030. Even though 71 per cent of the Asia and the Pacific population use clean fuels and technologies for cooking, heating and lighting, 1.3 billion people (29 per cent) continue to rely on dirty and polluting fuels and cookstoves. The World Health Organization estimates 92 deaths per 100,000 people are attributable to household air pollution in developing Asia. The COVID-19 pandemic and recent fuel price increases have likely slowed clean cooking progress. Furthermore, the greatest access gaps prevail in low- and middle-income countries and SIDS. For example, less than 10 per cent of the population of SIDS, such as Kiribati, Papa New Guinea and Vanuatu, have access to clean fuels and technologies. Data also shows a correlation between clean cooking and development and geography; for example, urbanization in the region has increased clean cooking options in urban areas.

7.2 BY 2030, INCREASE THE SHARE OF RENEWABLE ENERGY IN THE GLOBAL ENERGY MIX SUBSTANTIALLY

The energy mix in Asia-Pacific remains primarily fossil fuel-based, with minimal uptake of renewable energy overall. Asia-Pacific has abundant renewable energy resources, which have not yet been fully exploited. Until recently, rapid urbanization and industrialization in the region have been largely fuelled by coal, oil and natural gas. The share of final consumption of energy derived from renewable resources (indicator 7.2.1) stood at just 15.8 per cent in 2019. However, the growing share of modern renewable energy resources in the electricity sector, such as hydro, wind, solar and biomass, is driving a clear upward trend in renewable energy consumption. Accelerating the transition to clean energy across all countries (i.e., high-, middle- and low-income countries) will help them avoid locking in carbon-intensive energy systems and infrastructure.

Widespread differences in the rate of renewable uptake between low-, middle- and high-income countries. While per capita installed renewable electricity generating capacity has increased more than sixfold for the entire Asia-Pacific region, there is a striking dichotomy in progress between wealthier and poorer nations. Renewable electricity generating capacity rates are increasing rapidly in high- and upper-middle-income countries, progressing slowly in lower-middle-income countries, and on a negative trend in low-income countries. However, countries at all levels – from those with early-stage renewable energy markets to countries with more developed markets attractive for private investment – should receive support.

Policymakers are far from abandoning fossil fuels. Growing pressures to act on climate change and the increasing affordability of renewable energy have led to energy development plans to increasingly focus on the uptake of solar, wind, hydro and other renewable resources. However, the region remains heavily reliant on fossil fuels, which have served as the backbone of the region's economic growth and rapid motorization. For example, in 2020, in Bangladesh, China, Indonesia, the Philippines, the Republic of Korea, Thailand, Tajikistan and Vietnam, energy generated from coal reached historic high levels. Countries in Asia and the Pacific also still depend heavily

on fossil fuels for transport, where more than 90 per cent of their energy use is from oil products.⁷

7.3 BY 2030, DOUBLE THE GLOBAL RATE OF IMPROVEMENT IN ENERGY EFFICIENCY

There is enormous potential for energy efficiency in the region, which has not yet been realized. The rate of primary energy intensity improvement (indicator 7.3.1) – defined as the percentage decrease in the ratio of total energy supply per unit of GDP – in the Asia-Pacific region has slowed in recent years. To date, only China, Indonesia and Japan have improved their energy intensity at a rate that exceeds the global target, underscoring the need for other Asia-Pacific countries to redouble their efforts on energy efficiency. In a post-pandemic recovery and high energy cost context, energy efficiency is an important pathway to lowered energy use and costs, boosted economic productivity and increased energy security.⁸

C. AVAILABILITY OF DATA

Figure 1: Data availability of indicators in Goal 7

		Sufficient
7.1.1	Access to electricity	
7.1.2	Reliance on clean energy	
7.2.1	Renewable energy share	
7.3.1	Energy intensity	
7.a.1	Financial flows to clean energy	
7.b.1	Renewable energy generating capacity	

As noted in Figure 2, SDG 7 is one of two SDGs for which data is available to report against all the targets at the regional level. However, regarding Indigenous Peoples, there is little consistent and comparable disaggregated data to provide a clear global picture of their access to energy.

III. HUMAN RIGHTS AND GENDER EQUALITY CONSIDERATIONS

In October 2021, the General Assembly passed a landmark resolution recognizing access to a healthy and sustainable environment as a universal right. Progress towards scaling up access to affordable and clean energy will support this resolution. In addition, the Committee on Economic, Social and Cultural Rights, the Human Rights Committee, the Committee on the Rights of the Child, the Committee on the Elimination of Discrimination against Women, the Committee on the Protection of the Rights of All Migrant Workers and Members of their Families and the Committee on the Rights of Persons with Disabilities have linked energy to human rights, emphasizing access to renewable and efficient energy by referring to the emission reductions imperative under the Paris Agreement.

While SDG 7 is one of the six SDGs with no gender-specific indicators, gender dimensions are key for sustainable energy. Among communities that lack access to electricity and clean cooking, women bear the greatest burden of this energy poverty – their unpaid time and labour are expended to gather biomass fuels for cooking, collect water or manually process grains and other foods. Household air pollution, linked to burning fuels such as wood, animal waste and charcoal, is responsible for about 2.8 million deaths every year globally, primarily among women and children. Greater access to energy services can improve women's health and well-being, free up their time, and enable economic empowerment.⁹ In addition, the renewable energy field offers a range of unprecedented opportunities for greater gender equality in the energy sector. Women represented 32 per cent of full-time employees in the renewable energy sector, 10 per cent higher than the average percentage in the global oil and gas industry in 2019.¹⁰ Removing barriers to entry and career advancement for women in the sector will be critical to its level of gender equality.

A holistic approach to gender equality in the energy sector will also perceive women as end users and agents of change who can deliver energy solutions. Priority actions to address gender challenges include:

III. HUMAN RIGHTS AND GENDER EQUALITY CONSIDERATIONS

- Building knowledge on gender expertise and experience on gender issues across the energy value chain;
- Promoting and investing more in clean cooking technologies and decentralized sustainable energy technologies that support gender equality and women's economic empowerment, fully supporting the strengthening of gender programming in relevant mechanisms, including under the Green Climate Fund and the Global Environment Facility;
- Improving gender diversity in the energy workforce through mainstreaming gender in energy sector frameworks, tailoring training and skills development programmes, attracting and retaining talent, and challenging cultural and social norms.

In terms of Indigenous Peoples, there is also a need to ensure that energy infrastructure and delivery do not result in displacement, loss of livelihood, weakening of community cohesion, and harassment and intimidation. Energy projects should be designed in line with respect for the rights of Indigenous Peoples.

IV. PROMISING INNOVATIONS AND PRACTICES

CROSS-CUTTING SDG 7 TARGETS

The development of SDG 7 roadmaps as a partnership between the Economic and Social Commission for Asia and the Pacific (ESCAP) and selected Asia-Pacific countries has supported closing the gaps across all SDG 7 targets. In many cases, these roadmaps have provided inputs into national policy in countries such as Fiji, Georgia, Tonga and Micronesia. In other cases, the recommendations made in national roadmaps are being implemented through projects such as expanding electric cooking in Bhutan.

7.A BY 2030, ENHANCE INTERNATIONAL COOPERATION TO FACILITATE ACCESS TO CLEAN ENERGY RESEARCH AND TECHNOLOGY, INCLUDING RENEWABLE ENERGY, ENERGY EFFICIENCY AND ADVANCED AND CLEANER FOSSIL FUEL TECHNOLOGY AND

PROMOTE INVESTMENT IN ENERGY INFRASTRUCTURE AND CLEAN ENERGY TECHNOLOGY

Several new initiatives are addressing some of the region's SDG 7 investment and financing shortfalls. For example, the ASEAN Catalytic Green Finance Facility will help de-risk green infrastructure projects and mobilize public and private financing. At the same time, the Asian Development Bank-backed Energy Transition Mechanism is looking to utilize market-based approaches to support the early retirement of coal power plants in the region. Other promising developments include the Regional Comprehensive Economic Partnership, a free trade agreement between 10 South-East Asian economies and Australia, China, Japan, New Zealand and the Republic of Korea. The partnership came into force in 2022 and is expected to support the energy transition with increased regional cooperation, strengthened trade, and expanded investment opportunities.

7.3 BY 2030, DOUBLE THE GLOBAL RATE OF IMPROVEMENT IN ENERGY EFFICIENCY

Electric transport is poised to improve transport efficiency. Electric vehicles (EVs) and hybrid EVs provide higher fuel-equivalent efficiency over conventional counterparts, while offering emissions, air quality and potential renewable energy storage benefits. Many Asia-Pacific nations are mobilizing towards adopting EVs, including light-duty passenger cars, medium- and heavy-duty commercial trucks, public transport buses and two- and three-wheeled vehicles. Present high fuel prices and growing energy security concerns are giving EVs an additional boost. China leads the global market; it produces more than half of the world's EVs and plans to grow its electric fleet by 36 per cent from 2021 to 2025. India, Japan and the Republic of Korea are also members of the Zero Emission Vehicle Transition Council created by the COP26 presidency to enable a faster, cheaper and easier for all transition to zeroemission vehicles.¹¹ More recently, COP27's Global Commitment on Strengthening International Assistance for Emerging Markets and Developing Economies in the Road Transport Sector included a new Rapid Response Facility that will provide technical assistance and address options for zero-emission vehicle transition in Asia and the Pacific. Countries that have not started the transition to zero-emission vehicles have improved energy and vehicle efficiency through the implementation of fuel economy standards, such as the adoption of the ASEAN Fuel Economy Roadmap for the

Transport Sector 2018–2025: with Focus on Light-Duty Vehicles, which aims to reduce the average fuel consumption per 100 km of new light-duty vehicles sold in ASEAN by 26 per cent between 2015 and 2025.¹²

Transition to more sustainable energy generation and maximizing energy efficiency. In Southeast Asia, the United Nations Office for Project Services is managing the Energy Transition Partnership (ETP), which unites governments, the private sector and civil society to bring the untapped potential of renewable energy into the energy mix. ETP pursues bold and pioneering opportunities that energy efficiency measures offer to stem wasteful energy use and mainstream renewable energy. With financial support for technical assistance projects aligned with ongoing programmes, the ETP provides coordination, dialogue and knowledge boosts to leadership in and financing for the energy transition in the region, aimed at achieving the Paris Agreement and the SDGs. In Vietnam, ETP supported coal abatement by preparing scenarios to reduce the reliance on coal-fired power production through greater use of domestic renewable energy resources. Each of these (four) scenarios is built on energy efficiency measures and wind and solar energy deployment combined with smart grid upgrades to meet the rapidly growing demand for energy. Coal abatement avoids building assets that will become financially unviable and stranded and a fiscal burden to the country. The abatement scenarios provided for Vietnam ultimately contributed to the government's decision to achieve a net zero emissions target by 2050. A threepronged strategy was developed to enhance the ambition of the scenarios to: (i) chart a path to a net-zero-emitting energy sector, (ii) formulate a roadmap for phasing down government-owned coal-fired power plants and (iii) create a Just Coal Transition Forum that will enable the impacted community members to prepare programmes for their transition to other livelihoods in part through leveraging global experience. Support from ETP and other development partners will help implement a just and fair energy transition in Vietnam.

Enhancing energy access for remote communities through a rights-based and appropriate energy transition. The Right Energy Partnership with Indigenous Peoples – an indigenous-led, multi-stakeholder partnership – aims to increase renewable energy systems that respect human rights and leverage the leadership of indigenous communities to develop solutions. The Partnership will work to: (i) ensure that renewable energy projects are fully aligned with respecting and protecting human rights and (ii) provide at least 50 million Indigenous Peoples access to renewable

energy developed and managed in ways consistent with their self-determined needs and development aspirations by 2030.

7.B BY 2030, EXPAND INFRASTRUCTURE AND UPGRADE TECHNOLOGY TO SUPPLY MODERN AND SUSTAINABLE ENERGY SERVICES FOR ALL DEVELOPING COUNTRIES, PARTICULARLY LEAST DEVELOPED COUNTRIES, SMALL ISLAND DEVELOPING STATES AND LANDLOCKED DEVELOPING COUNTRIES, PER THEIR RESPECTIVE SUPPORT PROGRAMMES

Empowering women for climate-resilient societies. The EmPower project has supported thousands of women in using renewable energy technology and accessing finance to secure climate-resilient livelihoods in Bangladesh, Cambodia and Vietnam. Building on EmPower project results and impacts at the community and country levels, ASEAN adopted the *Roadmap on Accelerating ASEAN Renewable Energy Deployment through Gender-Responsive Energy Policy* in 2022. Through this document, which will inform the ASEAN long-term Renewable Energy Roadmap, ASEAN Member States have made a strong commitment to advance gender equality in renewable energy, a sector that has traditionally overlooked women. EmPower is a joint United Nations Environment Programme and United Nations Women project supported by the Government of Sweden.

CASE STUDY 1 – Flex-Grid Installations in the Lao People's Democratic Republic For many years, Kobong and Thapaiban in Laos had to resort to diesel generators, which were expensive, polluting and unreliable, and only provided electricity to a few households. With support from the EU, Germany, Spain and the United Nations Development Programme, flex-grids – which take a modular approach to mini-grids – were installed in the two communities, electrifying 147 households and vital social and commercial institutions such as a health centre, school and four shops. The flex-grid systems comprise a central power hub with several individual power storage units that can be expanded as energy demand increases over time. Notably, the installations have supported income-generating activities such as grain grinding, poultry and honey production, resulting in measurable community development benefits.

V. PRIORITY ACTIONS

The following actions are recommended for priority consideration to accelerate progress on the delivery of SDG 7 and reverse the current regression on some targets:

Join and support the Global Methane Pledge to accelerate SDG 7.¹³ Participating countries joining the Global Methane Pledge launched at the United Nations Framework Convention on Climate Change COP26 in Glasgow agreed to take voluntary actions to contribute to a collective effort to reduce global methane emissions by at least 30 per cent of 2020 levels by 2030, which could eliminate over 0.2°C warming by 2050. One hundred twenty-one countries and the EU have joined the Pledge as of October 2022, with only 22 from the Asia-Pacific region and most of them SIDS. The energy sector is closely linked to the success of this Pledge through potential methane emission reduction or methane utilization measures such as:

- Recovery of coal mine methane and its sale to natural gas pipeline systems or use in boilers, as a heat source for mine ventilation air, or for power generation, coal drying, vehicle fuel production, manufacturing, etc.
- Measures to reduce venting and flaring during the production of oil and natural gas
- Reducing organic waste generation and increasing recycling and energy recovery of organic waste
- Market development and expansion of methane-based fuels for various energy end uses

Support the implementation of the <u>Global Roadmap for Accelerated SDG 7 Action in</u> <u>Support of the 2030 Agenda for Sustainable Development and the Paris Agreement</u> <u>on Climate Change</u> stemming from the High-Level Dialogue on Energy, which took place at the summit level on 24 September 2021. The Roadmap – released on 3 November 2021 on the sidelines of the Glasgow COP26 – calls for action to close the energy access gap, rapidly transition to decarbonized energy systems, mobilize adequate and predictable finance, leave no one behind on the path to a net zero future, and harness innovation, technology and data.

Encourage the adoption of recommendations from the 2021 ESCAP policy brief *Slow Advancements in Sustainable Energy Taking Atock of SDG 7 Progress in Asia and the Pacific,* including standardizing off-grid electricity supply technologies and

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business models, considering electric cooking options in parallel with electrification, establishing standards for cooking appliances aligned with World Health Organization indoor air quality targets, and electrifying end-use consumption through using of energy from renewable sources. Adopting these recommendations will accelerate the energy transition and decarbonization, resulting in increased efficiency, reduced costs and immediate air pollution reduction in cities.

Continue to increase the energy efficiency of the transport sector in Asia and the Pacific. The significant growth in transport demand in Asia and the Pacific resulting from economic development and population growth has outpaced the speed at which technological advancements can improve fuel and vehicle efficiencies. Without more ambitious policy interventions, transport demand and energy use in the region will continue to increase. The gradual phasing out of internal combustion engines and using advanced vehicle technologies and alternative fuels in the transport sector will help improve overall energy efficiency. ESCAP launched the Asia-Pacific Initiative on Electric Mobility in August 2022 to address these transitions and aims to support ESCAP member states by providing expertise, technological know-how and the identification of financial means to transition to net zero carbon transport.

Ensure a rights-based energy transition that respects human rights – including Indigenous Peoples' rights – and equal access to energy services, including targeting investments to community led and managed small-scale renewable energy projects.

Promote global and regional action to close the clean cooking gap. Cross-cutting approaches are needed to transform clean cooking markets at the regional level and advance progress across multiple dimensions, such as policy, technology innovation, finance and partnerships. Advancing the clean cooking sector will rely on targeted policy support to build the environment necessary to develop the sector. At the same time, there is a need to support institutions and networks – e.g., government, civil society, local businesses, industry associations and entrepreneurs – with technical assistance directed to capacity-building and structuring innovative finance that unlocks larger streams of private sector capital into the sector. Finally, urgent action is required to convene global and regional actors around the topic and to identify entry points for coordinated and enhanced action on clean cooking.

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