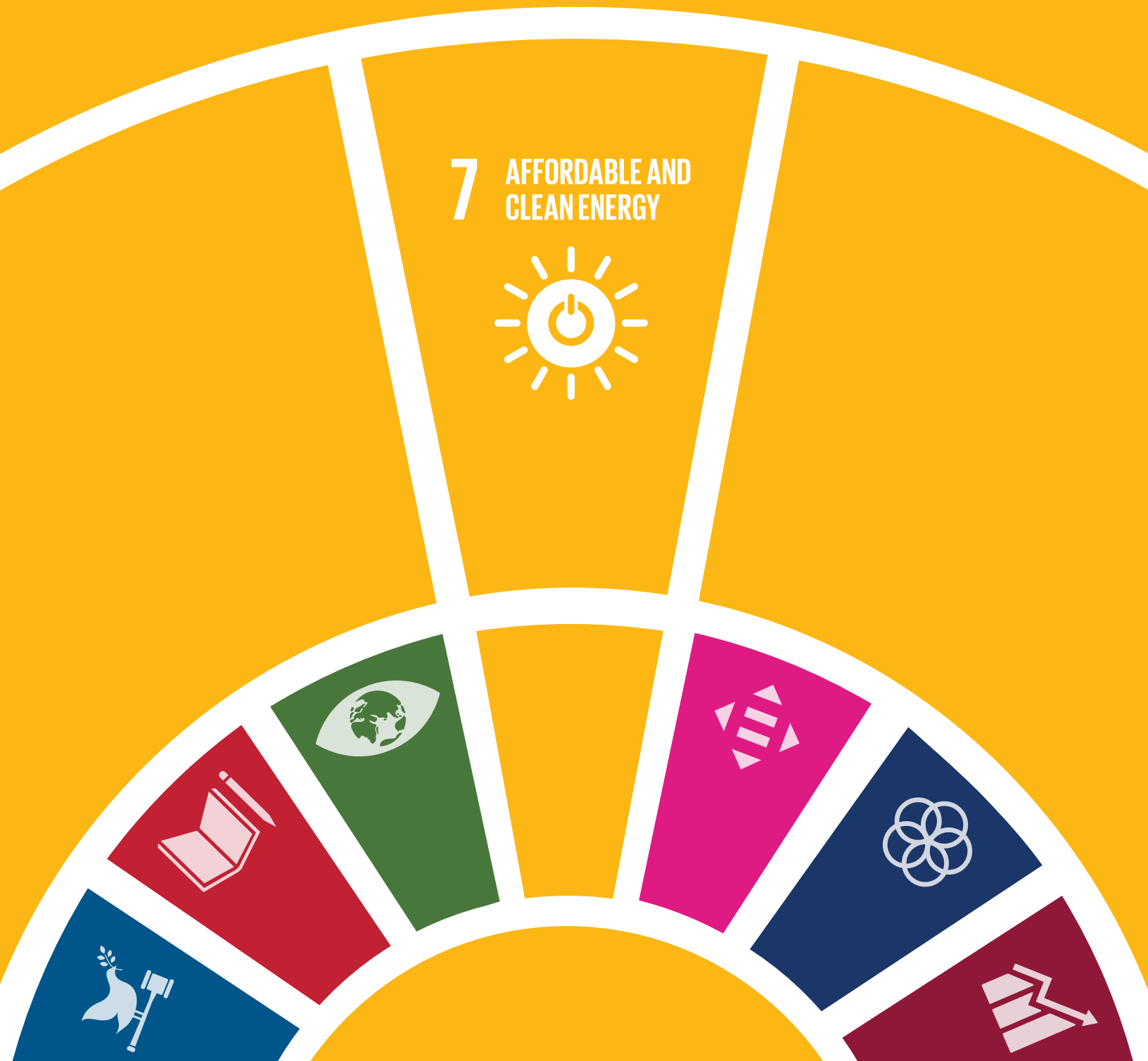
ACCELERATING SDG 7 ACHIEVEMENT

POLICY BRIEF 11

SDG 7 IN LATIN AMERICA AND THE CARIBBEAN REGION



POLICY BRIEF #11

SDG 7 IN LATIN AMERICA AND THE CARIBBEAN REGION

Developed by

The UN Economic Commission for Latin America and the Caribbean (ECLAC)

In collaboration with

The Latin American Energy Organization (OLADE), the World Bank, and the International Energy Agency (IEA)

Key Messages

Progress towards the achievement of SDG 7

The region continues to make progress in the implementation of SDG 7. Access to electricity has improved, and the region's energy intensity has maintained a downward trend, particularly in the Caribbean. However, in spite of the positive advances, it is necessary to redouble efforts, otherwise it will be more difficult to achieve the objectives set for 2030. In addition, the countries with the greatest backlogs represent a challenge that will require greater and focused efforts.

Access

The number of people without access to electricity fell from 44 million to 12 million between 2000 and 2017. In urban areas the degree of coverage in 2017 remains at 99 per cent while in rural areas it reached 92 per cent, with a large increase compared to 2014 where it only reached 88 per cent. If current growth rates are maintained, this objective can be achieved. However, greater efforts must be devoted to supporting countries that are lagging furthest behind (Haiti, Honduras, Nicaragua, and Guyana and Suriname). However, access to modern and healthy cooking and refrigeration technologies is still lagging behind, despite the efforts made, where around 83 million people still lacked access to such sources, so it is unlikely to reach the 2030 target unless they focus electrification policies on covering this dimension by electrifying cooking and refrigeration.

Renewable Energy

The region continues to make progress on this issue and it is expected that in the short term a large amount of MW will be installed in the region. The significant share of renewable sources represents 27.6 per cent of total final energy consumption and modern renewable energies represent five sixths of this share, which places the region in a privileged situation. The region has an installed renewable energy capacity of 218.2 GW in 2017. Capacity expansion rates show significant increases from 2014, from which date increases greater than 5 per cent are observed. That will increase thanks to the policies that promote the participation of renewable energies. In this area, the mechanisms of bidding and auctions stand out, observing values for wind energy of $0.06 Kwh and photovoltaic solar energy of $0.13Kwh in 2017.

Efficiency

The region has historically been the one with the lowest energy intensity in the world. However, in recent years this indicator has not changed, limiting the region's advantage over other regions of the world. Although the indicator has decreased in the last decade, given the trend in the last 5 years, improving efficiency will require additional efforts to those that have been made if we want to reach the target set for 2030.
Priority actions: next 4 years

- The active role of the State as facilitator of the development of the energy sector should be reinforced and the country's comparative advantages (endowment of natural resources) converted into competitive advantages (access to clean and accessible energy).
- Promote the inclusion of non-conventional renewable energy technologies in policies, programmes and projects for energy access, particularly in rural areas.
- Implement state policies that encourage the development of renewable energies and are sustainable over time.
- Deepen the implementation of national programs to promote the use of efficient and clean wood

stoves, with emphasis on caring for the environment, protecting people's health and paying attention to the socio-cultural aspects in which families live.

- Promote the development of National Energy Efficiency Plans, which define goals, provide instruments and have the necessary resources for implementation.

Priority actions: towards 2030

- Integrate the change of the energy matrix towards a renewable and sustainable, hand in hand with the electrification of transport, considering the incorporation of multimodal public transport systems.
- Moving towards convergence between energy prices and production costs. Reduce subsidies to fossil fuels and develop mechanisms that guarantee benefits to the most vulnerable populations.
- Promote the gradual replacement of traditional biomass in cooking and heating uses by modern sources.

Disclaimer note: In order to allow consistency and intercomparability between the data presented from the different regions in the entire report, in the Latin America and the Caribbean Policy Brief, the information used relied on the 2019 energy tracking report prepared by the SDG7 indicator custodian agencies. However, we recognize and support the important work done by the regional bodies, in particular by the Latin American Energy Organization (OLADE). It is important to emphasize that further efforts are required to deepen harmonization among the existing databases for the region.

I. Energy and the Sustainable Development Goals

Energy is an essential factor for the development of all economic sectors and human settlements. This is certainly in direct support of the challenge of ending poverty, protecting the planet and ensuring that all people enjoy peace and prosperity. However, there is evidence that the use of polluting fossil energy sources is unsustainable. As a result, the idea of a major environmental boost through the decarbonisation of the energy matrix has emerged, with the aim of reducing dependence on fossil fuels and moving towards a new horizon of socio-environmental sustainability.

Energy plays a fundamental role in the use of basic necessities such as food, which require preparation, refrigeration and cooking to prevent most Foodborne Diseases (FCDs). In 2001, WHO published the five keys to food safety, a document whose reference to energy systems is evident in the recommendation to use clean calorific systems to bring food to full cooking and in the use of refrigerant systems to slow bacterial growth.

Another aspect of energy access is the use of clean-burning cooking technologies, which prevent air pollution in confined and unventilated kitchen spaces. According to UN Women, more than 4 million people died in 2012 from the use of solid fossil fuels in the kitchen. 60 per cent of them were women.

On the other hand, the diffusion of knowledge in the 21st century depends highly on the availability of modern virtual information systems. In this sense, isolated peasant communities would benefit from access to modern energy services. This would contribute to new job opportunities for those living in inhospitable areas.

The data included in this Policy Brief show the progress made in addressing the above issues, which have been systematically addressed by Agenda 2030 with 17 specific global targets named "**Sustainable Development Goals**" (SDGs). These issues have led various international organizations to monitor annually the indicators of SDG 7 (Affordable, Clean and Sustainable Energy) that will be discussed in this Policy Brief.

It is easy to understand the role of energy in almost all of the great challenges and opportunities facing the world today. Consequently, for these goals to be achieved, and for the world to develop sustainably, it will be necessary to ensure access to affordable, reliable, sustainable and modern energy services, while reducing greenhouse gas emissions and the carbon footprint of the energy sector. It is for this reason that the SDG #7 set a set of energy targets for 2030, which represent an important step in the UN's efforts to focus on the social, environmental, economic and policy challenges related to each other and to the production, distribution and access to services that depend on energy supply.

Similarly, the sustained adoption of clean and affordable cooking solutions can improve the health and well-being of millions of people. In this regard, it is sufficient to refer to the harmful effect on health (particularly on women and children) caused by the burning of traditional solid fuels such as firewood, charcoal or agricultural residues for cooking at home. Avoiding their use also generates additional benefits by saving time that would otherwise be spent collecting or buying solid cooking fuels, allowing children to spend more time studying and allowing women to generate livelihoods and income through other productive activities.

It is also recognized globally that current approaches to energy are not sustainable in economic, environmental or social terms, in the face of global population growth and increasing demand for energy services. Consequently, there is a need to shift to more sustainable energy systems, where both increased use of renewable energy and significant improvements in fossil fuel energy efficiency have an important role to play and are not mutually exclusive. It is therefore a question of focusing the debate on the essential role that energy plays in the global sustainable development agenda, while at the same time emphasizing the need to protect the environment (paying special attention to the negative environmental impact of conventional approaches to energy) and promoting the conservation of non-renewable resources.

The promotion of energy efficiency is transversal to the four dimensions of sustainability, insofar as it positively impacts on the productivity and competitiveness of economies, reduces investment needs in the energy industry, has positive effects on the external sector of a country's economy, improves security of supply, reduces the energy bill in households, facilitates access to new and modern sources, promotes technological improvement, mitigates negative effects on the environment and contributes to the conservation of non-renewable energy (increasing its future availability). As a result, improved energy efficiency has a positive impact on many of the SDGs.

Access to Energy

Latin America and the Caribbean have been successful in moving towards universal access to electricity services. Indicators dating back to 2017 show that the region has steadily expanded its coverage, bringing the deficit from 8.3 per cent in 2000 to 2 per cent in 2017; in 17 years the deficit has been reduced from 43.6 to 12 million people.

Access at the urban level shows a deficit of around 0.5 per cent, which represents that universalization is highly likely by 2030. At the rural level, there is a deficit of around 8 per cent in 2017.

As a result of the rural level deficit observed, it is a priority that the efforts and action plans adopted by the countries be placed with greater emphasis in this sector, where although the trend shows an increase in coverage, universalization has not yet been achieved. In order to improve trends at the rural level, initiatives must continue to incorporate renewable energies, which, since they do not require networks fed by centralized generation sources, make it possible to use local energy resources.

In some countries of the region, it has been observed that the development of renewable energy projects at the rural level involves the integration of peasant and indigenous communities. The document of the Government of Chile: "Indigenous Chapter of Energy Policy 2050" shows how policies have been carried out that have centred the inclusion of peoples based on an understanding of the immanent cosmovision of these communities, understanding the social, cultural, political and ecological principles that have governed these societies for centuries, and from this paradigm the institutional strategy for the electrification of the rural sector has been developed.

In general terms, SDG #7.1, despite the encouraging regional perspective, is overshadowed when sub-regional data are analyzed, particularly in access in the Caribbean, where it is observed that it is the sub-region with the greatest deficits. In 2017, the gap was 14per cent and coverage has increased very slowly, following a pace similar to population growth. However, Haiti has a deficit of 56per cent and around 39per cent of Haiti's population lives in rural areas, explaining the high backwardness of the access indicator in the Caribbean. Another country with considerable deficits is Grenada, where 64.3per cent of the population is rural, which explains its 5per cent deficit. On the other hand, in Central America and South America respectively Nicaragua, Honduras and Guyana, have more than 10per cent of the population without access to electricity and coverage has been expanding at an average rate of 1per cent per year. Only by maintaining these total coverage rates could we expect the goal to be met by 2030. Meanwhile, Bolivia and Guatemala will have to make additional efforts to the current ones to ensure that 7per cent of the population without access is connected, reaching values close to 100per cent by 2030.

Likewise, another dimension of access is related to the use of clean combustion technologies for cooking (CFT). The figures per country for access to modern energy sources for cooking use show a similar and heterogeneous trend, where on the one hand an important group of countries has a participation of 90 to 100per cent. Then there is a medium segment of countries with shares ranging from 74 to 86per cent (Guyana, Peru, Cuba, Mexico, Belize and El Salvador). Finally, a group of countries where access to CFT varies between 65 and 45 per cent (Nicaragua, Honduras, Guatemala and Haiti) and Haiti which only has

4.34per cent. In historical trends, a great dynamism is observed in the search for the reduction of the gap However, if the current trends continue, those countries under 65per cent would not be able to meet the established objectives. As expected, the case of Haiti deserves special consideration with only 4.34per cent access to CFT, which is based on the poor socioeconomic conditions in which the vast majority of the population lives, where almost all households use firewood and charcoal as the main energy sources in cooking. In the specific case of CFT, a significant additional effort will be required in countries where the use of firewood and charcoal are the main fuels for cooking food. In addition, WHO has approached this indicator from the perspective of food safety, which without refrigeration or cooking systems can be harmful to health. According to WHO, 13per cent of the population of Latin America and the Caribbean may not consume safe food because they do not have access to modern and safe cooking and refrigeration technologies, equivalent to about 83 million people in 2016. This constitutes a public health problem and poses a high risk to people's lives, as the existence of Foodborne Diseases (FCDs) is increasing.

As a general conclusion, it can be inferred that, if efforts are focused on those countries with the greatest backwardness, there are reasonable expectations that by 2030 the region as a whole will be able to reach the objective outlined in SDG #7.1.

Renewable Energy

According to those available, in the Latin America and the Caribbean region the final consumption of renewable energies covers 27.6per cent of total consumption in 2015. One of the causes of the declining trend may be the incorporation of modern fuels into the energy matrix, such as gas and biofuels, whose share in residential and industrial subsectors has increased. In addition, it should be noted that the renewable energy participation indicator is highly composed of the preponderance of hydroelectric projects.

According to data compiled by the International Renewable Energy Agency (IRENA), the region has an installed renewable energy capacity of 218.2 GW in 2017. Capacity expansion rates show significant increases from 2014 onwards, from which date increases greater than 5per cent are observed. This trend is expected to continue thanks to the policies that have incorporated the countries of the region as part of the measures that seek to increase the share of renewable energy. In this area, the mechanisms for bidding and auctions of renewable energy projects, the tax benefits of importing renewable energy technologies and the accelerated depreciation of assets stand out.

On the other hand, despite a downward trend in final consumption of renewable energy, the region continues to maintain a high share compared to the world average, which is 18.05per cent (World Bank & IEA). An aspect that should be considered in the incorporation of non-conventional renewable energies to the energy matrix in the reduction of the leveled cost of energy. According to studies by Bloomberg New Energy Finance (BNEF), there is evidence that the leveled cost of non-conventional renewable energy is decreasing, this means that installed capacity increases even if the same levels of investment are maintained. The lowering of costs through the analysis of learning curves, presumes that this trend will continue over time thanks to a growing understanding of the manufacturing process of renewable energy technologies. As an example, the global average of generating one Kwh through the use of photovoltaic panels fell from $0.36 in 2010 to $0.10 in 2017 (in dollars) (IRENA, Auction Database). In South America it is observed that wind energy costs on average $0.06Kwh and photovoltaic solar energy $0.13Kwh in 2017. A surprising case of low-level electricity costs is Chile, whose auctions of photovoltaic farms have reached $0.05Kwh (Bloomberg New Energy Finance).

Despite low costs, the data show that installed capacity by type of renewable energy technology is dominated by the participation of hydroelectric plants, which is considerably greater than the rest. However, other types of energy that have strongly entered the energy matrix, such as wind and solar energy, should not

be neglected, as they have significantly increased their installed capacity (e.g. solar from 2.7 MW in 2000 increased to 1500 MW of installed capacity in 2017).

Despite the positive trend observed in recent years, the evolution of the respective shareholdings is still far from achieving the goal of SDG #7.2. However, the great dynamism observed in the development of non-conventional renewable energies and also hydroelectric, generates favorable expectations being able in the short term to achieve significant progress in achieving levels of participation of renewable energies above 30per cent and continue to expand the participation spaces of modern renewable energies.

Energy Efficiency

With regard to energy efficiency, the Latin American and Caribbean region has the lowest energy intensity indices in the world, but also the lowest rates of improvement (around 0.5per cent per year). Between 1990 and 2015, energy intensity decreased from 4.3 MJ/GDP to 3.8 (USD according to the 2011 PPP).

Improvements in energy efficiency are due to the replacement of firewood with more efficient sources such as gas. It should be noted that electrification has also contributed to improving efficiency rates, as it allows the use of more efficient and modern energy sources in various tasks of residential and industrial subsectors. The latter sector has contributed substantially to the reduction of energy intensity, realizing that the energy efficiency plans imposed on the sector have been successful.

With regard to the variation in energy intensity, it can be observed that, during the years 2012, 2013 and 2014, the variation rates have slowed down; however, in 2015 a dynamism returns where a decrease in intensity of over 2per cent is observed. The negative figures represent an improvement and the positive figures represent a setback in the decrease in energy intensity.

CEPALSTAT database shows that in 2016 the region registered an increase in energy intensity from 0.62 in 2015 to 0.63 expressed in thousands of barrels of oil equivalent per million USD. Given that it is only one year, we believe that it is not the long-term trend and rather reflects a trend towards stability of the indicator when compared with previous years (2013 and 2014) where the value was also 0.63.

In reference to the behavior of energy intensity at the subregional level, the sub-regions of Central America, the Caribbean and South America show a decreasing trend. It can be seen that the Caribbean has had an important trend, evolving from 0.12 in 2000 to 0.08 in 2016 (ktoe/MUSD 2011 PPP).

Energy intensity must be focused on strategies that do not compromise economic development or harm people's lives, helping to decouple economic growth from energy consumption, and raising the comfort levels of the population, with the minimum possible energy consumption. Indicator SDG #7.3 proposes doubling the rate of improvement in energy efficiency with respect to indicators that date back to 2015. In this sense, the achievement of the 2030 target can only be achieved by accelerating the rates of reduction in energy intensity. Therefore, improving efficiency will require additional efforts to those that have been made. However, if the stationary trend in the rate of improvement in regional energy efficiency is not reversed, the region will hardly be able to achieve the objective.

II. Policy Implications/Recommendations

The analysis of indicators to monitor the implementation of SDG 7 clearly establishes the urgency to intensify efforts in all dimensions of SDG 7. It is clear that one of the greatest challenges is the foolishness of achieving greater commitments to bolder policies and the willingness to adopt such policies, hand in hand with new technologies. However, it is clear that a major constraint in the region is access to increased

financing.

Given the great heterogeneity of the region, it is necessary to develop ad-hoc solutions for each country based on its socioeconomic characteristics, the degree of development of energy infrastructure, geographical conditions and the technologies available to address the challenges of its energy systems. However, since 2010, the region has accelerated the adoption of policy measures in support of the implementation of SDG 7 and is definitely approaching a level of policy framework as found in Europe.

Latin America and the Caribbean has made significant efforts to promote the use of renewable energy in transport, but has paid little attention to the heating and cooling sector. When it comes to energy efficiency, there is a more consistent pattern in all regions, with policies focused for the electricity sector while heating and cooling, and transport are behind. Countries such as Chile, Mexico, Brazil and Uruguay stand out as leaders in the region with policies that seek to advance in the different dimensions presented by the implementation of SDG 7. In particular, the active role of the State as facilitator of the development of the energy sector should be reinforced based on the country's comparative advantages (endowment of natural resources to provide access to clean and accessible energy).

Finally, from the analyses carried out in the previous section, we can see some general guidelines on where energy policies should focus in most countries.

a. The bulk of the electricity access gap is in poorer settlements and remote, hard-to-reach places, where new connections are generally more expensive. In order to achieve universal access to electricity, it will be necessary to turn over to this end an important and permanent flow of economic resources, whether from public or private funds, multilateral banking or international cooperation. For this purpose, it is of fundamental importance that the respective governments generate appropriate institutional and regulatory frameworks, and that they develop human and organizational capacities that make an efficient allocation of these resources possible. In this sense, the inclusion of non-conventional renewable energy technologies in policies, programmes and projects for access to energy, particularly in rural areas, are playing an important role in the process of expanding electricity coverage and everything indicates that this path should be deepened. An approach that combines the development of rural electrification with the general provision of educational and health services within the framework of an integrated SDG agenda can help give the final impetus in this area.

b. In general terms, in terms of affordability and quality of service of the electricity supply, the region maintains a pending debt. The important weight of the energy bill with respect to the income of the most vulnerable sectors of the population raises the need to implement specific policies for these sectors. These policies should include a wide range of instruments to enable poor households to access electricity under advantageous conditions, such as the implementation of social tariffs, the promotion of energy efficiency both to improve housing conditions and to facilitate the acquisition of efficient electrical equipment, and the adoption of programmes to regulate illegal connections.

c. For an adequate allocation of resources, it is essential to move towards convergence between energy prices and production costs. The application of subsidies as public policy instruments should be done through mechanisms that guarantee their targeting. Not only does the potential impact on poor households depend on such targeting, but also the possibility of reasonably limiting distortions in consumption decisions that originate in subsidies and of redirecting resources to other priority uses.

d. Recent years have witnessed the implementation of policies that have contributed to the formation of more renewable electricity generation matrices, as a consequence of the development of important hydroelectric ventures and the incorporation of non-conventional renewable energies, such as wind and solar. In order to achieve the desired results, it is imperative that these policies can be sustained over time, becoming true State policies. Furthermore, in order to capture the large investments (public and private) needed to increase the share of renewable energies, stable institutional and regulatory frameworks, clear

rules and transparent procedures will be required. Transport is one of the sectors with great opportunities to increase the share of renewable energies. An integrated approach to the problem could have excellent results in favour of sustainable development.

e. Everything indicates that in several countries of the region traditional biomass will continue to occupy a prominent place in the uses of cooking and heating. Within this framework, and in parallel with efforts to continue improving access to modern sources of energy for cooking, the implementation of national programmes to promote the use of efficient and clean wood-burning stoves should be deepened, with emphasis on care for the environment, protection of people's health and attention to the socio-cultural aspects in which families live. On the other hand, experience indicates that the programs that have the greatest probability of success are those that promote the direct and conscious participation of the beneficiaries, rely on the technical skills of the communities and stimulate the innovative capacity of their organizations, and incorporate the gender dimension in the processes of elaboration, design and implementation of a technology.

f. For energy efficiency to develop, countries must have consolidated regulatory and organizational schemes, trained technical teams and well-oiled and robust financing mechanisms that allow them to ensure the continuity of their activities over time. f. In order for energy efficiency to develop, countries must have consolidated regulatory and organizational schemes, trained technical teams and well-oiled and robust financing mechanisms that allow them to ensure the continuity of their activities over time. Only in this context can energy efficiency become a permanent component of energy policies and a substantial part of sector planning.

g. The region has significant experience in the development of energy efficiency programs and projects, and in the implementation of technical standards. But the lack of a comprehensive approach to the issue is often a source of inefficiencies and squandering of resources. To this end, the elaboration of National Energy Efficiency Plans, which define goals and provide instruments to achieve them, helps to break down the barriers that impede their development and to stimulate the development of market mechanisms that facilitate the participation of the private sector, for example, in the field of energy efficiency.

h. Adequate monitoring of the Plans requires a good base of energy statistics and a set of specific indicators that are methodologically consistent. In this sense, it would be propitious to improve and expand the information collection and processing processes and to develop useful energy balances to facilitate the ex-post evaluation of the programs.

i. It is of fundamental importance to deepen the development of energy efficiency standards for energy consuming equipment and elements, with the objective of generating energy labelling systems to inform users in order to promote a rational purchasing decision. Likewise, the implementation of minimum energy efficiency standards should be promoted in order to gradually eliminate from the market the most inefficient equipment and elements in terms of energy consumption.

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For further information, please contact:
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HIGH-LEVEL POLITICAL FORUM
ON SUSTAINABLE DEVELOPMENT

7 AFFORDABLE AND CLEAN ENERGY