



# Development of renewables

Latin American context  
and the Argentine case

Energy and Natural Resources

December 2016

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# Development of renewables in Latin America and Argentina

## Introduction

According to the International Energy Agency (IEA), renewables account for 23% of total electricity generation globally<sup>1</sup>. During 2015, the electricity capacity related to clean sources recorded a historical increase (5%), mainly due to global public policies that boosted the development of this type of energy. With a global population of around 7.3 billion people and a world energy matrix in which fossil fuels have a share of 80%, the need to turn to more sustainable energy generation models becomes evident.

Furthermore, in addition to the globally recognized benefits provided by renewables as to the preservation of the environment and energy security, the prices of renewables are now competitive, though subject to changes in oil prices<sup>2</sup>. Recently, the organization Carbon Tracker Initiative prepared a report including a comparison of the global costs involved in the development of an energy project using different energy sources (renewables, gas, coal or oil) and concluded that clean energy is less expensive than conventional sources. Accordingly, although the drop in coal and oil prices might entail lower investment costs, it is also true that, due to such drop, many countries have eliminated public policies on subsidies for oil projects, which increased initial costs and extended the payback period for oil and gas companies. This situation explains why, according to the IEA, money flows towards oil and gas projects dropped by 25% during 2015, which triggered a decrease in global investments in energy of 8%, even when energy demand at the worldwide level increased by 1.9% during the same period.

Considering that, according to the UNEP Collaborating Centre for Climate & Sustainable Energy Finance Centre<sup>3</sup>, during 2015, for the first time in history, developing countries spent more money than developed countries in renewable energy projects, Latin America appears as one of the most attractive regions to invest in clean energy generation. Furthermore, as this is a diverse region in economic, social, cultural and even geographical terms, the conditions surrounding investments and the availability of natural resources change from one state to another, thus allowing to exploit different types of energy. In this scenario, Argentina emerges as one of the most attractive regions to invest in clean energy generation projects. Accordingly, this report is aimed at providing an analysis of the situation of renewables in Latin America, while offering a detail of the countries in the region that have reached the greatest level of development in connection with this type of projects and highlighting the Argentine case as a growing target of investments in the sector.

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1. "Tracking Clean Energy Progress 2016", International Energy Agency, OECD/IEA, 2016.

2. "Las energías renovables ya ofrecen mayor rentabilidad que las fósiles", Sandri, Piergiorgio, La Vanguardia, Barcelona, 09/19/2016. Last accessed on 10/28/2016.

3. "Los países de América Latina que más y menos invierten en energías renovables", BBC Mundo, 04/01/2016. Last accessed on 10/28/2016.

## Investment in renewables in Latin America

During 2015, China, India and Brazil were among the top investing countries in clean energy generation projects and their share in the total global investment of US\$ 285,900 was US\$ 156,000 (which represented 55% of such total amount). The upward trend may be explained, among other factors, by the fact that developing countries are those with the greatest energy demand and that the installation costs of solar panels and windmills decreased, which enabled that investments in renewables continue to be profitable. Thus, even when capital is not provided by the State but by private companies, the adoption of public policies aimed at attracting and boosting investments in this industry has changed the traditional production map of this type of energy.

Therefore, while in 2005 total investment in clean energy generation projects in Latin America was US\$ 1,000 per year - excluding Brazil - during the 2013-2015 period, an increase amounting to US\$ 9,300 million was recorded. This trend has been reinforced by the fact that the countries in the region are increasingly recognized as economies offering considerable competitive advantages in terms of natural resources and as stable and profitable markets that may provide good financing conditions, as it is evidenced by the total increase in investments during the 2009-2014 period in countries such as Chile, Uruguay, Mexico and Brazil (Figure No. 1).

**Figure n°1**  
**Total accumulated investments in renewables by country - 2009-2014**



In US\$ Billions

**Source:** Prepared by KPMG on the basis of Climatescope 2015, prepared by Bloomberg New Energy Finance.

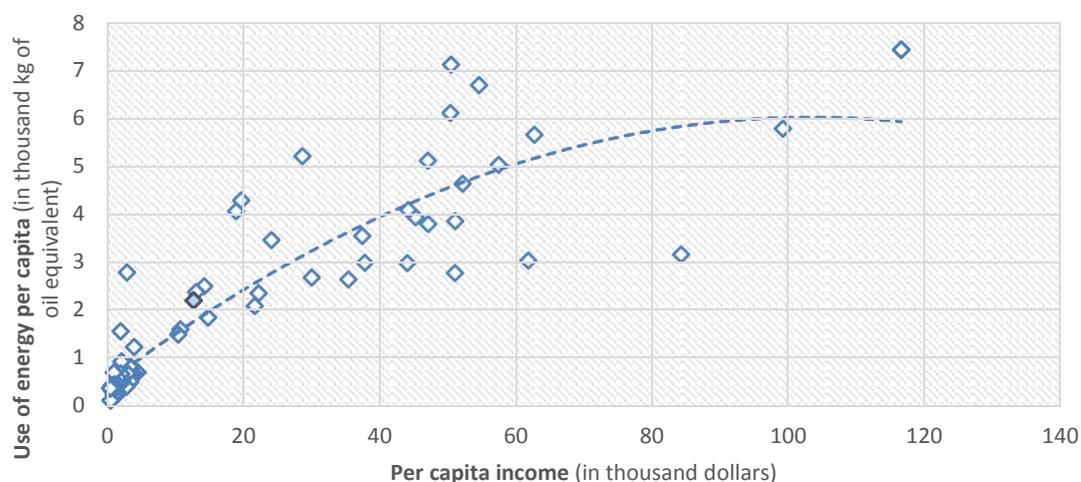
Nowadays, the most promising renewables for Latin America are wind, solar photovoltaic and biomass, as their investment costs may be lower than US\$ 2 million per installed megawatt (MW) and they represent almost 35% of the installed capacity for renewables at the worldwide level. In particular, wind energy is the best option in areas with sufficiently constant wind speed, because the costs involved would be lower than US\$ 1 million per MW. In addition, in Central America, hydropower is also a profitable investment, as it enables to reduce installation costs even to levels below those of wind energy when the country's natural resources and economic conditions are favorable, while allowing to provide energy on demand, with no need to depend on variable sources once the water tank is full.

According to the Inter-American Development Bank (IADB), Latin America is the greenest region in the world in terms of energy generation: 60% of electricity consumption comes from renewables (mainly hydropower), whereas the global average is below 25%. Therefore, based on the UN Sustainable Energy for all (SE4ALL) initiative, by 2030, 30% of the increase in energy installed capacity is expected to derive from renewable sources (around 196 gigabytes), while the demand for electric energy in the region will increase by 91% by 2040, mainly due to ongoing industrialization projects and the emergence of the middle class as consumers of this type of energy.

Accordingly, a possible analysis of the relation between energy demand, production and population (see Figure No. 2) may comprise the behavior of energy demand in the event of changes in income (this variable is taken as a measure of development). In fact, the rise in per capita income is usually associated with a more than proportional increase in electricity and gas consumption. Accordingly, in general terms, logic dictates that the relation between these three factors (energy demand, production and population) must be positive, as energy is essential for economic growth or to supplement investments in physical and human capital in order to increase productivity, apart from being a key element for the rest of the economic activities of a country.

Generally, a lower degree of economic development is associated with a higher consumption of biomass energy, whereas upon an increase in income, energy sources are progressively replaced by transition fuels (e.g. kerosene and coal). Likewise, as the annual per capita income is closer to US\$ 25,000, household consumption in Latin America increases and is limited to electricity and gas. However, the upward trend is reversed when the highest levels of per capita income are reached. At such levels, energy demand elasticity in relation to GDP per capita becomes negative: there is a conscious energy saving, where the use of energy per production unit usually decreases in relative terms, as energy-intensive economic activities, characteristic of developing economies, are progressively replaced by non-manufacturing and non-service industries. Nevertheless, energy demand continues to grow in absolute terms as the economy develops. In addition, as population remains relatively stable in the short term, energy use per capita continues to grow. Based on the foregoing, it can be easily concluded that if Latin America maintains its average annual growth rate - estimated by the IADB at 0.85% for the next 20 years - the economic development of the region will be accompanied by a proportional increase in energy consumption (see "*Crecimiento y uso eficiente de la energía. Diagnóstico y oportunidades para América Latina*" (KPMG, 2015).

**Figure No. 2**  
**Relation between income and energy consumption per capita**



**Note:** The relation between these two variables is not linear. As it can be seen, as income increases (at a constant pace), energy use/consumption growth decreases. For further information, you may consult “Crecimiento y uso eficiente de la energía. Diagnóstico y oportunidades para la Argentina”.

**Source:** Prepared by KPMG on the basis of IMF and World Bank information.

Consequently, the development of renewables greatly contributes to respond to the increasing energy demand from the population of Latin America and the Caribbean, considering that the region is undergoing a period of sustainable growth. In this scenario, Latin American States are granting subsidies and implementing public policies for the promotion of clean energy source projects, thanks to which the region is strengthening its leading position in the development of renewables globally. As it arises from Table No. 1, Brazil, Mexico, Uruguay and Chile (unquestionable leader in the development of solar energy in the subcontinent) are among the countries that invested more than US\$ 1 billion during the last year, whereas Honduras ranks fourth, with an investment of US\$ 567 million, and Peru ranks fifth, accounting for an investment of US\$ 155 million.

**Table No. 1:**  
**Comparative chart of countries of the region**

Country	Investments 2015	Installed capacity	Renewables/Instal- talled capacity ratio	Total clean energy generation	GDP (in US\$ B)
Argentina	US\$ 1.6 B*	31.41 GW	2%	2,626.11 GWh	540.20
Brazil	US\$ 7.1 B*	138.43 GW	18%	87,282.14 GWh	2,346.12
Chile	US\$ 3.4 B*	19.22 GW	13%	8,307.72 GWh	258.06
Costa Rica	US\$ 100 B*	2.85 GW	35%	4,614.76 GWh	49.55
Honduras	US\$ 567 B*	1.85 GW	25%	1,316.23 GWh	19.39
Mexico	US\$ 3.9 B*	64.03 GW	6%	15,945.20 GWh	1,282.72
Peru	US\$ 155 B*	10.83 GW	10%	4,264.77 GWh	202.90
Uruguay	US\$ 1.1 B*	3.72 GW	24%	2,025.32 GWh	57.47

\*Investments during 2014; latest available data for Argentina.

**Source:** Prepared by KPMG on the basis of Climatescope 2015, using information up to 2014 prepared by the Multilateral Investment Fund - Inter-American Development Bank jointly with Bloomberg New Energy Finance, the UK Department for International Development and the US Agency for International Development.

## Brazil, Mexico and Chile: Latin American Leaders

Brazil is one of the largest economies worldwide and the broadest electric energy market in the region, with an installed capacity of 139 GW. Throughout 2015, this country invested US\$7.1 billion in clean energy, a figure 10% lower than that recorded in 2014, as it can be seen in Table No. 1. However, such figure was enough to position the country among the developing economies that contribute most to the sector - together with China and India - and among the top 10 investing states that made the largest investments in renewables globally. In addition, during 2014, Brazil reached grid parity between conventional sources and wind energy projects, and became the second ethanol producer at the worldwide level. All the same, due to the economic crisis experienced by the country during 2015, the importance of clean energy projects at the local level will logically decrease, considering that the demand for projects will remain stable, whereas it is possible that, due to the rise in costs, it might become more difficult to raise funds to finance such projects.

Almost 80% of the Brazilian energy matrix has historically depended on hydroelectric power plants. In this connection, it is worth noting that, according to the UN, the energy generated by this type of sources is considered renewable only up to 50 MW. Such differentiation may be explained by the fact that, although a renewable source is involved, the cost entailed in the installation of a large hydroelectric dam in terms of deforestation, people and population displacement, vegetation rotting (and the related generation of greenhouse gases) as well as the destruction of watersheds, is highly questioned from the environmental and climatic perspectives. Furthermore, as Brazil heavily depends on one resource only, it demonstrates great energy vulnerability in times of prolonged droughts. The most emblematic case occurred in 2014, when the lack of rainfalls for an extended period forced the market to generate electricity at very high costs through thermal power stations using fossil sources, thus passing on the cost to final consumers and to the wholesale market, where the average spot price increased by 146%, compared to 2013. However, despite the unfavorable situation of the electricity sector, in 2015, Brazil ranked eighth regarding wind energy generation, thus increasing the diversification of its energy matrix.

Chile, the trans-Andean country, was among the first countries to set long-term objectives in relation to clean energy generation. The ultimate goal of the program implemented by the Ministry of Energy is that renewables achieve a share of 20% in the Chilean energy matrix by 2025. It is highly probable that such goal be attained before such date, considering the level of development shown during the last years. Chile is in the list of top 10 investing countries in clean energy during 2015 and ranks second (following South Africa) in terms of investments in renewables: as it arises from Table 1, during 2015, it invested US\$ 3.4 billion in the industry, which represents an increase of 151% compared to 2014.

As Chile is the main copper exporter worldwide, one of the main goals in renewables planning is to meet the huge electricity demand generated by this industry. In 2013 only, this sector demanded 32% of the total electric energy produced by the country. For the purpose of boosting investment, the Chilean Government approved a tender system and divided electricity distribution into three time frames: 11 p.m. to 8 a.m., 8 a.m. to 6 p.m. and 6 p.m. to 11 p.m. so that electricity producers compete against each other and bid for the provision of electricity in each time frame. In line with this type of policies, a net metering policy was designed in order to encourage retail consumers using renewables or cogeneration sources of less than 100 kW to connect to the national grid so that they may provide their surplus in exchange for a credit, which is equivalent to the price per KW that the service company charges to consumers. Furthermore a full tax exemption on transmissions was established for renewable energy projects of up to 9 MW and a partial exemption, for projects involving from 9 to 20 MW. It is estimated that US\$ 2.2 billion out of the US\$ 3.4 billion investment is related to solar energy projects.

By the first half of 2015, the country already had an installed capacity of 0.5 GW, a large part of which was derived from photovoltaic power stations developed within the framework of commercial projects aimed at selling energy in the spot market.

In Mexico, the Congress approved the so called “Energy Reform” in 2013 thus liberalizing electricity generation, which until then was under state control through the Federal Electricity

Commission (CFE). The objective of such reform is that clean energy consumption reaches 5% by 2018, while reducing greenhouse gases emissions. The reform is expected to be in force by 2018, when electricity generation will have met the new requirements, including the organization of tender processes for the provision of electricity, the creation of a new market under the control of the National Center for Energy Control (CENACE) and the grant of clean energy certificates (CELs) in order to evidence compliance as to the annual use of this type of energy. In this way, Mexico opened the electricity generation sector to private developers, while transmission and distribution will remain under the control of the CFE. As shown in Table No. 1, as a result of the investments in this sector during 2015, Mexico became the second Latin American country in terms of investments in renewable energy projects, accounting for an investment of US\$ 3.9 billion in this sector.

## **Uruguay, Honduras, Peru and Costa Rica at the forefront**

As it arises from Table No.1, although Uruguay is among the countries in the Southern Cone that records the lowest GDP, in 2015, it became the one with the highest percentage of wind energy in Latin America. This information has been provided by the Uruguayan Ministry of Industry, Energy and Mining (MIEM), according to which 30% of energy supply will come from wind energy. This figure becomes more astonishing if it is considered that, by 2005, Uruguay did not have any wind energy infrastructure and that, by 2015, it already had an installed capacity of 580 MW, with a growth projection that might reach 2,000 MW by 2020.

Thanks to this situation, Uruguay could avoid importing energy for two years (something that had not happened in 20 years) and, in 2014, it could even sell its surplus energy to Brazil and Argentina, thus generating income of over US\$ 35 million.

The process that led Uruguay to become the country accounting for the highest percentage of wind energy dates back to 2008, when the Government implemented several development projects and investors were invited to participate. Nowadays, Uruguay has 19 wind parks of more than 10 MW, with capacity factors ranging between 40% and 50% (whereas, for example in the United States, wind parks have a capacity of 34%) and it is expected that, by 2017, 28 new parks will be constructed, thus reaching an installed capacity of 1500 MW. Furthermore, since at least 20% of wind parks must be built with national components, a portion of the investments in wind energy reverts back to the Uruguayan Government, thus allowing that an amount of US\$ 800 million out of the investment of US\$ 3000 in the sector be applied to promote the national industry. Therefore, the objective is to leverage the growing interest in the generation of energy from clean sources to boost technology development at the local level.

The Uruguayan growth in the area of renewables may be explained, to a large extent, by the development of an energy policy for a 25-year term. The 2005-2030 strategic plan was approved as a state policy by all the parties with parliamentary representation, which generated a context of economic and financial stability that is quite attractive for investors. However, according to MIEM, this plan not only consisted in a subsidy program, but also offered transparent and secure tender processes to investors, ensuring foreseeability and profitability for these projects, which in turn allows to improve financing conditions negotiated with multilateral lending institutions. In addition, certain tax and financial benefits were granted to investments in renewable energy projects, including tax exemptions,

implementation of credit lines and execution of contracts for the sale of energy for a term of 20 years, including a price escalation formula (inflation, exchange rate, etc.)<sup>4</sup>.

Thus, with the grant of such benefits and the development of an economy that is perceived as stable and prosperous by the rest of the world, Uruguay was able to exponentially increase its percentage of electricity generation from renewables and reached a total of 94%, considering wind energy, hydroelectricity, biomass and solar panels. Consequently, according to MIEM, only 6% of electricity came from fossil fuels, which positioned Uruguay as one of the first Latin American countries in undertaking a comprehensive energy diversification as a way of anticipating the long droughts expected as a result of climate change.

Honduras ranks fourth and Peru, fifth regarding investments in the sector during 2015, accounting for investments in the amount of US\$ 567 million and US\$ 155 million, respectively. Although they still fall behind other countries such as Brazil or Mexico and in both cases investments were significantly lower compared to 2014<sup>5</sup>, energy generation from clean sources is a growing trend, especially as a way of satisfying the increasing energy demand resulting from the economic growth experienced by the region.

Honduras is a net energy importer in the international market. Furthermore, the Central American country is part of the Central American Electric Interconnection System (SIEPAC), whereby it is connected with El Salvador, Guatemala and Nicaragua through transmission lines. Even though, by 2014, Honduras had an installed capacity of 1.8 GWh, more than half of electricity generation came from conventional sources, such as oil and diesel, and 23% from large hydroelectric dams, which are not regarded as clean energy. Consequently, only 16% of the country's energy matrix was generated from renewable sources such as biomass, small hydroelectric dams and wind energy facilities.

Due to the high level of indebtedness of the Honduran National Electricity Company (ENEE), which reached 1.8% of the national GDP in 2013 (around US\$ 18 million), the national Government drafted a new law that entered into force in July 2014, with the aim of increasing the engagement of private investors in the electricity market, thus putting an end to the ENEE monopoly.

As a result of this transformation process experienced by the local electricity market, it is estimated that, for example, a great part of solar photovoltaic installations developed during 2015 in Latin America were set up in Honduras due to an advantageous premium system whereby contracts for US\$ 180 per MW for the first 300 MW of photovoltaic energy commissioned until July 2015 and US\$ 150 per MW for energy commissioned after that date were offered. Consequently, until the first half of 2015, 387 MW of photovoltaic capacity had been commissioned and Honduras became the second solar energy market in the region.

Furthermore, in 2008, Peru established a tender system differentiated by technology, thanks to which it started to diversify its energy matrix through the awarding of contracts for biomass, solar and wind energy plants, and small hydroelectric dams. Such strategy enabled the development of this sector in a country with abundant hydro and gas resources, which discouraged investments in clean energy. Every two years, the Ministry of Energy and Mining (MINEM) evaluates the situation of the industry and instructs the Supervisory Body of Investments in Energy and Mines (OSINERGMIN) to organize any necessary tender process, in which the successful bidder will be the investor placing the lowest bid per kWh for a given technology. In addition, different incentive plans were adopted for the purposes of developing the sector, including the installation of a priority energy supply system and an accelerated depreciation of 20%.

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<sup>4</sup> According to information provided by the Argentine Renewable Energy Chamber (CADER).

<sup>5</sup> The investments in Honduras amounting to US\$ 567 million represent a decrease of 27% compared to 2014, whereas the amount of US\$ 155 million in Peru reflects a decrease of 48%

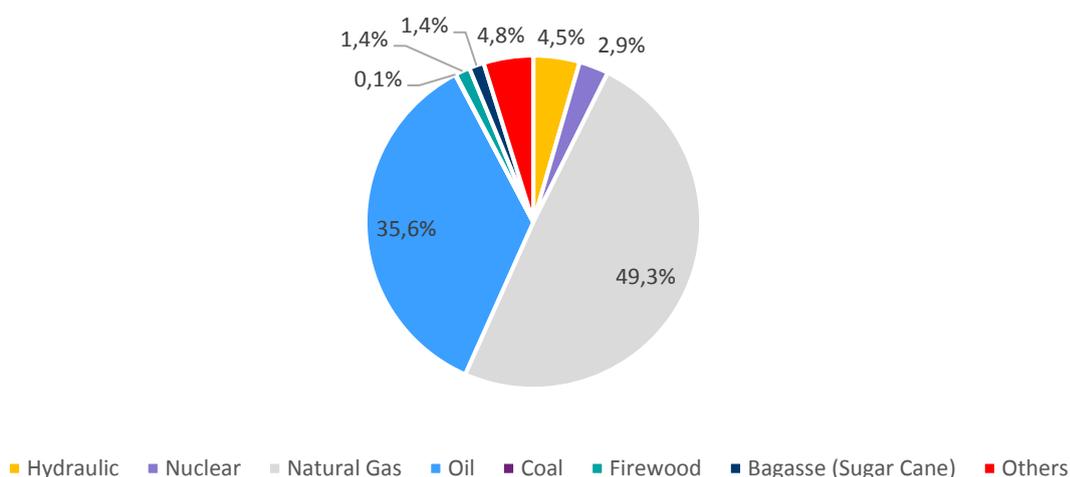
Finally, Costa Rica is among the most developed countries in terms of renewables, since a large part of its economic activities, such as the export of coffee, sugar or plantains and ecotourism, depend on natural resources. Since June of this year, all energy consumed by the Central American country has come from renewable sources and, in 2016, during a period of 150 days only clean energy was used. Such unprecedented achievement at the worldwide level may be explained, to a large extent, by the construction of reservoirs on the Reventazón river and a year of especially favorable climatic conditions, with very rainy months.

Three quarters of the energy consumed by Costa Rica during more than 100 consecutive days in which only clean energy was used was generated by hydroelectric plants across the whole country. In this sense, according to the Costa Rican Electricity Institute (ECE), the Reventazón river is considered the most important hydraulic project in Central America, providing 305.5 MW of renewable energy. The rest of the energy came from geothermal, solar and wind sources. The long term objective is that 100% of energy be permanently generated from renewable sources by 2021 and that carbon emissions be totally eliminated by 2085.

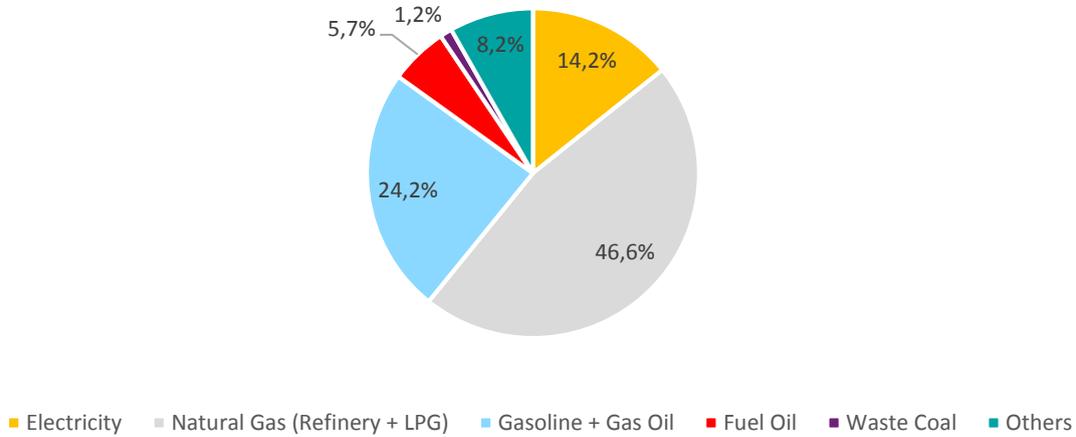
## Greater share of renewables in the Argentine energy matrix

As it can be seen in the comparative chart above (see Table No. 1), Argentina is one of the most important Latin American economies. However, Argentina falls behind other countries of the region in terms of clean energy generation. Renewables only represent a small share (lower than 5%) in the national primary energy matrix (see Figure No. 3), 85% of which depends on hydrocarbons (with natural gas accounting for 50%). As it arises from Figure No. 4, the secondary energy matrix shows the same composition: natural gas and fuels represent around 80% of secondary energy sources, whereas electricity accounts for 14%. In addition, it is estimated that 35% of the gas produced or imported is used for electricity generation.

**Figure n° 3:**  
**Primary Energy Matrix (2014)**



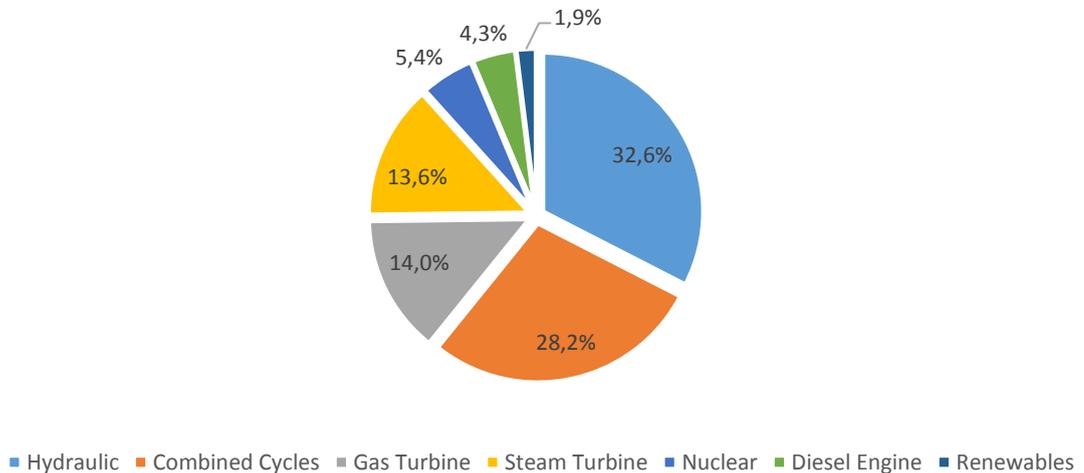
**Figure n° 4:**  
**Secondary Energy Matrix (2014)**



**Source:** Prepared by KPMG on the basis of information provided by the Ministry of Energy and Mining (MINEM).

Moreover, the electricity matrix (see Figure No. 5) refers to energy used in a country to generate electricity, generally through the use of hydrocarbons in thermal power plants. In Argentina, around 60% of the electricity matrix depends on thermal power plants fueled by gas and gas oil.

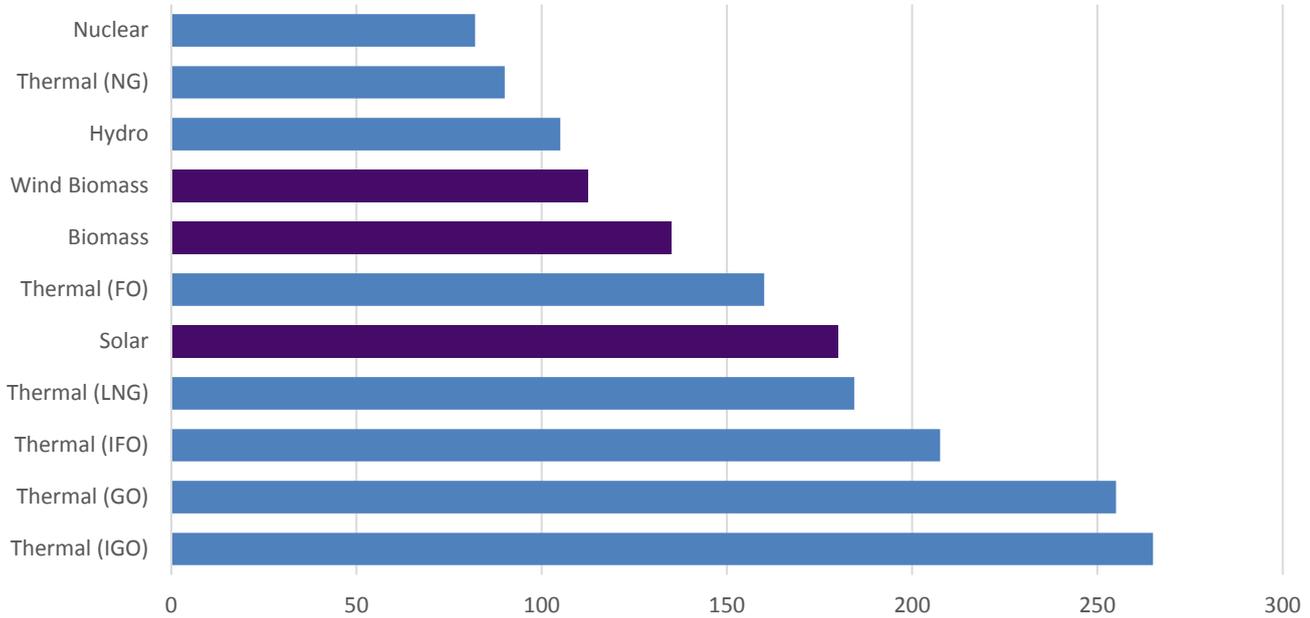
**Figure n° 5:**  
**National Electricity Matrix (2015)**



**Source:** CAMMESA (Wholesale Electricity Market Administration Company)

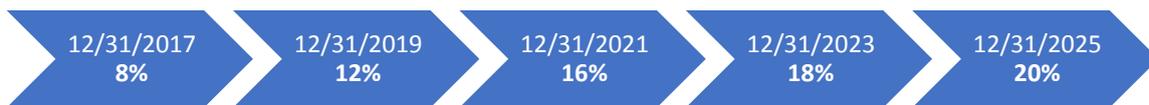
The Argentine energy problem worsened in 2011, when the country no longer exported energy and started to import it. Therefore, in only four years (between 2010 and 2014), the trade balance of this sector went from a surplus amounting to US\$ 2 billion to a deficit in the amount of US\$ 6.5 billion. In 2015, with the drop in oil prices, the difference between exports and imports was around US\$ 4 billion. Although renewable sources only represent 1.9% of the installed capacity, according to the Argentine Renewable Energy Chamber (CADER), even when generation costs in 2015 have decreased, investments in clean sources is highly profitable (see Figure No. 6).

**Figure n° 6**  
**Comparison of generation costs**  
**(US\$/MWh - 2014)**



**Note:** IGO= Imported gas oil, GO=Gas oil, FO=Fuel oil, FOI=Imported fuel oil, GNL= Liquefied natural gas, NG= Natural gas  
**Source:** Prepared by KPMG on the basis of information provided by CADER.

In 2015, Law 27191 was enacted to promote electricity generation from renewable sources, with the aim that clean energy generation reaches 8% by the end of 2017 and 20%, by the end of 2025. Such law establishes that all electricity users must contribute to change the national energy matrix, provided that they are connected to the Argentine Interconnection System (SADI), by setting objectives based on the percentage of minimum consumption of renewables per year:



In addition, large users (i.e. those with one or more points of demand for electricity, with independent meter readers registered under the same taxpayer identification number - CUIT) whose aggregate demand, considering all their points of demand, reaches at least 300 kW on average per year, must comply with the aforementioned objectives on an individual basis.

For the purposes of attracting investments in the sector that may help achieve the objectives set by the newly passed legislation, the Ministry of Energy and Mining called for a public tender within the framework of RenovAr program, in order to incorporate 1000 MW of clean energy into the national energy matrix. For the purposes of ensuring an adequate level of transparency and promotion in terms of financing, guarantees and the predictability of payments related to the awarded projects, collaterals from the World Bank have been obtained and the Renewable Energy Trust Fund (FODER) was created, to which resources amounting to \$12 billion have been allocated. As a result of the 123 bids placed, projects were awarded at values around 40% lower than the maximum amounts set, thus resulting in unprecedented low prices. The average price per MW for the generation of wind energy, which represents 60% of total bids, was US\$ 69.50, whereas the one for solar energy (30% of total bids) was around US\$ 76.25<sup>6</sup>.

Within the framework of such tender process, the awardees will enter into a contract for the supply of renewable electricity with CAMESA, the Wholesale Electricity Market Administration Company, which will act on behalf of distributors and large consumers.

With the aim of providing a detailed explanation about the newly passed legislation to several industry players, in August 2016, KPMG organized a Webcast, which attracted around 100 participants, where tax professionals described the scope of the law, analyzed its impact on investors and offered a clarification of the tender process organized by the Ministry of Energy and Mining. This activity has generated great interest in the industry, especially if it is considered that, according to CADER's latest report, there are clean energy generation projects involving more than 7,000 MW awaiting financing. Therefore, immediately after publishing the projects awarded during the tender process, the Ministry of Energy and Mining organized a new round (RenovAr 1.5) in order to include wind and solar photovoltaic energy projects that were not covered by RenovAr 1. The foregoing was intended to add 600 MW of clean energy to the national energy matrix, in addition to the 1000 MW incorporated during the previous round. The 400 MW initially covered by the tender process related to wind energy projects would be allocated as follows: 100 MW to Comahue power corridor, 100 MW to Patagonia, 100 MW to Buenos Aires and 100 MW to the rest of the country. Furthermore, solar energy projects involving 200 MW were expected. Such 200 MW would be allocated in equal parts to projects in the Argentine Northwestern region (100 MW) and in the remaining nodes (100 MW). The purpose of RenovAr 1.5 was that several projects reach regional scope; therefore, the structure of this program was more federal than that of its previous round. During this round, 47 bids were placed in connection with projects involving a total of 2,486 MW (1,561 MW for wind energy projects and 925 MW for solar projects), out of which 30 projects were selected. Such projects represent an increase of 1,281.5 MW in the national capacity, i.e. over twice the power involved in the projects covered by the tender process initially organized by the Government. Out of the awarded projects, 10 are wind energy projects involving 765.4 MW and 20 are solar energy projects involving 516.2 MW. The average price was US\$ 54/MWh, showing an improvement even with respect to the economic offers presented within the framework of RenovAr 1. Considering all the projects awarded in both rounds, during this year, Argentina acquired a capacity of 2,423.5 MW of renewable energy and is planning to incorporate additional MW by means of new rounds of the RenovAr program to be organized in 2017.

This kind of policies help generate interest in the private sector, which is encouraged to make investments in renewable energy projects through a series of tax benefits provided for by Law 27191, including the following:

- Value added tax (VAT): VAT early refund during the construction stage.
- Accelerated depreciation for assets/works related to the activities covered by the promotion regime: Accelerated depreciation for: goods acquired, manufactured or imported and infrastructure works.
- Offset of tax loss against income: The term for the offset of tax losses is extended up to 10 years.
- Minimum presumed income tax<sup>7</sup>: The assets used in the promoted activities will be excluded from the taxable basis for a period going from the actual commencement of the project to the eighth fiscal year inclusive as from the implementation of the project.
- Tax exemption on the distribution of dividends<sup>8</sup>: The distribution of dividends or earnings shall not be subject to income tax at the rate of 10%, to the extent such dividends or earnings are re-invested in new infrastructure projects in the country.

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6 "Energías Renovables: los precios de la licitación, los más bajos de la historia", El Cronista, 9/30/2016.

7 Upon the enactment of Law 27260, the tax would be eliminated for fiscal years beginning as from 1/1/2019.

8. This exemption has been eliminated upon the enactment of Law 27260 (published in the Official Gazette on 7/22/2016).

- Tax certificate: Equivalent to 20% of the national components amount, excluding civil works. The presence of 60% of national components must be evidenced, but such percentage may be reduced up to 30% if it is evidenced that there is no national production. This certificate may be assigned only once.
- Tax increases: Until December 31, 2025, tax increases may be transferred into prices provided that they are not specific taxes imposed on the activity.
- Exemption on import duties: Granted to energy generating companies (project owners) and manufacturers of capital assets (to the extent no national production is involved) related to renewable energy projects, provided that the goods are addressed to the importer. Applicable up to December 31, 2017.

Furthermore, the newly passed law provides for the grant of short-term lines of credit from Banco de la Nación Argentina at a differential interest rate in order to provide financing for the payment of VAT levied on beneficiaries under the regime during the implementation of the project and until it becomes commercially operative. In addition, interest and exchange gains/losses derived from the financing of the project may be excluded from the company's losses and disclosed as an explanatory note.

## Final considerations

It is obvious that the growth of renewables in Latin American is of the utmost importance, both in terms of the development of sustainable energy and the promotion of investments from the private sector. Brazil, Chile and Mexico, which have historically been leaders in this area, are a clear example of the ecological and economic benefits of trusting clean energy sources, whereas the experience of Uruguay, Costa Rica, Honduras and Peru shows that exploring the way towards matrixes with a greater share of renewables is possible even for smaller economies, if adequate policies are implemented and natural resources generating interest and inspiring trust in the private sector are available.

In light of the growth in this region, it is necessary that Argentina take advantage of the drive generated by the enactment of Law 27191 to revert the current situation and keep pace with the rest of the Latin American countries. In a global context increasingly threatened by climate change, pollution generated by conventional energy sources and technological developments aimed at leveraging natural resources, there is a greater interest in renewable energy projects from both the public and private sectors.

The Argentine framework for investments in this type of projects is highly favorable, considering the resources available and the different climates in Argentina as well as a widespread consensus - in general and political terms - about supporting and promoting investment projects aimed at reducing the Argentine energy deficit, while contributing to mitigate the adverse effects of climate change. In this connection, the bill to boost distributed energy generation, proposed by the national Deputy Juan Carlos Villalonga, is worth noting. Such bill, named "Promotion of distributed renewable energy generation connected to the public grid", was intended to supplement RenovAr program, encouraging small taxpayers to feed clean energy into the national public grid through renewable sources with an installed capacity that does not exceed 300 kW. In order to promote the acquisition of renewable energy equipment and help taxpayers recover their investment within a reasonable time, the bill provides for an "incentive rate" per kWh provided by the user to the distribution grid. Such rate shall be

established by the enforcement authority (the Ministry of Energy and Mining of the Argentine Republic) and shall be effective for a term of 5 years as from the installation of the equipment. In addition, the bill provides for promotion regimes for the creation and setting up of companies engaged in the manufacturing and assembly of equipment for distributed energy generation from renewable sources, which includes tax stability for the company for a term of at least 10 years.

Consequently, the implementation of public policies and the development of large private projects aimed at promoting sustainable development, environmental protection and electricity generation to satisfy the increasing demand resulting from the economic growth of the region, nowadays, offer an attractive economic scenario for private capital investors, as evidenced by the progressive flow of investments across Latin America. In the particular case of Argentina, in addition to a strong promotion from the public sector and a favorable business environment that attracts an increasing number of investments, the unique weather and geographical conditions in the Argentine territory enable to plan highly profitable solar energy projects in the Northwestern region (NOA) and in the province of Santa Fe, wind energy projects in the Patagonia region and in the south of the Province of Buenos Aires, biomass projects in the Northeastern region and the Pampa region as well as hydropower projects in provinces such as Córdoba, Entre Ríos, Mendoza and Tucumán.

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