

## Briefs

# Is Argentina ready to promote renewable energies?

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## 1. Introduction

For the last 40 years, the oil and natural gas share of the Argentine energy matrix has been very significant.<sup>1</sup>

Today, in spite of the increasing demand for oil and natural gas in Argentina – only temporarily eased by the slowdown resulting from the world financial crisis, domestic production of hydrocarbons is decreasing.

Since that decrease has a direct impact on the energy system, it is inevitable to think that the current composition of the Argentine energy matrix, the E&P activities crisis, the global financial crisis and growing environmental issues may pave the road for the development of renewable energies. In this context, Argentina may become a leading producer of alternative energies.

Solar and steam energy could be successfully developed in Argentina. The country is well known for its abundant sunlight and many volcanic sites along the Andes, where hot water and steam could be used to generate electricity.

The following section briefly explains both the Argentine energy legal framework and the new renewable energies regime.

## 2. A quick look into the current Argentine electricity legal system

From 40 years prior to 1991, Federal and local public authorities in Argentina were in charge of the generation, transmission and distribution of electricity. For most of that period, the local power generation and transmission capacity met adequately the increasing electricity demand.

The Argentine energy system collapsed in 1989. Although the factors that led to this situation exceed the scope of this paper, we can say that one of the main reasons for the electric system's failure was the lack of investments and an inefficient provision of the service.

This scenario led the Argentine Administration to push for substantive regulatory reforms for the sector to attract investments. A new electricity legal framework was established through Law 24,065.

Law 24,065 provided for (a) vertical and horizontal unbundling of generation, transmission and distribution and (b) opening up of all segments to the private sector. These changes led to massive private investments.

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<sup>1</sup> The composition of Argentine energy matrix is: 40% hydroelectric, 4% nuclear and 55% thermal, 1% others (source: Secretariat of Energy).

Today, electricity generation occurs in a competitive and liberalized market in which most generation capacity is owned by private companies. In contrast, the electricity transmission and distribution sectors are highly regulated and much less competitive than generation (although distribution and transmission companies are also privately owned).

The system created through Law 24,065 tends to minimize the variable total cost of electricity generation (based on the cost of the fuel utilized *vis-à-vis* the output of the generation equipment).

'Term' and 'spot' electricity markets were also established by Law 24,065. In the spot market, the electricity price is determined on an hourly basis by the lowest cost equipment available for service.<sup>2</sup> Term market contract prices, on the other hand, are freely agreed between buyers and sellers.

The aforementioned information is relevant to know the consequences of building a renewable electricity plant or buying electricity, as a large user, from a renewable electricity plant.

We will now analyze the Argentine regime for renewable energies.

### 3. The new renewable energies regime

As mentioned in the beginning of this paper, for the last 40 years, oil and natural gas have been the main component of the Argentine energy matrix.

In spite of the growing international demand for renewable energy, Argentina did not adopt a proper renewable energies legal framework until 2009.

In September 1998 the Argentine Congress passed Law 25,019 promoting a special regime for wind and solar electricity plants by making available certain tax benefits and incentives.

Those benefits were suspended by the Federal Secretariat of Energy, however, until Law 26,190 (the New Renewable Energies Legal Regime of 2006 that replaced Law 25,019) was regulated. Finally, this last regulation was enacted in May 2009 through Decree 562/2009.

#### Law No. 26,190

Law 26,190 sets a 'national program to promote the use of renewable sources for the generation of electricity'. It aims at achieving, in 10 years, a contribution of renewable energy of eight per cent of the local electricity consumption and promotes new investments in alternative energy projects.

As non-fossil renewable energy sources, this new legislation includes (a) wind power, (b) solar energy, (c) geothermal energy, (d) hydropower, (e) sea power, (f) biomass, (g) landfill gases, (h) biogas and (i) purification plant gases (except the uses covered under the Bio-fuels Law 26,093).

This new legal framework allows the enforcement authority to grant tax benefits to investors and owners of new energy facilities, whose production will benefit the public services sector or contribute to the wholesale electric market.

<sup>2</sup> The hourly price determined in the spot market (usually known as 'spot price') is equivalent to the additional cost of supplying an extra mW/h of electricity demand.

Pursuant to Decree 562/2009, the Federal Council for Electric Energy (*Consejo Federal de Energía Eléctrica* or CFEE)<sup>3</sup> will be responsible for the evaluation of renewable energy projects. Once evaluated, the CFEE will submit the proposed projects to the Federal Secretariat of Energy for final approval.

Law 26,190 established a tax benefit regime applicable to renewable electricity production investments, provided that they lead to (a) job creation, (b) minimization of environmental damage, (c) incorporation of locally produced capital goods to the project and (d) the new electricity is allocated to the wholesale market.

The tax benefits<sup>4</sup> are as follows:

1. Investors may choose between (a) an accelerated compensation and amortization of investments in capital goods or (b) an advanced reimbursement or compensation of the VAT payments made in connection with the import, purchase or investment in such capital goods.
2. Goods used in the generation activity are exempted for three fiscal years from the minimum presumptive income tax.

In addition to the above, projects registered under the federal promotion regime will receive an incentive payment of 0.24 USD/kWh or 0.004 USD/kWh, depending on the type of energy that is generated and supplied under renewable techniques.

The incentive payments for each renewable project will be determined by the Federal Secretariat of Energy and the CFEE based on the contribution of the project to (a) fuel substitution, (b) national industry participation, (c) job creation and (d) quick start of the projects.

The incentive amounts will be paid for supplied energy and will be in place for 15 years since the electricity plant is authorized to produce energy.

Generators will receive the additional payment established by Law 26,190 if (a) its renewable electricity production goes to the MEM or (b) its renewable electricity production is sold to a utility company for public consumption.

The Ministry of Economy will determine the maximum amount from the Budget to be allocated to payments for renewable energy projects.

#### **4. Beyond the legal framework**

A number of decisions have been made to promote new investments under the Renewable Energies Program in Argentina.

<sup>3</sup> CFEE is the Federal Council of Electric Energy. It serves as advisor to the Executive and to provincial governments in matters concerning the electric sector, setting the priorities of the execution of studies and works, concessions and authorizations and pricing and tariffs.

<sup>4</sup> Given that Decree 562/09 was enacted recently, the specific regulation of these benefits by the tax authority is still pending.

## The Genren Program

In May 2009, the Federal Secretariat of Energy launched the 'Genren Program'. The aim of this program is to incorporate 1,000 mW to the MEM by purchasing power from renewable energy plants.

These 1,000 mW shall be composed as follows:<sup>5</sup>

- Bio-fuels energy: 150 mW.
- Urban garbage energy: 120 mW.
- Biomass energy: 100 mW.
- Small hydroelectric energy plants: 60 mW.
- Geothermal energy: 30 mW.
- Solar energy: 20 mW.
- Biogas energy: 20 mW.
- Wind energy: 500 mW.

Each renewable energy project may contribute to the program up to 50 mW (when applicable).

The purchase of electricity will be put out to tender by *Energía Argentina SA* (ENARSA, a state-owned energy company) and shall be implemented through a 15-year supply contract.

To qualify for this program, the energy offered to ENARSA must be produced by electricity plants linked to the Argentine Interconnected System (*Sistema Argentino de Interconexión* or SADI),<sup>6</sup> so that energy production goes to the MEM or to electricity distributors.

In order to stress The Genren Program, the Secretariat of Energy enacted Decision 712/2009 which authorized Energy Supply Contracts between the MEM and those 'renewable energy offers' presented by ENARSA, under the Genren Program.

## The rural program

Although most of the Argentine territory – about 95 per cent – is electrified and interconnected through the SADI, there are many 'rural areas'. By definition, rural areas are remote, far away from populated towns.

The Federal Secretariat of Energy launched a Renewable Energy Project for the Rural Markets (*Proyecto de Energías Renovables para Mercados Rurales* or PERMER) expecting to provide clean energy to hundreds of families living in the interior.

The PERMER is an investment and technical assistance project aimed at assuring the sustainable electricity supply to rural areas, by using renewable sources.

The World Bank has agreed to provide 70 per cent of the PERMER funding and the rest will come from the Federal Government's funds.

<sup>5</sup> <<http://www.enarsa.com.ar>>.

<sup>6</sup> The Interconnected National System.

The PERMER project started in 2003 and focuses on

- Supplying electricity to rural areas from renewable sources.
- Gathering information on renewable energies.
- Producing studies and reports about renewable energies.
- Promoting clean energy operations for rural areas.
- Allowing private sector to participate in the Program.

So far, PERMER has allowed 8,000 homes and 1,900 schools to access solar and wind electricity.

### **Hydro- and wind electricity: A possible combination**

In general terms, the MEM, a distributor or a large user, may purchase electricity without looking into the source.

Under this mechanism, purchasers may pay an extra amount for ‘firm power’, which assures them to be supplied with electricity when peak demand occurs.

Firm power may be offered by owners of electricity plants fueled by natural gas or fuel oil. In case of peak demand, they use more natural gas or fuel oil.

In the case of wind farms, however, wind does not blow constantly and cannot be put in storage for forthcoming peak demands. Therefore, a wind farm cannot offer ‘firm power’ either to the spot market or to clients in the term market.

Consequently, a wind farm will normally receive a lower electricity price than, for instance, electricity plants whose production is based on natural gas or fuel oil.

The problem can be solved by combining hydropower and wind electricity.

This ‘mixed system’ would allow the hydro-wind consortium to offer ‘firm power’ to the wholesale market or to clients, despite adverse wind conditions.

The mechanism is quite simple: if the weather is windy, the consortium would save the water of the hydroelectricity plant. On the contrary, on calm days, ordinary electricity demand and/or peak demand would be covered by the hydroelectric plant, by using the water kept in the reservoirs.

Naturally, the hydroelectric plant and the wind farm could be placed in different locations within the country, provided they are both connected to the SADI.

## **5. Final words**

Wind power in Argentina has increased significantly in the last decade. The total operating wind power capacity, however, barely reaches 30 mW, distributed in 14 plants. This is only about 0.05 per cent of the theoretical potential of wind energy in Argentina.

It also represents 0.15 per cent of the total installed capacity in Argentina.<sup>7</sup>

The situation with solar energy is quite similar: it constitutes less than 0.12 per cent of the country’s entire energy production.

<sup>7</sup> See also <<http://www.argentinarenovables.org/archivos/Farming%20in%20Argentina%20Its%20Winds%20Turn.pdf>>.

The above indicators show that when it comes to renewable energies in Argentina, there is a long way to go.

Although regulation enacted under Law 26,190 represents a clear progress in the aim of developing clean and sustainable energies, a boost could be accomplished by increasing the incentive payments under Federal and local legislation (such as Chubut and Buenos Aires).

Nearly 70 per cent of Argentina's territory is swept by winds whose annual average speed, measured at 50 m above ground level, exceeds 6 m/s.

Average wind speed in most locations in Northern Patagonia ranges from 7.2 to 7.8 m/s. In Southern Patagonia (especially in the provinces of Santa Cruz and Chubut), wind speed ranges from 9 to 11.2 m/s.<sup>8</sup>

Given the strength of Patagonian winds, we believe that wind energy generation will be a strong player in the future of the Argentine renewable energies industry.

The importance of the Genren Program has to be stressed. The 500 mW earmarked for wind farms to be put out to tender leads us to believe that the Federal Government is strongly committed to reducing the contribution of oil and natural gas to the Argentine energy matrix.

In the western province of San Juan, the local government has recently authorized the development of a massive solar energy park scheduled to be operational by the end of 2010. The estimated investment is US\$120 million and it will produce between 1,500 and 2,400 mW. Its construction will begin in September of this year.

The natural resources legal framework, the programs and the ideas are there. It is now time for action.

<sup>8</sup> <<http://energia.mecon.gov.ar/permer/recurso-.pdf>>.