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Selling Power to the Utility Grid in Nicaragua

Alejandro Arguello

Vice President of Business Development
Polaris Geothermal, Inc.,
a Subsidiary of Ram Power, Corp.

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ABSTRACT

This paper will discuss the process of developing a long term power purchase agreement (PPA) with Union Fenosa, a Nicaraguan utility company. Since Union Fenosa is licensed as the sole electrical distributor in Nicaragua through the year 2030, it is important to understand both the framework behind energy system sales in Nicaragua and the legal framework under which Union Fenosa operates. In 2009 the Nicaraguan government signed a memorandum of understanding (MOU) with Union Fenosa which had the effect of improving both the financial and technical conditions for the energy sector. This paper will discuss (i) the background of Union Fenosa and the new legal framework they are now operating to create sustainability in the distribution and energy sector of the country; (ii) the market conditions in Nicaragua and the regulatory process that is involved in the sale of energy through the spot market and through PPAs, and (iii) an analysis from the developer's point of view of the requirements that must be met to negotiate and implement a PPA with Union Fenosa. In particular we will highlight the experience of Ram Power, Corp. and its subsidiary PENSA, which has been selling power in Nicaragua since July, 2005 from the 10MW San Jacinto-Tizate concession located near the city of Leon, Nicaragua.

Background of the Utility

In September of 2000, the government of Nicaragua awarded Union Fenosa, a Spanish owned utility, a 30 year contract to distribute all electricity in Nicaragua. As a result Union Fenosa obtained the rights to Disnorte-Dissur, the two Nicaraguan companies responsible for the electrical distribution. In 2009, Union Fenosa was acquired by Gas Natural, also Spanish owned, whose primary business is exploration, commercialization, gasification and distribution of gas, as well as generation and distribution of energy. With this acquisition Gas Natural, according to its audited financial statements has Euros 45,352 Million in assets.

Legal Framework

The electrical sector in Nicaragua is regulated by the Nicaraguan Institute of Energy (INE) under the Ministry of Energy and Mines (MEM). INE regulates the tariff that Disnorte-Dissur can charge to the consumers, along with the tariff negotiated between the generators (such as PENSA) and the distributors. In 2007 and 2008, as a result of both the increase in oil prices and the dependency on fossil fuel as the main source of energy, the thermal generators increased their energy price to reflect the real cost of oil. This in turn impacted the approved tariff that Union Fenosa charged to the consumers, but INE did not increase the tariff in a timely manner due to the resistance from the political sector.

As a result of this delay, Union Fenosa entered negotiations with the Nicaraguan government which culminated in the signing of a memorandum of understanding (MOU) in 2008.

The main objectives of the MOU were as follows:

- To resolve the financial and technical problems which were affecting Union Fenosa.
- To create stability and sustainability in the energy sector by strengthening the legal framework to control consumer fraud and reduce energy losses.
- To establish a mechanism that would allow Union Fenosa to adjust the final consumer tariff as a function of the changing price of oil in order to secure energy supply
- A commitment from Union Fenosa to invest in new transmission lines and equipment to reduce technical losses

The Congress of Nicaragua approved the MOU as law in February of 2009, resulting in both a stronger balance sheet for Union Fenosa and a need for long term power purchase agreements (PPAs) to support the energy supply for the country.

Energy Market in Nicaragua

In the early 1980s, blackouts were common throughout Nicaragua. In the early 1990s a short term solution was reached through the increased importation of fossil fuels. This was a good strategy at the time, as the cost of oil was relatively low, around $10 a barrel. Since geothermal projects could not compete with this price, there were no substantial investments in geothermal energy production during the 1990s.

In 2005, Polaris Energy Nicaragua S.A. ("PENSA" or "Polaris"), a wholly owned subsidiary of Ram Power Corp, began generating 10 megawatts (MW) of power, utilizing a geothermal resource at San Jacinto-Tizate. The project was one of the few investments in renewable energy in Nicaragua during the previous 15 years.

By 2009 there were a total of 13 generators selling power to Disnorte-Dissur either through PPA's or in the spot market. Total generation for 2009 was 3,157,052 MWh, of which 72% of this energy came from thermal plants and the rest from renewable sources of energy (Figure 1). Approximately 9.2 % of total generation came from geothermal sources.

Total installed capacity increased to 957 MW and available capacity to 583 MW. Total peak demand reached 525 MW in 2009 but average demand remained near 490 MW.

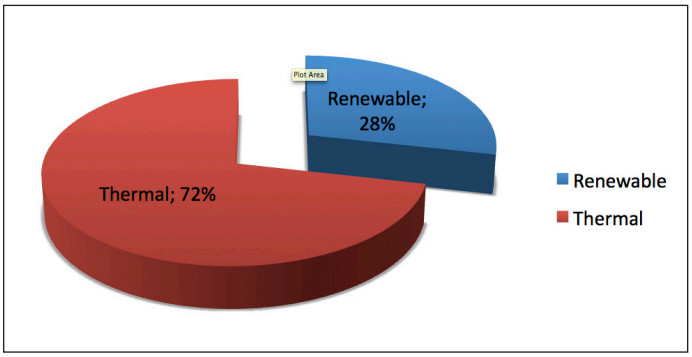

Figure 1. Energy Sources in Nicaragua in 2009.

The Spot Market

The Spot market price was regulated until 31 of December 2009. During this regulated period all thermal prices were capped under the following criteria:

- The variable cost of the generator + 10%, when the international price of Fuel Oil No. 6 (Bunker C) published in PLATT`S US MARKETSCAN reflects oil prices equal to or less than US$50.00/bbl
- The variable cost of the generator + 7%, when the international price of Fuel Oil No. 6 (Bunker C) published in PLATT`S US MARKETSCAN is greater than US$50.00/bbl and less than US$ 75.00/bbl
- The variable cost of the generator + 5%, when the international price of Fuel Oil No. 6 (Bunker C) published in PLATT`S US MARKETSCAN reflects is greater than US$75.00/bbl

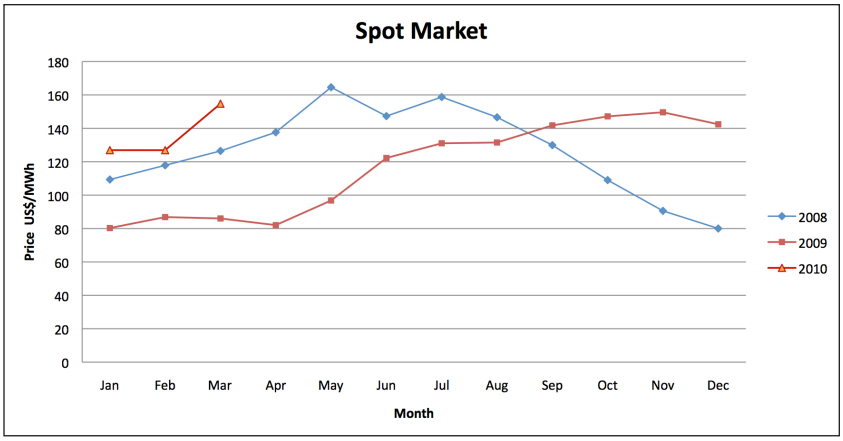

Figure 2. Spot Market Prices, US$/MWh. Source: CNDC

Average prices in 2009 in the spot market can be seen in Figure 2.

Most of the energy sold in the spot market is purchased by, Disnorte-Dissur, subsidiaries of Gas Natural. The amount of energy sold in the spot market has decreased during the current year because most of the Disnorte-Dissur purchase is being supplied through PPA's. The spot market prices have increased considerably during the first quarter of 2010, now that the price is unregulated, and therefore the amount of energy being bought in this market has decreased in comparison with the same period of 2009. The average Spot market price for March 2009 was US$ 86/MWh (regulated) as compared to March 2010 US$ 155/MWh (unregulated).

Risk Assessment

Polaris decided to invest in Nicaragua because the San Jacinto-Tizate concession has an excellent quality resource, strong government support and tax incentives. The macroeconomic stability has been managed very responsibly by current and past governments that have helped the business climate of the country.

Polaris Energy Sales

Polaris began selling energy and power to the utility in July of 2005. The first two back pressure units (10 MW total nominal capacity) were commissioned on that date and with one of the lowest wholesale prices in the Nicaraguan energy market, Polaris had no difficulty receiving full payment for the energy and power delivered.

The San Jacinto-Tizate power plant is continuously on line, providing baseload energy to the electrical grid. The National Dispatch Center (CNDC) dispatches the plant on economic merit but since its variable cost is one of the lowest in the country, and its technology uses national natural resources from the geothermal wells, CNDC and INE consider it a "must run" plant.

Our Sales from 2005 through Q1 2010 can be seen in Figure 3. With the addition of two 36 MW flash technology turbine generators by year end 2011, the plant will be generating 72 MW. This will represent close to 19% of total generation in Nicaragua. The

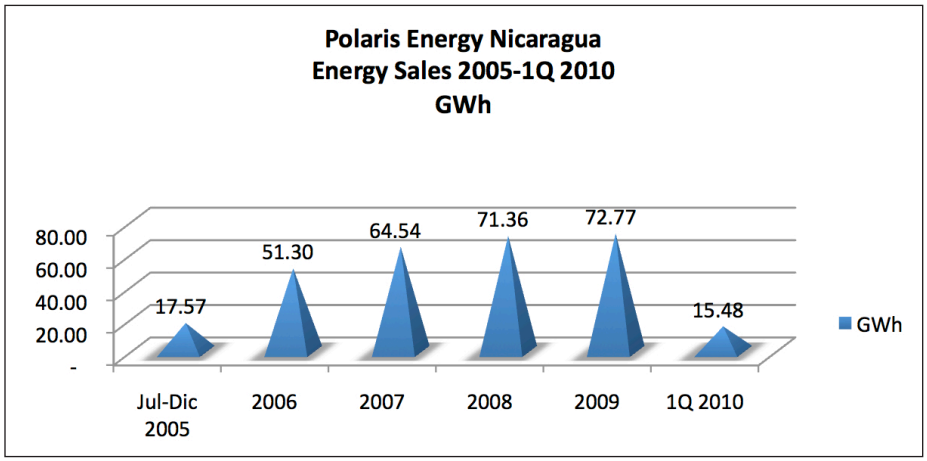

Figure 3. Energy Sales from PENSA.

project expansion will both reduce Nicaragua's oil imports and have a positive impact on tariff.

Geothermal Developers Road to a PPA

According to the Nicaraguan Law of Electrical Industry, in order to sell power under a PPA you must have both a generation license and a geothermal concession approved by the Ministry of Energy and Mines. According to law 443, Geothermal Law, the period of the generation license is 30 years the period for the geothermal concession is 25 years with an option to extend an additional 10 years.

Additionally, an environmental permit approved by the Ministry of Environment, is also a required condition for approval of the generation license. Once these permits and contracts are approved, negotiations can begin with the purchasing utility; the Union Fenosa companies. Finally, once an agreement is reached between the generator and either Disnorte-Dissur, then the PPA has to be approved by INE and MEM, and if it is approved, then is registered by the INE.

Polaris PPA Highlights

PENSA negotiated a tariff increase with Disnorte-Dissur in 2008. As of the result of the escalation of capital expenditure of the project, with the support of the Nicaraguan government and Union Fenosa's preference for the lower price geothermal power, the original price negotiated in 1999 was increased from US$ 0.059 KWh to US$ 0.092 KWh in 2008. As part of our PPA agreement we will continue to sell 7MW at the original price until January 3, 2014. The rest of the energy and capacity will be sold at the new tariff.

PENSA's tariff has an annual escalation factor built into the price. The Capacity component (83%) of the price escalates at 1.3% per year and the energy component (17%) of the price escalates according to the US Producers Price Index (PPI).

The PPA contract considers the plant as "baseload". The disposition of being "baseload" or being "on line" all the time is embedded in our PPA contract with Disnorte-Dissur, and it is also recognized by the INE and the CNDC.

Another relevant aspect of our PPA is that a clause has been included stating that for any cost increase to PENSA equal to or more than US$250,000 in one year which is the result of a change in laws that affect geothermal exploitation, it will be recognized in our existing tariff. This article was incorporated both to maintain level playing fields and to incentivize more investments in the sector.

Conclusion

Nicaragua has a regulatory structure and a tariff base which is conducive to developing and supplying power from privately owned geothermal power plant projects. The legal and contractual structure mirrors many of the similar elements of such development in the United States.