

American Energy Mineral / Colombia Power Plant Project March - 2014



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ntroduction and location

AMERICAN ENERGY MINERAL PLC (AEM) is a company that was incorporated on March 2012 in Ireland.

The company through its subsidiaries have rights to 14 coal concessions in Colombia including 1 coal concession in progress. The coal mining concessions are located between the provinces of Santander (9 + 1 concessions) and Córdoba (4 concessions) with an estimated reserve of 365 million tons of thermal and metallurgical coal in an area totaling 44,156 ha

The concessions in the province of Córdoba has an estimated reserves of 143 million tons and is located under the high-voltage power line that supplies electricity to Colombia, Ecuador and Panamá in short time. AEM proposes a project to build a thermal power plant from 165 Mw using the coal mines within their Córdoba concessions.



American Energy Mineral is developing a project with the following characteristics:

Good location to implant a power plant in Colombia (Coal mine, Transport line and water)

Low price production of electricity without transport cost of coal

Main electricity companies in Colombia are showing interest for participating in the project

143 Millions tons

Reserves of coal

From 165 Mw of capacity

Minimun power estimate in the power plant

500 KV in transport line

Located under the concession of AEM









Our objective is to promote the project of the new thermal coal plant in the concessions where AEM is owner

Principal value of project:

New Special Purpose Company

With:

- Energy generations company which shareholding by Colombia government
- EPC Company
- AEM

High production capacity

With:

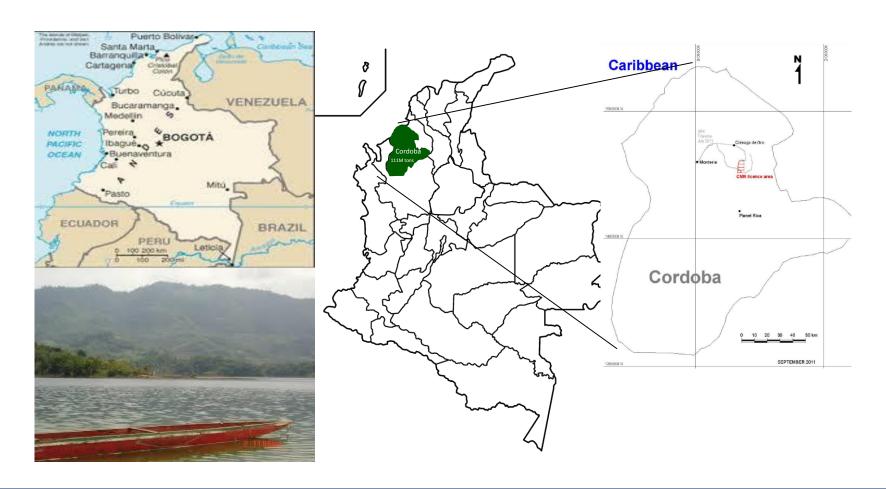
- Initial capacity of 165 Mw
- Potential to reach a capacity of 660 Mw

Reserves of coal

With:

- More than 100 millions of tons of thermal coal to supply the thermal plant
- Without transport cost
- Lineal price of row material during the project lifetime

Power plant will be located in the Córdoba department in Colombia.





The main description of the project is

Construction from 165 Mw to 600 Mw coal power plant

Power plan description

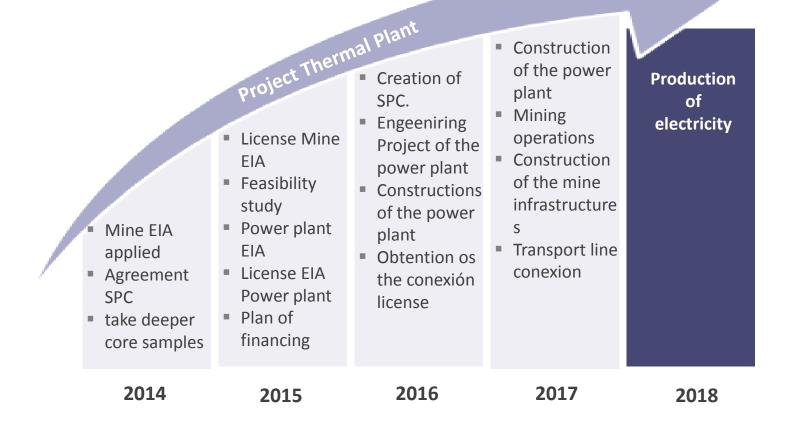
- Power plant from coal with capacity from 165Mw.
- 4 mining concessions to provide coal to the power plant without transportations cost.
- Reserves of 143 million tons (37 measured + indicated + 106 inferred) with the capacity of producing up to 1 million tons / year.

Description of benefits

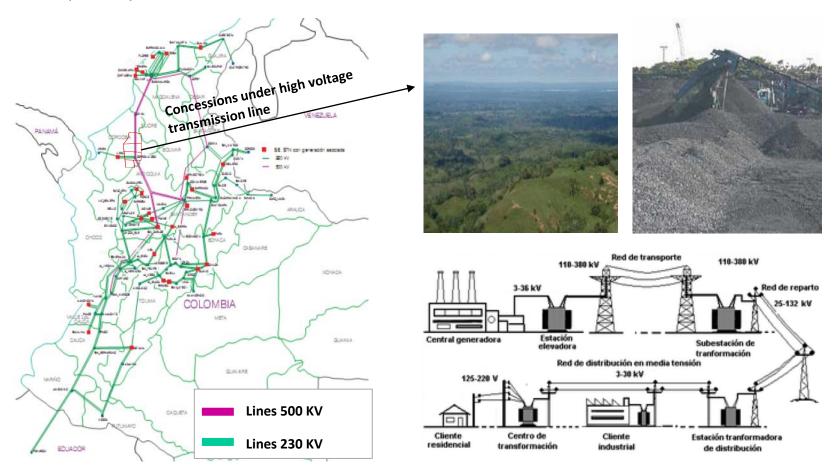
- Electricity produced at low cost and maintained over the years.
- Access to high voltage transmission under the Cordoba concessions.
- Very close to the SINU river with capacity to provide water and San Jorge river.

Entry into production estimated of the thermoelectric plant during 2018.

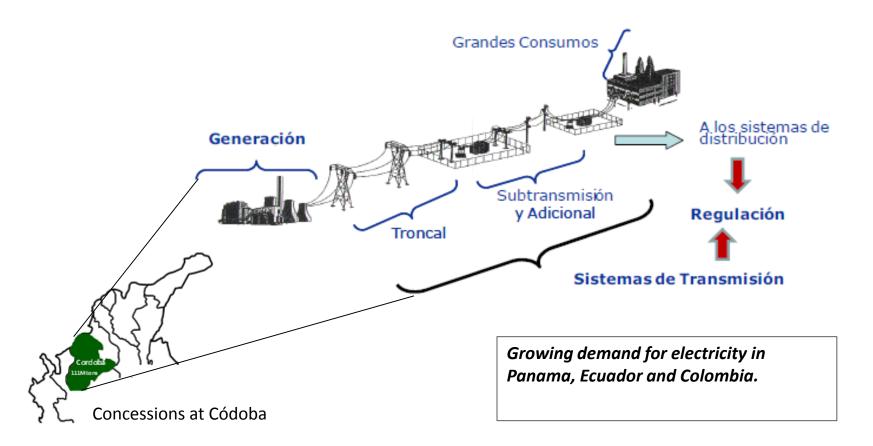
Main steps are as follows:



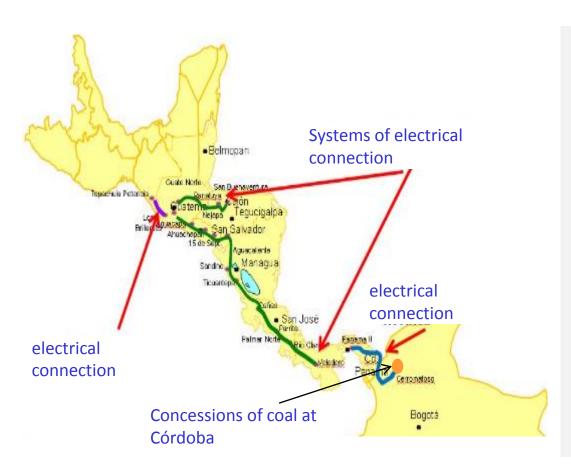
Because of its unique characteristics, the quality of coal, location and availability of necessary infrastructure, our coal concessions at Córdoba allow a project to build a coal fired power plant from 165 Mw



Potential for the generation and supply of electricity from concessions at Córdoba



Electricity transmission network in Colombia and neighboring countries



Coal power plant



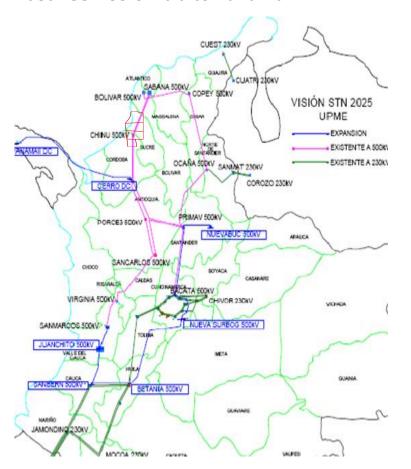
Substation



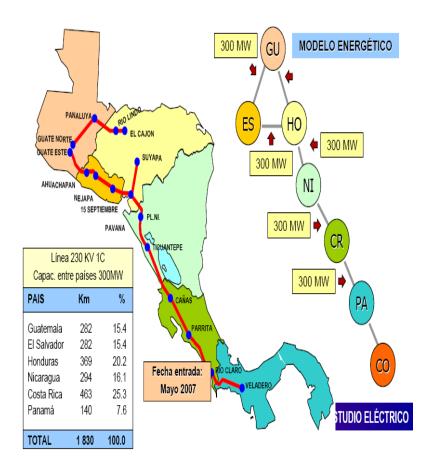
Transmission lines



Map of power lines that supply electricity between Colombia to Panama.



Future Electric Interconnection System for Central American Countries

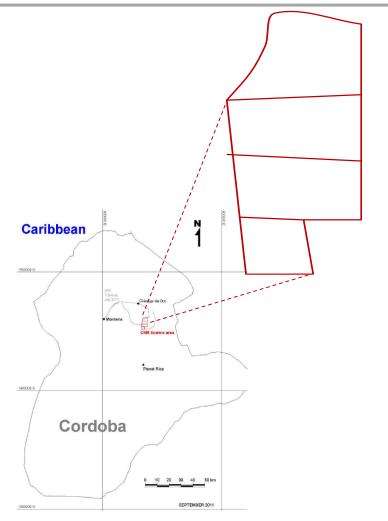






Overview Córdoba areas Ciénaga de Oro

Characteristics	Description
Measured and indicated resources	37 million tons
Inferred resources	106 million tons
Type of mine	underground
Max. annual production	1,000,000 tons
Type of coal	thermal
Average BTU value of coal	10,200-11,200
Average sulfur content	< 2%
Estimated date of opening	2016-2017



Coal characteristics

Coal samples coal As received (outcrops sample) without washing of the Ciénaga de Oro

SIZE	Moisture	Ash	Volatile Matter	Fixed Carbon	Sulphur	PC (BTU/Kg)	PC (Kcal/Kg)
1	13,37%	5,39%	43,74%	37,50%	2,65%	10.743	5.968
2	12,33%	4,28%	37,60%	45,79%	2,24%	10.640	5.911
3	14,90%	7,81%	42,76%	34,53%	2,47%	9.787	5.437
4	12,66%	8,83%	42,93%	35,58%	3,76%	10.388	5.771
5	16,49%	4,30%	41,54%	37,67%	2,60%	10.211	5.673
6	10,49%	5,21%	44,05%	40,25%	3,52%	10.990	6.106
AVERAGE	13,37%	5,97%	42,10%	38,55%	2,87%	10.459,83	5.811,00

AEM have instructed a survey company to take deeper core samples at a depth of over 10m at various sites of the Cordoba concessions. These core samples will be made during the 3rd week of April and will be subsequently analysed by SGS in Columbia. It is expected that the laboratory results will be available during May 2014

Concessions at Córdoba - Ciénaga de Oro





The Cienaga de Oro area consists of rolling hills with the typical landforms in the area of study characterized by low topography with small elevations that do not exceed 50 meters.

Their crests are rounded with rolling hillsides.

The mountainous terrain is typical of the Midwestern polygon of the concessions, whereas the central eastern part of the area is hilly.

Access

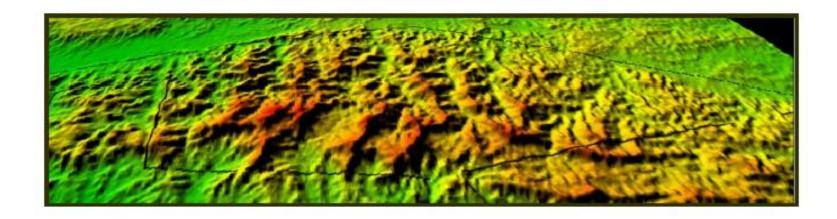


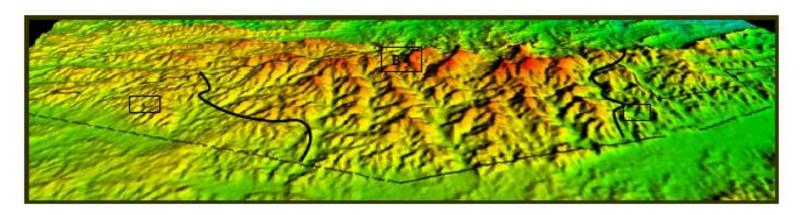
The concessions have paved routes that permit heavy tonnage vehicles access.

Route 74 is the general road along the concessions.



Topographic representation of concessions





Underground mechanized methods with dips less than 20%

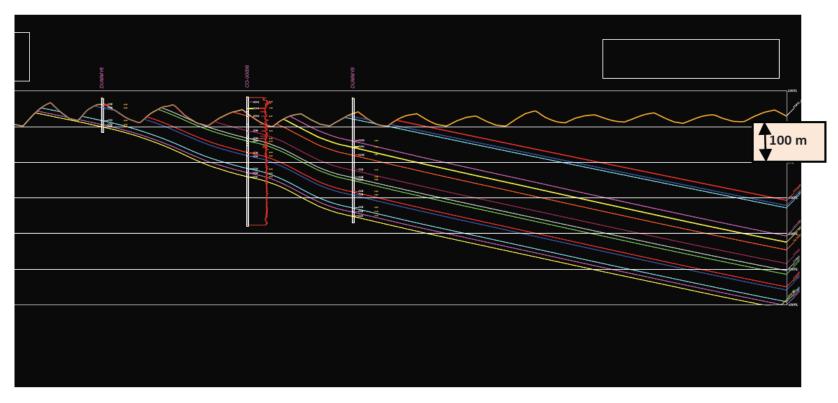


Ilustración 15: Bloque central del área

inancial overview



Financial estimation with power plan capability of 400Mw

- Project with strong growth prospect and total return profile
- Project generating margin from the second year
- Annual IIR of 60,7%

High values

Operating availability	Model Plant capability	Annual IRR estimated
Until 81%	400 Mw	60,7%

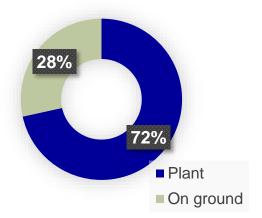
Capex

Construction cost	Total plan cost per Kw	Plan cost per Kw	On ground expenses per Kw
575 Millions USD	1,439 USD	1,104 USD	335 USD

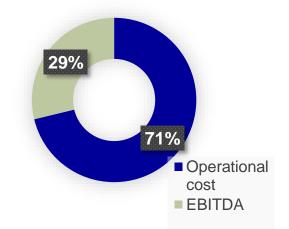
- Financial estimates have been made on a thermoelectric plant with capability of 400 Mw (the final capability will be defined with the feasibility plan)
- Duration of the project will be of indefinite duration

Power plant cost construction

Distribution P&L



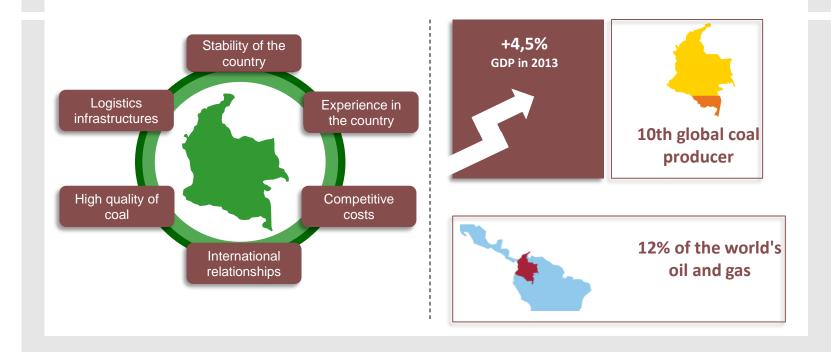
Total power plan cost contrution is estimated in 567 Millions USD



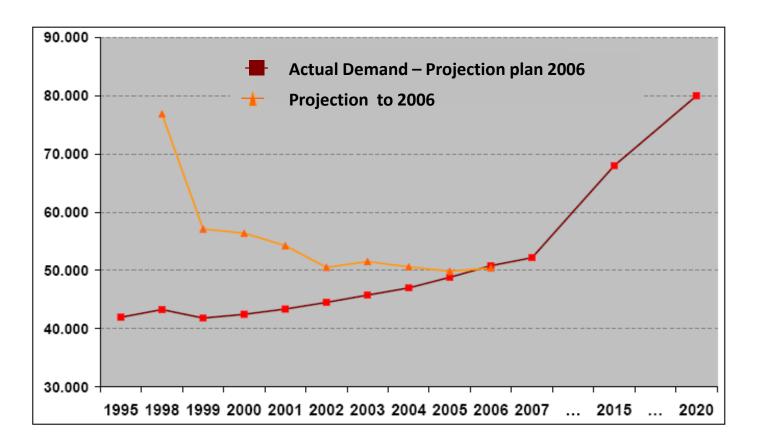
The annual average revenue is estimated at 155 millions USD

Macroeconomic data

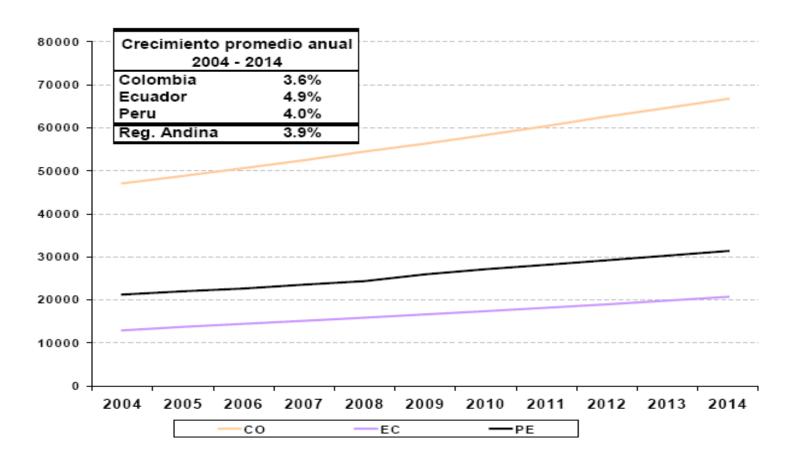
Colombia is a country in full economic expansion, with high growth rates, high internal stability and a strong export potential of energy resources, coal, oil and gas.



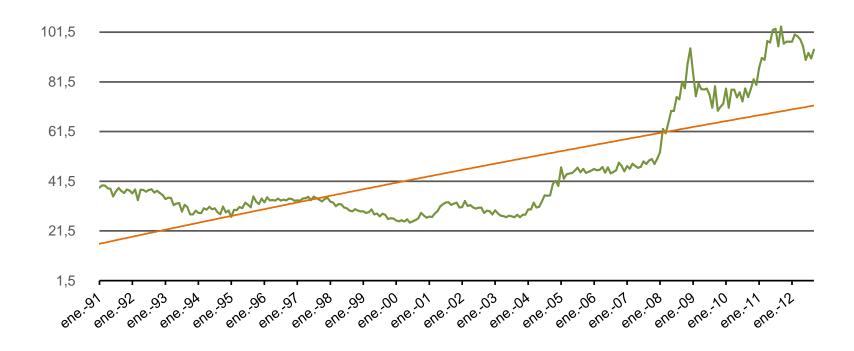
Electricity demand in Colombia is estimated through 2020. This demand is correlated with growth in Colombia and neighboring countries.



Colombia's economic growth has been steady over the past and maintains a forecast for growth of 5% annually.

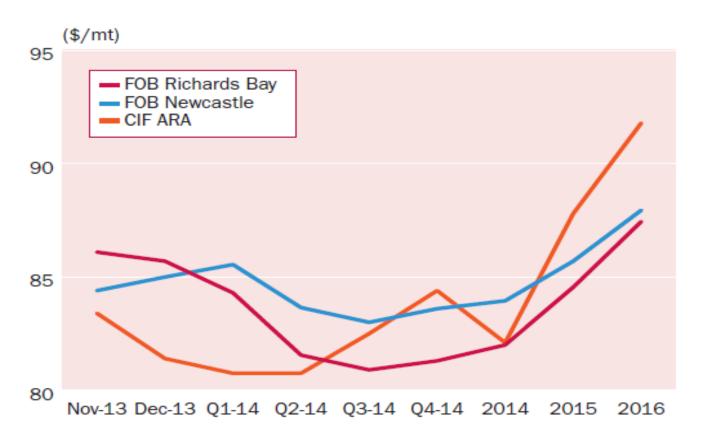


Evolution price of coal since 1991



Graph created using Platts Forward Curve – Coal data.

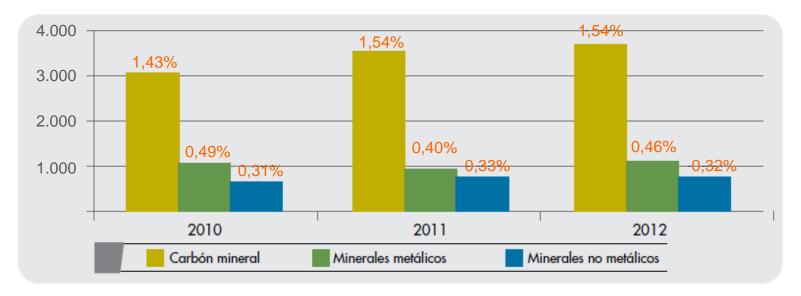
The forward curve in coal will provide nine assessments comprising two prompt months, four prompt quarters and three calendar years.



Colombian mining between 2010-2012 provided an average annual share of 2.27% of the total value of GDP at constant 2005 prices.

Coal had an increase of 19.44% over the period, due to increased production which increased from 74.35 to 89,020,000 tons, representing on average 66% of mining GDP. Another factor that has favored the increase of the latter has been the behavior of international cost of minerals

Mining of minerals and GDP share of total in% (USD million data /% of GDP)



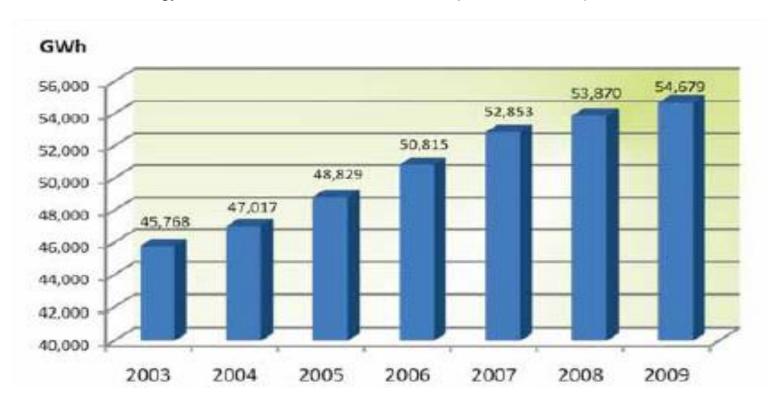
Source: National Bureau of Statistics, DANE

The value of mining and hydrocarbons exports in 2012 increased by 7.98% as compared to 2011, while for the mining sector growth was 0.34%, from US\$ 12,454 to US\$ 12,497 million FOB.

In the case of coal, there was a decrease of exports by 7.05%, as the decline in prices of different types of export coal and coke, from a value of US\$ 8,397 million FOB 2011 to US\$ 7,805 million in 2012 dollars FOB. Growth of exports has been increasing steadily in recent years.



Evolution of energy demand in Colombia 2003-2009 (Values in GWh)



Estimated demand from neighboring countries to Colombia

Año	Panamá GWh	Costa Rica GWh	Nicaragua GWh	Honduras GWh	El Salvador GWh	Guatemala GWh	Ecuador GWh
2009	6,838	10,043	3,350	7,354	5,840	8,898	17,085
2010	7,274	10,556	3,523	7,814	6,091	9,193	18,396
2011	7,625	11,096	3,683	8,253	6,359	9,752	19,367
2012	7,954	11,636	3,844	8,692	6,626	10,312	20,380
2013	8,369	12,218	4,016	9,160	6,911	10,878	21,398
2014	8,739	12,834	4,202	9,640	7,208	11,451	22,435
2015	9,150	13,485	4,397	10,130	7,518	12,013	23,495
2016	9,526	14,176	4,597	10,632	7,842	12,580	24,585
2017	9,909	14,909	4,810	11,144	8,178	13,169	25,711
2018	10,316	15,682	5,040	11,674	8,530	13,779	26,877
2019	10,716	16,500	5,275	12,217	8,897	14,415	28,084
2020	11,118	17,364	5,526	12,820	9,279	15,075	29,333
2021	11,492	18,277	5,788	13,456	9,678	15,808	
2022	11,882	19,243	6,053	14,107	10,094	16,571	
2023	12,366	20,265	6,330	14,645	10,528	17,370	

Fuente: SIEPAC



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