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# COALBED METHANE POTENTIAL OF MEXICO

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# Introduction



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- ✿ The modern history of coal mining in Mexico dates back to the second half of the XIX century.
- ✿ In 1850 it was first mined for the use in the vapor railroad locomotives.
- ✿ In 1960 the CFE (Federal Commission of Electricity) gave birth to a project for the use of coal to generate electricity.
- ✿ A small power plant of 37.5 MW was put in operation in 1964 in order to test of project, and from the late 70's to early 90's two new coal-powered electrical plants were constructed, José López Portillo and Carbón II that supply 1,200 MW and 1,400 MW respectively to the national net.
- ✿ It is evident from their bituminous coal characteristics that the most promising sources of CBM in Mexico are at the Coahuila Cretaceous basins.



# Coal World Production 2007



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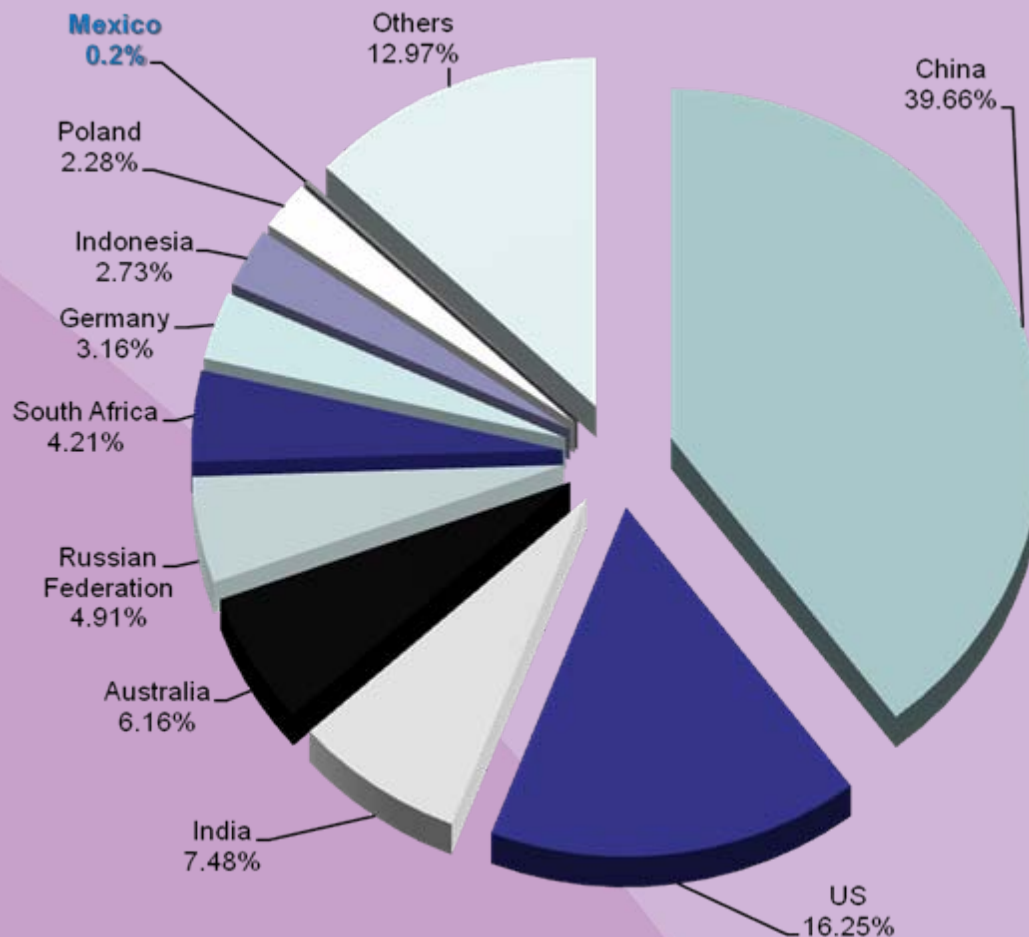
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## Millions Metric Tons

1	China	2,536.7	39.7%
2	USA	1,039.2	16.3%
3	India	478.2	7.5%
4	Australia	393.9	6.2%
5	Russia	314.2	4.9%
6	South Africa	269.4	4.2%
7	Germany	201.9	3.2%
8	Indonesia	174.8	2.7%
9	Poland	145.8	2.3%
25	<b>Mexico</b>	<b>12.2</b>	<b>0.2%</b>
	Others	829.3	13.0%
<b>TOTAL WORLD</b>		<b>6,395.6</b>	<b>100.0%</b>



Source: BP Statistical Review of World Energy.



# Regions



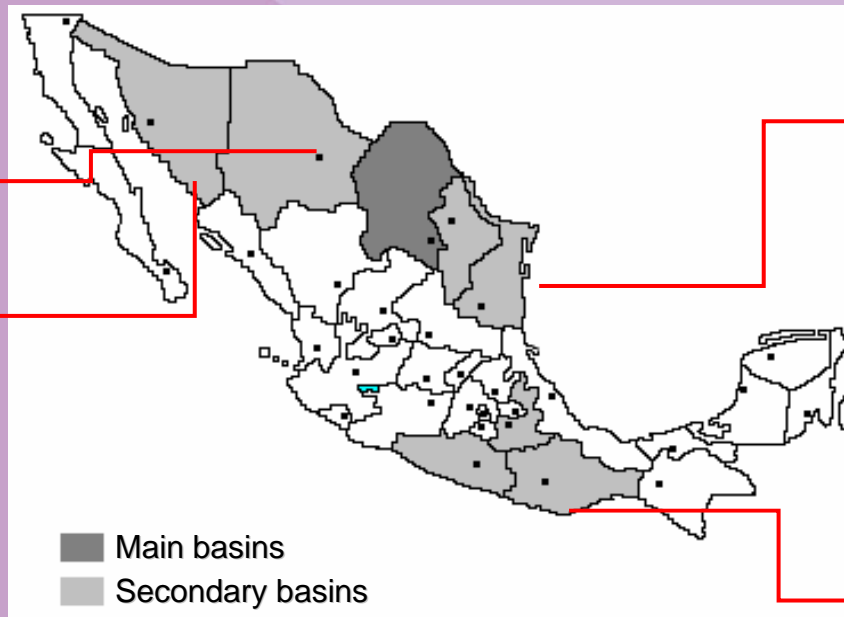
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The biggest volume of production and the principal reserves of coking coal correspond to the deposits of the Sabinas Basin, while the region of Fuentes – Río Escondido contributes most of the not coking coal and is provided with the biggest volume of reserves of the same one.



The Ojinaga Basin not is exploitation

The Barranca and Cabullona Basins not is exploitation

The Colombia-San Ignacio Basins without significant production

The Mixteca Basin not is exploitation

## Reserves

With reference in the Economic Census 2004 of the INEGI, the whole of mining reserves in the country is 643.9 million tons.

# Coal-bearing potential of the Burgos Basin



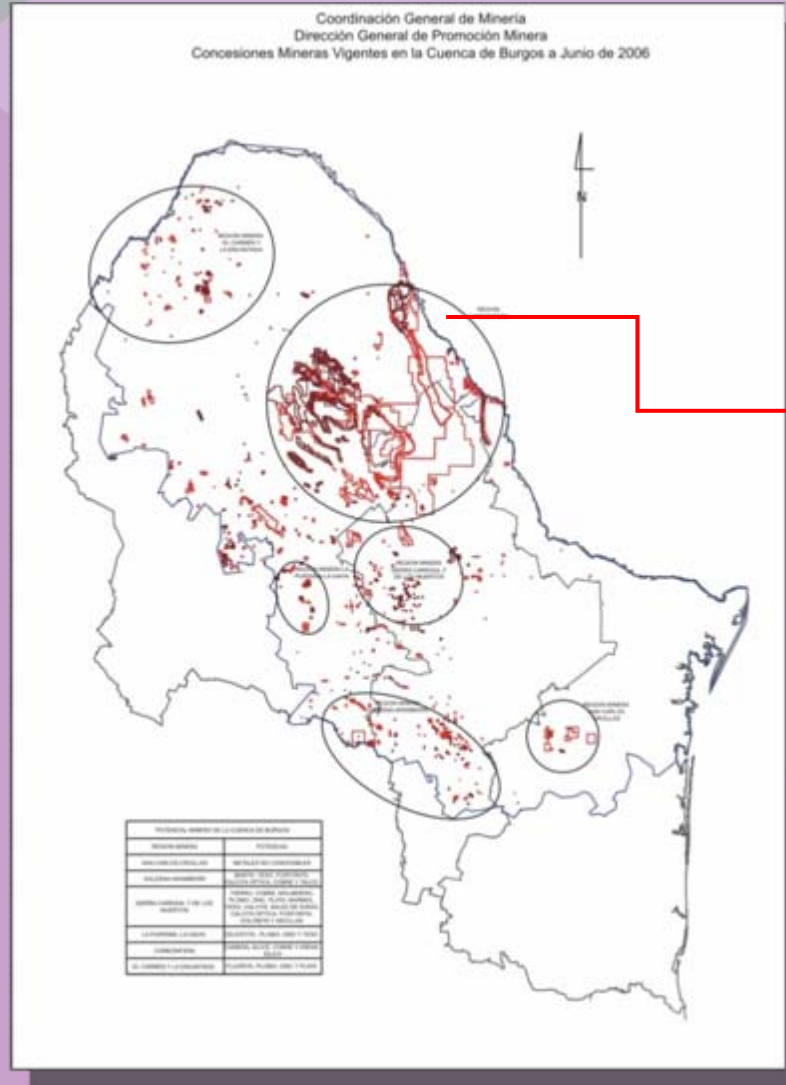
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✿ The contents in situ of gas in coals of the Sabinas basin in the range of 10 a 14 m<sup>3</sup>/t (343 to 480 scf/t), and of 12 a 18 m<sup>3</sup>/t (411 to 618 scf/t) in the coals of Saltillo basin



72.2 % of the production of this region is realized for Grupo Acerero del Norte (MICARE y MIMOSA)



# National Production of Coal \*



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MINE	CONCESSIONAIRE	MUNICIPALITY	TONS
<b>Fuentes – Río Escondido</b>			
<i>Minas (V, IV, VI)</i>	MICARE	Nava	3,100,000
<i>Tajo III</i>	MICARE	Nava	2,800,000
<b>Total MICARE</b>			<b>5,900,000</b>
<i>Tajo Rosita</i>	GAN	San Juan de Sabinas	2,217,344
<i>Mina VI</i>	GAN	Múzquiz	911,111
<i>Mina V</i>	GAN	San Juan de Sabinas	740,482
<i>Mina III</i>	GAN	San Juan de Sabinas	650,063
<i>Mina VII</i>	GAN	Progreso	162,618
<b>Total Mines and Open Pits of GAN</b>			<b>4,681,618</b>
<i>Small producers of coal</i>	UNPC	Sabinas, Múzquiz, Progreso y San Juan de Sabinas	3,000,000
<i>Tajo</i>	Siderurgica de Coahuila	Sabinas	287,931
<i>Mina III</i>	CEMEX	Progreso	250,667
<i>Mina Santa Bárbara</i>	Minería y Energía de Noreste	Progreso	61,735
<i>Tajo La Conquista</i>		Progreso	29,463
<b>Total Mines and Open Pits</b>			<b>3,629,796</b>

\*Estimated to 2008

At present there are working 58 small shafts coalmen, 42 mines of dragging and 33 pits..

The Mines of high productiveness are: Mina III, Mina V, Mina VI y Mina VII, Minas IV, V y VI of MICARE .





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# Production and Consumption (Thousands Tons)

## Production



## Consumption



Information of production to July, 2005 and of imports to November of the same year.  
Source: Geological Survey of Mexico.



# Commercialization (Thousands Tons)



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Information of production to July, 2005 and of imports to November of the same year.  
Source: Geological Survey of Mexico.



# Generation of Electricity for Source(CFE)



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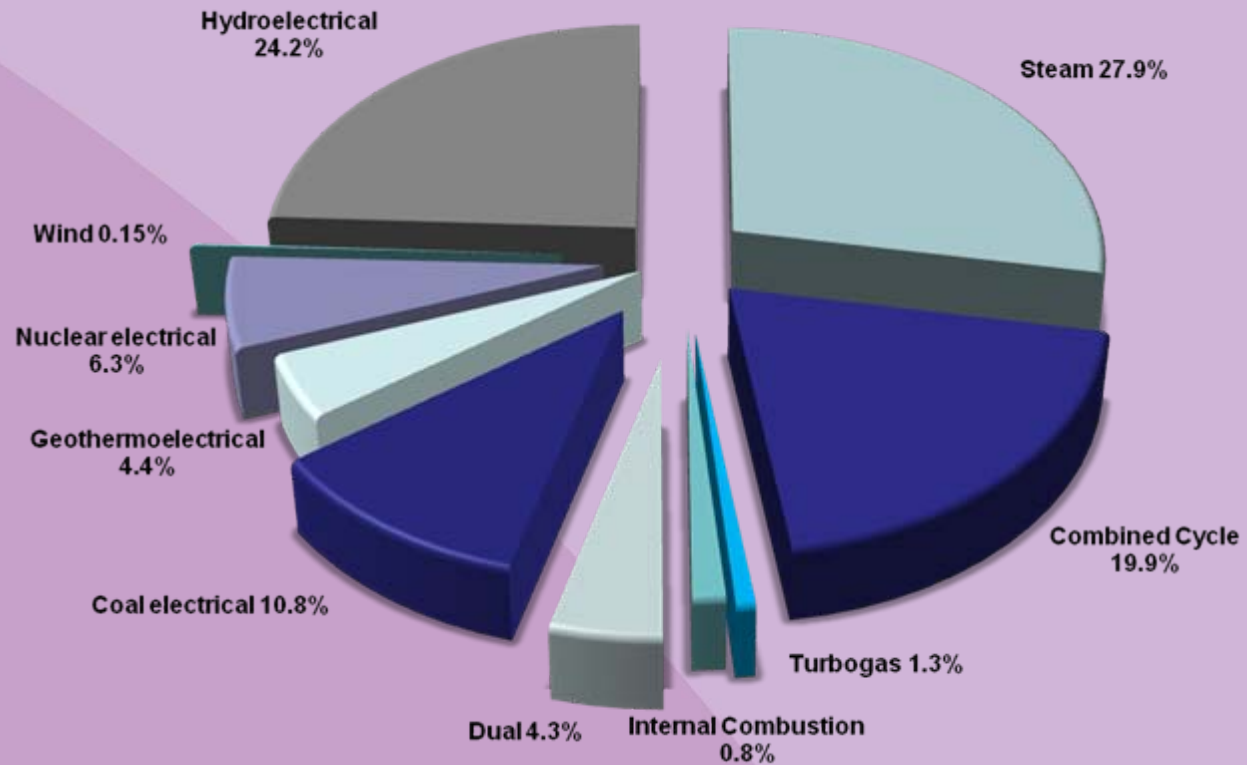
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Source	Mega Watts-Hour
Steam	41'458,591
Combined cycle	29'528,057
Internal Combustion	1'129,843
Turbogas	1'907,891
Dual	6'342,162
Coal electrical	16'091,089
Geothermoelectrical	6'508,851
Nuclear Electrical	9'356,906
Wind	216,436
Hydroelectrical	35'978,054
<b>Total</b>	<b>148'517,880</b>



Information to November 2008.

Source: Energetic Information System CFE/LFC.



# Panorama



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- ✿ The 11% of the energy in Mexico, is generated using coal.

There are significant potential reserves in different coal Basins, but high levels of investment required, limit production.

- ✿ The country will have to import larger volumes to supply domestic demand, if level of production not rise .
- ✿ The Sector Energy Program includes promoting mining of coal, recovery and utilization of gas associated with coal under standards of safety and environmental protection.
- ✿ The regulation expedition that regulate the utilization of gas from coal, it can encourage the interest of investors in order to generate CBM projects.



# Conclusions



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- ❁ The federal government through the Geological Survey of Mexico, carry on exploration activities in different regions of the country, for its characterization and evaluation, in order to promote the use of coal gas associated with it.
- ❁ The generation of projects will allow economic growth, industrial and energy security, joined with declining emissions of greenhouse gas effects.