

Country Report of Guatemala

General information of Guatemala:

• Macroeconomic Index

Total Area:	108,889 Km ²
Capital:	Guatemala
Population:	14.3 million
Climate:	Tropical (55-77°F)
Currency:	Quetzal
Exchange Rate:	1 US\$ = Q 8.00*
Official Language:	Spanish
2009 GDP (2001 based) =	Q.194,036.6 Million Quetzales
2009 Increment	0.6 %

(*) As of June 2010



Guatemala is located in the heart of the American continent. It borders with the Republic of Mexico at North and West; at East, with Belize, Honduras, El Salvador and the Caribbean Ocean; and at South, with the Pacific Ocean.

Guatemala has an area of 108,889 km².



WEATHER:

Due to its varied relief, with relatively short heights from sea level to altitudes above 4,000 meters, the climate variations of Guatemala present a wide variety of modalities, successions and transitions.

There are two seasons, the dry season from November to April and the rainy season from May to October. The temperature varies according to the elevation and geographic location of the region, from 25 to 38° C for altitudes between 800 and 2,000 meters, and 5 to 20° C in the highlands.



DEMOGRAPHY:

In the year 2010 Guatemalan population was of 14.3 million people. The city of Guatemala has an average population of 4.5 million.

The population growth is of 2.5%; and the rural population represents a 53.9%.

LANGUAGE:

The official language is Spanish, although there are 22 native languages that are part of the cultural patrimony (more of 50% of the population).

The most important ones are: Quiché, Cakchiquel, Quekchí and Mam.

GOVERNMENT:

Guatemala is a Constitutional Democratic Republic with an Executive power exercised by the President of the Republic, who is elected by popular vote; a Legislature power that rests in the Congress of the Republic and a Judiciary power under the responsibility of the Supreme Court of Justice.



ENERGY POLICY OF GUATEMALA

- The Energy Policy implemented by the Ministry of Energy and Mines, has a high component of social, economic and human development; and has convert the country in a producer and exporter of energy to the neighboring countries, investment attraction, generation of employment and the energy generation matrix change in the country, to reduce in a medium and long term the impact of the prices variation of the crude oil in the international market, which affects in the costs of the energy generation.
- The geographical composition of our country, as well as the cultural elements and the limited resources, has not allowed thousands of Guatemalans who live in rural areas to have electric power. This has hindered the development of their inhabitants and their standard of living.



STRATEGIC OBJECTIVE:

Ensure that our population has access to affordable, reliable and adequate energy supplies in terms and conditions that support the economic growth and the prosperity of all Guatemalans.

SPECIFIC OBJECTIVES:

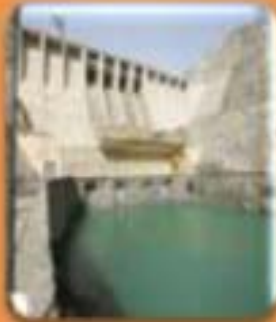
- Avoid the crisis improving the future of electric conditions in the country, respecting the social, economic, transparency and environment policies generated by the Government.
- Cover the demand growth of current and future energy, so that the electric sector is reliable and be provided with the technical reserves that it must have, avoiding possible and future rationing of electric energy.
- Strengthen the transmission system of electric energy, for it to be more reliable, and to have the capacity to transmit the new energy generation that is required to cover the increasing demand of the country.
- Modify the energetic matrix of the country, in order to make it more efficiently reducing its dependence on oil and promoting renewable energy sources.



ELECTRIC SECTOR POLICIES: The policy that the Ministry of Energy and Mines, in the frame of the Government's policy, has developed to reach the objectives proposed is framed in the following guidelines:



Increase the energy offer of the country in competitive prices.



Diversify the energy matrix of the country, prioritizing renewable energies.



Promote the competition and investment.



Promote the sustainable development from renewable and non renewable resources of the country.



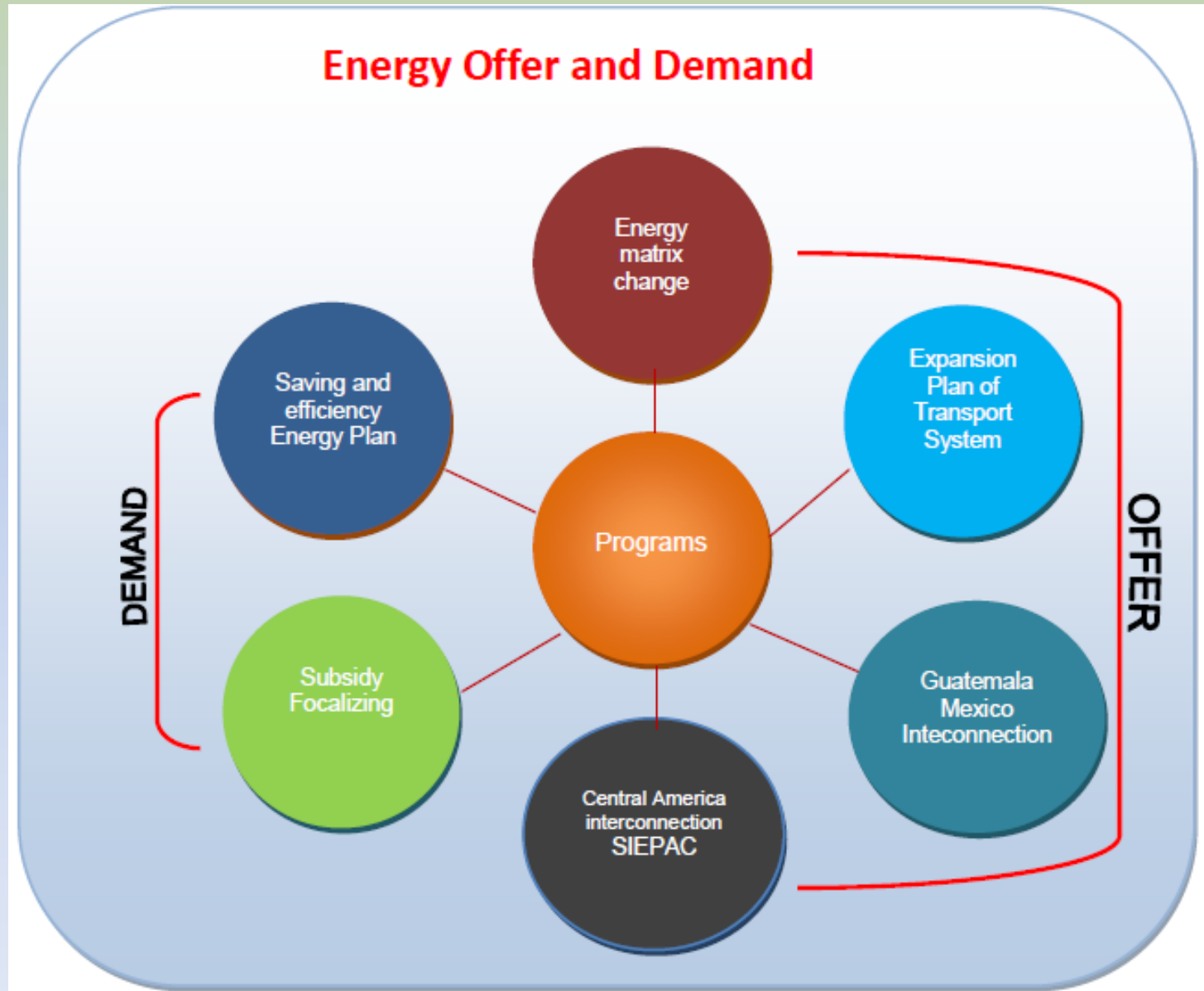
Increase the energy efficiency.



Promote energy integration



PROGRAMS: In order to develop this policy, the following programs will be implemented in the side of the offer and the demand:



- The energy policy defined on January 2008, incorporated the Energy Matrix changes to make Guatemala independent from the oil generation for the energy power generation; looking forward that the major part of energy will be generated with renewable resources, ensuring that the country counts with the necessary energy to improve the standard of living of all inhabitants, with prices that allow its access to the majority of population, and grant to the country the necessary competitiveness conditions to be an attractive destination for foreign investments.
- The energetic policy of the President's administration, implemented by the Ministry of Energy and Mines, through the energetic matrix, promotes the conversion of the current generation park based on a high percentage of oil derivatives, for the sustainable development from renewable energy resources that the country has.



- Within the Energy Policy is included the Expansion Plan of the Transportation System (PET in Spanish). The National Commission of Electric Energy is in charge of this Plan. This plan includes five loops called Hydraulic, Metropolitan, Atlantic, West and East, which will guarantee among other things, the increase of production energy capacity and the safety and quality electric energy supply.
- The Expansion Plan of the Transportation System, brings to life the Interconnected National System, which will improve the energy quality and efficiency, as well as to bring closer the electric energy to thousands of communities that still do not enjoy of this service.



Past energy demand and supply of Guatemala

- With the enactment of the General Law of Electricity on the year 1996, the opening in the electric subsector has been promoted, and as result of it, the participation of the private sector in the electric generation plants installation in Guatemala has increased year by year. In the year 2010 the power offer of the private sector was of a 77.2%.



INTERCONNECTED NATIONAL SYSTEM GENERATOR PARK 2010

STATE PROPERTY

Type	Power MV	%
Hydroelectrics	496.7	86.2
Thermoelectrics	76.9	13.8
Sugar Mills	0.0	0.0
Geothermals	0.0	0.0
SUBTOTAL	558.5	MW
Participation %	22.8	

INTERCONNECTED NATIONAL SYSTEM GENERATOR PARK 2010

PRIVATE PROPERTY

Type	Power MV	%
Hydroelectrics	371.4	19.6
Thermoelectrics	1,093.6	57.7
Sugar Mills	381.5	20.1
Geothermals	49.2	2.6
SUBTOTAL	1,895.8	MW
Participation %	77.2	



Coal Plant San José



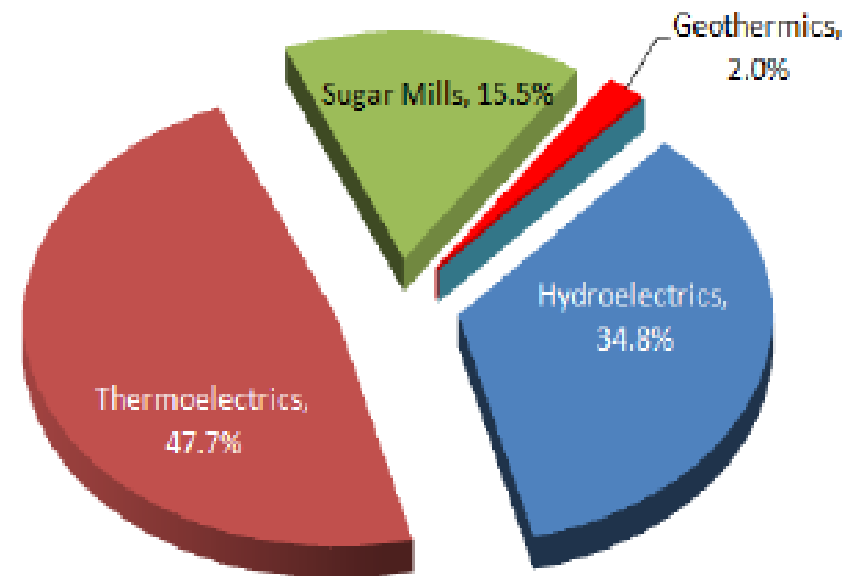
Arizona Plant



The following chart and graphic show the composition of the generation park of the National Interconnected System for the year 2010, where you can notice that the 34.8% of capacity installed is represented by the hydroelectric plants, the geothermal is the 2.0%, 47.7% is represented by the thermoelectric and the 15.5% of the sugar mills.

Capacity installed 2010 Interconnected National System		
	MW	%
Hydroelectrics	853.1	34.8
Thermoelectrics	1,170.5	47.7
Sugar Mills	381.5	15.5
Geothermal	49.2	2.0
TOTAL	2,454.3	100.0

**GENERATOR PARK 2010
COMPOSITION**



Outlook of Energy Demand and Supply

- Guatemala's approximate energy production is 6,641.2 GWH, from which 46 % is produced by fossil fuels. With the exception of asphalt, Guatemala imports all the volume of fuels it consumes, with an average consumption of 74.96 thousand barrels per day during the first semester of the year. At Central American level, including Belize, Guatemala has the biggest, most competitive wide open hydrocarbon market.

CHANGE OF THE ENERGETIC MATRIX:

- The essential goal of government is to turn Guatemala into the best energy model of the region with joint and integrated actions through the policies of the Ministry of Energy and Mines. The most transcendental of these actions is that Guatemalans will have access to electric energy in a reliable and affordable way, without forgetting aspects like the environment, the transparence and the social and economic factors of the country.

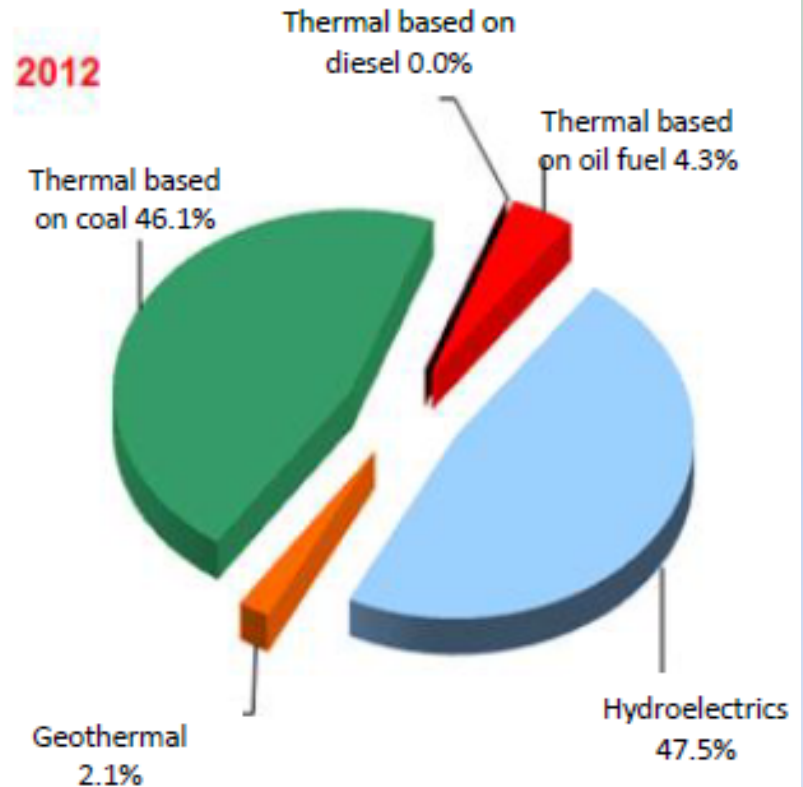
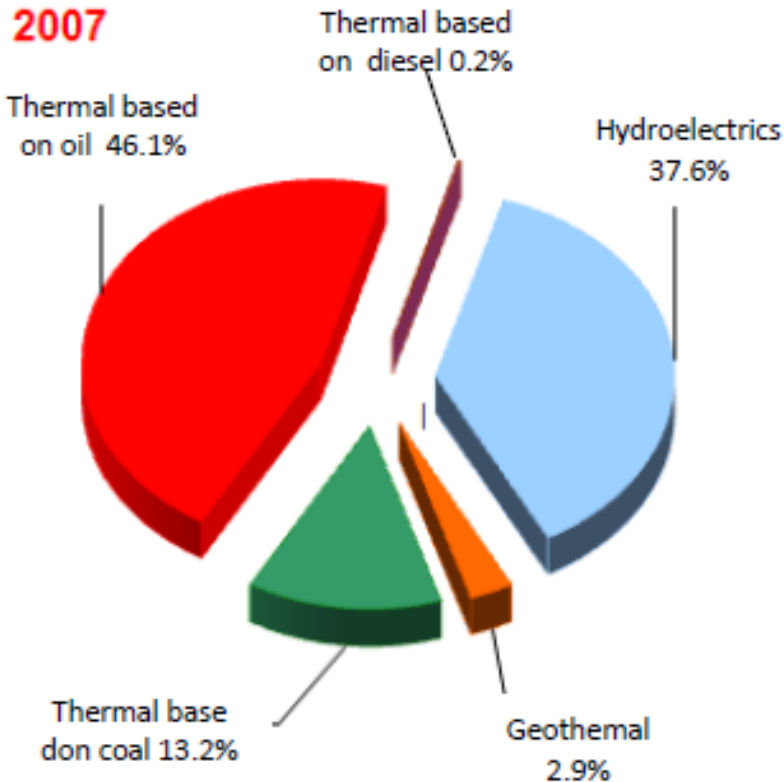


- **CONVERSION OF THE ELECTRIC GENERATOR PARK OF THE COUNTRY:**
- The change of the energy matrix promotes the conversion of the current generator park, based on oil derivatives, for the sustainable development of renewable energy resources of the country. With the impulse of the energetic matrix change, the government of Guatemala with a clear vision of the future will benefit the population in general with better electric energy prices.
- The Energetic Matrix changes promote to change for once and for all, the energetic generator park that today depends on oil derivatives. Guatemala as many countries at a regional and Latin-American level, has suffered the impact of the oil prices on the international market, affecting the costs of electric energy.

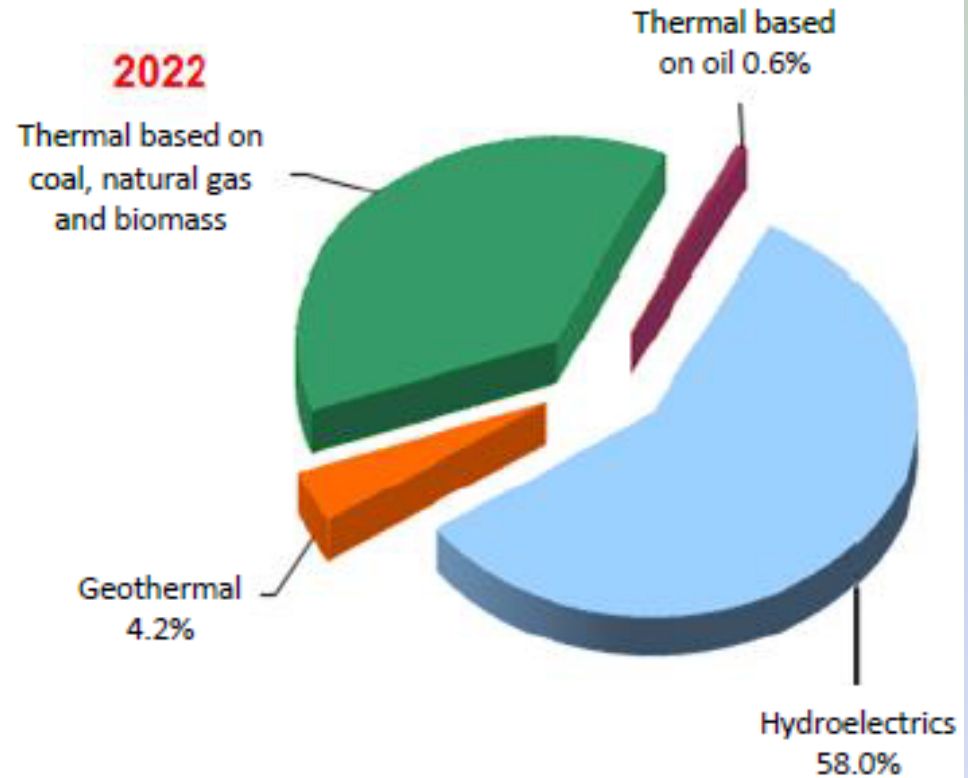


We have had some successes in the energy matrix.

PROJECTED AND ENERGETIC MATRIX 2007



We want to achieve these results.



EXPECTED RESULTS FROM THE ENERGETIC MATRIX:

- Benefit Guatemalan population with better electric energy prices.
- Direct job creation during the construction projects phase.
- Investment, which will benefit the communities where the projects will be built.
- Own destiny as a country for investment in different sectors, offering a greater energy offer at better prices.
- To turn Guatemala in an energy exporter country.



EXPANSION PLAN OF THE TRANSPORTATION SYSTEM

- The Energy policy impelled by the administration of the president of the Guatemala, through the Ministry of Energy and Mines, includes also the Expansion Plan of Transportation System. This plan is focus on the constitution of looped or mashed networks, in order to meet the operative safety criteria. This means that if a network element is lost, it can continue with its normal performance. Today, the Interconnected National System is constituted by radio networks which are quite vulnerable.
- The expansion plan of the Transportation System for Guatemala includes five loops named Hydraulic, Metropolitan, Atlantic, Occident and East, which will guarantee among other things, the increase of energy capacity production, safely supply, quality and prices to the users.



Difficulties and bottlenecks currently that we faced in formulating energy policies.

Residential consumption:

- High consumption of firewood. (deforestation, health problems)
- High cost of LPG.
- Low use efficiency of the energetic.

Transportation:

- High consumption of petroleum products. (Foreign exchange outflow.)
- Price volatility.
- Negative impact on the basic basket.

Industry:

- few competitive prices.

Ethnic diversity hasn't allowed the country energy policy proposals advance.



Subjects I would like to study in the order of priority and the reason:

- I would like to study the important aspects to consider in formulating an energy policy of a country with cultural diversity.
-
- What types of incentives can be given to companies to invest in renewable energy.
-
- Guidelines or procedures to meet energy policy and what types of monitoring should be given.

Policy Guideline.

Objective of the policy: Security of energy supply, continuous and quality at competitive prices.

Action plans:

objectives

Diversify the energy mix of electric generation prioritizing renewable energies.

Actions

1.1 - Strengthen the transportation and distribution systems.

1.2 - Promotion and dissemination campaign of the advantages of renewable energies.

1.3 - Attract investment in renewable energies.

Goals

That in 2027, electric generation matrix report minimum 70% of generation through renewable resources.



Action plans:

- **objectives**

- Promoting the rational use of our energy resources

Actions

- **2.1** - Enacting the rational and efficient use of energy.

- **2.2** - Campaign promotion and dissemination of best practices for efficiency and rational use of energy.

- **2.3** - Strengthen institutional capacities in energy efficiency.

- **Goals**

- By 2030 reduce firewood consumption by 50%.
- Reduce consumption of petroleum products.



- **objectives**
- Facilitate access to energy services.
- **Actions**
- Manage resources for rural electrification projects.
- Strengthen the transportation and distribution systems.
- **Goals**
- That by 2020 90% of the population have electricity service.



Thank you!



Contact : report@tky.ieej.or.jp

