

Geothermal resources in El Salvador. Current status

El Salvador is a country in Central America with a population of approximately 6.9 million people. It is bordered to the west by Guatemala, to the north and east by Honduras and to the south by the Pacific Ocean.



El Salvador is the most densely populated nation on the American mainland (especially in its capital, San Salvador), and also the most industrialized country in Central America.

Its official name is **Republic of El Salvador**. The country was named after the Spanish word for "The Savior," in honor of Jesus, and its territory was known prehispanically as **Cuscatlán**.

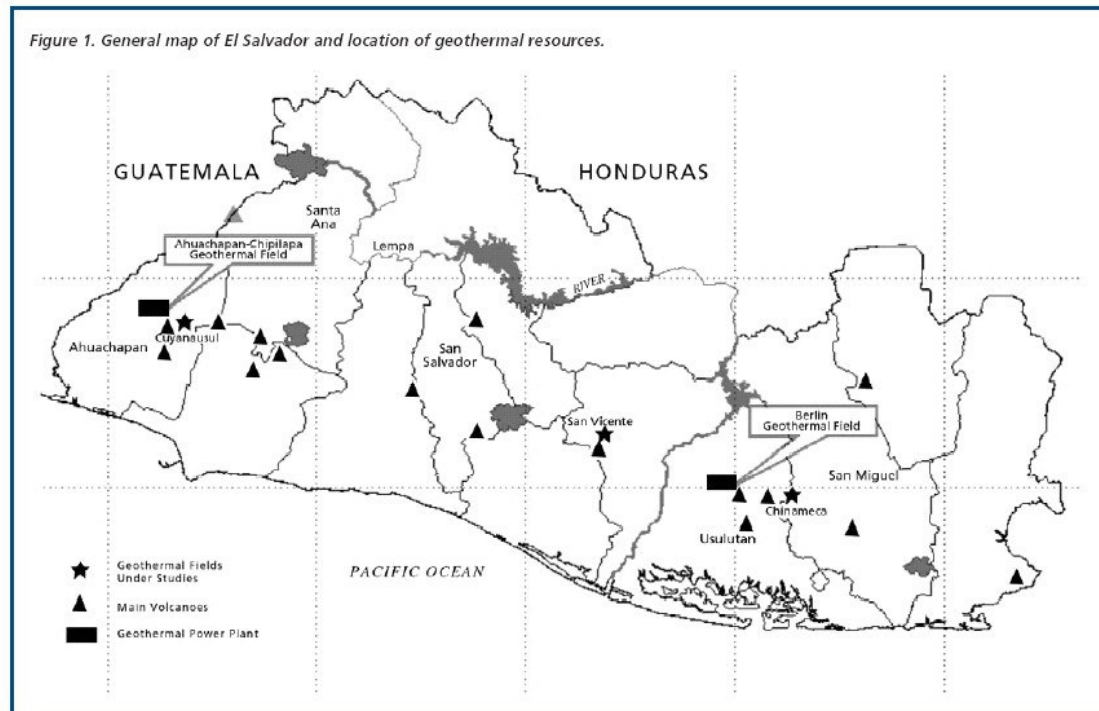
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Geothermal development in El Salvador

The geothermal exploration in El Salvador started in the 60's under the technical cooperation of the United Nations. The commercial exploitation of the first geothermal power station (Ahuachapán) started in 1975.

Actually El Salvador has two geothermal fields under exploitation, a sustainable electric power generation of 115 Mwe and a national electricity contribution of 21.9%. Both geothermal fields are operated by LaGeo S.A.

Location of geothermal fields in El Salvador



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- The national electricity production of El Salvador is 905 MWe, 33.1% comes from hydropower, 37.5 % from thermal power plants, 21.9% from geothermal and 7.4% imported.
- The role of Geothermal in El Salvador became more significant taking into account the new projects that LaGeo is carrying out, which will increase the renewable energy contribution of 30% during the next 5 years.
- Geothermal energy, with its proven technology and abundant resources, can make a significant contribution towards reducing the emission of greenhouse gases. However it is necessary that governments implement a legal and institutional framework and fiscal instruments allowing geothermal resources to compete with conventional energy systems.



Ahuachapán Geothermal Field
Installed capacity of 95MWe



Berlin Geothermal Field
Installed capacity of 60MWe

The role of renewable energy

- The continued release of greenhouse gases from the burning of fossil fuels is accelerating global climate change. This is disrupting living conditions all over the world in a variety of ways, including through the increase of extreme weather events and higher incidents of pests and diseases.
- El Salvador like the international community has recognized the importance of making an effort to limit the emission of greenhouse gases to slow human induced climate change and encourage the needs to diversify and expand renewable energy for sustainable development.
- The deficit of energy has been supplied by imported or through thermal energy. The need to reduce fossil fuels considering the international oil prices are increasing everyday. We have began to look for alternative renewable sources of energy like hydrogen.

Objetives regarding the hydrogen energy technology

1. Investigate how the hydrogen technology works, considering the foreign experiences and development abroad.
2. Build a hydrogen demonstration project through an electrolyzer prototipe.
3. Look for an international bilateral cooperation (training programmes, expert missions, scientific visits) to improve the knowledge and technology.
4. Optimize the use of geothermal energy, through the application for hydrogen production.
5. Train human resources and hydrogen based infraestructure to find the future demand of fuel cell technology in El Salvador and Latin American region.

LaGeo Electrolyzer Lab Prototype



LaGeo in July 2006 made an experimental electrolyzer:

- Power consumption: 80 Watts
- Tension. 40 Volt
- Maximum current : 2 Amperes
- H₂ Production : 14 ml/min