

## »» Project Information

### Geothermal energy – Latin America

Enabling project development

In recent years Latin America has made efforts towards unlocking and exploiting its renewable energy potential. This applies above all to hydropower, but also encompasses solar and wind energy. By contrast, until now the potential and possibilities of geothermal energy have remained significantly under-exploited in this region of the world. This is to be regretted as geothermal heat-generated electricity offers many benefits: in addition to low production costs and emissions levels; such electricity is available around the clock, regardless of the weather conditions. To help the countries in Latin America gain ground here and increasingly integrate geothermal energy into their electricity mix, KfW Development Bank, on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ) and the European Union, has launched a Geothermal Development Facility (GDF). In partnership with numerous relevant donors in Latin America, it intends to drive forward the expansion of geothermal power plants by offering targeted market incentives.

mainly on hydropower, solar energy and wind power. Despite its high potential in Latin America, geothermal heat has so far not played much of a role there. According to calculations made by the International Geothermal Association (IGA), the installed capacity of geothermal energy in the region currently stands at less than 5% of its potential. While in many countries other forms of renewable energy have recently increased annually by between 30% and 50%, geothermal energy is still not one of the preferred forms of energy in Latin America.

The reason for this can be found in the high initial investment costs and primarily in what is termed the

<b>Project name</b>	Geothermal Development Facility (GDF)
<b>Commissioned by</b>	Federal Ministry for Economic Cooperation and Development (BMZ), European Union (LAIF)
<b>Country/Region</b>	Latin America
<b>Lead executing agency</b>	Latin American development banks (CAF, BCIE), World Bank, Inter-American Development Bank (IDB) and several other bilateral donors

#### Context

In the countries of Latin America, electricity demand has increased significantly and continuously in recent years. To meet it in a sustainable and climate-friendly manner, nearly all the countries in the region have now turned to the expansion of renewables. Chile, for example, has set itself the goal of increasing the proportion of renewables it uses to 60% by 2035. Other countries have likewise set themselves specific goals for moving their economies towards environmentally-friendly energy technologies. The majority of them nonetheless rely





Official launch of the Geothermal Development Facility with German Federal Minister Gerd Mueller (far right) and KfW Head of Department Stephan Opitz (far left). Source: IISD Reporting Service.

“exploration risk”, namely the risk that the temperature or volume of commercially recoverable thermal water or steam will differ from previous expectations based on studies. Certainty can only be reached by means of exploration drilling, which itself requires a degree of capital. However, many investors are put off by the high costs of this risky initial phase, which explains why numerous potential projects never come to fruition.

### Project approach

To promote geothermal energy as a climate-friendly and, later, low-cost form of energy in Latin America, KfW has, on behalf the German Federal Government and the European Union, launched a Geothermal Development Facility (GDF). It funds projects by public and private developers in eleven countries, specifically Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua in Central America, Mexico, and Bolivia, Chile, Ecuador, Colombia and Peru in South America.

The GDF was set up in the latter half of 2016 and it started work on specific projects in January 2017. A risk management fund provides qualified public and private project developers with a contingency grant covering up to 40% of costs in the initial exploration phase, thereby mitigating a significant proportion of the exploration risk. If successful, the project developers are expected to repay this grant, with the repayment able to be funded using concessionary loans.

The GDF, which receives support from various donors and financiers, is the first coordinated initiative aimed at developing geothermal energy at a continental level. It will provide at least EUR 55 million in the form of risk management instruments. The German share is maximum EUR 35 million in grants for the risk management

fund. Additionally, via the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Federal Institute for Geosciences and Natural Resources (BGR), the German Federal Government will provide support in the form of supplementary technical cooperation measures.

### Impact

An investment volume totalling more than EUR 1 billion is planned. Over the entire term of the facility, geothermal power plants with an installed capacity of at least 350 MW will be built, which should save a total of 50 million tonnes worth of CO<sub>2</sub> and supply two million people with environmentally and climate-friendly energy.

The Geothermal Development Facility enables KfW to continue its global involvement in promoting geothermal energy – it already supports a similar risk management fund in East Africa, as well as bilateral projects in Chile, Indonesia and Kenya.

In the four tendering rounds that have been completed successfully to date, project agreements have been signed with eight projects in four countries. GDF’s promotional business volume for these projects is EUR 11 million with expected electricity generation capacity of 430 MW.



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