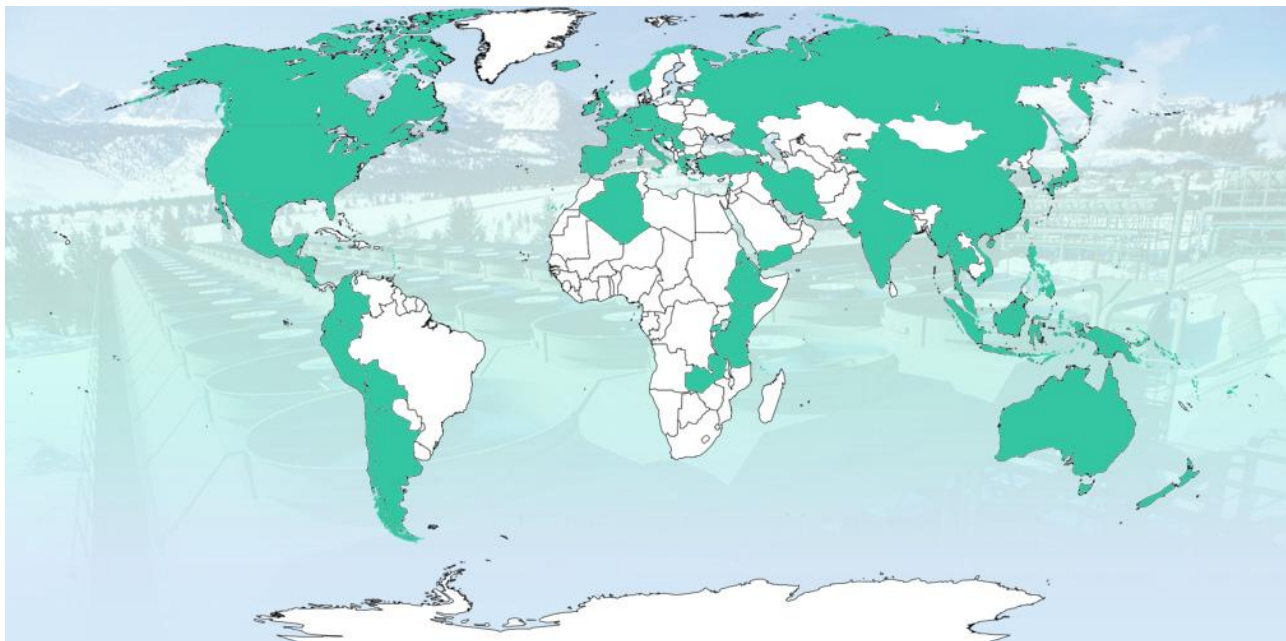


# The International Geothermal Market *At a Glance*

*May 2015*



*Geothermal worldwide: Green shading indicates countries with installed geothermal power capacity and/or developing projects  
Source: GEA*

## **Introduction**

Thus far in 2015, the international geothermal market continues to grow at a steady pace. Having sustained a 5% annual growth rate in the last three years, the global market currently comprises 12.8 GW of operating capacity dispersed among 24 countries, with 11.5-12.3 GW of capacity additions (as of the end of 2014) and over 630 projects dispersed throughout 80 countries. GEA forecasts, as outlined in the 2015 Annual U.S. & Global Geothermal Power Production Report, that the global market will reach 14.5-17.6 GW by 2020, with the international market thus far having only tapped 6.5% of total global potential for geothermal power, based on current geologic knowledge and technology.<sup>1</sup>

The following provides a brief overview of the international geothermal market based on data from the most recent GEA international developing project list\* and the 2015 Annual U.S. & Global Geothermal Power Production Report.\*\*

### **Terms and definitions:**

This text makes use of the terms developing capacity additions and developing resource. The developing capacity addition usually denotes the power plant's expected estimated installed capacity, while the developing resource can be thought of as the megawatt value of the total recoverable energy of the subsurface geothermal resource.<sup>2</sup>

<sup>1</sup> GEA's 2015 Annual U.S. & Global Geothermal Power Production Report, written by Benjamin Matek, published February 2015.

<sup>2</sup> Ibid.

\*Both the comprehensive international project list and annual report can be found online at [www.geo-energy.org/reports.aspx](http://www.geo-energy.org/reports.aspx).

\*\*The aforementioned data from the international developing project list reflects the latest update (March 2015).

## Asia

Currently, there are 568 MW of installed geothermal power capacity in Asia, spread throughout China, Japan, Taiwan, and Thailand, in addition to 258 MW of developing capacity additions and 503 developing resource megawatts. The region boasts over 70 projects in some stage of development, the majority in Japan, with 1 project operational, 1 under construction, 24 early stage projects and 21 prospective ones. Other countries in the region with numerous ( $\geq 5$ ) geothermal projects in development include China, India, and Vietnam, while Taiwan, South Korea, and Myanmar each have  $\leq 3$  early stage or prospective projects.

## Caribbean

Though the Caribbean currently has only 15 MW of installed geothermal power capacity, the region is scaling up its geothermal energy with 78 MW of developing capacity additions and 473 MW of developing resource. There are over 20 projects in development throughout the Caribbean in Dominica, Grenada, Guadeloupe, Jamaica, Martinique, Montserrat, Nevis, St. Lucia, and St. Vincent & the Grenadines. Most of these projects are either prospective or in early stages, while the Cork Hill project in Montserrat and Wotten Waven in Dominica are under construction.

## Central America

Comprising 563 MW of installed capacity amid Costa Rica, El Salvador, Guatemala and Nicaragua, Central America is continuing to expand geothermal power in the region by means of developing capacity additions of 444 MW, 1,985 MW of developing resource, and approximately 20 in-progress projects. In addition to continued prospective and early stage projects in Costa Rica, El Salvador, Guatemala and Nicaragua, other prospective geothermal projects are underway in Honduras and Panama.

## Europe

Already an established geothermal market, Europe boasts 2,178 MW of installed geothermal power capacity, 1,826 developing resource megawatts and 1,770 developing capacity addition megawatts. Moreover, there are more than 140 projects currently in development in 20 European countries. In Turkey alone there are close to 60 projects in progress, primarily in the Manisa, Çanakkale and Aydin provinces, with two already operational, 16 under construction, 34 in early stages and another 9 prospects. Additionally, Germany and Iceland each have over 10 early stage projects, and a number already under construction, in Bavaria and Baden Württemberg and in northeast and southwest Iceland, respectively. Other European countries with geothermal projects in development include: Belgium, Czech Republic, Croatia, France, Greece, Hungary, Ireland, Italy, Latvia, the Netherlands, Norway, Portugal, Serbia, Slovakia, Spain, Switzerland, and the United Kingdom.

## Middle East/ Africa

With 611 MW of installed geothermal power capacity, the Middle East/African region is a rapidly growing site of geothermal development, with 2,350 MW of developing capacity additions, 9,383 MW of developing resource, and approximately 60 projects in progress. A large portion of these projects are located in the East African Rift System, a hotbed for geothermal activity, with over 20 projects in development in Kenya, including one operational, four projects under construction and 16 in early stages, and over 10 projects in varying stages of development in both Ethiopia and Uganda. Djibouti, Eritrea, Lebanon, Rwanda and Tanzania all have several early stage or prospective geothermal ventures.

Other sites for geothermal development in the region include Algeria, Armenia, Comoros, Iran, Yemen and Zambia.

## North America

Led by the U.S. with 3,548 MW of installed capacity, North America totals 4,553 MW of installed geothermal power capacity, to be further augmented by 1,606 MW of developing capacity additions and 6,248 developing resource megawatts. The United States has close to 80 projects in development throughout 15 states, ¾ of which are in early stages. Canada and Mexico each have close to 10 developing projects, including three in the construction phase in Mexico's Los Azufres, Los Humeros and Domo de San Pedro fields, while Canada's developing projects are in prospective and early stages, primarily concentrated in British Columbia.

## South America

South America is a largely up and coming geothermal market. Though currently without any installed MW of capacity, the region has 364 MW of developing capacity additions and 2,537 MW of developing resource. The region boasts approximately 100 developing geothermal projects dispersed between Argentina, Bolivia, Chile, Colombia, Ecuador and Peru. Chile has over 50 projects in early or prospective stages, a large portion of which are located in the Antofagasta and Tarapaca regions of the country. Peru has over 20 prospective projects, mostly in the south. Bolivia, Colombia and Ecuador all have a handful of projects underway, Bolivia's Sol de Mañana field under construction and slated for operation in 2019.

## South Pacific

Led by Indonesia, the Philippines and New Zealand, the South Pacific region has the second-most megawatts of installed geothermal power capacity behind North America, at 4,318 MW, in addition to the 5,503 MW of developing capacity additions and 9,575 MW of developing resource. More than 60 projects are underway in Indonesia, including 13 geothermal projects in the construction phase on the islands of Java, Sumatra, Sulawesi and Maluku-Ambon, as well as close to 50 projects in early or prospective phases. The Philippines has over 20 projects in early or prospective stages, four under construction and one operational, while American Samoa, Australia, Malaysia, New Zealand, the Commonwealth of the Northern Mariana Islands, Fiji, Vanuatu and the Solomon Islands all have a one or more projects in progress.

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## GEA

The Geothermal Energy Association is a trade association composed of U.S. companies and organizations that support the expanded use of geothermal energy and are developing geothermal resources worldwide for electrical power generation and direct heat uses. According to our most recent survey, GEA companies are active in approximately 75% of the country markets identified in this report.

*Prepared by Yasmin Romitti  
Geothermal Energy Association  
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