Photo Credit: Image credit to ThinkGeoEnergy via Flickr Creative Commons

# Geothermal Energy

Download Chatbot

Geothermal energy is energy that is generated and stored in the Earth and which determines the temperature of matter. Its resources from the shallow ground to hot water and hot rock are found a few miles beneath the Earth's surface, and down even deeper to the extremely high temperatures of molten rock called magma. Many technologies have been developed to take advantage of geothermal energy. For example, geothermal heat pumps can tap into this energy to heat and cool buildings.

Below are examples of sample policies, laws and regulations, project documents and contacts, along with other useful information and resources.

## Policies, Law and Regulations: Geothermal Energy

**Reference:** IEA/IRENA Global Renewable Energy Policies and Measures Database - The International Renewable Energy Agency (IRENA) maintains a joint database with the International Energy Agency (IEA) for policies and measures pertaining to renewable energy from around the world. The database is searchable by country and sector.

**Reference:** Geothermal Energy Association (GEA) is a trade association of U.S. companies in support of expanding the use of geothermal energy. GEA is developing geothermal resources worldwide for electrical

power generation and direct-heat uses.

## Project Documents and Contracts: Geothermal Power

### United States

**Reference:** Request for Proposals for Renewable Energy Resources and Power Purchase Agreement issued July 2009 by PacifiCorp (PDF), a U.S. utility company. Generally useful precedent but as it is a U.S. precedent it takes into account U.S. regulation. PacifiCorp is an "unbundled" utility and so the entity purchasing the power from geothermal developers is the so-called "merchant" division of PacifiCorp, and is a legally separate entity from the transmission owner, PacifiCorp Transmission (Appendix E - Generic PPA).

### France

**Reference:** Indicative Power Purchase Agreements (in French) for Renewable Energy, Ministry of Ecology, Sustainable Development and Energy for geothermal power - Documents are dated February 4, 2010 (updated on July 3, 2012 – contain General Terms and Specific Conditions). Pursuant to Decree n°2001-410 of May 10, 2001 (regarding the conditions for purchasing electricity produced by beneficiaries of the purchase obligation). These indicative PPAs were established jointly by EDF and organizations representing non-nationalized distributors following consultation with representatives from each of the renewable sectors concerned, and approved by the Minister. It is related to the obligation on EDF to purchase renewable energy generated in France as set out in the decree.

### Malawi

**Reference:** Draft Standard PPA of December 2010 published by the Malawi Energy Regulatory Authority for [hydro/geothermal/gas fired] power generation between IPP (“Seller”) and Purchase, a company entitled to purchase electricity and to transmit and distribute electricity in the Republic of Malawi;. Seller proposes to develop, design, finance, insure, construct and complete, own, operate and maintain a [hydro/geothermal/gas fired] power generation facility and Purchaser wishes to purchase from the Seller he capacity of such power generation facility and all of the net electrical output pursuant to the terms and conditions of the PPA.

**Reference:** Independent Power Producer (IPP) Framework for Malawi, 8 March, 2017

### Tanzania

**Reference:** Model Power Purchase Agreement relating to a geothermal power plant published by the Ministry of Energy and Minerals to be used as guidance for the procurement of energy from a wind turbine generating plant larger than 10 MW.

## Further Reading And Resources

**Reference:** Geothermal resource estimation requires a methodological approach to data gathering and interpretation. The publication, Assessing and Mapping Renewable Energy Resources (2020) explain this in two distinct phases: The first phase involves a study assessing the already available evidence for geothermal potential, whereas the objective of the second phase is to cost effectively reduce risks related to the resource characteristics through further exploration studies prior to exploration drilling.

**Reference:** Geothermal Handbook, Planning and Financing Power Generation, ESMAP 2012

**Related Content**

- **Climate-Smart PPPs**
- **Climate-Smart PPP Legal and Regulatory Framework**
- **Preparing, Procuring and Implementing Climate-Smart PPPs**
- **?Sector-Specific Content on Climate-Smart**
- **Renewable Energy**
- **Power & Renewable Energy Toolkits**
- **Biomass**
- **Hydropower**
- **Carbon Capture and Storage**
- **Wind Power Energy**
- **Solar Power Energy**
- **Climate-Smart PPPs: Further Reading and Resources**

**Additional Resources**

- Sub-national and Municipal PPPs
- Public-Private Partnerships for Transport

- Power and Renewable Energy PPPs
- Solar Power Energy
- Wind Power Energy
- Hydropower
- Biomass

**Partner Resources**

## Renewable Energy Project Resource Centre (REPRC)

*hosted by Energypedia*

Wiki-based library of energy project resources. Includes sample terms of references, procurement documents, economic analyses and case studies (success factors and lessons learned).