

GLOBAL GEOTHERMAL ALLIANCE ACTION PLAN

Background

A global partnership between geothermal stakeholders has come together under the Global Geothermal Alliance (GGA) to enhance dialogue, cooperation and coordination through international, regional and national actions related to the different phases of geothermal energy deployment. The Alliance draws upon an in-depth understanding of the technical, regulatory, policy and financial risks associated with geothermal energy by many of its members and seeks to share their common interest with others in addressing the challenges to promote wider penetration of geothermal energy in the global energy mix.

Proposed GGA actions

The following scope of priority actions developed in line with the GGA Joint Communiqué (Annex 1) endorsed by all members and partners of the GGA and upon which all members and partners have affirmed, provides the broader framework for specific GGA activities to be identified and annexed to this Action Plan. The GGA intends to attach due attention to unlocking specific geothermal projects that are facing policy, legal, regulatory, fiscal, funding or capacity building challenges, with priority given to the most mature projects or countries with transformative potential that would result in high impact on the energy mix, the access rate to energy and the economy of the country.

Action 1 - Resource and Market Assessment: Identification and mapping, where relevant, at the regional level, of:

- 1) Resources for development (e.g. enrichment of the geothermal datasets in the IRENA Global Atlas);
- 2) Existing and potential geothermal market status and near term projects in the pipeline.

Action 2 - Needs and Obstacles Assessment: Scoping of the needs for assistance to countries with transformative potential, including, where pilot projects¹ have been identified and retained by the GGA (based on Action 1). The GGA action should primarily contribute to the removal of obstacles in their implementation, which can be of a policy, regulatory, funding or capacity building nature.

Action 3 - Enabling Frameworks: Supporting the development of effective enabling frameworks and associated mechanisms to achieve national objectives for geothermal energy deployment, in coordination with the existing governmental, donor and industry programmes, through the following tasks:

- 1) Assisting with the establishment of necessary policy, regulatory and institutional frameworks and development of relevant legal, fiscal and capacity building activities;
- 2) Providing timely information, raising awareness and proposing improvements of risk mitigation funds or targeted financing mechanisms;
- 3) Mapping the needs for training and capacity building, where possible at a regional level, and identifying available instruments to overcome possible gaps and develop regional or country specific initiatives to address them.

¹ Geothermal energy projects at different stages of development

- 4) Facilitating access of projects to financing and risk mitigation instruments, including, through IRENA's Sustainable Energy Marketplace and supporting project development tools (such as, IRENA's Project Navigator), with specific facets dedicated to geothermal heating and cooling and to geothermal electricity.

Action 4 - Global Geothermal Network: Establishing and improving a robust global network of geothermal experts building upon existing networks. Such a network should also ensure a coordinated representation of the GGA at energy and climate related key events. Promoting geothermal energy's role in supporting decarbonisation strategies in the countries and helping move forward with the implementation of their climate plans, including, Intended Nationally Determined Contribution's (INDC).

An indicative list of activities under each Action area with their envisaged implementation schedule for the actions identified above are provided in Annex 2.

Activities and projects selection criteria

Proposals for GGA activities received from the GGA constituency and the projects that seek GGA support will go through a screening process taking into account the following criteria:

- **National Commitments:** For projects that are seeking support (Action 2), clear indication of the interest of the Government or regional organisation in technical assistance and/or support for access to financing in the context of the objectives of the GGA²;
- **Near-term Impacts:** The likelihood that supported measures will contribute to a near term improvement of framework conditions for the active development of markets for geothermal energy services;
- **Long-term Sustainability:** The likelihood that the GGA assistance will lead to sustained impacts on fostering geothermal energy deployment;
- **Complementarity:** The potential for GGA to complement relevant activities of other bi-lateral and multi-lateral donors and development partners, including activities by IRENA;
- **Replicability:** The potential for GGA activities to be replicated in other regions or countries;
- **Projects in Small Island Developing States (SIDS)** will be given special attention.

Implementation modalities

This Action Plan is developed by GGA members, in consultation with GGA partners, as laid down by the GGA Joint Communique. GGA member countries and partners are not required to contribute a membership fee. IRENA will provide essential coordination and facilitation support to the GGA, as per the IRENA Work Programme. GGA members may support IRENA on this function by providing, if required, staffing either through loan of national experts or through voluntary contributions. GGA members and partners intend to bear the costs associated with GGA coordination activities, such as meetings of the committee governing the GGA. In this regard, GGA members and partners endeavour to select logistical options that lessen the financial burden (e.g. the meetings of the

² The overall objective of the Global Geothermal Alliance, as stated in its joint communique released on 7 December 2015 at UNFCCC COP21, is the following one: "The Alliance will contribute to the efforts to achieve the Sustainable Energy for All (SE4ALL) target to double the share of renewable energy in the global energy mix by 2030, through the promotion of collaborative actions supporting accelerated deployment of geothermal energy. In this regard, the Alliance calls on governments, the industry and other stakeholders to support efforts towards achieving the deployment of realisable geothermal energy potential through a fivefold growth in the global installed capacity of geothermal power generation and more than two-fold growth in geothermal heating compared to the 2014 levels by 2030 as shown by the IRENA REmap 2030 analysis."

committee governing the GGA may not necessarily be held in the country of the committee chair, they can be held through electronic meeting place or can be co-located with relevant events, such as, the IRENA Assembly or other events which members may be attending).

For the proposals for national and regional activities received based on this Action Plan, which meet the selection criteria set above, members and partners express interest to support and fund the activities in question. Such proposed activities should be discussed, further developed, where necessary supplemented by thematic studies, and eventually implemented through dedicated smaller groups of committed members and partners. Implementation framework for a specific activity should be developed on a case by case basis among interested members and partners. The GGA activities are expected to focus on key issues impeding the development of geothermal resources e.g. policy and regulatory frameworks, in particular, concerning the creation of enabling framework for public and private sector participation, development of and access to adequate financial and risk mitigation mechanisms.

IRENA may also lead or contribute to regional or country specific geothermal activities, depending on staff and funding resources made available to IRENA by the GGA members and/or partners and/or other donors and in accordance with IRENA’s Work Programme. GGA activities led or contributed by IRENA are expected to be funded through voluntary contributions to IRENA. The resources received should be earmarked to support the implementation of specific GGA actions to allow a transparent reporting of expenses to the various donors.

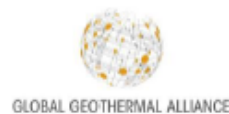
Activity-oriented voluntary contributions should be sought from GGA member countries and partner institutions like international financial institutions (IFIs), intergovernmental organizations, and other initiatives, or from private companies. The breadth and depth of the GGA’s constituency should allow for a timely recognition of emerging topics and for a rapid response to address them. Hence, GGA’s management methods will need to be flexible. IRENA may facilitate the selection process of projects that seek support from GGA (as per Action 2 above) in consultations with the GGA constituency.

Calendar of events (2016)

<i>Events by GGA Members and Partners</i>	
March 16, 2016	Geothermal briefing to highlight near term prospects of geothermal in U.S. and 80 Countries in Washington DC
March 17, 2016	GEA international showcase event in Washington DC: Exchanges on IRENA’s GGA coordination and facilitation role, preparations for the Action Plan
April 25-29, 2016	WB-ESMAP’s GGDP meeting and the Iceland Geothermal Conference in Iceland: Finalization of the GGA Action Plan. Consultations on voluntary contributions and required staffing to support the implementation of specific actions and projects of the Action Plan
April 25, 2016	Geothermal European Research Network (Geothermal ERANET – www.geothermaleranet.is)
April 26, 2016	International Partnership for Geothermal Technology IPGT – http://www.internationalgeothermal.org/

May 23-25, 2016	IRENA 11th Council – GGA side event: Presentation of GGA action plan and first results to the GGA membership. Consultations and call for voluntary contributions to support the implementation of specific activities of the Action Plan and required staffing of IRENA to support its GGA facilitation and coordination function
August 1-4, 2016	Joint U.S.-IRENA-SPC Workshop and GGA side-event on the margins of Pacific Power Association meeting in Tonga
August 10-12, 2016	4th Indonesia International Geothermal Convention and Exhibition (IIGCE) in Jakarta
September 15-16-2016	GGA Special Event organized by Italy in Rome
September 19-24, 2016	Journées Européennes de la Géothermie in Strasbourg (http://europeangeothermalcongress.eu/) September 21: Lunch on geothermal risk mitigation and project financing
Sept/Oct, 2016 (tentative)	U.S.-IRENA workshop on updated Geothermal Risk Mitigation Facility in Nairobi
October 23—26, 2016	GEA Geothermal Energy Expo/GRC Annual Meeting in Sacramento
October 31-November 7, 2016	The 6th Africa Rift Geothermal Conference (ARGEO-C6) in Addis Ababa
<i>Other Event Opportunities</i>	
May 5-6, 2016	Climate action 2016 in Washington DC
End of 2016	Launch of a call for expression of interest through the IRENA Sustainable Energy Marketplace platform separately for "district heating and cooling" and "geothermal power generation"
November, 2016	COP 22 in Marrakech
December, 2016 (tbd)	15th Meeting of the Board for the Green Climate Fund in Samoa

Annex 1 – Joint Communiqué on the Global Geothermal Alliance



Joint Communiqué on the Global Geothermal Alliance

On the occasion of the 21st Meeting of the Conference of the Parties of the United Nations Framework Convention on Climate Change, we, Members and Partners of the Global Geothermal Alliance:

- Note that geothermal energy is a proven clean energy technology that provides stable and affordable electricity and offers flexibility and direct use of geothermal heat in domestic, commercial and industrial sectors, yet the modest pace of its deployment hinders reaping the potentially game changing benefits of geothermal technologies.
- Note that despite the vast global geothermal energy potential, with identified resources in nearly 90 countries, only 24 of those countries are producing geothermal electricity, corresponding to around six per cent of the estimated global geothermal power potential.
- Acknowledge that policy uncertainty, a shortage of skilled professionals, environmental concerns, licensing delays, and timely development of dedicated long-distance transmission infrastructure, as well as a lack of awareness and limited information about geothermal technologies, are preventing wider adoption of geothermal energy.
- Further acknowledge that the main obstacle remains the high upfront costs of drilling and risks associated with the uncertainties from the exploration phase.
- Recognize that a global platform that facilitates enhanced dialogue, cooperation and coordination among the key stakeholders can spearhead collaborative action that is essential to overcome hurdles for accelerated geothermal development.

Therefore, we join forces in the Global Geothermal Alliance as a platform for enhanced dialogue and knowledge-sharing within the constituency as well as for coordinated action to increase the share of installed geothermal electricity and heat generation worldwide.

We will focus our efforts towards realising geothermal energy potential to achieve a five-fold growth in the global installed capacity for geothermal power generation and two-fold growth for geothermal heating by 2030¹.

We call on all stakeholders to support our efforts to realise this global geothermal potential.

Members in the Global Geothermal Alliance: Burundi, Comoros, El Salvador, France, Guatemala, Iceland, Indonesia, Italy, Kenya, Malaysia, Mexico, Netherlands, New Zealand, Nicaragua, Pakistan, Papua New Guinea, Philippines, Poland, Saint Vincent & Grenadines, Solomon Islands, Switzerland, Tanzania, Tonga, Turkey, Uganda, United States of America, Vanuatu, Zimbabwe.

Partners in the Global Geothermal Alliance: African Development Bank, African Union Commission, AGH University of Science and Technology (Poland), Eastern Africa Power Pool, Energy Institute Hrvoje Pozar (Croatia), Energy Institute of Hungary, European Geothermal Energy Council, Iceland GeoSurvey ISOR, International Geothermal Association, International Renewable Energy Agency, NEA of Iceland, New Partnership for Africa's Development, Nordic Development Fund, Serbian Geological Society, Secretariat of the Pacific Community, Southern Africa Power Pool, United Nations Environment Programme, United Nations University – Geothermal Training Programme, US Geothermal Energy Association, World Bank – Energy Sector Management Assistance Program.

¹ as indicated in IRENA REmap 2030 – A Renewable Energy Roadmap



GLOBAL GEOTHERMAL ALLIANCE

Annex. Concept of the Global Geothermal Alliance

The Global Geothermal Alliance (GGA) serves as a partnership for action to increase the share of geothermal energy in the global energy mix through both geothermal power generation and direct use of geothermal heat.

Objective

The Alliance will contribute to the efforts to achieve the Sustainable Energy for All (SE4ALL) target to double the share of renewable energy in the global energy mix by 2030, through the promotion of collaborative actions supporting accelerated deployment of geothermal energy. In this regard, the Alliance calls on governments, the industry and other stakeholders to support efforts towards achieving the deployment of realisable geothermal energy potential through a fivefold growth in the global installed capacity of geothermal power generation and more than two-fold growth in geothermal heating compared to the 2014 levels by 2030 as shown by the IRENA REmap 2030 analysis.

Members and Partners

The GGA seeks to create an inclusive and neutral multi-stakeholder platform that brings together public, private, intergovernmental and non-governmental actors that share a common vision of accelerating deployment of geothermal energy for power generation and other applications. Membership in the Alliance includes geothermal energy resource-rich countries with established or emerging geothermal markets as well as other countries that wish to support the activities of the Alliance. Development partners (such as, international and bilateral development organisations, international financial institutions, institutional investors, international organizations, and other development partners involved in geothermal energy), geothermal industry represented through global, regional and national geothermal business associations as well as institutions engaged in research, education, etc. in the geothermal energy field at regional, national or subnational level can become Partner in the Alliance, with the consent of Members. No entry fee is envisaged for joining the Alliance as a Member or Partner.

Scope of Activities

The Alliance Members, in consultation with the Partners, intend to formulate a work programme to be implemented in the following four areas of activity:

- (i) *Platform for Dialogue, Cooperation and Coordination* with a view to creating synergies, maximizing complementarity of different strengths offered by different partners, and avoiding duplication of efforts in geothermal energy related interventions.
- (ii) *Partnership for Action* to improve the mitigation of exploration, drilling, investment and operation risks through customized support to regions and countries, such as:
 - a. Advisory services for the creation of enabling regulatory and institutional frameworks, for timely and efficient private investments and efficient operation of geothermal resources and associated grid infrastructure;
 - b. Promotion of geothermal energy investments through innovative financing and de-risking mechanisms and benchmarking of policies, programs and initiatives on geothermal energy.

- (iii) *Capacity Building Support* to all key stakeholders in developing required institutional, expert and enterprise capacities in policy, regulation, technology and finance to support the development of the geothermal sector.
- (iv) *Outreach and Raising Awareness* to achieve greater visibility of geothermal energy in the global energy and climate change debates, as well as raising awareness of its benefits.

Operational Principles

Neutrality and transparency will be the guiding values, ensuring no particular region, country, technology or scheme gets preferential treatment. The Alliance will act independently from national agendas. It will coordinate its work with the existing structures, programmes and facilities on the ground to avoid duplication.

Governance

The Alliance will be governed by a committee formed of representatives of the Alliance constituency. The committee will meet at least once a year and communicate as often as required. At its meetings, the committee will review the achievements, status of collaboration, potential activity opportunities and progress in implementing the work programme alongside any other relevant issues. Chairmanship of the committee will be on a rotational basis between Members, to be supported by IRENA. The chair will host the committee and be responsible for the administrative and logistical arrangements of the meeting.

The GGA will also seek to establish working group(s) that would provide valuable input and technical assistance in areas of strategic importance to the GGA. In order to advance individual and institutional learning from past experiences with a view to further improving procedures and identifying promising avenues for future activities, the Alliance will develop an elaborate monitoring and evaluation system.

Coordination

IRENA will act as the Alliance's coordinator². In this context, IRENA will be responsible for the overall coordination of GGA activities as outlined in GGA's work programme. IRENA will also provide to the Alliance, as appropriate, data, information and relevant tools developed by the Agency. IRENA may, subject to the availability of resources, provide support in GGA activities, within the context of the Agency's work programme.

Communication

The Alliance will communicate through various channels such as email groups, audio and video conferencing, as needed.

Funding

Expenses incurred in the course of the work programme, along with secretariat administration and support, will be funded by voluntary contributions from Member and other donor countries as well as through support of Partners.

² Upon endorsement by the IRENA Assembly

Annex 2 – Indicative List of Activities with their Envisaged Implementation Schedule for the GGA Action Plan for 2016-2017
(dotted lines correspond to GGA events)

	Activities	Key implementing partners (tbd)	Calendar of implementation																							
			2016												2017											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Action 1	Resource and Market Assessment		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 1	Market reviews and status updates (using the IRENA geothermal capacity needs assessment tool and regional consultations)		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 2	Regional consultations for the establishment of projects lists		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 3	Enrichment of geothermal datasets in the Global Atlas		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 4	Identification of pilot countries and projects		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Action 2	Needs and Obstacles Assessments		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 5	Situation analysis, needs assessment and formulation of necessary steps and actions to unlock or accelerate potential or		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Action 3	Enabling Frameworks		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 6	Technical assistance to countries hosting the selected pilot projects		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 7	Capacity needs assessment conducted in one region		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 8	Enrichment of the project database of the IRENA Sustainable Marketplace		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 9	Supporting and developing project formulation tools (e.g. IRENA project navigator)		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 10	Production of a Newsletter on geothermal financing		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Action 4	Global Geothermal Network		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 11	Mapping of all relevant geothermal networks at national, regional and international levels		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 12	Creation of a GGA roster of experts		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 13	Mapping of key energy and climate events to ensure proper representation of the GGA at energy and climate related events		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Activity 14	Promotion of geothermal in supporting decarbonization strategies and implementation of climate plans incl. INDCs		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		