



GLOBAL
GEOTHERMAL
ALLIANCE

Geothermal Driving Energy Transition for Fostering Sustainable Development and Climate Action

High-Level Conference of the Global Geothermal Alliance

30 September 2022 - San Salvador, El Salvador

Background note

Geothermal energy is a key component of energy transition to drive climate action and sustainable development. It is a renewable source providing reliable baseload, high-capacity factor, economic value, cost-effectiveness and flexible electricity, heating and cooling, and other direct applications. Recently, geothermal energy has also proved its viability to support the development of new technologies like the production of green hydrogen, where its high-capacity factor could provide a steadier base and have a significant impact on the evolution of the hydrogen market. Additionally, geothermal power plants are resilient in extreme climate events such as hurricanes, floods, dry spells, and snow blizzards, maintaining reliable energy supply to meet the power demand.

There are several applications in the direct use of geothermal energy that make it a prime option for advancing the decarbonisation efforts of the end-use sectors, in addition to contributing to the achievement of multiple Sustainable Development Goals, including, food security. Furthermore, ongoing efforts to extract critical minerals such as lithium from geothermal brines are set to increase the contribution of geothermal resources in the energy transition.

It is estimated that geothermal resources have the potential to contribute approximately 17% of the global energy needs. However, the actual share of geothermal in the global energy mix remains relatively low. International cooperation among stakeholders is required to address the challenges hindering accelerated geothermal development, mainly the limited awareness of the benefits offered by its utilisation, among others.

In this context, the GGA provides space to strengthen dialogue, cooperation and coordinated action among the stakeholders to increase the share of installed geothermal electricity and heat generation worldwide. The first high-level conference of the Global Geothermal Alliance took place on 11 September 2017 in Florence, Italy. Attended by 230 high-level public, intergovernmental, non-governmental and senior private sector representatives, the Conference led to the release of the 'Florence Declaration' where governments reaffirmed their commitment to work together to identify and implement measures that will significantly increase the speed of geothermal energy development around the world.

The second High-Level conference of the GGA will be hosted by the Government of El Salvador through the Rio Lempa Hydroelectric Executive Commission (CEL) and International Renewable Energy Agency (IRENA), in collaboration with the International Geothermal Association (IGA). It will be preceded by a series of technical meetings and, subsequently, a visit to the Berlin geothermal power plant in San Salvador, El Salvador.

This Conference will be focused on opportunities and challenges in fostering geothermal energy development as a key component of clean energy transition towards the achievement of climate change and sustainable development objectives.

Objectives

This High-Level Conference will offer a platform for an exchange among GGA Member Countries, Partner Organisations and other interested governmental vs non-governmental, public vs private stakeholders on challenges and opportunities in the deployment of geothermal solutions with a focus on a call to action to prioritise geothermal solutions. During the meeting, the key role of political leadership will be highlighted to promote the multi-stakeholder collaboration to stimulating a continued geothermal growth and positioning geothermal as the staple energy of the 21st century.

Expected Outcomes

The Members and Partners of the GGA and other participants of the Conference are invited to express readiness to provide continued support in creating effective investment environments for a scaled deployment of geothermal solutions, aligned with the Alliance's aspirational goal to achieve a five-fold growth in the installed capacity for geothermal power generation and more than three-fold growth in geothermal heating by 2030.

Structure and Target Audience

The Conference is structured to start with a high-level roundtable session, which will be followed by three panel discussions on technical topics.

The target audience of the Conference is Ministers, high-level representatives of public, private, intergovernmental and non-governmental organizations operating that are committed to scaling up geothermal energy deployment.

Draft Agenda

September 30		
09:00 – 09:25	REGISTRATION AND WELCOME COFFEE	
09:25 – 09:40	WELCOMING AND OPENING REMARKS:	<i>Alexandra Hill Tinoco, Minister of Foreign Affairs, El Salvador</i> <i>Francesco La Camera, Director-General, IRENA</i>
09:40 – 09:45	Video about El Salvador	
	SCENE SETTING PRESENTATIONS	
	<i>IGA: Overview of Global Geothermal Deployment</i>	<i>Marit Brommer – Executive Director, IGA</i>
09:45 – 10:30	<i>IRENA: Overview of GGA</i>	<i>Gurbuz Gonul – Director, CEP, IRENA</i>
	<i>El Salvador: Harnessing geothermal for sustainable development</i>	<i>Daniel Álvarez – President, CEL</i>
10:30 – 11:45	SESSION I: Ministerial Roundtable “DIALOGUE ON “GEOTHERMAL ENERGY FOR SUSTAINABLE DEVELOPMENT AND CLIMATE ACTION” <i>Moderator:</i> Geothermal is a promising option for a more sustainable economic model since it can generate clean, baseload, and	<ul style="list-style-type: none"> ▪ All ministers present ▪ High-level Interventions



flexible electricity generation. In addition to power generation, it can be used as a heat source in various end-use industries. New technologies are on the verge of causing a breakthrough in geothermal energy production, which could be critical to attaining a low-carbon economy. To do this, government support will be required to create a favourable financial and regulatory climate for geothermal energy.

The objective of this roundtable is to generate a political commitment to advance geothermal development and translate it into actions that would benefit the energy sector.

11:45 – 12:15

COFFEE BREAK**SESSION II: Panel Session**

“INCORPORATING GEOTHERMAL POWER GENERATION IN CLIMATE MITIGATION”

Moderator:

Increased geothermal growth is ideally suited to climate change mitigation since it supplies a base-load energy source because of its high capacity factor and capability to supply flexibility and other ancillary services to electricity systems, encouraging the integration of intermittent power. Overall, geothermal energy has been proved to be socially acceptable due to its favourable social and environmental characteristics, such as a modest land-use and footprint and minimal average life cycle use of water by binary plants and the possibility of contributing to local communities through direct uses projects. However, enhanced regulatory frameworks and policies are needed to advance in geothermal power climate action.

During this panel session, experts will exchange views, experiences and best practices to address the gaps and barriers in geothermal policy and regulation to identify potential areas for collaboration amongst the GGA constituency.

12:15 – 13:30

Scene setting Presentation○ **Power plant operator**

- **Countries with substantial geothermal installed capacity:**
- **New markets with a pipeline of geothermal projects**
- **Power plant operators**
- **Emerging technologies to scale-up geothermal development and use cases**

13:30 – 14:45

LUNCH**SESSION III: Panel Session**

“GEOTHERMAL HEAT AS A MITIGATION TOOL TOWARDS ADAPTATION”

Moderator:

Geothermal energy can be used in diverse forms to help achieve the Sustainable Development Goals (SDGs), especially SDG 7, Ensure access to affordable, reliable, sustainable and modern energy for all. Utilising geothermal heat in the end-use industries can benefit the agri-food value chain, heating and cooling, and domestic hot water delivery, among other industrial applications. This session will explore the importance of direct uses of geothermal in achieving SDG7. The focus will include raising awareness of the multiple applications and benefits of geothermal heat in the end-use sector.

14:45 – 16:00

Scene setting Presentation○ **District heating system operator**

- **District heating and cooling**
- **Agri-food applications**
- **Heat pumps**
- **Technical Assistance for direct use**

16:00 – 16:30

COFFEE BREAK



16:30 – 17:45	<p>SESSION IV: Panel Session</p> <p><i>“FINANCING GEOTHERMAL THROUGH CUTTING EDGE INITIATIVES”</i></p> <p><i>Moderator:</i></p> <p>The uncertainty on the resource capacity in the early stages of geothermal development makes it difficult to mobilise the risk capital for the exploration drilling required to confirm the potential of the geothermal resources. Advancing geothermal financing requires participation by all stakeholders in the industry and even a mix of different financing models.</p> <p>For this panel session, high-level actors in financing geothermal development will share their experience enabling geothermal financing and will share their best practices.</p>	<p>Scene Setting Presentation</p> <ul style="list-style-type: none"> ▪ Financial institution <hr/> <ul style="list-style-type: none"> ▪ International Financial Institution <ul style="list-style-type: none"> ▪ Rigoberto Ariel Yépez-García - Manager, Infrastructure and Energy Department, IDB ▪ Risk mitigation Schemes ▪ Public/private geothermal developers
	17:45 – 18:00	CLOSING REMARKS
18:00 – 20:00	Cocktail	
October 1		
Field trip – Berlin Geothermal Field		
Pre-day events – September 29		
08:00 – 9:00	Registration	
09:00 – 11:00	Geothermal as an integral solution on SIDS	IRENA
11:30 – 13:00	Geothermal and Green hydrogen nexus	IGA + GIZ
14:00 – 16:00	Powering agri-food value chains with geothermal heat	IRENA
16:30 – 18:00	Presentation on projects for direct uses of geothermal energy	GIZ
19:00 – 22:00	Dinner	