

**INTERNATIONAL RENEWABLE ENERGY AGENCY**

Eighth session of the Assembly  
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**Note of the Director-General**  
**Working together to accelerate the deployment of geothermal energy**

1. Geothermal energy can play a substantial role in addressing the key global challenges of energy security, universal access and climate change, and offers vast local economic opportunities. Various geothermal applications are available to provide steady electricity supply, as well as heat and cooling for industry, agriculture, and the residential and the non-residential sectors.

2. While the scale-up of many renewable energy technologies is unprecedented, geothermal energy is progressing more slowly. Global geothermal power capacity by the end of 2016 totalled 12.7 GW, with annual electricity generation reaching 80.9 GWh in 2015, amounting to approximately 0.3% of the global electricity generation. Currently, only 0.6% of global renewable power capacity and 1.1% of global investments in renewable energy come from geothermal. The wider adoption of geothermal energy in many countries with promising potential is hampered by several barriers, notably high upfront costs related to resource identification and exploratory drilling, policy uncertainty, shortage of skilled professionals, and lack of awareness.

3. The experience of leading geothermal countries tells us that the journey to develop the right frameworks and local expertise requires a tailored and dynamic approach. In countries at an early stage of geothermal development, adequate resource assessment, dedicated policies and financing instruments are crucial to attract the initial round of investments, develop institutional and human capacities, and reduce costs through learning-by-doing and economies of scale.

4. In this context, partnerships and international cooperation are essential to share experience about the wide variety of geothermal energy applications and to address the most complex challenges to unlock investments. To this end, the Global Geothermal Alliance (GGA) initiative was launched during COP21 in December 2015 to serve as a global platform for improved dialogue, cooperation and coordinated action among policy-makers, industry, and other stakeholders. The GGA, coordinated by IRENA, is designed to facilitate the exchange of insights and to provide customised technical assistance, advice, and capacity building to countries and regions with geothermal potential. The Alliance has the aspiration goal to achieve a fivefold growth in the installed capacity of geothermal power generation and more than two-fold growth in geothermal heating by 2030.

5. The outcome of the first High-Level Conference of the Alliance held in Italy in September 2017, the [‘Florence Declaration’](#), reaffirms the commitment of governments to develop geothermal energy as well as the key role of the Alliance in strengthening the necessary regulatory, financial and technical frameworks along with institutional and human capacities.

### **Objective**

Building on the renewed momentum, this session will offer an opportunity for Members and key stakeholders to:

- Learn about the latest activities on geothermal energy undertaken by IRENA and Members of the Alliance;
- Highlight successful examples of the right frameworks for development of geothermal electricity and heating and cooling; and
- Discuss the way forward for the GGA as a global platform to learn from experience, allow expertise to flow, strengthen enabling frameworks and mobilise international capital to unlock geothermal investments.

### **Guiding questions:**

- What are the key challenges that need to be addressed to make geothermal energy play a more prominent role in the global energy transformation, both in terms of power and heating and cooling?
- Based on successful experiences, what are the key elements that countries should take into consideration in their geothermal development plans?
- How can IRENA and GGA further support the accelerated deployment of geothermal energy in the framework of the [GGA Action Plan](#)?