



Speech
by
the President of Iceland
Ólafur Ragnar Grímsson
at IRENA's Headquarters
in a meeting with
officials and staff
Abu Dhabi
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It is a great pleasure for me to address you here today and thus pay homage to the founding work of IRENA; bring you good wishes from Iceland – a country which has become one of the primary examples of how a clean energy future can indeed be created.

Both myself and the Government strongly supported the establishment of IRENA and my friend the Foreign Minister Össur Skarphéðinsson who previously served as Minister of Energy was particularly active in this respect. We vigorously welcomed the offer to establish the Headquarters here in Abu Dhabi even if some of our friends in Europe were also seeking to host the new institution.

We believed that by accepting the generous and visionary offer from Abu Dhabi the location of IRENA would send a strong message on the need to bring about a transformation from fossil fuel to green energy. Since Abu Dhabi took such a pride in inviting IRENA other countries would wake up to the need for change.

Iceland has pledged to cooperate constructively and actively with IRENA in promoting the utilisation of renewable energy, in particular geothermal energy since we have vast experience in that field and are ready to lead the way in cooperation with member states.

I come from a country where the capital city gained its name, Reykjavík, from the geothermal steam which took the early settlers by

surprise; a phenomenon which was completely foreign to the Nordic Vikings who settled on the island more than a thousand years ago.

For ten centuries, our only use of geothermal power was for washing clothes and relaxing by sitting in the warm springs created by natural conditions. Even up to the early years of my parents' life, these were the only benefits we derived from our geothermal resources.

Then, between the World Wars, and especially in the second half of the 20th century, new technologies and engineering endeavours enabled Iceland first to replace coal and oil with geothermal space heating, and then to power turbines and ultimately sell geothermally-generated electricity to aluminium smelters. Thanks also to hydropower, Iceland thus became the paramount clean-energy country in the world, with all our electricity and space heating provided by green energy resources. In addition the geothermal sector has been the foundation of extensive greenhouse cultivation and fish farming, of world-famous tourist locations like the Blue Lagoon, of spas and healthier life styles, of the production of cosmetics and snow melting installations in driveways, in streets and urban centres.

The economic benefits derived from geothermal development have been enormous, helping to transform a country of farmers and fishermen to one of the most prosperous welfare economies in the world, despite the recent financial crisis.

Yes, indeed, geothermal energy has helped Iceland to survive the recent banking shock, especially because the cost of heating and electricity for ordinary people, families, homes and business companies was only a small proportion of what it is in other European countries. But also because our geothermal resources make Iceland a very attractive location for industrial investment, and will do so even more in the coming years : for aluminium smelters, data-storage centres, high-tech industries and other profitable enterprises.

The scale of the national savings resulting from geothermal space heating alone is demonstrated by the fact that every ten years, Iceland saves what amounts to the entire GNP of one year by not having to import oil and coal to heat the houses.

This has indeed been a revolutionary transformation, not only allowing us to build an economy with an inherent long-term strength but also to make significant contributions to the rest of the world. The geothermal sector has become one of the major pillars of Iceland's global position, of our foreign policy and our diplomatic efforts.

The United Nations University Geothermal Training Programme, founded three decades ago in Iceland, has strengthened the capabilities of more than 40 developing countries. The program has also held courses in Kenya (for African countries), in El Salvador (for Central American countries), in China (for Asian countries) as well as in here Indonesia.

In recent years, Icelandic power companies and engineering firms have participated in geothermal projects, for example in China and India, in East Africa and Central America, in Western and Eastern Europe, in the Middle East, Russia and the United States.

It has become an important part of my Presidency to promote such cooperation, especially since the threat of irreversible climate change makes it our moral duty to help others to move towards a more sustainable future.

It is a fascinating paradox that the green energy achievements made in recent decades, principally in the Western World, could, within the right policy framework, be of great benefit to the developing countries, to Asia, Africa and Latin America.

The climate crisis is primarily a call for a fundamental energy revolution, a comprehensive transformation from fossil fuel to green energy sources such as solar, wind, geothermal, hydro and biomass.

In all of these categories, the nations of the South enjoy a richer potential than those of the North. Thus, a green energy era could be a time of renaissance, a progressive century for the developing world.

Bright sunlight and the strong prevailing winds characterise conditions in the South. What is less well-known is the abundance of geothermal resources which in many ways are the golden secret of the global energy debate.

Although we all learn in school that there is a huge fireball inside the Earth, we tend to forget or ignore its enormous energy potential. With modern drilling and engineering technologies, it is now possible to harness this heat for the benefit of economic and social development, rural and urban electricity production, the creation of industrial regions and organic agriculture, for aluminium smelters and greenhouses, for spas and data storage centres.

The great advantage of geothermal, solar and wind energy sources is that the scale of investments can be tailored to the need. The excess capacity and huge initial investment costs inherent in big coal and nuclear power plants are absent from the equation, because the tapping of solar, wind and geothermal sources can be adjusted to the needs of a few

households, a small village, a growing town or emerging industrial projects. It can then be scaled upwards with each stage of successful development.

A few decades ago this important energy dimension was entirely absent from the formulation of economic strategies, simply because the technological development of green energy was still in its early stages. Now, however, developing countries can base their prosperity on proven green energy technologies which can be tailored to every stage of development, to the needs of different regions, and these technologies will become more and more viable and available as time goes on.

With respect to their geothermal potential, most countries in Africa, Asia and Latin America are still in the early stages of this process. China has recently discovered how coal plants can be replaced by geothermal sources for urban space heating. Indonesia and the Philippines are planning increased electricity generation from geothermal sources. In East Africa, countries like Kenya and Djibouti are looking at this resource in a fresh way, as are many countries in Central and South America.

In fact there are about 100 countries that have a considerable geothermal potential, most of them in the developing world. For them, the example of my country can provide both an inspiration and concrete practical lessons.

In my youth, over 80% of Iceland's energy needs came from fossil fuel in the form of imported coal and oil. We were a poor nation, primarily of farmers and fishermen, and Iceland was classified by the UNDP as a developing country right down to the 1970s. Now, despite the effects of the present financial crisis, we are among the most prosperous nations in the world, largely due to the transformation which made our electricity production and space heating 100% based on clean energy.

The abundance of clean energy is the main reason why Iceland is now, notwithstanding the financial crisis, an attractive investment location for foreign companies. An ever-growing number of companies are willing to go anywhere if they can get permanent and secure access to clean energy, thus becoming well positioned when a global carbon tax, in one form or another, is introduced. This magnet nature of clean energy production is especially important for 21st century IT investments, for software and information-based companies. For this reason, an abundance of clean energy could give developing countries a strategic advantage in the 21st century global economy.

The beauty of geothermal energy for economic and social development is that it is not just an energy resource. It can also be used

for greenhouse agriculture and other types of productive farming, helping rural areas, as Kenya has discovered, to grow products for high-priced markets in developed countries. It can also provide warm water and clay chemicals for spas and other tourist locations, for urban and rural recreational and health centres, bringing lifestyle benefits to the local population. Recently, the geothermal water has also been found to be rich in chemicals needed in pharmaceutical production, and advanced experiments have indicated other potentials of rare minerals.

All of this provides the developing countries with new openings in the formulation of successful economic strategies. In addition, the recent financial crisis has shown how a green energy transformation can serve as a defence against serious economic damage in turbulent times.

The utilization of clean energy resources, geothermal, solar and wind, offers not only a wealth of new opportunities for economic development and an enhanced competitiveness in the 21st century global economy; it also provides a powerful defence against the social hardships that would otherwise be likely to occur in the future as a result of the financial crisis.

It is therefore of the utmost importance to acknowledge that the next 5-15 years could see a fundamental breakthrough for the global geothermal community, galvanising scientists, engineers, experts, policy-makers and government leaders to move their countries forward, to a new and more sustainable clean energy future.

Never before in the history of geothermal power have we faced such a challenge: How to ensure that the next 5-15 years will indeed become such an era, an epoch of fundamental transformation.

Although in previous years we have seen significant technological progress, I firmly believe that we are still in the early stages of geothermal know-how and that together we can aim in the coming years for wide-ranging technological breakthroughs in the following fields:

- Deep drilling technology, aimed at tapping supercritical temperatures close to magma chambers, as illustrated by the international Icelandic Deep Drilling Project, going down 5-6 kilometres, examining how to harness temperatures of 400 – 600°C.
- The examination of the seafloor, of continental shelves, for submarine geothermal generation, particularly where high-temperature fluids can be found in fracture zones along mid-ocean ridges; examining whether, and if so, how, these could become a significant part of our energy future.

- Enhanced Geothermal Systems and their contribution to a new energy era.
- The development of smaller turbines, like Kaldara in Iceland has done in cooperation with the Indian Hindustan Turbo Machinery, furthering small-scale geothermal harnessing by adding one container system to another.
- Employing geothermal boreholes in basalt regions for carbon recycling and storage, as is now being tested in a collaborative venture by Reykjavík Energy and universities in the US and Europe.
- Increasing the efficiency of existing geothermal technology, advancing higher energy recovery, longer field times, well-drilling technologies, casing, data management and reservoir simulation.
- Promotion all over the world of space-heating systems to replace coal and oil and thus meet a large proportion of the energy demand in both developed and developing countries.
- And also air-conditioning and cooling systems for use in warmer countries as Reykjavík Geothermal is developing in Abu Dhabi, potentially a game changer in the Middle East and other hot regions.

These and many other developments are fast making the geothermal sector a crucial part of the global energy future. The creation of IRENA, aimed at rallying all nations in the strife to adopt renewable energy solutions, and the establishment of the REN Alliance indicate that a new vision is now inspiring global plans for action.

Many countries need IRENA's support in harnessing all their renewable resources and this support can be strengthened by developing a strong expertise within the agency.

IRENA must be in the forefront in creating close cooperation by partners and institutions, expert communities and business sectors all over the world and thereby help to bring about a fundamental change in the global energy system.

I wish you great success in your endeavours and emphasise that it is a privilege for us in Iceland to be your strong and constructive partner on this fascinating and significant journey.