



**Transformation of the Energy Systems  
Prevents Climate Change**

**IF WE CAN DO IT, SO CAN OTHERS!**

**The Case of Iceland**

**A Speech  
by  
the President of Iceland  
Ólafur Ragnar Grímsson  
at the  
OECD World Forum  
Measuring and Fostering the Progress of Societies**

**Istanbul  
28 June 2007**



Ministers, officials,  
Ambassadors, scientists,  
Ladies and Gentlemen

For those of us who have long been calling for action on climate change, recent months have brought both a positive transformation and alarming news – a transformation thanks to the consensus that now has been established among national leaders and the world's foremost scientists; but alarming news because the evidence increasingly shows that climate change is occurring faster, and with potentially more dramatic and disastrous consequences, than was formerly thought.

We wasted valuable years because the doubters prevented the international community from uniting, but now at last the nay-sayers have retreated. All nations now recognize the threat we face, the alarming security challenge to the entire world which is now on the horizon.

The IPCC reports provide scientific evidence based on firm and solid foundations. The Security Council, a body established to deal with wars and military conflicts, demonstrated in a recent session devoted to climate change, how the nature of global security has been fundamentally altered. The G-8 summit meeting a few weeks ago recognized more strongly than ever the need for common action. The Stern Report outlined how the economic consequences of climate change could exceed the destruction caused by the World Wars and the Great Depression combined.

The question is no longer: Is it true? – but: How much time do we have; what actions can we take?

We in the North are especially concerned because we witness the alarming rate of climate change more acutely than others. The report by the Arctic Council published in 2004 demonstrated that global warming is taking place three times faster in the northern regions than in other parts of the world. The melting of the ice, the receding of the glaciers, the transformation of the tundra, how the North Pole is becoming an open ocean – all this reminds us that time is running out.

Some scientists are even telling us that we have only 10 – 15 years to change course, to transform our economies and energy systems in order to prevent disastrous climate change, less than two decades to eliminate the greatest security threat of our generation.

Can it be done? That is the question; the most fundamental economic challenge facing our nations and the entire world.

Of course there are no easy solutions, no single road to success. The outcome will depend on many measures, international actions, common policies, global agreements – but above all on a new vision, on the inspired conviction that nations, regions, cities and homes can change their economic behaviour sufficiently to create basis for new sustainable and sound energy systems that neither threaten the security of billions of people in different parts of the world nor destroy the environmental viability of Mother Earth.

Increasingly, it has become my mission to offer the experience of my nation as an inspiration and encouragement to others, as a proof that it is possible in a few decades to transform the entire energy system of a nation.

While every country is unique in certain ways, Iceland is not a special case with regard to the clean energy potential. If we could do it, so can others – especially if it is borne in mind that for centuries, Iceland was literally the poorest country in Europe and was entirely dependent on fossil fuel. Now we have achieved one of the highest living standards in the world and enjoy extraordinary prosperity and progress, partly because we transferred our energy dependence from coal and oil to clean energy sources.

During my youth, the capital city of Iceland, Reykjavik, was covered by smoke from coal fires and the coal depot took up the largest part of the harbour area.

Now, 100% of our electricity is generated from clean energy sources and over 70% of our total energy needs, including cars and shipping, are met by renewable resources. Iceland is now in a position to become carbon-neutral and oil-free ahead of most other countries, and can demonstrate how this can be achieved.

Thanks to policy priorities and actions taken by local authorities and the national government, by research institutions and the business community, the technological progress in this area has been outstanding. What began half a century ago as a heating system for a small number of houses has been transformed into an energy production structure on a

large scale . An aluminium smelter in Western Iceland now receives its energy primarily from a new geothermal electricity station; is the first aluminium smelter in the world to be powered in this way.

Clean energy has not only given our economy extraordinary long-term strength; it is also turning out to be a magnet for foreign investment. In recent months we have seen in Iceland what can only be called a queue of global companies, for example aluminium producers such as Alcoa and Alcan, and information technology giants such as Microsoft, Cisco, Yahoo and Google which all want to examine how to gain access to the valuable clean energy resources, primarily because production based on renewable resources will give them stronger market positions.

In the new global economy, clean energy is extraordinarily good for business. Nations, regions and cities that can provide clean energy on an long-term basis have a clear competitive edge in the international market.

The technological and managerial know-how that Iceland has acquired in the development of our clean energy systems, and especially in geothermal technology, has also provided us in recent years with opportunities to establish cooperation and joint projects in many different parts of the world.

Icelandic energy and engineering companies, banks and investment funds have been involved in, and are now engaged in such projects in China and the United States, in Russia, Central Europe and East Africa – to name some examples.

These endeavours, based on clean energy investments and experience, are fast becoming a major part of our global business engagements.

Last week a delegation from the third largest energy company in China, Sinopec, visited Iceland in order to lay the foundation for further long-term cooperation on clean energy projects in China. In April and May I visited Washington for extensive discussions with both the Department of Energy and the leaders of the Senate and the House of Representatives on how to explore the vast potential of geothermal energy in the United States. On May 25<sup>th</sup> a new bill on geothermal power was introduced in the US Senate .

It is a misunderstanding, and one that is frequently encountered, that only a few nations can transform their energy systems from coal and oil to geothermal, and that Iceland is one of a small number of countries with this potential.

On the contrary, there are over 70 countries in the world that could enjoy the utilization of vast geothermal resources, among them some of the largest economies, including the USA, China, India, Russia and Japan.

New drilling technologies which we have developed in the last two decades now enable us to go down as far as three kilometres and it is planned to extend the depth to five kilometres in the coming years. This means that the potential for finding and exploiting geothermal resources is fundamentally altered all over the world.

Furthermore, new technologies which could open up low and medium temperature areas for electricity production from geothermal resources seem to be very promising. The ocean floor, both in the Atlantic and the Pacific Oceans, and elsewhere, also harbours great geothermal resources. The technology for ocean exploration developed by the oil and gas industries could make the utilization of the geothermal resources under the seabed one of the most fascinating clean energy potentials of the 21<sup>st</sup> century.

The Icelandic experience over the last fifty years or so has not only enabled us to strengthen our economy and our long-term business potential in fundamental ways, but it has also allowed us to engage in many international pilot projects of great importance to the entire world.

Let me conclude by giving you two examples.

In recent years, DaimlerCrysler, Shell International and Norsk Hydro have joined us in the Icelandic Hydrogen Project, which is aimed at pioneering a hydrogen-based pollution-free traffic system. The first public hydrogen power station in the world was opened in Reykjavik four years ago and hydrogen buses have been extensively tested as an integral part of the Reykjavik public transport system. This has enabled my small country to join the largest economies in the world in the International Project for the Hydrogen Economy, and earlier this month President Putin presented the leader of this venture, Professor Thorsteinn Sigfusson, with the prestigious Russian International Energy Award.

The second example is a unique carbon sequestration project based on taking CO<sub>2</sub> from the atmosphere and pumping it down through geothermal boreholes into the Earth's interior, where it will touch base with the basalt layers and turn into solid rock; thereby eliminating the risk that this CO<sub>2</sub> could escape again into the atmosphere sometime in the future.

This scientific experiment is being conducted by the University of Iceland, Columbia University in New York, Toulouse University in France and the Reykjavik Energy Company. Similar basalt layers exist in America, Russia and India, and if this experiment is successful, it could revolutionize the global ability to reduce CO<sub>2</sub> in the Earth's atmosphere, thus enabling us to counter-attack climate change in a radical way.

All of this, the message I have brought to you today, the success and the vision I have outlined, will hopefully give encouragement to others and strengthen the conviction that together we can indeed prevent the threat of climate change by united action, new technologies and positive business endeavours.

It is vital that governments, enterprises, public and private, universities and research institutions bring their ideas and expertise together to take immediate action.

Iceland can serve as a laboratory for trying out new ideas for the 21<sup>st</sup> century, and as a forum for clean energy progress, dialogue and discussions; especially since the country is not a unique case. On the contrary, it proves, what can be achieved, often against heavy odds and in difficult conditions.

The Icelandic experience shows that the technological and economic forces of our times can indeed prevent climate change by transforming energy systems in responsible and business-friendly ways.

It demonstrates that we are not faced with a hopeless task, and that a clean energy future can bring enormous economic success.