



**THE SIGNIFICANCE OF
SUSTAINABLE HYDROPOWER**
Address
by
the President of Iceland,
Ólafur Ragnar Grímsson,
at
the Council of the
International Hydropower Association
Reykjavík,
23 June 2009

Your Excellencies,
Ladies and gentlemen,

It is a privilege and an honour for Iceland to host this Council of outstanding thinkers and policy-makers in the field of hydropower. We are proud to have you here and will listen carefully to your advice and opinions. We also want to wish you good luck in your endeavours and welcome you to our country.

The generation of hydropower has brought Iceland enormous benefits, and in the last two decades we have also invested heavily in geothermal energy, with the result that more than 99% of our electricity is now derived from sustainable sources, either hydropower or geothermal.

Only a few decades ago, the opposite was true. Almost all our energy then came from fossil fuels, which were not only unsustainable in character, but also very expensive and highly polluting. When I was a boy growing up in a small fishing town in the West Fjords, its electricity was generated by imported oil and many of the houses were heated by imported coal. It was then common to see complaints in the newspapers about the rising price of oil and coal.

What harnessing of the rivers and our geothermal resources has done for our country is very close to what we could call a miracle. The first stage in this revolution in our energy system came with hydropower.

After a few experiments around 1900, our first hydropowered turbine was turned on and the first street lit on the 12th of December 1904 by a carpenter in Hafnarfjörður, then a small town close to Reykjavík. After that, other municipalities acquired their power stations and following the Second World War the development of the electric grid in the rural areas was accelerated by a special government programme. Another huge step was taken when Iceland responded to the oil crisis of the 1970s through a systematic buildup of geothermal space heating. Within a matter of decades, about 90% of all houses in this rather chilly country were heated by geothermal district systems and the coal smog that was a familiar sight during my younger years had completely disappeared.

I will not dwell on the benefits of this development for Iceland. I mention it only to point out that our example proves that not having to pay the bill for imported oil and coal can have enormous positive effects on any developing economy, and living in warm houses and breathing fresh air instead of smog can reduce health problems dramatically.

It is interesting to contemplate how my country moved through these fast and dramatic changes to achieve a comprehensive sustainable energy system. The first steps in hydroelectric production were taken by individual visionaries who were motivated to solve local problems. The carpenter in Hafnarfjörður wanted power for his workshop, and since he had more energy than he needed, he provided 15 neighbouring houses with electricity and lit 4 street lanterns. A farmer in an isolated region in the southeast started setting up small turbines in remote areas and kept on working until he had provided over 100 farms with their own turbines, which in some cases he built from scratch all by himself. Then came programmes created by municipal authorities, and finally, Parliament passed legislation to provide for security and other guidance on electrification on a nationwide scale. However, it was not until the 1960s that the Government stepped in to establish a national hydropower company to run large-scale hydropower projects.

The history of the use of geothermal energy in Iceland is similar. It was started by pioneers who wanted to heat their own houses or local greenhouses in a cheaper way, and then later the municipal authorities chipped in. When the time was ripe, geothermal power plants were built on a larger scale.

In 1915, less than a hundred years ago, there were only 40 companies in the city of Reykjavík which had machines, and not one of them was powered by electricity. The path we have travelled from the use of coal, oil and even sheep dung to cutting-edge hydroelectric and geothermal technologies has also been the path from poverty to affluence,

the road from unsustainable to sustainable practices, from energy dependence to energy independence.

In the last two decades we have witnessed a growing awareness of global warming, which is caused to a large extent by the use of fossil fuels. We have no choice but to study and acknowledge the disastrous consequences that accelerated global warming could have for human livelihood in all regions and for the entire global economy. We are also all aware that there have been cases where the construction of large dams for hydropower has caused serious social and environmental problems. These are lessons we should use as a foundation for future policies.

The debate on how to avoid global warming is fundamentally about switching our energy economies to more sustainable practices, to harnessing power in harmony with the environment.

Hydropower today constitutes approximately 17% of global electricity production, and is equivalent to about 3,000 TWh per annum. The untapped hydropower resources worldwide which are likely to meet the criteria of sustainability have been estimated to be of the order of a further 6,000 TWh per annum. If properly prepared, constructed, operated and managed, global electricity production from hydropower could be three times its present level; thus, hydropower alone could produce half of the electricity consumed by mankind at its present size.

Looking at the world map, it is estimated that approximately 75% of the hydropower resources of Europe have already been harnessed, about 70% in North America, some 35% in South America, 25% in Asia but only about 8% in Africa. This is particularly striking, since Africa is the continent that suffers most from the shortage of power. The key factor hampering economic, social and health development in Africa is its very severe lack of energy. Let us also keep in mind that some 2.5 billion of the world's 7 billion people do not now have access to electricity at present.

If it is managed in a sustainable manner, hydropower is probably the cleanest and most efficient energy source on Earth. Additionally, it is in most cases very economical and comes out well in a comparison with other renewable energy resources.

The IHA was established to promote the sustainable use of hydropower. Among its present projects are an examination of how to estimate, and to mitigate, greenhouse gas emissions from hydropower reservoirs and also the development of a Sustainability Assessment Protocol.

Since my country has in recent years gone through intensive debates about the building of hydropower projects, I warmly welcome any attempt to come to a reasonable and widely accepted agreement on the sustainable and responsible use of hydropower. Every country must put high priority on avoiding the severe consequences of the irresponsible use of hydropower and work systematically towards a broad social and political consensus.

At this meeting of the Council, I hope we can have a constructive dialogue on these issues, and especially on how we can set policy and stimulate investment in order to deliver sustainable water and energy services, while addressing the threat of climate change throughout the world. We need to examine the role of hydropower in dealing with these challenges and what guidance the IHA can provide in setting the global agenda.

I hope that Iceland will provide a stimulating location for our dialogue, since we can all draw inspiration from the transformation that a generation of visionaries brought to this country, laying the foundation for prosperity and progress, bringing our economy from what was, at the outset of hydropower use, one of the poorest countries in Europe and making, it despite its present difficulties, into one of the most affluent in the world. Furthermore, in the coming years, our wealth in the form of clean energy resources may prove to be among the strongest pillars of our recovery.

With these words, I welcome you again and invite the first speaker to address the Council.