cooling with heating

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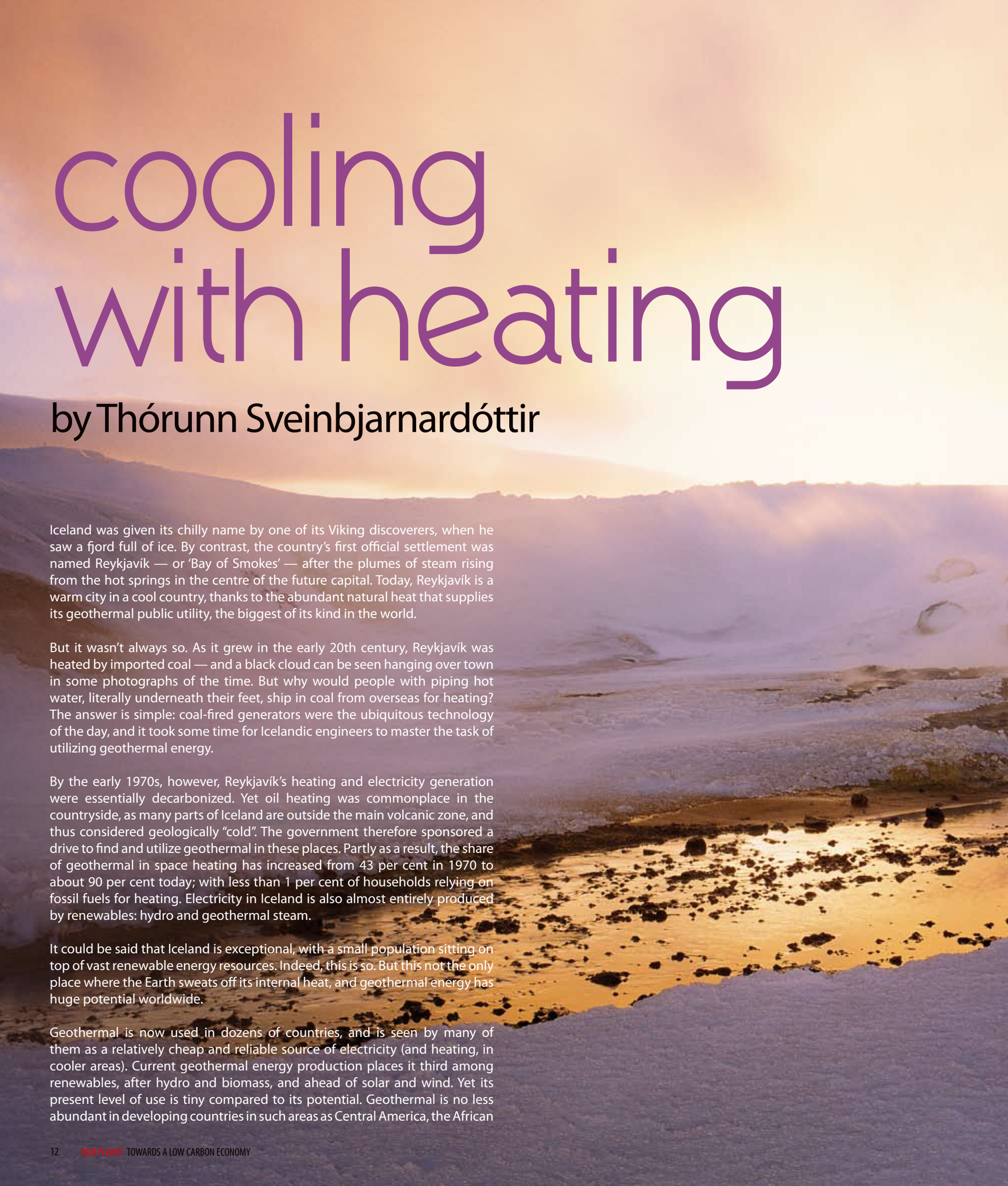

Iceland was given its chilly name by one of its Viking discoverers, when he saw a fjord full of ice. By contrast, the country's first official settlement was named Reykjavík — or 'Bay of Smokes' — after the plumes of steam rising from the hot springs in the centre of the future capital. Today, Reykjavík is a warm city in a cool country, thanks to the abundant natural heat that supplies its geothermal public utility, the biggest of its kind in the world.

But it wasn't always so. As it grew in the early 20th century, Reykjavík was heated by imported coal — and a black cloud can be seen hanging over town in some photographs of the time. But why would people with piping hot water, literally underneath their feet, ship in coal from overseas for heating? The answer is simple: coal-fired generators were the ubiquitous technology of the day, and it took some time for Icelandic engineers to master the task of utilizing geothermal energy.

By the early 1970s, however, Reykjavík's heating and electricity generation were essentially decarbonized. Yet oil heating was commonplace in the countryside, as many parts of Iceland are outside the main volcanic zone, and thus considered geologically "cold". The government therefore sponsored a drive to find and utilize geothermal in these places. Partly as a result, the share of geothermal in space heating has increased from 43 per cent in 1970 to about 90 per cent today; with less than 1 per cent of households relying on fossil fuels for heating. Electricity in Iceland is also almost entirely produced by renewables: hydro and geothermal steam.

It could be said that Iceland is exceptional, with a small population sitting on top of vast renewable energy resources. Indeed, this is so. But this not the only place where the Earth sweats off its internal heat, and geothermal energy has huge potential worldwide.

Geothermal is now used in dozens of countries, and is seen by many of them as a relatively cheap and reliable source of electricity (and heating, in cooler areas). Current geothermal energy production places it third among renewables, after hydro and biomass, and ahead of solar and wind. Yet its present level of use is tiny compared to its potential. Geothermal is no less abundant in developing countries in such areas as Central America, the African

Rift Valley and the archipelagos of East Asia, raising hopes of combining the twin goals of reducing energy poverty and mitigating climate change.

So what is stopping us from tapping more of the Earth's internal energy in the world's hot spots? Not patents or legal restrictions. Perhaps it is the effect of similar forces to those that prevented Icelanders from using geothermal instead of coal at the dawn of our journey from poverty to prosperity — lack of knowledge and reliance on existing top-of-the-shelf technologies rather than innovation.

Iceland is helping to spread expertise in geothermal engineering to developing countries and economies in transition through hosting the UN University's geothermal training programme. Decision makers in governments and financial institutions must know and accept this and other renewable energy options. We should step up research in clean energy. The Fourth Assessment of the Intergovernmental Panel on Climate Change tells us that, unlike in the 1970s, there has been no noticeable increase in funding for energy research. Three decades ago we were stirred by the 'oil shock'. Is the threat to our future from climate change not a loud enough alarm? Besides big opportunities to spread the use of conventional geothermal energy, new and exciting technology, including deep drilling, could theoretically increase power output of geothermal fields five or ten times over.

Last December the countries of the world met in Nusa Dua in Bali and decided on an ambitious agenda towards a new comprehensive global climate agreement. The Bali Action Plan envisions a big emphasis on technology development and transfer as one of five key elements of the future-oriented talks. This is indeed fitting. Without developing and spreading climate-friendly technology it will be very difficult to fight climate change and achieve sustainable development.

Iceland aims both to import and export cleaner technology. We have effectively decarbonized our energy production, and cleared coal soot from the Reykjavík sky, but we have not entirely kicked our carbon habit. Our fishing ships and our cars are still running on fossil fuels. Our car fleet is one of the biggest, per capita, in the world. And Icelanders tend to like big cars, as any visitor to our country will soon notice.

To change this, we have started 'phase two' of the Iceland's decarbonization. We will encourage buying cars that run on alternative fuels, and continue to support research and development in fields such as hydrogen and electric vehicles. We can not do this alone, but we can engage in partnerships with other countries and private companies to develop new technologies and put cleaner cars on the streets and cleaner ships on the waves. Demonstrating our willingness to kick the habit, Iceland was one of four pioneer countries that volunteered to join UNEP's Carbon Neutral Network (CN Net) in February 2008.

Iceland wants to step up its effort to stimulate worldwide use of geothermal energy. In 2010 there will be a meeting of the World Geothermal Congress in Nusa Dua. Bali is an appropriate place for it, one of a string of volcanic islands that offer great potential for geothermal power production in the context of a rapidly growing economy and energy demand. By then we hope to have in place a new agreement that will help us put global warming under control. By then we will hopefully have given our negotiators a break, making it a good time to ask the engineers to go full steam ahead and develop practical solutions to match our political commitments.

It is time for the energy revolution to gather steam. And what more fitting way to cool the Earth's atmosphere than by using its own infernal heat. UNEP