

Stabilization of Greenhouse Gas Emissions: Do We Live in the Age of Miracles?

By *Rögvaldur Hannesson**

Recently, the issue of greenhouse gases and global warming has moved up a long way on the agenda, especially in the two industrialized countries which are not parties to the Kyoto Protocol, the United States and Australia. In both countries this is partly due to extreme weather phenomena; hurricane Katarina and a prolonged period of drought.

One swallow does not make a summer, and neither does one hurricane nor even seven years of drought make a climate change. But even if more and more scientists are becoming convinced that the climate is indeed changing and that it is due to emissions of greenhouse gases it does not follow that such emissions should necessarily be curtailed. This is a question of which would be more burdensome, the cost and inconveniences of reducing greenhouse gas emissions or the lower costs of adjusting to the climate change expected to result from such reduction.

The Stern Report has famously argued that the possibly catastrophic costs of climate change could be avoided by a reductions in greenhouse gases that would cost as little as two percent or so of GDP. Time will show whether this is wishful thinking or based on realistic expectations of technological development. There is, however, one aspect that is given rather short shrift in the Stern Report, and that is the impact on the poor and medium rich countries in the world for energy. The relationship between growth in GDP and growth in the use of energy is well established and not likely to change any time soon; in many countries the growth in GDP has been accompanied by an even stronger growth in the use of energy. This is particularly true for poor and medium rich countries going through the early stages of industrialization. Add to this the fact that the great majority of the world's people live in poor and medium rich countries which have a long way to go to get anywhere near the living standards we take for granted in the rich countries of the world, and it follows that the use of energy in the world will have to grow enormously to make that possible.

Where is that energy going to come from? In the short to intermediate term there is simply no credible alternative to fossil fuels, except nuclear energy. The latter cannot, however, meet all the energy demands made by people who are emerging from poverty. Every year six to seven million people in China are becoming owners of cars for the first time. We are a long way from the carbon dioxide free car in the rich countries of the world, and still further in China and other poor and medium rich countries. Currently solar and wind power accounts for less than one percent of all commercial primary energy in the world. Even if the production of these energy types is to grow by leaps and bounds, as they have in fact done in recent years, they still will not matter much for a long time. And they are not yet suitable for meeting the aspirations of people that are emerging from poverty as driving cars and travelling in aeroplanes.

Unless the aspirations of the poor people of the world get frustrated and economic growth in their countries comes to a standstill, there is every reason to expect that the emission of greenhouse gases will continue at the present level and even intensify for many years to come. A simple piece of arithmetic brings that point home. Take China and the United States as representative of the economically developing versus developed countries in the world. A few years ago China's GDP per capita was about 10 percent of that in the United States. Ignoring population growth, it would take China about 30 years to catch up with the United States if the growth rate of GDP is 10 percent per year in China and 2 percent in the United States. But the Chinese population is about 4.5 times greater than that of the U.S. Hence, after 30 years the total of Chinese and U.S. GDP would be about 7 times bigger than now. Even if advances are made in curtailing carbon dioxide emissions, they would likely grow several times over in that scenario.

China and India together account for about 40 percent of world population. Add to that all the other poor countries of the world and it is clear that the issue of carbon dioxide emissions will largely be decided by the economic development in these countries. One could argue that the rich countries of the world should make room for improvements in living standards in the poor countries by curtailing their carbon dioxide emissions. But the rich are a minority and would have to make major cuts to accommodate the much more numerous poor. If that is going to mean severe cuts in the standard of living it is unlikely that the electorate in the rich countries would support it.

*Rögvaldur Hannesson is with the Centre for Fisheries Economics, The Norwegian School of Economics and Business Administration. He may be reached at rogvaldur.hannesson@nhh.no

Hence, we are well advised to brace ourselves for climate change and all that goes with it. Climate change, to the extent it is related to greenhouse gases, is caused by the concentration of greenhouse gases in the atmosphere. Greenhouse gas emissions are a problem to the extent they are not absorbed by the earth through uptake by the oceans and the earth's vegetation. According to the Stern Report the assimilative capacity of the earth is about 20 percent of the present emissions. To avoid climate change altogether we would thus need to reduce emissions by 80 percent of the present level. Given the requirements of economic growth, that is highly unlikely, to put it mildly. Added to this is the fact that agriculture and land use are responsible for more than 30 percent of greenhouse gas emissions, again according to the Stern Report. Some of these emissions are very difficult to do anything about, such as the release of methane from the digestive systems of cows and other ruminants. Perhaps it would help if we all became vegetarians.

But perhaps whatever little we can do will help. If a solution is to be found to reducing greenhouse gas emissions without a major setback in the standard of living and frustrating the aspirations of the poor people of the world it will have to happen through advances in technology. Some of that is already available, but at a prohibitive cost. A higher cost of carbon fuels would make some of those technologies viable and stimulate the search for new ones. A carbon tax would do just that. And if the carbon tax fails to stimulate new technologies it will at least bring in some revenue for the governments that put it in place. That governments need revenues is not in dispute, although we can argue over how much. It is certainly preferable to satisfy that need for revenues by taxes that have beneficial effects, or no effect at all, rather than by taxes on labor or capital which discourage work effort and investment. In addition, the carbon tax would reduce the use of fossil fuels which are increasingly coming from politically unstable and unreliable countries.

Newsletter Disclaimer

IAEE is a 501(c)(6) corporation and neither takes any position on any political issue nor endorses any candidates, parties, or public policy proposals. IAEE officers, staff, and members may not represent that any policy position is supported by the IAEE nor claim to represent the IAEE in advocating any political objective. However, issues involving energy policy inherently involve questions of energy economics. Economic analysis of energy topics provides critical input to energy policy decisions. IAEE encourages its members to consider and explore the policy implications of their work as a means of maximizing the value of their work. IAEE is therefore pleased to offer its members a neutral and wholly non-partisan forum in its conferences and web-sites for its members to analyze such policy implications and to engage in dialogue about them, including advocacy by members of certain policies or positions, provided that such members do so with full respect of IAEE's need to maintain its own strict political neutrality. Any policy endorsed or advocated in any IAEE conference, document, publication, or web-site posting should therefore be understood to be the position of its individual author or authors, and not that of the IAEE nor its members as a group. Authors are requested to include in an speech or writing advocating a policy position a statement that it represents the author's own views and not necessarily those of the IAEE or any other members. Any member who willfully violates the IAEE's political neutrality may be censured or removed from membership.