

## **A COPERNICAN REVOLUTION**

### **KEYNOTE SPEECH AT THE EUROPEAN RENEWABLE ENERGY FORUM**

**BY  
BIANCA JAGGER**

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Thank you, Ivan Marten for your kind words. I would like to say how honoured and delighted I am to be delivering this speech at such a groundbreaking conference.

#### **The threat of global climate disaster**

Today we stand at a crossroads in history. The warnings from our most respected scientists are loud and clear, yet government leaders continue to ignore the scale of the threat. According to many scientists, we have less than a decade left to address the issue of climate change before we reach the “tipping point”, or the point of no return. The earth is perilously close to dramatic climate change that threatens to spiral way out of control. Scientists now generally accept that current pledges of 20% greenhouse gas emission reductions by 2020 are inadequate given the gravity of the current situation: we have already reached the stage of dangerous climate change. The task now is to prevent catastrophic climate chaos. Failure to act effectively is likely to precipitate cataclysmic changes that may obliterate life on earth.

As climate change kicks in, the tropical and subtropical countries of Africa, South Asia and Latin America will heat up more and more, with temperatures becoming increasingly intolerable. Droughts will affect large parts of Africa, Asia and Latin America. Melting glaciers will flood river valleys and then, when they have disappeared, unprecedented droughts will occur. Poor, low-lying countries such as Bangladesh will find hard to cope with raising sea level.

The Global Humanitarian Forum, an organisation led by former UN Secretary General Mr Kofi Annan, recently issued a report [1] which estimates that climate change accounts for over 300,000 deaths throughout the world each year and that, by 2030, this death toll will have increased to half a million people a year. The report also highlights the serious impact of climate change on the lives of 325 million people at present and an estimated 660 million, 10% of the world’s population, in twenty years’ time. As to economic losses due to climate change which today amount to over \$125 billion per year, they are projected to almost treble by 2030, to \$340 billion annually.

The world situation is deteriorating faster than we previously anticipated. In Professor Stern's words "Global emissions of greenhouse gases are growing more quickly than projected, the ability of the planet to absorb those gases now appears lower than was assumed, the potential increases in temperatures due to rising gas concentrations seem higher, and the physical impacts of a warming planet are appearing at a faster rate than expected.

"Climate scientist James Hansen head of the NASA Goddard Institute for Space Studies suggested that the latest United Nation International Panel on Climate Change (UNIPCC) report on climate change, have been proved far too conservative and, might even be "absurdly optimistic".

Hansen previously estimated sea level rises of 4 to 5 metres this century, due to melting ice in Greenland and Antarctica. He describes how the UNIPCC report fails to take geological records into account and ignores the so-called "albedo flip" property of water:

In a recent report, Hansen says the EU target of 550 parts per million of CO<sub>2</sub> – the most stringent in the world – should be slashed to 350 parts per million. He argues the cut is needed if "humanity wishes to preserve a planet similar to that on which civilisation developed".

As of today the planet has concentration of 389.47 parts carbon dioxide molecules per million. This number is rising by around 2 parts per million every year. Professor Hansen is unequivocal that: "If you leave us at 450ppm for long enough it will probably melt all the ice – that's a sea rise of 75 metres. What we have found is that the target we have all been aiming for is a disaster – a guaranteed disaster," he said.

Given the scale of this impending disaster, we have no choice but to embark upon a global renewable energy revolution, by replacing our carbon-driven economy with a renewable energy economy. The challenge we are facing now is how to switch to a more secure, lower-carbon energy system that does not undermine economic and social development, and addresses the threats of climate change, energy security risk and global inequality.

Climate change is no longer just an environmental issue: it touches every part of our lives: peace, security, human rights, poverty, hunger, health, mass migration and economics. But climate change should not be seen just as a threat – it should be seen as an opportunity to embark on a renewable energy revolution.

## **The Renewable Energy Revolution**

A renewable energy revolution is the only way to deal with the threat of catastrophic climate change. Renewable solutions are affordable, available and a moral imperative Renewable energy is substantially cheaper than nuclear power both in the short term but particularly in the long term. Rather than threatening our security and geo-political stability a renewable energy solution enables and empowers

individuals and communities and offers clean energy security for the people of both the developed and the developing world. Since renewable energy installations are less complex to operate than conventional facilities, plants can be managed by local workforces as part of a decentralised system, to the benefit of poorer countries. Renewable energies not only avoid problems but create a plethora of opportunities – economic, environmental, and social.

In Professor Nicholas Stern's words: "investments in ... (these) technologies could provide sustainable and well-founded economic growth, in contrast to the recent booms, and eventual busts, driven by flaky dotcom ventures or inflated house prices."

The German renewable energy industry now employs around 280,000 people. It has become a global market leader – selling equipment worth around €25 billion annually - and has some of the highest deployment rates in the world. Germany now produces over 19 percent of its electricity from renewable energy sources – having risen from 4% in only 8 years. All this has been delivered at the cost of a pint of beer - €3.10 – per household per month, and these costs are expected to fall by 2013. Along with Spain, and Denmark, it is the most commonly cited example of successful renewable energy policy.

As of 2008, Spain's employment figure in the sector is around 100,000, and Spain produces 7.5% of primary energy and 20% of electricity from renewable. A recent study by the European Commission predicts that a 20% share for renewable energy in Europe's total energy mix by 2020 would lead to a net gain of around 410,000 jobs, and 0.24 additional Gross Domestic Product.

The arguments that renewable energy does not provide sufficient or affordable alternatives to traditional energy sources have been exposed as flawed and false. The cost of finite conventional energies will continue to rise as the sources dry up. As Herman Scheer states in his excellent books, *The Solar Economy* and *The Solar Manifesto*, renewable energy costs will generally go down, as they consist almost exclusively of technology costs. Mass production and technological innovation will bring dramatic decreases in cost. The costs for electricity generation of solar power decreased about 60 percent from 1991 to 2003. The costs for generating wind power declined more than 80 percent from the early 1980s until 2007.

In 2007, more than \$100bn was invested worldwide in renewable energy technology. In 2008, for the first time, both the United States and the European Union added more power capacity from renewables than from traditional energy sources. Renewable energy is close to supplying a fifth of the world's final energy consumption, if we include traditional biomass, large hydropower, and 'new' renewables such as small hydro, modern biomass, wind, solar, geothermal, and bio-fuels.

At present, developing countries in the Global South enjoy little or no energy security, but a renewable energy revolution will have crucial economic and social benefits for the poorest countries in the world. Home-grown renewable sources provide developing countries with the means by which to insulate themselves against rising energy prices and to produce energy locally to fuel their economic development elsewhere in the world. With a decentralised renewable network there would be no

need for expensive grid solutions. In developing these decentralised energy systems, we will be helping to preventing political and military conflicts sparked by scarcity of resources and some countries' control over limited resources. This would give the developing world true and lasting energy security.

## **IRENA**

Promoting renewable energy must now become a global and universal priority. The establishment of the International Renewable Energy Agency, "IRENA", is critical to achieve a Copernican revolution. IRENA will be instrumental in ensuring global energy security and stability. Renewable energy technologies are the only viable solution to the imminent energy crisis. This agency will work towards improved regulatory frameworks for renewable energy; provide policy guidance to governments; address the enormous need for research, development and technology transfer; enhance capacity building; and advice on financing renewable energy to both the developed and the developing world. IRENA represents a crucial step towards the decentralisation and democratisation of energy.

Hermann Scheer has been the driving force behind the establishment of IRENA. For two decades he has struggled to achieve his vision of an International Renewable Energy Agency. During these years he has overcome countless obstacles, through his outstanding international leadership. The fact that IRENA is now a reality is largely due to his power of persuasion, determination and hard work. IRENA and Dr Scheer are inextricably connected. It is therefore essential that Hermann Scheer's invaluable contribution and vision are recognised and that he is mandated with the role of Irena founding president to support the director general. IRENA is achieving great support; it already has 88 signatory countries. But we must not allow it to be hijacked by the nuclear industry, which is attempted to "green-wash" itself by trumpeting its carbon neutrality, and whose spin doctors and lobbyists are heralding a renaissance. We need to be emphatic: "a renewable energy future means that we don't need nuclear power". IRENA is the international renewable energy agency and must not be tainted by a nuclear agenda.

## **Nuclear Energy**

Let me be clear nuclear technology is not a renewable energy, it is not low-emission and it cannot address the issues of climate change; is not a substitute for sustainable energy. Greenhouse gases are emitted at every stage of the nuclear fuel chain, from the mining, to uranium enrichment, through transportation and the construction of nuclear plants. Estimates vary, up to 288g of CO<sub>2</sub> equivalent per kWh. But even a mean estimate of 66g CO<sub>2</sub> per kWh, is significantly higher than the 10g per kWh emitted over the lifecycle of wind or hydro generation.

Uranium is a finite fuel supply - our usable uranium reserves will run out within five decades - and its mining presents serious health risks.

Economic costs are extremely high - Finland's EPR project is at least three and a half years behind schedule and 50% over budget – and the sector is only competitive so long as government's pledge insurance security. Nuclear power has never been economical. Every national nuclear programme is dependent on massive government investment and subsidies. Quite apart from the safety concerns nuclear energy represents a mammoth financial burden to future generations. Governments which subsidise nuclear power divert the finite funds available for energy investment away from the sustainable future: a renewable energy revolution.

The deployment of nuclear power comes with tremendous – and, to my mind, unacceptable – risks, including large-scale nuclear accidents; the problem of waste (highlighted by the recent US decision to abandon the Yucca mountain project in Nevada); the proliferation of nuclear waste increases the risk of a terrorist “dirty bomb” incident; the reactors and their waste depositories remain prime terrorist targets; nuclear proliferation in general, and last but not least the high water consumption of nuclear power plants.

## **CCS**

We should be wary of phrases like “the carbon-free economy”. The French government's use of terms such as "low-carbon technology" is not exclusive of nuclear energy. So far, the expression has been used in relation to two technologies that fail to provide acceptable solutions to the energy crisis: “carbon capture and storage”, or CCS technology, and nuclear power.

One of the much vaunted possibilities of CCS technology is to allow a durable, fossil fuel based economy. However large scale CCS has not yet reached the trial stage, and there is concern that CO<sup>2</sup> might leak. Implementing CCS will be much more expensive than providing energy from renewable sources, essentially because of the extra energy required to separate, transport and store the carbon dioxide.

## **Moving forward with renewable energy**

There is still unjustifiable political prejudice against renewable energy. While conventional energies enjoy political privilege, including large amounts of public money for research and development, military protection of the supply chain and \$300billion in global annual subsidies, renewable energies are discriminated against.

Only renewable energy offers the possibility of true energy efficiency. They are the only solution to the three key global energy challenges: energy security, cost efficiency and environmental protection.

It is not as if this is a sudden or unexpected crisis. We have known the limitations and damaging consequences of conventional energies for over thirty years. As Hermann Scheer puts it, the result so far has been “talking globally, postponing

nationally”, with the effect that the introduction of renewable energies has not been nearly fast enough.

## **Action**

The delays in investment and adoption of renewable energies have been environmentally and economically inexcusable. We now require concrete action.

We must embark upon a Copernican revolution to prevent catastrophic climate change. On behalf of the World Future Council, of which I am the Chair and of the Bianca Jagger Human Rights Foundation of which I am founder and President I strongly urge the implementation of these simple solutions as part of the roadmap leading to the UNCCC in Copenhagen.

## **Points**

- The criteria for the Copenhagen agreement should be based on scientific facts, not on political expediency and vested interests. This time we must not allow governments to pay mere “lip service” to any new agreement.
- All governments must also subscribe to and support the work of the International Renewable Energy Agency (IRENA).
- Wealthy countries must live up to their responsibilities and set up an international investment fund that guarantees technology transfer from the Global North to the Global South. According to the McKinsey Global Institute, at least one trillion dollars must be invested over the next decade to enable developing countries to expand their economies through renewable energy, resource efficiency, and clean technologies.
- Nuclear energy is not green energy. We have to focus on renewable energy solutions that are truly solutions and do not create new risks.
- All countries must transform taxes on energy into taxes on emissions, promoting the supply and demand of emission-free energy.
- We must embark upon a global programme of forest protection and reforestation. Deforestation contributes nearly 20 per cent of the overall greenhouse gases emissions. The Stern review on the Economics of Climate Change recognises that “curbing deforestation is a highly cost-effective way of reducing greenhouse gas emissions.” Planting 10 million square kilometres of new forests will help stabilise the concentration of CO<sub>2</sub> in the earth’s atmosphere at 350 parts per million.
- We must establish a new international initiative combining biosphere protection and restoration, in order to reverse the decline of biodiversity.
- We must provide financial incentives that empower households and businesses to invest in renewable energy and resource efficiency. For example, “Feed-in Tariff”

legislation in Germany has created a quarter of a million new jobs and enabled millions of people to benefit from renewable technologies.

- Governments and Corporations whose practices put the environment and human life at risk must be held accountable for their actions.

### **Closing**

I would like to finish by quoting Dr. Scheer:

To be able to discuss energy as a separate matter is an intellectual illusion. The CO<sub>2</sub> emissions are not the only problem of fossil energy. The radioactive contamination is not the only problem of atomic power. Many other dangers are caused by using atomic and fossil energies: From the polluted cities to the erosion of rural areas; from water pollution to desertification; from mass migration to overcrowded settlements and the declining security of individuals and states. Because the present energy system lies at the root of these problems, renewables are the solution to these problems. That means: Nothing is macro-economically better and cheaper than the total substitution of conventional energies by renewables. We need a hard-line strategy for soft energies.

Dr Scheer's words show that this is the over-riding moral imperative of the century: the time has come for decision-makers in politics and economics to embrace this opportunity. There is no time for further excuses, postponement, or procrastination. This is a time for courage and leadership, and for positive and immediate action.