Renewables and Innovation - a Challenge in Recession?

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A challenge in recession? Actually I see it the other way round - renewables will be a cornerstone of the new sustainable recovery that can help lift us out of recession.

The pathway to recovery must take us in a new direction, not returning to the unsustainable model of the late 20th century. Extreme energy price volatility, climatic disasters, and an unsustainable financial system have led to the present crisis and shown what we need to avoid in future.

Indeed there's a lot we can learn from the parallels between the financial sector and the energy sector. The financial bubble burst when it became apparent that the underlying asset base was not growing to match the economic value ascribed to it. It started in the sub-prime mortgage market, but it soon became apparent that this was endemic in much of the banking and capital markets.

It is probably no coincidence either, that the world economy started to go into recession weeks after hitting a dramatic high in global oil, gas and electricity prices. Again the underlying resources couldn't sustain the rate at which our energy consumption was rising - let alone the rate at which we can safely afford to use energy.

So the move to a sustainable energy and economic model is a pre-requisite for any long-term recovery. As Lord Stern said, "without the transition to a low-carbon global energy system, the next economic crisis is pre-programmed."

Renewables can play a decisive part in this recovery. It is often overlooked that renewable energy brings even greater benefits to the economy than to the environment. It reduces fossil fuel imports, thereby helping not only our balance of payments, but also energy security. It can generate and sustain millions of jobs. It can create new technology, new industries, and new export opportunities

Now is therefore a good time to review the state of the renewables industry as we enter this new phase. Inevitably, I'll take a UK perspective. The government's gloomy budget this year highlighted the need for stringent spending cuts to alleviate the weakened state of the economy. Yet it announced more new money for renewable energy than all previous budgets put together.

Call me an optimist if you like, but I'm prepared to believe that this could be a sign that government at last recognises that an urgent step change is needed to put us on course for our binding targets, and a sustainable future. It wasn't enough, of course, but before looking ahead, let me first review how we got here.

FIRST THE INFANT

When I first joined the renewables industry in the mid 1970's, it was in the first flush of youth following the so-called 'oil shock' of 1973. Very much a fringe sector, renewable energy was pioneered by a small band of enthusiasts - sometimes dismissed as the 'beard and sandals brigade'. Climate Change hadn't been invented, but even so a few visionaries understood the limitations of a civilisation, which had in little over a century consumed about a third of the fossil fuel reserves that had taken 400 million years to accumulate.

Renewable energy had been in use way before then of course - in fact it was the only source before coal and oil were discovered. Traditional renewable energies in the form of hydro-power and biomass were part of the energy infrastructure - not really differentiated from fossil and nuclear power. But the 1970's saw the start of new developments in wind-driven generators, solar photo-voltaics, and geothermal energy, amongst others. New markets emerged in solar thermal systems and biomass heat.

However these new renewables made insignificant contributions to energy markets in most countries. Nor did they carry much influence in the political classes, though the green movement was emerging and of course embraced the value of renewables.

AND THEN THE SCHOOLBOY

The second phase of development in the renewables industry, starting in the early 1990's, saw it starting to make inroads into the energy mix of parts of the developed world.

This was led by countries with little indigenous fossil fuel resources, such as Japan which introduced the Sunshine Programme for photovoltaics, Denmark which pioneered the deployment of wind energy, and Austria and Finland who used their abundant biomass resources. The successful approaches were those that supported early commercialisation through market mechanisms, while regions whose focus remained on R&D, such as the UK and to a lesser extent the USA, tended to lose out.

As the Green movement gained a voice during this period, and awareness of climate change and general sustainability issues increased, more systematic incentives were introduced, such as the feed-in tariffs in Germany, and renewable portfolio standards in certain US States. These brought these new technologies towards the mainstream of energy policy, and accelerated its deployment.

Where substantial fossil or nuclear energy resources existed, renewables policies emerged weaker and later. In the UK, for example, the Non-Fossil Fuel Obligation (NFFO), introduced in the early 1990's, achieved only modest penetration. Its replacement by the Renewables Obligation in 2001 accelerated the deployment of landfill gas and wind, but slowed down other renewable resources.

Since then international climate change activities have brought sustainable energy into the heart of energy policy. The European Union in particular has proved a pioneer in this arena, and the 2020 targets and Renewable Energy Directive that supports them will prove to be a model that many parts of the world will have to follow.

Here in the UK, the policy platform has broadened substantially over the last eighteen months, encouraged by constructive engagement from the industry, and strengthening policy signals from Brussels. This led to the Renewables Obligation (RO) being extended, and joined by new objectives for zero carbon buildings, a Renewable Transport Fuels Obligation (RTFO), and energy efficiency measures.

At last, the remaining neglected area - renewable heat - was also addressed in the 2008 Energy Act, which introduced enabling powers for renewable electricity, heat and biogas tariffs. This should finally encourage energy users to play their part alongside the supply companies, and set the stage for the next phase of development.

THEN A SOLDIER

We must now move into a new era of co-ordinated action. Regions like Denmark, Germany, California and Spain have shown that rapid market development can be delivered by a coherent policy portfolio, combined with concerted government action to break down barriers to deployment. It is a precedent that the UK must now follow.

Current progress is painfully slow - deployment under the RO is hampered by a sluggish and unpredictable consenting regime, biofuel suppliers were undermined by a drafting error in the RTFO, which effectively halved the targets, network infrastructure is ageing and ill-suited to decentralised energy, while the tariffs and zero carbon buildings initiatives are not due for implementation until 2010-2011 and 2016-2019 respectively.

It is vital that the UK's Renewable Energy Strategy, and the National Action Plan which follows next year, have measures to solve these and a host of other issues.

Meanwhile the worsening economic situation is constraining the availability of public and private capital. Fortunately the recession has not thrown the renewables industry into a spiral of decline. In fact, a strong international movement emerged around a narrative that advocates a more sustainable energy and economic system as a pre-requisite for recovery.

The positive reasons for this are very persuasive as advocated in Obama's 'change' leadership. A report by Delta-EE for the REA concluded that the positive effect on the UK balance of payments of meeting our sustainable energy targets could be as much as £12.6 billion in avoided fossil fuel imports by 2020. Renewables are now recognised as economic and social multi-taskers, delivering jobs, employment, growth and innovation while locking-in future energy and climate security.

Many countries have also recognised the synergy with the need to upgrade deteriorating infrastructure, and are investing in intelligent networks. Energy economist Dieter Helm has identified the poor state of UK infrastructure as a present and growing drain on productivity and international competitiveness, and a ripe target for low-carbon restructuring and investment during the recession.

In other words "scarce money must be smart money".

THE INNOVATION HORIZON

The challenge, with or without recession, is not so much whether the necessary innovation can come forward, but how and where it should be stimulated.

This is because we need not only to optimise performance in the areas where the market will deliver, but also to recognise that rapid quantum change will not be delivered solely by free markets.

The best way of getting industry to deliver innovation in those areas where it will take the lead, is to give it a strong, fair, long-term market.

But policy makers must recognise that industry needs to make a return on its historical investments. That means that it is not best placed to deliver disruptive change. Nor is competitive industry well suited to developing strategic common infrastructure. Most of today's shared energy networks were installed by a state monopoly, as was our rail network and our postal system.

We therefore need to evolve a better way to deliver the strategic developments we need, especially to the energy infrastructure as it changes from a wholly centralised system to a partially decentralised model. It will not be most efficient to leave development in these areas to industry alone. A more communal approach is needed and governments will have to play their part.

WILL ALL THESE PIECES COME TOGETHER?

I think it's still on a knife edge. If we all work together and are prepared to change the paradigm with a coherent plan for change at the rate required, then it can still be achieved.

If not ... ■

BIOGRAPHY

Philip Wolfe has been in the renewable energy sector for over thirty years. A Cambridge engineering graduate, he was the founder chief executive of what is now BP Solar. He runs an advisory business Wolfe-Ware Ltd (www.wolfeware.co.uk) and is a non-executive Director of the Renewable Energy Association for whom he served as Director General until June 2009.