

# Renewables and Sustainability

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Something that is indefinitely renewable is, by definition, technically sustainable.

That is why those who support sustainable development also tend to support renewable energy. The sun is expected to continue to burn for a few billion years. As long as it does so, the conversion of its energy into plant life, wind and waves, combined with the moon's tidal pull, provides us with a supply of energy that can be renewed indefinitely.

Renewable energy was the only significant form of energy our species could mobilise until we discovered how to exploit and use that great once-off cornucopia of carbon-based energy – coal, oil and natural gas – that we inherited from the build-up and compression of plant and animal life millions of years ago.

But oil and gas supplies are getting harder to find, and more expensive to exploit. Much of the remaining stock is in potentially politically and militarily volatile parts of the world, with the exception of the shale gas emerging as a huge new source in the US. Their use produces carbon dioxide, which is implicated as the primary cause of climate change.

And so we are going back to the future, attempting to re-discover renewables, and apply modern technologies and skills so we can wean ourselves away from our dependency on fossil fuels, and transform our economy and environmental performance as we do so.

A conference in Dublin (Croke Park) on 4<sup>th</sup> March – the third National Renewable Energy Summit – focused on how best to achieve this transformation in Ireland. Very interesting and important perspectives emerged.

A key issue debated was: what will the cost of the carbon-based alternatives be in the future? The price of oil and gas have gone their separate ways in Europe for the moment, with a 'glut' of gas expected for the next five years or so, trading at a price about 50 per cent of that of oil on an energy-equivalent basis.

But most investment in renewables will not come on stream for another five years, and what then? Will Russia, Iran, Algeria, etc. continue to be reliable sources of gas supply at current prices, or will there be serious price escalation? Given the scarcity of capital at present, should we mark time, and re-enter the arena when times in this regard are better?

Our call on this issue will be of fundamental significance.

Through the European Union Emissions Trading Scheme, and with our local carbon tax, we have created an incentive for renewable producers in the sense that fossil fuel users have to pay for their emissions for carbon. This puts them at a competitive disadvantage to renewable producers, who have no emissions and therefore do not pay the tax.

However, utilities in the trading scheme got their allowances for free over the 2008 to 2012 period, and in deregulated markets some passed through the value of the allowances in higher prices for electricity, thereby generating windfall gains. The Government proposes to impose a levy to capture some of these gains from 2011.

Finance for the implementation of projects that have proven technologies, notably wind for electricity, is not a huge problem, although the banking crisis has made long-term funding difficult to access. Projects now completed and in the pipeline will mean that we will achieve the Government's target of 20 per cent of electric energy from wind by 2020.

But huge challenges arise – mainly in regard to grid development – in going beyond that and increasing the share to 40 per cent. Concerns about our sovereign debt make raising very large sums internationally more expensive for large-scale investment. The cost of capital is as important as the cost of oil in determining the viability of investment in renewables.

As regards the grid infrastructure needed to transport supply from source to consumers, there is a conviction that the technical challenges will be successfully met, but getting the infrastructure in the right place and scale will involve major challenges of public acceptability. So the whole area of permitting and getting public buy-in is central to the achievement of Ireland as a leader in renewable wind. Learning from best practise in other countries is key.

As regards the embryonic or less-established sources – including micro-generation at the level of the home, farm, or office; geothermal sources; district heating; biomass; wave and tidal, the strategy for ocean sources – fostering research and development, followed by specific demonstration projects with investors, that if successful can be scaled, is key. It is the model being used for ocean resources, based on a template developed by Sustainable Energy Ireland. It is working, but the approach has not yet been extended to the other areas where such potential exists.

However, the utilities are to be given obligations to achieve energy consumption reductions from their customers – a model that has successful precedents in the US and Europe. If combined with research on frontier technologies for improving heat-saving, the mechanism could also create enterprises that could be involved in export markets.

More generally, research development and innovation are needed to create enterprises that do not just meet Irish needs, but are export led.

The Industrial Development Authority (IDA) sees clean tech as the next big wave of foreign direct investment (FDI), probably focused on the interface between digital media, IT and clean tech, but only if research and development is more coordinated and can drive innovation coherently, the skills gap in engineering is closed, and the process for securing planning permission and engaging is clear and efficient.

Asia is expected to be a key source of FDI. China has committed to renewable development on a massive scale, with a view to not only supplying its own needs, but also becoming an exporter of technology. Its share of global production of photovoltaics rose from five per cent in 2007 to 50 per cent in 2009.