

*outdated thinking slows
Ireland's progress towards
energy sustainability*

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The challenge Ireland faces in developing a sustainable energy supply is equivalent to climbing Mount Everest after a lifetime of gentle walks in Wicklow. There are really only two ways to reach the peak. One requires the climber to be fit, trained, mentally prepared, properly equipped and with no excess baggage. The other way - which is obviously the more popular - is to spend a great deal of money and hope a team of sherpas can carry you up to the top.

Irish energy policy pretends to take the former approach but increasingly resembles the latter. For example, the government has no plans to move away from infrastructural developments which will require high levels of energy use in the future even to gain a medium-term competitive advantage. Instead, it is content merely to meet EU energy and environmental legislation. Unfortunately, however, if Ireland avoids the effort required to increase the energy efficiency of its economy by more than the minimum required of it now, the country will face an almost impossible task when it seeks to raise it in the future.

THE CHALLENGE

Ireland will face increasing competition for its imported resources in the years ahead - and particularly for its energy. The sheer scale of global consumer demand is already staggering. Just one statistic gives a good indication of the amount of resources currently being consumed - there are already 770 million cars in the world even though the people of Eastern Europe, China and India are only now starting to acquire them in large numbers. So many people, such limited supplies of

energy and raw materials and so many areas of instability in the world - all make our future supplies precarious.

People still believe that brains and hard work are sufficient to enable an economy to prosper but this is no longer the case - there is no shortage of smart and hard-working people in the world. Increasingly, a country's success will be determined by its ability to meet its people's needs using the minimum input of the world's depleting stock of natural resources - in other words, its eco-efficiency. In Ireland's case, however, we are still working hard to install production systems developed years ago in other countries. This means that we are allowing other countries' past practices to dictate our place on the battlefield of future competition.

FOUR PHASES TO A SUSTAINABLE FUTURE

Building a sustainable economy or company involves passing through several stages. In Frankel's *In Earth's Company* and in Natrass and Altomare's *The Natural Step for Business* these phases are identified as

- * Compliance phase - companies see the cost of preserving the environment as a burden and do the minimum required to comply with the law.
- * Beyond compliance phase - companies no longer see environmental protection as an unnecessary expense.
- * Eco-efficiency phase - the environment is increasingly seen as a source of profit. Firms see that they can gain a competitive advantage by using energy wisely and striving for zero waste. Companies already at this stage include IKEA, Scandic Hotels, Xerox, Bibio, 3M.
- * Sustainability phase - companies have zero waste and closed-loop manufacturing processes using sustainable energy and raw material inputs. The economy in which they operate will bear no resemblance to that of today. Design for Environment (DfE) will be part of every manufacturing and service industry activity.

IRELAND AND THE COMPLIANCE PHASE

Ireland is clearly still in the first phase. As the Green Paper on Sustainable Energy and the Greenhouse Gas Abatement National Climate Change Strategy documents show, it is only concerned about being compliant with external legislation. Small token improvements in the public's energy awareness are hailed as a success. Jargon phrases such as 'Least Cost' and 'No Regrets' sprinkle official papers. The

bigger, global picture is ignored. Extremely impressive officials produce incredibly unimpressive policy.

The reason is simple. We Irish are in love with the idea of creating a modern economy with the same level and type of infrastructure as countries which developed earlier when conditions were different. As a result, we see environmental directives from Europe and international agreements such as Kyoto as standing in our way. We therefore allow our politicians to continue to regard environmental protection and renewable energy projects as unnecessary luxuries, to be funded sparingly - if at all.

Moving beyond the compliance phase is not automatic. Legislation is always a compromise and usually reflects the lowest common denominator acceptable to lobby groups. This is a serious problem for the achievement of sustainability as the future has no voice and almost every lobby group has a vested interest in maintaining the status quo. The Irish response to global warming shows this well. The scientific consensus is that greenhouse gas emissions need to be reduced by as much as 70% to stop further warming taking place. At Kyoto in 1997, however, the EU undertook to cut its emissions by only 8% from their 1990 level by 2010 and even this target may not be met as a result of the breakdown in talks on its implementation at The Hague last November. Ireland in turn has promised its EU partners to see that its emissions rise by no more than 13% above 1990 levels by 2010 - a clear example of the way we see our development amounting to doing what others have done before. In other words, we are leaving it to our children to make 90% reductions to make up for our greed and sloth.

ECO-EFFICIENCY

Ireland has to move away from the idea that environmental protection and the substitution of renewable energy for fossil fuels are burdens and see them instead as investment opportunities. Investing in the right things now can reduce energy requirements for generations to come and help ensure that the economy is competitive (and thus able to generate our pensions) when we retire. The book *Natural Capitalism* (see review later in this book) gives many examples of buildings, businesses and cities which have invested slightly more and gained a long-term economic advantage

If we are to make massive reductions in energy use in the future, we have to look deeply into the design of our infrastructure now. At the moment, Irish energy policy only takes fuel and electricity use into consideration. It ought to consider

materials as well. Once carbon taxes are introduced, or oil becomes scarce, or greenhouse gas emissions permits have to be purchased, construction materials will become significantly more expensive. Consider how even insulation might become more costly in the coming decade. Fibreglass is very energy-intensive and could triple in cost. So could rock wool if steel-making is cut back. Plastics and foams are oil by-products and supplies of wool and hemp are likely to be scarcer, and thus more expensive, because fertiliser applications will be cut back.

All other building materials - and particularly steel, cement, glass and aluminium - will be similarly affected, especially as the lower grade ores the world will be having to use then will require more energy for extraction. This means that in a few year years' time we will no longer be able to buy or build our ways out of problems. The more expensive solutions that we now ignore will not just be even more expensive then but completely unaffordable.

The energy embodied in most products is many times the amount required to run them. This is particularly true of cars and houses which take more energy in their manufacture than they do in the first decade or two of use. In many cases the rate of return on capital invested in energy-efficient cars, homes and equipment is already well into double figures and will grow further as energy prices rise. This is the opportunity we are missing. Now, when materials are cheap, is the time for the country to use incentives, tighter building codes and prohibitions to ensure that all investments are future-proofed.

The worst current example of a case in which our focus on mere compliance with EU directives is storing up problems for the future is in the gas and electricity system. At present, the conventional energy lobby is highlighting the fact that the gas inter-connector between Britain and Ireland will be inadequate to meet this country's demand by 2003 because it will no longer be supplemented by supplies from the Kinsale Field, which is running out. The lobby is also drawing attention to the 'appalling' level of CO₂ emissions from the coal-fired power station at Moneypoint. So what does it propose? The construction of a pipeline to the Corrib gas field as quickly as possible, the conversion of Moneypoint to natural gas and the installation of four combined-cycle gas turbines (CCGT) for power generation elsewhere..

This 'solution' would triple the amount of natural gas we need, maintain CO₂ emissions at their current level and burn the contents of the Corrib field - which is smaller than Kinsale and, once it is attached to the European gas network, would meet Europe's total needs for only twenty days - in less than ten years. I would say

'Out of the frying pan and into the fire,' except by the time Corrib is exhausted we probably will not have anything to feed the fire. So the lobby resorts to hoping that more gas will be found in the Porcupine basin off the Mayo coast, and points out that if not, there's always the interconnector with Europe to fall back on. But by 2010 nearly 60% of Europe's natural gas is expected to be coming from Russia and Algeria, scarcely reliable sources. Until proved otherwise, the Corrib has to be treated as a strategic reserve and potentially the last great fossil fuel resource available to this country.

The easiest way to prolong the life of the Corrib field would be to install a DC powerline to North Mayo and set up a large-scale wind/gas hybrid generating station there which would fall back on gas only when the wind wasn't blowing strongly enough.. This could double the life of the field. A better alternative would be for the government to require all new fossil-fuel powered generating equipment to be 80% efficient. This would mean that Combined Cycle Gas Turbines, (CCGT) which are only 45-55% efficient, would be superseded by Combined Heat and Power (CHP) stations which are 80-95% efficient. This would force developers to be innovative in finding and matching heat loads to generating facilities. This is particularly important at a time when so much construction is being carried out. Every housing estate, leisure centre, hotel, public building and industrial estate should be seen as a potential site for a generating plant. A major side benefit would be to increase innovation in our building and energy sectors which would prepare them for the new energy challenges.

MISSED OPPORTUNITIES

By concentrating entirely on the short-term price of energy rather than sustainability and our future security of supply, we are creating a centralised 1980s-style electricity system. This is unfortunate given the fact that a recent article in *The Economist* highlighted the growth of decentralised small-scale electricity generation of the type mentioned above as a revolution likely to be as significant as that which has taken place in telecommunications.

Ireland is very fortunate to have several renewable energy sources capable of meeting significant proportions of our power requirements. Wind, biomass and anaerobic digestion. are particularly promising. So why do we not increase the funding going to these alternatives? You've guessed it - it would make electricity more expensive. Instead we do everything to keep electricity costs low, a policy which made sense in the days before we realised how limited supplies of oil and gas are and how much harm their use does to the environment. Naturally, low-cost

power increases the demand for it so now the government turns round and announces its intention of introducing an energy tax within the next two years to bring our emissions down. In effect we are getting the worst of both worlds - more expensive power without the lower levels of fossil fuel use, greater sustainability and less pollution that an alternative strategy could have brought.

Immense damage has been caused by looking to the past for best practice. This is increasingly obvious in the area of wind energy where low-cost projects have alienated local populations. The concentration on cost also provides the economic justification for large scale CCGT projects. They are cheaper than the older peat and coal technologies and, in addition, their lower emissions make them look environmentally superior. The fact that their emissions are higher than CHP is overlooked.

It is time to plan for a future based on creating an economy that needs a fraction of the fossil fuel required by our competitors. If we act now, we could build the radically-different infrastructure such an economy requires while material costs are low.

As things stand, the recent decisions to to ban large out-of-town shopping complexes and give a £6000 tax benefit for keeping lodgers will probably save more energy in the long term than anything else we have done as a nation. Are these moves a straw in the wind? Do they demonstrate the emergence of an awareness that Ireland does not have to do things the same way as elsewhere? One can only hope they do.

REFERENCES AND RESOURCES

Brian Nattrass and Mary Altomore, *The Natural Step for Business*, New Society Publishers, British Columbia, 1998, ISBN 0865713847

Carl Frankel, *In Earth's Company : Business, Environment, and the Challenge of Sustainability*, New Society Publishers, British Columbia, 1998, ISBN 0865713804

The US Department of Energy has an excellent site for statistics on current world energy consumption at <http://www.eia.doe.gov>. Its projections assume there will be no supply shortages, however. It has information on distributed generation if you use the search engine at <http://www.eia.doe.gov/der>

The Worldwatch Institute's July 2000 publication on micropower can be downloaded from <https://secure.worldwatch.org/cgi-bin/wwinst/WWP0151>

The Economist article, 'The Dawn of Micropower' appeared on 5 August 2000. It can be found at:
http://www.economist.com/displayStory.cfm?Story_ID=28854&CFID=37132&CFTOKEN=68859159. Alternatively, log in to www.economist.com , go to the library and use the search engine for 'micropower'.



Biographical Sketch :

Michael C. Layden, an engineer, comes from the family which ran the coal mine at Arigna, Co. Roscommon, for 120 years until low prices forced it and the ESB power station it served to close in 1990. Michael immediately went to the US to work in the wind industry while his father and sister Carol began monitoring windspeeds in the Arigna area. Between 1994 and 1997 he and Carol developed the Arigna windfarms. He was manager of the East Connacht Energy Agency from 1997 to 2000. He now works as an independent consultant in Ireland and the US. production systems developed years ago in other economies.

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