

March, 2004.

Irish Renewable Energy Policy

Contribution to Consultation Process on Policy Goals

Ireland's renewable energy policy can only be developed intelligently if carried out within the framework of an overall energy policy. The latter, in turn, should only be shaped by people who have carefully examined the prospects for energy supplies from conventional sources for the next fifty years. (No shorter period can sensibly be taken in view of the fact that energy-using structures such as buildings, railways and roads built now will have a life of around that period and in some cases far beyond it. Some power infrastructure can also be expected to last as long). The policymakers examining conventional energy supply prospects need to answer the following questions for themselves:

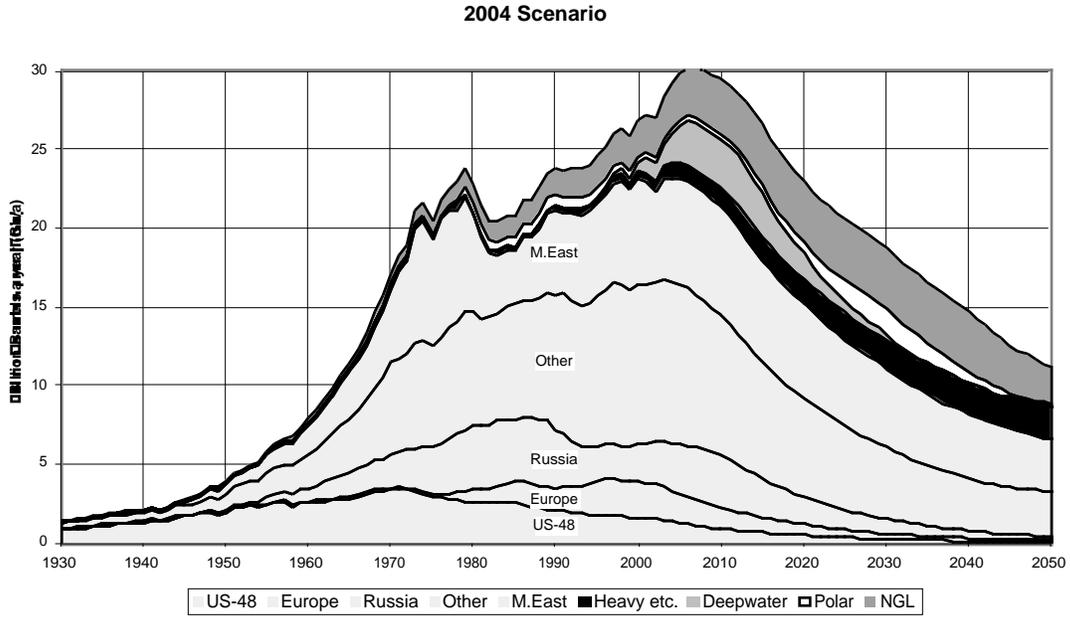
1. Will supplies of oil, gas and coal be abundant and cheap until 2050?
2. Even if supplies of fossil fuels will be abundant, will their use be restricted in order to limit the extent of climate change?
3. Could supplies of the three fuels be seriously interrupted if crises developed in other parts of the world?
4. Does Ireland have untapped energy resources which could be developed over the next half-century to provide new sources of export earnings?

We'll comment briefly on each question in turn

1. Future fossil fuel supplies.

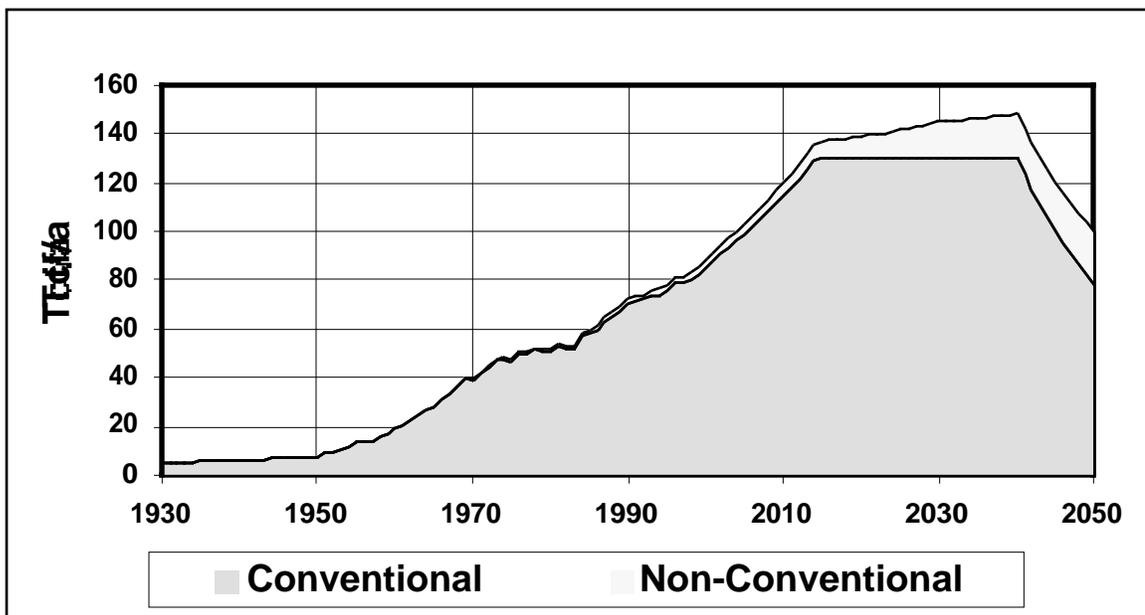
Coal is in abundant supply but, largely as a result of the work of Colin Campbell and Jean Laherrère, increasing number of people are coming to the opinion that the total amount of energy available to the world annually in the form of oil and gas will begin to decline in the next 10-15 years. Figure 1, 2 and 3 supplied by the Association for the Study of Peak Oil show the position in the light of the Campbell-Laherrère analysis. Figure 1 shows the world's oil production from conventional sources peaking within the next five or six years. Output then falls away so that by 2050, it will be just over half its 2010 level. With gas, world output is expected to peak around 2040 and then go into a steep decline, as Figure 2 illustrates.

Figure 1: Oil and Natural Gas Liquids



Source: Association for the Study of Peak Oil.

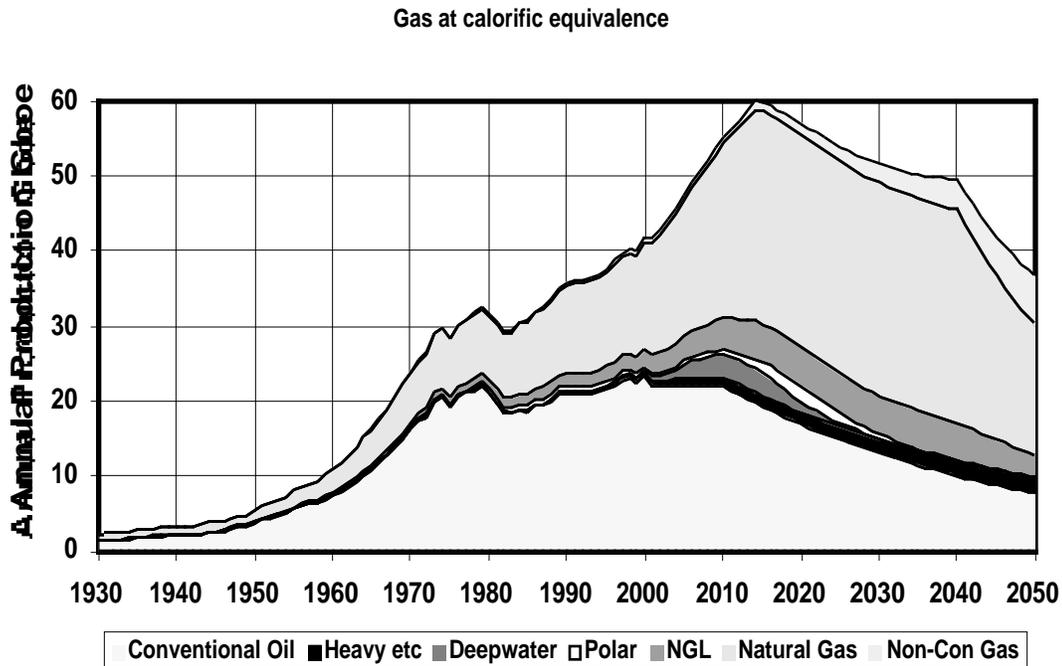
Figure 2: Natural Gas



Source: Association for the Study of Peak Oil

If we put the two graphs together to show the total amount of energy that oil and gas can be expected to deliver over the next century we get Figure 3. This shows that the rising amount of energy available from gas will be unable to compensate for the declining amount from oil after 2015 or thereabouts. After that, in roughly twelve years' time, an overall decline will begin and prices will rise sharply.

Figure 3: Oil and Gas Supplies Combined



Source: Association for the Study of Peak Oil

Some oil companies (Exxon-Mobil, for example) accept the Campbell-Laherrère forecast, while others (Shell) say the decline will begin some 10-12 year's later, in 25 years' time¹. However, as Vaclav Smil points out,² the scale on which oil and gas are being burned at present is so large that, even if one thinks that the world has three times more conventional oil left than Campbell believes to be the case, the production peak will still occur within the next thirty years.

The only question, then, is whether coal can provide the energy to replace that from oil and gas. The answer is that it could, but that it would be highly damaging environmentally to take this course. Moreover, the net energy gain - the energy needed to produce the coal compared with the energy the coal delivers - would be small, particularly if the coal was converted to liquid fuels for transport purposes. The development of renewable energy sources would, in many cases, give a much better return on both the energy required to bring an energy supply on stream³ and on the financial capital required to do so.

¹ See *Before the Wells Run Dry*, Feasta/Lilliput Press, Dublin, November 2003, for the various positions.

² *Energy at the Crossroads*, Vaclav Smil, MIT Press, Cambridge, Mass., 2003

³ Richard Douthwaite, *Before the Wells Run Dry*, p. 316

2. Climate change restrictions

It is universally accepted that the measures to protect the global climate proposed under the Kyoto Protocol are grossly inadequate and that much more severe restrictions will be required. Consequently, even if oil and gas are likely to be in abundant supply for the next 50 years, their use will almost certainly be restricted by measures introduced as the increasingly harmful effects of climate change become apparent. Increasing coal production would be out of the question in an emissions-conscious world. These restrictions would create an artificial energy scarcity which would put up the import price of all forms of fossil power just as effectively as would any natural scarcity due to resource depletion. Ireland would have to meet these higher import costs by increasing exports and, since the extra goods and services going overseas would not be available for home consumption, the Irish standard of living would be less than it would otherwise be.

3. Security of supply

Seventy-five percent of the world's reserves of oil and gas are concentrated in the Middle East and the Caspian Basin, both very unstable parts of the world. Even before the invasion of Iraq, the United States and its allies were spending \$150 billion a year to keep 6-7 billion barrels of oil flowing⁴. The transport sector would be particularly badly affected by any oil supply disruption. In addition, gas pipelines are very vulnerable to terrorist attack and Ireland is at the end of those pipelines if gas from the Corrib Field is ignored. In any case, Corrib gas cannot provide Ireland with gas supply security for 50 years unless it is managed expressly for that purpose, being used only if supplies through the interconnectors fail.

4. Energy and future exports

In relation to its population, Ireland has a greater renewable energy potential than any other country in the EU. It could not only meet all its energy needs from renewables but export considerable quantities of energy to its EU partners as well, either as some form of power such as electricity or, ideally, embodied in Irish-made goods. Ireland could also develop energy-related technologies that could be sold overseas. Of course, new energy sources and new export sectors could only be developed at a cost, and the decision that policymakers need to settle is whether the cost is likely to be worth it. The Danes became the world's leading exporters of wind turbines only because successive governments were prepared to give tax breaks to investors in windfarms and to force the electricity distribution companies to buy wind electricity at a premium price. The cost of supporting the emerging turbine industry in these ways was carried by Danish taxpayers and electricity consumers but an industry worth €3 billion employing 20,000 people was created and the country became much less dependent on fuel imports as a result. A similar strategy could be followed in Ireland, although it is too late to do so for wind turbines as that technology is now mature. Ireland would need to identify other technologies where there were good prospects for achieving world leadership. Better energy storage technologies are going to be needed if wind electricity is ever going to be able to constantly meet the grid's base-load power requirements. Developing this equipment might be such a technological opportunity.

⁴Dan Plesch, *Before the Wells Run Dry*, p. 197.

Possible attitudes

After considering these four questions, policymakers are likely to divide themselves into two groups. One group will accept that fossil energy use is likely to be seriously restricted in the next fifty years and/or interrupted by conflict. They will therefore feel that renewable energy sources need to be developed in the light of this. The only question for them will be “How quickly does Ireland need to act and how far do we need to go?” The other group will consider that low energy prices for the immediate future are more important than whatever happens about fuel supplies in the medium to long-term. They will argue that a rapid transition to renewable energy sources is not only unnecessary but also undesirable because it would mean that energy prices would have to go up slightly in order to provide the financial resources to develop the new technologies that moving away from imported fossil fuels would entail.

The rest of this paper is addressed to the first group. Whenever it occurs, the peak in global oil and gas supplies will be a very significant event in world history because it means that the development path which humanity has followed for the past 200 years will come to an end. This development path involved boosting output by substituting fossil energy for energy from human, animal and solar sources, and it led to high rates of economic growth. Declining fossil energy availability will mean that economies shrink unless a combination of alternative energy sources and more energy efficient technologies can be developed fast enough to compensate for the decline. There will be a fierce scramble for all available energy supplies, not least because modern transport and food production systems are very energy-hungry. Prices of food and all forms of energy will soar.

Irish energy policy should therefore have two goals:

- To develop the country’s renewable energy sources substantially before the depletion crisis occurs
- To develop energy technologies suited to the country’s needs that can then be sold to the rest of the world.

It is important to develop the country’s alternative energy resources before the crisis hits because most renewable energy sources require a great deal of energy for their development and if the work is done soon, while energy is still cheap and abundant, great savings can be made. Moreover, it is obviously necessary for Ireland to get ahead of other countries in developing and using a technology if there is to be any chance of selling it abroad. An EU study⁵ has shown that it would be possible for Europe to phase out all non-renewable sources of energy, including nuclear, by 2050 and still enjoy current levels of income. In view of the uncertainty over when the turning point in oil and gas supplies will occur, and hence the onset of the crisis, Ireland should adopt a ‘fail-safe’ approach and set itself the goal of meeting half of every sector’s energy requirements from renewables by 2030. It could then proceed to eliminate all fossil fuel use by mid-century.

While such an ambitious target would involve higher short-term energy costs, it would not necessarily damage Ireland’s competitive situation because, as the transition progressed, the country would be able to give businesses better and better guarantees on the security of their energy supplies and on the energy prices they would pay. These would be very important assets in an energy insecure world. *End.*

⁵ Olav Hohmeyer, *Before the Wells Run Dry*, p. 88