



Tech Talk - Thoughts On the Precautionary Principle

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As Michael Brander tells it in his book on the [Scottish Highland Regiments](#), the Scottish Highlands produced, between 1740 and 1815, men for some 86 Highland Regiments who travelled around the world to strengthen the British Empire. But towards the end of that period, sheep were introduced into Scotland and the great land clearances began that replaced the crofters on the estates with the occasional lone shepherd and his flocks. Thus, by the time of the Crimean War when the Duke of Sutherland tried to raise a regiment, he got no volunteers. As an old man explained to him:

I am sorry for the response your Grace's proposals are meeting here today, so near the spot where your maternal grand-mother, by giving some forty-eight hours notice, marshaled 1,500 men to pick out the 800 she required. But there is a cause for it, and a genuine cause, and, as your Grace demands to know it, I must tell you, as I see that none else is inclined in the assembly to do so. These lands are now devoted to rear dumb animals which your parents considered of far more value than men . . . your parents, yourself and your Commissioners have desolated the glens and the straths of Sutherland where you should find hundreds, yea thousands of men to meet and respond to your call cheerfully had your parents kept faith with them. How could your Grace expect to find men where they are not?

The anecdote illustrates that there are long-term consequences to policy decisions, often not fully recognized when the original decisions are made. I was reminded of the Scottish situation as I contemplate the great race to renewable energy and natural gas, and the rapid replacement being urged for coal-fired power stations and nuclear power plants. And there are some grounds for seeing an analogy to that earlier situation.

Coal and uranium are found underground and while there is a large surface mining component to mining, as these reserves are exhausted, or embargoed for environmental or other political reasons, the need, over time will move increasingly to the development of the deeper reserves. Mines, however do not spring up overnight. Just as you cannot get a baby in a month by making nine women pregnant, so the process of discovery, raising capital, permitting and development can mean that over a decade can pass before coal is produced in commercial quantities. And that assumes that the Administration is somewhat favorable to the idea. As a candidate, now President Obama said "If someone wants to build a new coal-fired power plant they can, but it will bankrupt them because they will be charged a huge sum for all the greenhouse gas that's being emitted."

As President he appointed Dr. Stephen Chu to head the Department of Energy, an individual who has said "[Coal is my worst nightmare.](#)". And to follow on his statement as a candidate, the President appointed Lisa Jackson to the EPA who issued a finding that greenhouse gases constitute a threat to public health and welfare, with a series of actions to [reduce carbon pollution](#). In such a political climate it is unlikely that applications for new mines and plants will receive an accelerated resolution. (Just consider the case of decision on the Keystone Pipeline, which

[continues to drag on.](#)) If there is a sudden discovered need for new coal and nuclear power plants they will not (as with the Highlanders) be there to answer that call, and nor can they be for over a decade after the call is made.

Now it is not my intention here to argue the logic of a current change to natural gas, as the large reserve within the United States becomes available and, at low cost, provides a source of energy that helps keep the nation's industry competitive. But what I would like to do is to invoke the same Precautionary Principle that has been used as an initial basis for action on control of power plant emissions and other factors with environmental impact. (see for example [principle fifteen](#)).

The precautionary principle can be [briefly stated as](#):

the theory that an action should be taken when a problem or threat occurs, not after harm has been inflicted; an approach to decision-making in risk management which justifies preventive measures or policies despite scientific uncertainty about whether whether detrimental effects will occur.

There is a significant scientific question as to the long-term reliability of the production levels for oil and natural gas that is being produced from the shales of the United States, and it has been articulated well both by Art and Rune, among others at the Oil Drum.

And as China draws an increasing amount of fuel out of Turkmenistan, Iran and the Middle East, with the potential for an additional increase in the draw from Russia, there is some concern that as China buys for the long term, that tightening supplies will begin to limit the availability of fuel for Western Europe and the United States.

With the occasional collapse of the [odd wind turbine](#), and the difficulty in seeing how solar power can help in the blizzards and snow storms I have gone through in the last week, there is some concern over the size of the contribution that these technologies can make into the energy mix of the next decade.

In those circumstances, a wise application of the Precautionary Principle to future energy supplies in both Europe and the United States might suggest that sufficient legacy power systems be left in place to ensure that neither community is left short of energy in the years ahead. This is to guard against the proposed replacements being either inadequate or insufficient to meet the future need.

And yet, unfortunately, this is not likely to occur. As with many arguments and tools used in political debate, once a position or an argument has been adopted it is extremely rare for it to be renounced. The consequences of current decision making rarely come back to haunt those politicians who make them since they often occur past the current elective term and are thus of less interest to those who are more focused on the next election.

Yet longer-term events do eventually arrive, and time having passed, the day of reckoning is becoming visible. It is likely that the Bakken will peak before the end of the current Administration. Ofgem has already [raised concerns](#) over an over-reliance on imported natural gas into the UK, and warned of [possible shortages by the end of 2015](#), and urged a diversification of supply types. The IEA recently [issued a chart](#) that shows their projections for the energy future to 2035.

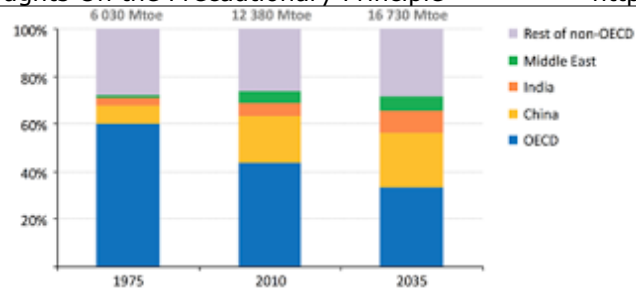


Figure 1. Past and future distribution of energy demand for the different sectors of the world (IEA)

The writing is beginning to appear on the wall. And while the Precautionary Principle is aimed more at less obvious, high risk scenarios – the risks to the world of a failure in the global supply chain, or even a national one is of such a high impact that even with a lower probability of occurrence than is becoming evident, it would be wise to start looking for answers. It is likely already far too late, and the world remains replete with folk denying the existence of a problem (even as gas prices continue to rise) but it will be interesting to see how the new Secretary of Energy addresses the situation.



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