

Energy Impacts: Who is assessing them in a market system?

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*Jeanette Fitzsimons
Green Party Co-leader*

The philosophical debate between advocates of “planning” and “the market” has persisted since the early 1980s. “Planning” supposedly was the norm until the “market” reforms of post 1984 when for a decade or more “plan” became a four letter word. Since the turn of this century “planning” has been allowed to creep back in a rather subordinate role, without any clear strategy about what should be planned and who should plan, what impact assessment is needed as a tool for planning, and what decisions can be quite well left to market forces.

The truth is that neither planning nor the market has ever provided well for impact assessment, or for true comparison of alternative ways of reaching a goal, which surely has to be the ultimate reason why we do impact assessment.

We all know the story about the lawyer, the accountant and the economist who were up in a small plane when the engines failed. There were only 2 parachutes. The economist agreed that the lawyer and the accountant should take them because he was convinced that the market would provide. He seems not to have done any impact assessment, not to have asked the “what if” questions that in my view are essential to good impact assessment.

Perhaps I should reveal at this point that I have no training at all in impact assessment so what you are getting here is totally a layperson’s view, informed only by years of looking at impacts, particularly of energy policy decisions and thinking about how they should be assessed and by whom.

In the early 1980s we had annual Government Energy Plans and before that we had annual reports to Parliament by the “Committee to Review Power Requirements” (CRPR). They amounted to a statement of intention to supply electricity and a timetable for doing it. They were based on completely unverified top of the head bids on likely future demand and no one who estimated their future needs was obliged to buy any of the electricity they suggested would be necessary. We ended up with a 40 % surplus capacity at great cost to the country.

No one assessed the cost of this to the country or to the environment. No one asked the “what if” questions. No one did good impact assessment on the Cromwell gorge and its people and ecology when the Clyde dam was built, or if they did, no one took any notice.

When the Maui gas agreement was signed, no-one assessed the impacts of paying a higher price for the gas and using it more efficiently so it would last 100 years instead of 30, compared with a 30 year take or pay agreement with a resulting national duty to waste it. No one assessed the impact of losing a field of this size and considered how we would replace a third of our primary energy once we had built an economy based on cheap gas and wasteful technologies.

Many of us, in the eighties, were hanging out for a restructuring that would require these sorts of questions to be asked, and answered, as part of our energy planning. What we got instead was a series of corporatisations and privatisations, the breaking up of an integrated electricity system where the parts were complementary and a requirement that they become competitive, and so a requirement that the right hand must never know what the left hand was doing.

Energy Plans were no longer produced, and until the Energy Data File began even the figures that would enable others to do impact analysis were not publicly available.

The market was supposed to provide the answers to all the important questions and deliver electricity just in time at the lowest price.

Of course it didn't.

The comprehensive failures of the wholesale electricity market to provide for security of supply, climate change, good information, integrated decision making or even, in this case, efficient pricing signals, suggests that impact assessment is needed not just for projects or technologies, but for policies. Many of us argued that these failures were likely under the proposed market structures but no one, to my knowledge, did an impact assessment of the policy framework, to produce the evidence on which decisions could be made.

Security of supply was an obvious casualty because it is more profitable for the electricity industry to have insecure supplies and high prices than stability. The profits of the generators, and especially those with thermal capacity, over the two recent dry winters attest to that.

No one was going to raise capital to build more power stations if they wouldn't be fully used. The situation was only resolved by intervention and the creation of the Electricity Commission as a regulator and overseer of the market, with an obligation to provide ring fenced generation to be run only in dry winters. It is interesting that the diesel plant at Whirinaki built for this purpose has run repeatedly despite the lake levels not having dropped below the trigger point – perhaps an indication that some assessment of this policy is needed too.

A competitive market does not provide the information needed to operate in an efficient and integrated way. Stories abound of the shock in the industry when the dry winter bit, as it discovered that Genesis did not hold the coal stockpiles everyone assumed it had.

The present structure is particularly unsuited to assessing the long-term impacts of today's decisions. It cannot respond to the threat of climate change because today's emissions cause climate change some 20 years in the future which is beyond the market's planning horizon. So a raft of interventions have been needed, in the form of carbon charges, Kyoto agreements, carbon credits and Negotiated Greenhouse Agreements to ensure decisions take account of someone's assessment of the risks of climate change.

We can rely on large companies to do their own impact and risk assessments of pricing changes for energy, and develop strategies for responding to spikes in the spot price, although their screams in winter 2001 suggests they needed to be

reminded of this. The spot price is supposed to drive decision-making in investment and end use in the sector – when it goes too high too often someone will build more plant, and consumers will conserve. However the majority of consumers are not exposed to the spot price at all – domestic consumers and many small businesses are on fixed price contracts where the price just keeps going up regardless of what they do and there is in fact no incentive to do anything to respond to supply fluctuations.

Impact assessment is needed under the RMA when application is made to build a project. This is probably the greatest opportunity for your practitioners. But it is very difficult to use the RMA to assess incremental impacts, cumulative impacts or impacts of policies. There seems to be no forum that requires this unless Government decides to ask for such analysis.

I want to turn now to some specific cases where impact assessment is essential but there is no obvious body to do it.

The most severe threat facing our current way of life is the peaking and decline of oil supply. There is some doubt about its timing but no doubt, except from flat earthers, about its reality. We know that despite the price of crude having risen from \$12/bbl in 1998 to \$58 in recent months the oil companies are focussing on mergers and takeovers rather than exploration. We know one reason for that is that when they have looked in recent years they haven't been finding much.

We know that a significant number of leading petroleum geologists, financial analysts and bankers are saying that we are very close to peak oil and the consequent decline and that OPEC are saying they cannot raise production much above what it is now, and that non-OPEC fields are already in decline. More and more people are talking about a peak in the next five years, maybe less.

Much more expensive oil and eventually less oil at any price will impact on every aspect of our economy and way of life. Years are needed to prepare to soften the impact. Yet I can't find any real resources being devoted to impact assessment on our transport system, our agriculture, our deep ocean fishing, our tourism, our trade, even our health service. The social and environmental and economic consequences will be enormous and it seems we plan to wait until it hits before responding.

Your members presumably have the skills that are needed to do a study of each of these sectors to assess impacts and look for opportunities. Perhaps you can persuade Government that they should fund it.

We can learn about the effects of peak oil by looking at peak gas, which occurred in this country in 2001. A third of our primary energy supply is in the process of disappearing – it has already declined by 30-40%. No one, to my knowledge, studied the impact of this on our energy system or our economy or our environment with coal use rapidly expanding to fill the gap.

The emphasis is now on exploration for more gas, and some more will undoubtedly be found, but should we just plug it into the gap left by Maui, despite it being probably three times more expensive?

We have the opposite problem now to what the Maui discovery first presented. The challenge of the seventies and eighties was how to waste gas fast enough to keep to the take or pay agreement, once electricity demand refused to keep growing at 7% compound. Because there was no impact assessment of the decision to use it very fast and get it very cheap, we have built an economy based on wasting large amounts of very cheap gas, particularly in electricity generation at low efficiency and petrochemicals that also lose about half the energy in the gas.

Now the challenge is how to provide for the uses we have built.

How should we plan to use Pohukura and any later gas finds, which will be smaller and more expensive? We need a big picture analysis of the effect on our economy and society and environment of choosing to use that gas at maximum efficiency as a direct premium fuel, rather than converting it into another energy form first. Are we best to burn it in a power station at a little under half efficiency, build a new transmission line to take the power to Auckland, with line losses along the way, and then use it to cook or heat water or homes? Or would the negative impacts be less if we put it in the existing pipeline to Auckland, connected a few thousand homes which already have the mains passing their gate, and cooked twice as many spuds or heated twice as many baths for the same gas?

There is no one with responsibility or incentive to do this analysis. Officially, we just leave it to the market and the most efficient use wins. How robust is that hope?

The electricity generators have a major stake in gas exploration and an ownership stake in what comes out of the well. Who can tell them that they must make a substantial share of it available to the gas industry?

All the gas distribution companies in Auckland also reticulate electricity so have no incentive to connect more homes to gas. How could a policy to increase direct use of gas be implemented?

There has been no answer to these questions for some years now, but the creation of the Electricity Commission provides a possible way forward.

Legislation already gives it the duty to assess new investments in transmission lines against alternatives and approve the least cost option. It does not have a mandate to assess the social and environmental impact of the proposed 400 kV line in the Waikato on the farmers who would have to live with giant pylons and electro-magnetic fields, and have their farming operations disrupted. But it must assess the impact on electricity consumers of spending half a billion dollars on this line, plus about the same again on new generating capacity to put through the lines, compared with whatever other options are presented to it.

There is still no process by which alternatives can be adequately scoped and costed so the commission can make its comparison. The legislation appears to assume that the alternatives will be single supply side projects like power stations in Northland or alternative types or routes of cables. It does not entertain the idea that a package of energy efficiency improvements, say to commercial and domestic lighting and HVAC systems, plus direct use of gas instead of electricity at peak hour in Auckland, plus wood waste fired co-generation in wood

processing and dairy industries north of Auckland, plus reducing distribution line losses in Auckland and north, could be the most cost-effective and environmentally sustainable option of all.

The Commission cannot assess something that has not been properly developed but there is a ray of light with the Minister's recent announcement that the Commission shall "investigate" the options, rather than just "assess" them. This may yet provide a mechanism where supply and demand side options can be genuinely compared on the same basis and the best option chosen.

The Commission does not have responsibility for gas so cannot, at present, do impact assessments that cross fuel boundaries. If we are to plan for a genuinely sustainable energy system to address peak oil and climate change and scarce gas and dry winters and ecological effects on rivers and energy efficiency we need to widen the Commission's mandate to a Commission for Sustainable Energy. Once again, after the painful lessons of the last 2 decades, we could be in a position to plan our future, but in a system where the market plays its proper role of making the most efficient small decisions within a framework where the large decisions are planned, with the help of impact assessment techniques.