



Northern Ireland's energy system at a crossroads

Report of a WWF
Northern Ireland
Energy Round
Table





Background

“The world’s energy system is at a crossroads. Current global trends in energy supply and consumption are patently unsustainable – environmentally, economically and socially. But that can – and must – be altered; there’s still time to change the road we’re on”

This is the view of the International Energy Agency as expressed in the 2008 World Energy Outlook (1). There is a pressing need to find alternatives to this unsustainable system and in particular, oil. According to the BP Statistical Review of World Energy 2010, there is only 45.7 years supply of oil left (2). Furthermore, this estimate of supply is dependent upon our rate of consumption, for which the long term trend is upwards.

Can we even bank on there being as much as 45 years oil supply left? Many argue that we should not. For example, Dr Colin Campbell in Oil Depletion – Updated Through 2001(3) argued that “the peak of conventional oil may have been passed in 2000” and in 2004, the former vice president of the Saudi Oil company Aramco, Sadad Al Hussein described estimates of future global supplies from the EIA as simply too high (4). This was supported by Sir David King, the UK Government’s former chief scientist who said that oil reserves have been exaggerated by up to one third and has warned of oil shortages and prices spikes as a result (5). A report by Uppsala University(6) concluded global oil production has already peaked and that “It is unlikely that future world crude oil production will ever return to the levels seen in 2008”

More recently, a report by the UK Energy Research Centre (7) found that total production from existing fields is declining at 4% or more each year, meaning the world has to add 3 million barrels of daily production capacity annually just to stand still, equivalent to developing a new Saudi Arabia every three years.

It seems clear that we are running out of what is described as conventional oil quite quickly and will run out of other forms of oil in the not too distant future. Against this background, and given the recent volatility of oil prices, there are strong arguments against continuing with our current over reliance in Northern Ireland on imported fossil fuels, on which we are currently dependent for around 99% of our energy needs (8). With a fuel bill of approximately £2 billion annually, can Northern Ireland really afford to continue this over-dependence on imported fossil fuels? Should we not be more proactive in grasping the opportunities offered by a more sustainable energy system and start planning now for a low carbon future? According to a 2008 report by the Carbon Trust (9), by investing in sustainable energy there is the potential to create more than half a million jobs (564,000) in the UK with up to 33,124 jobs in Northern Ireland in a sector that could be worth almost £1 billion (£989M) in Northern Ireland alone.

WWF Northern Ireland wanted to start a broader, strategic discussion of these issues and invited key stakeholders to a round table on energy in September 2009. Amongst those invited were energy suppliers, the regulator, renewable businesses, government departments, economists, banks and NGOs. Representatives from the following bodies attended the round table.

- Action Renewables
- Agri-Food and Biosciences Institute (AFBI)
- B9
- B9 Organic Energy
- Carbon Trust
- Department of Agriculture and Rural Development (DARD)
- Department of Environment (DoE)
- Department of Enterprise Trade and Investment (DETI)
- Eco Wood
- Energy Performance Certificates Northern Ireland (EPC NI)
- Green Party
- Irish Wind Energy Authority (IWEA)
- Kedco
- Invest NI
- Northern Ireland Authority for Utility Regulation (NIAUR)
- Northern Ireland Energy Agency (NIEA)
- Northern Ireland Environment Agency (NIEA)
- Northern Ireland Environment Link (NIEL)
- Northern Ireland Housing Executive (NIHE)
- Northern Ireland Manufacturing (NIM)
- Sustainable Energy Association (SEA)
- Ulster Farmers Union
- Ulster Unionist Party
- Vertical Wind Energy
- Waring Estate

This report summarises the discussions at this round table. The discussions were based on Chatham House rules i.e. comments were recorded but not attributed. On the day, issues discussed included, energy planning, reducing demand for energy while decarbonising the energy supply and policy priorities for Northern Ireland for example, combined heat and power, anaerobic digestion and electric vehicles.

The recommendations are WWF Northern Ireland’s summation of the priorities for action in Northern Ireland based upon the points raised in the course of the discussions on the day.



Summary of recommendations from WWF's energy seminar

- The NI Executive must make the move to a low carbon economy a strategic imperative and therefore must develop a long term energy strategy or low carbon masterplan which addresses issues including reducing demand, Combined Heat and Power (CHP), renewable heat, smart metering, feed in tariffs, interconnections and energy storage. Decarbonisation also offers modern economies tremendous opportunities for wealth generation from which must be grasped.
- The resource implications of current and future energy policies and targets, starting with the 2010 Strategic Energy Framework (SEF) and a NI low carbon masterplan, should be determined and a detailed, costed implementation plan with clear milestones, lines of responsibility and accountability published and implemented.
- There is huge potential for the public sector to contribute to significant reductions in energy and emission reduction targets in Northern Ireland, as its energy demand is approximately 50% of all Northern Ireland's demand (1.3 TWh per year). If Government insisted on buying green/low carbon materials and products it would help drive the market.
- We must plan ahead by reducing absolute energy demand and energy efficiency as the priority for all future energy policies and the cornerstone of our strategic energy direction. DETI's current target of reducing demand by 1% annually is too low. Significantly more ambitious targets for reducing demand must be set. Demand could readily be reduced by approximately one third and there are significant early, easy wins which must be achieved upfront. Accounting for the huge wastage (of roughly 75%) of the current system, one unit of energy saved by a consumer represents a saving of an additional three units of energy further up the line which makes energy efficiency even more important.
- The draft target of 40% renewable electricity by 2020, in the 2010 SEF, is not high enough. The target for renewable electricity should be tested against progress with the shift away from fossil fuels to low/zero carbon and/or renewable energy sources for other energy sources, including heat, especially renewable heat, and revised accordingly. If other energy sources are not significantly decarbonised the renewable electricity target will most likely need to be revised upwards.
- A fit-for-purpose planning regime is essential for the attainment of future energy targets. Planning for energy developments should be the responsibility of central government rather than local government as energy is of strategic importance.
- There is a need for better planning for transport, integrated with energy planning, with particular reference to the electrification of transport and the consequent implications for grid development and renewable energy targets e.g. recharging infrastructure.
- If NI is to decarbonise by 2050, we should not continue to invest in hydrocarbons, as this lock us into a high carbon future. We need to start investing now in options that will take us on the low carbon path. All new infrastructure investments should be subjected to a 'low carbon economy' appraisal to determine the impact on future carbon emissions and the cost implications of same.
- There is a need for greater strategic, long term thinking and investment in R&D in renewable and/or low/zero carbon technologies and policies including feed in tariffs, grid improvement and decentralised generation and technology zones. Having a range of policy options will afford us a greater range of technological options, and accounting for the probability that some R&D options may not end up as commercially viable.
- The long term economic benefits of the move to a low carbon economy must be accounted for and exploited. The 'green economy' is already here and Northern Ireland needs to take advantage of the economic opportunities offered by a low carbon economy. An action plan needs to be developed detailing the long term imprint the multi-billion investment will leave in terms of wealth and job creation and societal impacts.



Questions discussed and recommendations

What should be the role of Government?

Issues raised in discussion

There was widespread discontent expressed with the (low) level of Government action with regards to energy. While there are some examples of Government leadership, including the Inter-Departmental Working Group on Sustainable Energy (IDWG SE) which is being led by the DETI Minister, the general view was that Government's approach to energy is not truly strategic. The important role of DETI's Strategic Energy Framework (SEF) was described as a possible means of bringing different elements of energy policy together.

The need for action by each individual Government department was highlighted. Each Government department must lead by example and bring forward its own plans for carbon neutrality - action rather than talk is needed. The importance of public sector purchasing was highlighted - the public sector spend on energy is of the order of £150 million annually and it is estimated that approximately £30-45 million of this could be saved annually for a one off spend of £60-90 million that would also save 1 million tonnes of Carbon Dioxide (CO₂) annually.

There is a need for responsiveness from Government which is currently missing. The importance of the Department of Finance and Personnel (DFP) was highlighted, for example, as regards an anticipated proposal from DFP to de-rate microgeneration technologies, but this needs to be dealt with quickly.

The role of planning and PPS 18 in particular as well as the nature of the grid and associated uncertainties was highlighted. The Environment Minister was described as keen to improve the planning system for renewables as the potential benefit for Northern Ireland PLC is recognised. Further to that the planning reform consultation offers an opportunity for suitable change.

The benefits of long running schemes were highlighted, for example, the Renewable Obligation Certificate (ROC) scheme is long term, whereas the Environment and Renewable Energy Fund (EREF) ended after three years. More long term strategic thinking is what is needed.

As regards the demand for energy, the role of electric cars based on renewable energy was mentioned as something that may result in a slight increase in demand at a time (anticipated to be overnight) when there would otherwise be relatively low demand. However, this could generate greater revenue for renewable electricity providers. The role of electric vehicles to act as batteries and help balance the fluctuations in demand is another positive.

The role of Government investment will be key. There are a number of fiscal packages around the world with South Korea, for example, allocating approximately 81% of the total spend to what are described as green measures. In

China approximately 34% of the fiscal package is deemed as investing in green measures, in the USA the figure is 12% while in the UK it is only 7%. The point is that the UK ought to be spending a lot more strategically on green measures. This point was supported by the example of the US which is investing approximately \$1 trillion in renewables, which is something we should learn from. Government estates should be opened to private investment from Energy Service Companies (ESCOs).

The availability of finance and venture capital for businesses was highlighted. Government needs to put some money into renewable/low carbon energy and this is why a new financing model is needed. The mechanism for making finance available is important. Longer term support based on a long term strategy would be better as up front capital grants are not the best in the longer term. The need for a renewable heat strategy which would enable long term planning and support was highlighted.

The need for significantly increased research and development (R&D) spend was highlighted as R&D budgets need to account for the likelihood that not all avenues of research will produce viable results.

Recommendations

- The Northern Ireland Executive must make the move to a low carbon economy a strategic imperative and therefore must develop a long term energy strategy or low carbon masterplan which addresses issues including reducing demand, Combined Heat and Power (CHP), renewable heat, smart metering, feed in tariffs, interconnections and energy storage. There is a huge opportunity from decarbonisation for modern economies from wealth generation from low carbon products, goods and services which must be grasped.

- There is huge potential for the public sector to contribute to significant reductions in energy and emission reduction targets in Northern Ireland. Its energy demand is approximately 50% of all Northern Ireland's demand of 1.3 TWh per year. If Government insisted on buying green/low carbon materials and products it would help drive the market.

- The resource implications of current and future energy policies and targets, starting with the SEF and a NI low carbon masterplan, should be determined and a detailed, costed implementation plan with clear milestones, lines of responsibility and accountability published and implemented.

Questions discussed and recommendations

Is there a need for a longer term energy strategy (longer than SEF)?

Issues raised in discussion

There was general agreement that long term planning is needed, beyond 2020 and preferably towards 2050, referred to as a low carbon masterplan. The SEF and a longer term plan are not mutually exclusive, and the SEF would benefit from looking at the bigger picture and planning for 2050. However, once set, these policies need to be implemented. Government is good at writing strategies but not delivering them and action and delivery is needed. The SEF needs to show how targets can be delivered – the 2010 strategy was written but never implemented so this energy strategy has to be tangible and deliverable. The issue of how any Northern Ireland energy strategy is going to be funded also needs to be addressed e.g. in the Programme for Government and Investment Strategy.

There is a need for the government and private sector to clarify what they will do. The development of energy policy should be jobs driven rather than target driven. The economy has had an impact on energy usage and there is no alternative for some industries but to use fossil fuel. In terms of the public sector, long term contracts need to be put in place. If a long term view is taken then peak oil and the resulting price rises must be accounted for. There is the legacy effect of existing stations, which is probably why government has previously opposed net metering, as the costs could then rise for remaining customers if a lot of people went off grid or installed microgeneration.

There was a question as to whether or not DETI still see thermal plants operating in 2050 or is there going to be transition to another source? It was argued that the issue

is not about closing the power stations that we have, but not building any more and using existing power more efficiently. There is a problem currently with the heat generated from energy production being lost. The example of computer applications where a system based upon linking many small computers has proved to be very powerful and efficient was given as a model that has lessons for power generation. Also interconnection may end up limiting the amount of electricity that will be generated from renewables to no more than 40%.

There needs to be a huge investment from the private sector and long term planning by the government to give industry an idea of where they are going. Planning should be flexible to move with the changes. Initially, setting a target is beneficial because it gives a common goal for government and business. There also needs to be access to finance and initiatives to encourage public acceptance

It will be impossible to achieve an 80% reduction, or 90% reduction in emissions, unless there is carbon rationing in all sectors and that would be the government's responsibility. The transition to a low carbon economy needs to be led by the private sector. The longer we leave serious action the more we need to get on what was described as a 'wartime footing' where there was clear prioritisation and integration towards a common goal.

People need to be persuaded such cuts are in the public interest, for example in relation to the cost and the security of the supply. Feed in tariffs are a useful tool to empower people.

There is still no overall vision from the NI Executive, e.g. no commitment to a NI Climate Change bill, even though NI is signed up to the UK Climate Change Act. Surveys show people are looking to politicians for leadership. There needs to be a plan for a low carbon economy. Government here has not made any commitments to make cuts and without firm commitments achieving an 80% reduction in emissions is unlikely – the public need guidance from the government.

In order for the SEF to work it must have NI specific targets – while there is a need to protect consumers, there needs to be higher targets for the private sector. The NIRO deliberately lags the market, this is not leadership. In response, the point was made that an increase in the level of NIRO would only cause an increase in cost to consumers and so there would be no point, as this would create a negative attitude from the public, but the 40% target shows leadership.

Due to the outdated grid delivery system and its inefficiency, £1 billion is being wasted annually, that is a market to go after – government should open this up and make it easier for smaller companies to invest in. Industry

Questions discussed and recommendations

pays 50p a unit at peak time this should be a huge driver for industry to invest in alternatives.

Recommendations

- We must plan ahead and reducing absolute energy demand and energy efficiency must be the priority for all future energy policies and the cornerstone of our strategic energy direction. DETI's current target of reducing demand by 1% annually is too low. Significantly more ambitious targets for reducing demand must be set. Demand could be reduced by approximately one third and there are significant early, easy wins which must be achieved upfront. Accounting for the huge wastage (of roughly 75%) of the current system one unit of energy saved by a consumer represents a saving of an additional three units of energy further up the line which makes energy efficiency even more important

- The draft target of 40% renewable electricity by 2020 is not high enough. The target for renewable electricity should be tested against progress with the shift away from fossil fuels to low/zero carbon and/or renewable energy sources for other energy sources, including heat, especially renewable heat, and revised accordingly. If other energy sources are not significantly decarbonised the renewable electricity target will most likely need to be revised upwards.

Are the mechanisms for decarbonisation there?

Issues raised in discussion

Some are. The need to decarbonise is a commercial reality. There is a need for feed in tariffs – small scale is not commercially viable, in part because of the current system which does not allow off grid development. Payback time is also important - if the market was opened up to small businesses and more investment was made available small scale could work. Europe is pushing for decentralised generation and small scale renewables but NI is not, even though using waste heat would be innovative and could make a huge difference. Gas from anaerobic digestion (AD) could and should be connected into the gas grid.

Ballylumford combined cycle gas turbine meant Larne was first in NI to have natural gas. One issue raised at the time was why pipes for district heating were not laid at the same time as the gas pipes were being laid? Apparently, this was resisted, because district heating might mean less or no gas would be sold. The role of vested interests must be recognised, and countered.

Planning was described as a hindrance to business and industry and to developing renewables generally. There is a need for accelerated planning. Legislation is already

in force to have enterprise zones, which were proposed as a beneficial option for businesses, but nothing has been done about it

Economies of scale are important. As regards small scale renewables, if we don't test/prove them we won't know the payback time. Payback will be more attractive down the line as prices are likely to rise, so we need to just make the decision to try things. We also need a longer term framework. It was argued that small scale doesn't pay at the moment because the infrastructure needs modernising and the grid structure needs to be addressed.

There is a very broad spectrum in micro generation, some cost effective, some not, but not all options are the same. Only the economically viable and most cost effective options should be supported. In the past there has been funding made available but this was on a short term basis and that approach is no longer viable, there is a need to think long term. However, if we are to move to a low carbon economy we need to start making those decisions now. We should not continue to invest in high carbon projects that lock NI into a high carbon/carbon intensive future.

Recommendations

- Planning has a key role. A fit-for-purpose planning regime is essential for the attainment of future energy targets. Planning for energy developments should be the responsibility of central government rather than local government as energy is of strategic importance.

- There is a need for better planning for transport, integrated with energy planning, with particular reference to the electrification of transport and the consequent implications for grid development and renewable energy targets e.g. recharging infrastructure.

- If Northern Ireland is to decarbonise by 2050, we should not continue to invest in hydrocarbons, as this will lock us into a high carbon future. We need to start investing now in options that will take us on the low carbon path. All new infrastructure investments should be subjected to a 'low carbon economy' appraisal to determine the impact on future carbon emissions and the cost implications of same.



Questions discussed and recommendations

The role for reducing energy demand and greater energy efficiency

Issues raised in discussion

Reducing overall demand was described as the most cost effective and best way to go, indeed it was described as a “no brainer”, so reducing demand is crucial. It was argued that reducing demand must be the linchpin of our strategic direction over the next 10 year period. The annual cost savings from reducing demand were estimated to be worth >£500m with a 2-3 year payback for interventions. DETI's current target of reducing demand by 1% annually is too conservative and must be higher for all fuels.

A PIU survey(10) on energy efficiency found that 21% of energy used in service sector is wasted, with 37% of energy in the domestic sector and 35% of energy in transport sector wasted. Specialist input to advice on reducing emissions is needed but the savings can be made.

A lot of progress has been made. For example, the work of the Carbon Trust (CT) has resulted in savings of £70 million per annum and approximately 600,000 tonnes of CO₂, at a cost of £100 million over approximately 8 years. According to EST there is £250 per household per annum potential savings. It seems that businesses, mainly due to the work of CT for example, are making real savings, but government itself is not - it is facilitating change but not making change. NI can reduce barriers and find a better way to achieve the outcome. NI businesses are responding to the agenda but they need direction

NIHE achieved a 20% improvement to energy use by changing the fuel used and using better insulation – however this is being offset by tenants using more inefficient electrical appliances. More education is needed, for example, because the public are not driven by arguments about CO₂ emissions, but maybe more so by arguments about cost and security of supply

NI does need a target for energy demand. Lowering demand will also help with achievement of targets (lower overall energy use should mean a higher percentage of renewables). The nature of the distribution system is another key element, with 75% of energy currently lost via the distribution system so each unit saved by consumers, in effect saves three units further up the chain. We need to improve the supply chain and manage and plan for this now.

The potential of renewables is enormous. For example, in terms of sunlight the earth receives 26,000 times more energy than used.

Although the closure of power stations in NI is being viewed as unlikely or impractical, research in Scotland (11) has shown that it could generate up to 143% of its projected annual electricity demand by 2030 from renewables, enough to export to England, and working on this assumption it is plausible that no large scale fossil fuel fired generating capacity would remain online by 2030. In this context the possibility of closing down NI power stations is not so remote, others are thinking of doing the same, though this could be difficult as contracts are in place.

Summary of recommendations

NIE are planning on producing a grid strategy – the timescale of this would be after the DETI report – and there will be an opportunity to respond to this report.

Compared to other countries, like Germany, we are very far behind. For example, there are 5,000 AD plants in Germany and there are three main drivers for this - a direct feed into the grid, a 50-70% grant for infrastructure from government and a 19 cent feed in tariff, all of which are down to the Government. There are lots of incentives for German farmers to feed into grid. Since Germany did not have North Sea oil, they had to look at energy in a broader sense, whereas the UK government has not wanted to look at renewables because they take a huge tax return from fossil fuel and its derivatives so it hasn't been in their interest to develop alternatives (the issue of vested interests, again).

Public apathy is an issue. There was a move e.g. in some supermarkets, towards a more moral stance but with the credit crunch the move is towards better/higher value brands.

Part of the problem is that the people who are making the decisions i.e. politicians, don't know what the options and/or technologies are, so how can they make an informed decision?

Recommendations

• The need for reducing absolute energy demand and energy efficiency as the priority for all future energy policies and the cornerstone of our strategic energy direction was clearly highlighted once again in this discussion. It was made clear that DETI's current target

of reducing demand by 1% annually is too low and significantly more ambitious targets for reducing demand must be set. Demand could be reduced by approximately one third and there are significant early, easy wins which must be achieved upfront.

• There is a need for greater strategic, long term thinking and investment in R&D in renewable and/or low/zero carbon technologies and policies including feed in tariffs, grid improvement and decentralised generation and technology zones. Having a range of policy options will afford us a greater range of technological options, and accounts for the probability that some R&D options may not end up as commercially viable.

• The long term economic benefits of the move to a low carbon economy must be accounted for and exploited. The 'green economy' is already here, Northern Ireland needs to take advantage of the economic opportunities offered by a low carbon economy. An action plan needs to be developed detailing the long term imprint the multi-billion investment will leave in terms of wealth and job creation and societal impacts.

• Reducing overall demand is the most cost effective and easiest option and must be the linchpin of our strategic direction over the next 10 year period. The annual cost savings on a NI scale are estimated to be worth >£500m with a 2-3 year payback for interventions. Specialist input to advice on reducing emissions is needed but the savings can be made as the work of the Carbon Trust with business has demonstrated.

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