

27 Ballinclea Heights
Killiney
Co. Dublin

6 November 2006

Energy Green Paper Submissions
Energy Planning Division
Department of Communications, Marine and Natural Resources
Adelaide Road
Dublin 2

Dear Sir or Madam,

I wish to comment on the recently published Green Paper: *Towards a Sustainable Energy Future for Ireland*.

I submit that:

1. Serious questions arise about the integrity of the Green Paper's implicit claim to address *climate change by reducing energy-related greenhouse gas emissions* and about the feasibility of achieving the policy target that *30% of electricity will be generated from renewable sources by 2020*.
2. The sustainability policy targets, optimistic as they may be, are inadequate. The pursuit of similar policies by the nations of the world generally would have catastrophic climatic, economic and social consequences.
3. The proposed sustainability policy targets are very unlikely to support the Government's economic and social policy objectives beyond the short-term. Their medium term effects are likely to be destructive.
4. The economic and social implications of increasing volumes of greenhouse gases are severe. They threaten a massive downturn in global economies of a kind that has not been seen since the great depression and the two world wars, massive increases in world populations being subjected to life threatening stresses because of water shortages and related issues, mass migration and conflict, and the loss of a material percentage of species.
5. The Green Paper proposes an energy policy that clearly fails to target significant reductions in CO₂ emissions. When account is taken of the feedback between climate and the carbon cycle a reduction in CO₂ emissions in excess of 70% is required.

In contrast the Green Paper proposes policies that will result in significant and increasing volumes of greenhouse gas emissions from Ireland for the foreseeable future.

6. The possibility exists that abrupt and irreversible climate change might occur at temperatures that will be reached over the next three or four decades irrespective

of what actions governments may take and will certainly occur subsequently if no action is taken. Action today will determine events beyond the middle of this century.

This reality demands that the Government adopts the precautionary principle and leaves no stone unturned in driving down CO₂ emissions. It also requires the Government to participate enthusiastically in working with our EU colleagues towards the widest possible international action necessary to reduce the risk of catastrophic climate change.

7. The policy targets set out in the Green Paper lack the aggression and urgency required to adequately mitigate the problems created by increasing atmospheric concentrations of CO₂.
8. The projected cost of addressing the issue is modest relative to the potential economic and social benefits of early and aggressive action.
9. The Green Paper also fails:
 - a. To communicate any sense of commitment to actively supporting our EU colleagues in their endeavors to lead by example and above all to work towards the widest possible international action.

At its Spring meeting in 2005, the European Council proposed that the EU should explore with other parties, strategies for achieving necessary emissions reductions and that, in this context, should consider ambitious reduction pathways in the order of 15-30% by 2020 compared to 1990 levels. Research suggests that this may not be enough.

The Green Paper fails to respond to this proposal. No reduction pathway is targeted.

- b. To set out the environmental context that should inform the formulation of energy policy. It is poorly informed about the relationship between CO₂ emissions and climate change, the potential impacts of climate change, and adaptation and mitigation possibilities. It fails to disclose projected emissions in 2020 and to discuss the climate change implications of the proposed policies. The Green paper is being dangerously economical with the truth.
 - c. To identify those areas requiring careful study to mitigate the inevitable effects of unavoidable climate change resulting from the implementation of the proposed policies.

For the reasons summarised in this conclusion **it is clear that the Green Paper is dangerously and fundamentally flawed.**

I will now set out the reasons supporting these conclusions.

Sustainability policy targets are grossly inadequate.

The Green Paper proposes that *30% of electricity will be generated from renewable sources by 2020* and 5.75% of transport needs will be met by biofuels by 2010 (Ref (4) Page 71, Summary Policy Targets)¹.

I submit that **these sustainability policy targets are grossly inadequate. They are unlikely to result in any reduction in CO₂ emissions. The pursuit of similar policies by the nations of the world generally would have catastrophic climatic, economic and social consequences.** For this reason the Green Paper is dangerously and fundamentally flawed.

What is required is a strong commitment to a reduction pathway in the order of 15-30% by 2020 compared to 1990 levels as proposed by the European Council at its Spring meeting in 2005 (Ref (4) Pg 46). Substantial ongoing cuts are required beyond that date as is indicated later in this letter.

Turning to the Minister's forward to the Green Paper. The proposed policies are very unlikely to support the Government's economic and social policy objectives beyond the short-term. Their medium term effects are likely to be catastrophic.

CO₂ emissions

The Green Paper does not quantify the expected volumes of emissions in 2020 that will result from the sustainability policy targets mentioned above. The failure to provide these figures suggests strongly that the proposed targets are insufficient to achieve a significant reduction in greenhouse gas emissions.

Another source (Ref (8) Page 73) estimates 2020 annual Irish emissions in the range 70.5 to 73 Mt CO₂e. This compares with annual emissions of 55.8 Mt CO₂e in 1990, of 68.2 Mt CO₂e in 2003, and a Kyoto target of less than 63 Mt CO₂e in the period 2008-12 (Ref (8) Page 28)

In the absence of more specific data in the Green Paper the figure of 70.5 Mt CO₂e in 2020 is taken as a reasonable albeit probably optimistic estimate of annual emissions being the most optimistic "With additional measures" estimate (Ref (8) Page 73).

Also, growing annual emissions is broadly consistent with projections by Sustainable Energy Ireland (SEI) that show Ireland's total energy needs growing by an estimated 38% between 2006 and 2020 (Ref (9) Page 23), and total electricity generation growing by 27.5% (Ref (9) Page 26). Figures are as cited in the Government's own recently published *Review of the National Climate Change Strategy* Ref (5) Page 34.

The SEI projections suggest strongly that the sustainability policy target that *30% of electricity will be generated from renewable sources by 2020* is unlikely to be sufficient to achieve any significant reduction in total emissions. Also there is significant doubt about the feasibility of achieving the 30% target as is discussed below.

It appears that the Green Paper proposes sustainability policies that will result in significant and increasing volumes of greenhouse gas emissions from Ireland for the foreseeable future.

These policies are unsustainable. Their proposal is grossly irresponsible.

¹ References are listed on page 9.

Serious questions arise about sustainability policy target

Consideration of the above data and other recently published Government reports raise serious questions about the integrity of the Green Paper's implicit claim to address *climate change by reducing energy-related greenhouse gas emissions* (Ref (4) Page 67) and about the feasibility of achieving the sustainability policy target that *30% of electricity will be generated from renewable sources by 2020*.

The Green Paper contains little more than aspirational statements in support of the policy target that *30% of electricity will be generated from renewable sources by 2020*. In contrast a report commissioned by the Government, and published this year, indicates that a target of 15% by 2020 would more realistically reflect achievable levels given transmission grid and technical feasibility issues (Ref (8) Page 32).

The Government's own July 2006 *Review of the National Climate Change Strategy* (Ref (5) Page 35) reinforces the optimistic nature of the 30% target by stating that:

"Ireland's high dependency on fossil fuel imports, particularly oil and natural gas, is expected to continue with oil and natural gas contributing almost 87% to total energy supply in 2020 and natural gas contributing 71% to fuel used in electricity generation in 2020. The contribution of more CO₂ intensive fuels such as peat and coal to Ireland's total energy requirements is expected to decline to just under 7% by 2020".

The statements in the previous two paragraphs suggest that a target that *30% of electricity will be generated from renewable sources by 2020* is highly optimistic and not in line with thinking elsewhere in Government.

The failure of the Green Paper to disclose projected emissions and to discuss the climate change implications of the proposed policies is being dangerously economical with the truth.

CO₂ emissions and climate change

I will discuss this topic briefly. The key points are widely accepted and well documented.

1. The warming effect due to all (Kyoto) greenhouse gases emitted by human activities is now equivalent to around 430 ppm of CO₂e and rising at around 2.3 ppm per year. Research groups recently presented analyses which suggest that carbon dioxide levels are unprecedented for 800,000 years. (Ref (10) Chapter 1, Page 3) The current level of carbon dioxide in the atmosphere is about 380 ppm.
2. Global concentrations of CO₂ are forecast to double this century (Ref (6) Page 17) in the absence of serious action being taken by governments.
3. Global average temperature is predicted to rise by 1.4 to 5.8°C over the period to 2100 (temperatures rose by +0.6 °C in the 20th Century) (Ref (11) Page 1. See also Ref (6) Page 40.). All regions in the world – including the EU – will face serious consequences for their economies and ecosystems (Ref (2) Page 3).
4. By taking strong action now governments may be able to stabilise concentrations of CO₂ at 550 ppm. Unfortunately it is not certain that achieving this target would

be sufficient to avoid catastrophic and irreversible climate changes (See note on Page 6). What is clear is that:

- a. Urgent and bold action is required to address the issue;
 - b. It would be disastrous to pursue Green Paper policy targets that implicitly pump increasing volumes of greenhouse gases into the atmosphere for the foreseeable future.
5. Ignoring feedback between climate and the carbon cycle, an overnight cut of 50% in CO₂ emissions would result in CO₂ concentrations continuing to rise albeit slowly. When account is taken of the feedback between climate and the carbon cycle a reduction in CO₂ emissions in excess of 70% is required (Ref (6) Page 17). The need for urgent action is obvious.

Impacts of climate change

The likely impacts of climate change are set out in the Stern Review. See Part II *Impacts of Climate Change on Growth and Development*. (Ref (10)). They are also dealt with in a major study entitled *The Impacts and Costs of Climate Change* commissioned by the European Commission, DG Environment (Ref (11)).

The economic and social impacts of increasing volumes of greenhouse gases are severe. Our actions over the coming few decades could create risks of major disruption to economic and social activity, later in this century and in the next, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century.
(Ref (10) Executive Summary (Full), Page ii)

The total cost of 'business as usual' climate change over the next two centuries equates to an average welfare loss equivalent to at least 5% of the value of global per-capita consumption . . . and perhaps as high as 20%, now and forever (Ref (10) Chapter 6, Page 144). Modern approaches to uncertainty all suggest that the appropriate estimate of damages may well lie in the upper part of the range (Ref (10) Chapter 6, Page 143).

Also probable are massive increases in the number of people being subjected to life threatening stresses because of water shortages and related issues (Ref (11) Page 19), mass migration and conflict, and the loss of a material percentage of species.

Complementary perspectives are provided in the reports *Climate Change – the Costs of Inaction* (Ref (1)) and *Stabilising climate to avoid dangerous climate change* (Ref (7)).

An important distinction that runs through all three reports is the distinction between:

1. Dangerous impacts resulting from *gradual and possibly reversible climate change*; and
2. Dangerous impacts resulting from *abrupt and irreversible climate change*.

The possibility exists that *abrupt and irreversible climate change* might occur at temperatures that will be reached over the next three or four decades irrespective of what actions governments may take and will almost certainly occur if no action is taken. Action today will determine events beyond the middle of this century (Ref (6) Page 40).

Stabilising concentrations of CO₂ at 550 ppm may not be sufficient to avoid catastrophic and irreversible climate changes

“If carbon emissions continue as they are, the level will reach 550ppm by 2050 or sooner. Scientists believe that would drive global average temperatures to 2C above pre-industrial levels. It could also release natural stocks of carbon from the soil or permafrost, making the situation worse.” wrote David Adam and Larry Elliott in The Guardian on Tuesday October 31, 2006.

(See: <http://business.guardian.co.uk/story/0,,1935706,00.html>).

They were summarising a section of the Stern Review (Ref (10) Chapter 1). Page 12 of Chapter 1 includes the following “If annual emissions were to remain at today’s levels, greenhouse gas levels would reach close to 550 ppm CO₂e by 2050. Using the lower and upper 90% confidence bounds based on the IPCC TAR range and recent research from the Hadley Centre, this would commit the world to a warming of around 2 – 5°C. . . . Positive feedbacks, such as methane emissions from permafrost, could drive temperatures even higher.”

Unfortunately, even if greenhouse gas levels could be stabilised at 550 ppm CO₂e (which the above projections would not do) there is a significant risk of catastrophic and irreversible climate changes. These include the Greenland ice sheet beginning to melt irreversibly, accelerating sea level rise and committing the world to an eventual 7 m sea level rise. Further possibilities including human impacts are set out in the Stern review (Ref (10) Chapter 3, Table 3.1 on Page 57).

Sir David King (Chief Scientific Advisor to UK Government) addressing the Greenpeace Business lecture on Global Warming supported this conclusion by saying “So what is the point at which the Greenland ice sheet will start melting? The latest indication is when the temperature around the Greenland land mass area is 2.7 degrees Centigrade above the pre-industrial level. We're already .6 degrees Centigrade above that level. What level of carbon dioxide therefore do we need to avoid going beyond in order to avoid testing this theory of melting of the Greenland ice sheet - something we'd all like to do, I think. I used to say 550 parts per million, I'm now thinking that that might be pushing it a bit. So we are talking about perhaps 500 parts per million as the level beyond which we shouldn't go to try and test this model.”

Other examples of events that could cause catastrophic climate change include loss of the West Antarctic ice sheet; methane outbursts, including runaway methane hydrates; instability or collapse of the Amazon Forest; reduced carbon sink capacity; etc. The risk of these occurring increases rapidly as temperature rises.

This reality demands that the Government adopts the precautionary principle and leaves no stone unturned in driving down CO₂ emissions. It also requires the Government to participate enthusiastically in working with our EU colleagues towards the widest possible international action necessary to reduce the risk of catastrophic climate change.

It is clear that the proposed energy policy targets are very unlikely to support the Government's economic and social policy objectives beyond the short term. Their medium term effects are likely to be disastrous.

Looked at from a global perspective the Green Paper proposes grossly inadequate energy policies given the potential catastrophic challenges facing mankind.

Cost of addressing the issue

The Green Paper fails to consider the economic cost of addressing the issue of ongoing CO₂ emissions. The environmental cost of power generation can no longer be ignored.

An estimate of resource costs suggests that the annual cost of cutting total greenhouse gas emissions to about three quarters of current levels by 2050, consistent with a 550ppm CO₂e stabilisation level, will be in the range -1.0 to +3.5% of GDP, with an average estimate of approximately 1%. (Ref (10) Chapter 9, Page 211)

Given the magnitude of the potential negative impacts of climate change there is no excuse for a less than wholehearted Government commitment to addressing the issue. The Irish economy is strong. The projected cost of addressing the issue is modest relative to the potential economic and social benefits of early and aggressive action.

Other weaknesses in the Green Paper

The Green Paper provides weak support for the EU energy strategy. That strategy includes the statement that:

“Effective action to address climate change is urgent and the EU must continue to lead by example and, above all, work towards the widest possible international action. Europe needs to be ambitious and must act in an integrated manner that promotes the EU's Lisbon objectives.”
(Ref (2) Page 10)

The European Commission has criticised Ireland for not being on target to reduce carbon emissions. It says Ireland ranks amongst the worst performers in the EU, at fourth from the bottom in terms of cutting greenhouse gas emissions. Under the Kyoto Protocols, Ireland is committed to reducing the rise in carbon emissions to 13% by 2010. However, the Commission says that without additional measures, Ireland's carbon usage will increase by closer to 30%. (Ref (3))

Clearly Ireland is not leading by example. Neither is there evidence in the Green Paper of any intent to work towards the widest possible international action. This is deplorable given the urgent need for coordinated action by governments around the world.

Also, as already mentioned the Green Paper fails to respond to the European Council proposal for a reduction pathway in the order of 15-30% by 2020 compared to 1990.

The Green Paper is poorly informed about the relationship between CO₂ emissions and climate change, the potential impacts of climate change, and adaptation and mitigation possibilities. This is evidenced by the Selected Sources listed on Page 107 of the Green Paper. There is an extensive modern literature about climate change, its potential impact, and adaptation and mitigation possibilities. The Selected Sources informing the Green Paper are notable for the almost complete absence of this material from the list. Consequently it is no wonder that the proposed policies are so inadequate and the Green Paper is so dangerously flawed.

The Green Paper fails to identify those areas requiring careful study to mitigate the inevitable effects of unavoidable climate change resulting from prior emissions and from emissions associated with the proposed policy targets. This letter points to some of the consequences of increasing concentrations of CO₂.

For example, prior and future emissions are expected to result in rises in sea levels. The Green Paper fails to identify this consequence and to recommend that policies are put in place to mitigate the potentially catastrophic effects. Many more examples could be cited.

Conclusion

Minister Dempsey's forward to the Green Paper begins:

“Energy is fundamental to our lives. Energy policy is therefore pivotal to ensuring that economic and social policy objectives are met.”

Close examination of the details given or alluded to in the Green Paper reveals that the proposed policies are very unlikely to support the Government's economic and social policy objectives beyond the short term. Their medium term effects are likely to be catastrophic.

The Green Paper proposes that *30% of electricity will be generated from renewable sources by 2020* and *5.75% of transport needs will be met by biofuels by 2010*.

I submit that these sustainability policy targets are quite inadequate and are not consistent with a 'sustainable energy future'. If other nations of the world were also to pursue such policies, there would be globally catastrophic climatic, economic and social consequences.

For these reasons I submit that **the Green Paper is dangerously and fundamentally flawed.**

The unavoidable final conclusion is that the Green Paper should be shelved. A new Green Paper should be produced as a matter of urgency that is based upon a full acceptance of the climatic context in which the proposed policies are set, and the extent of the challenges facing mankind. Anything less would be an act of selfish and gross irresponsibility.

Yours faithfully,

David R M Algeo

References

- (1) Ackerman, Frank; Stanton, Elizabeth. October 2006, *Climate Change – the Costs of Inaction*. See:
http://www.foe.co.uk/resource/reports/econ_costs_cc.pdf
- (2) European Commission, March 2006, *Green Paper, A European Strategy for Sustainable, Competitive and Secure Energy*. See:
http://ec.europa.eu/energy/green-paper-energy/doc/2006_03_08_gp_document_en.pdf
- (3) European Commission, DG Environment, 27 October 2006,
Press release, Ref: IP/06/1488
<http://europa.eu/rapid/searchAction.do>
- (4) Department of Communications, Marine and Natural Resources, Undated, *Green Paper; Towards a Sustainable Energy Future for Ireland*
<http://www.dcmnr.gov.ie/NR/rdonlyres/54C78A1E-4E96-4E28-A77A-3226220DF2FC/26716/EnergyGreenPaper1October2006.pdf>
- (5) Department of the Environment, Heritage and Local Government, July 2006,
Ireland's Pathway to Kyoto Compliance - Review of the National Climate Change Strategy
[http://www.environ.ie/DOEI/doi/pub.nsf/0/741b010079da033a802571b5003c07ff/\\$FILE/1Irelands%20Path%20to%20Kyoto%20Compliance.pdf](http://www.environ.ie/DOEI/doi/pub.nsf/0/741b010079da033a802571b5003c07ff/$FILE/1Irelands%20Path%20to%20Kyoto%20Compliance.pdf)
- (6) Hadley Centre for Climate Prediction and Research, December 2005,
Climate change and the greenhouse effect. See:
http://www.met-office.gov.uk/research/hadleycentre/pubs/brochures/2005/climate_greenhouse.pdf
- (7) Hadley Centre for Climate Prediction and Research, January 2005,
Stabilising climate to avoid dangerous climate change. See:
http://www.met-office.gov.uk/research/hadleycentre/pubs/brochures/2005/CLIMATE_CHANGE_JOURNAL_150.pdf
- (8) ICF Consulting and Byrne O Cleirigh Consulting, March 2006, *Determining the Share of National Greenhouse Gas Emissions for Emissions Trading in Ireland*. See:
[http://www.viron.ie/DOEI/DOEIPol.nsf/0/48bc4a2b3cb6210380256f0f003bc858/\\$FILE/ICF-BOC%20Final%20Report%20on%20Emissions%20Trading.pdf](http://www.viron.ie/DOEI/DOEIPol.nsf/0/48bc4a2b3cb6210380256f0f003bc858/$FILE/ICF-BOC%20Final%20Report%20on%20Emissions%20Trading.pdf)
- (9) SEI, January 2006, *Energy in Ireland 1990 – 2004*. See:
<http://www.sei.ie/>
- (10) Stern, Nicholas. October 2006. *Stern Review on the economics of climate change*. London, HM Treasury. See:
http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm
- (11) Watkiss, Paul, Tom Downing, Claire Handley and Ruth Butterfield, 2005. *The Impacts and Costs of Climate Change*. Brussels, European Commission DG Environment. See:
http://ec.europa.eu/environment/climat/pdf/final_report2.pdf