Supplementary comments to The Joint Standing Committee on Treaties Inquiry into the Kyoto Protocol

by:

The Sustainable Energy Industry Association

(Australia) Ltd

6 November 2000

217 Northbourne Ave
Turner ACT 2612

Telephone: 02 6230 0271
Fax: 02 6230 0273
Email: seia@seia.com.au

Introduction

SEIA appreciated the opportunity to present its views to the Committee on Novermber 3. Two issues arose that are worthy of supplementary comment:

- The issue as to whether ABARE has carried out studies that include assessment of sectoral impacts of greenhouse policy
- How Professor Lenzen's comments on whether global warming is happening can be clarified

These two issues are discussed below.

ABARE evaluation of sectoral impacts of greenhouse policy

In an attachment to SEIA's submission to this Inquiry, material previously presented to the Senate Inquiry on Global Warming was presented. A Member of the Treaties Committee suggested that ABARE had denied that it had carried out studies of sectoral impacts of greenhouse response policies. The following responds to that comment.

It should be noted that Alan Pears from SEIA participated in a Round Table on economic modelling with ABARE staff with the members of the Global Warming Inquiry. This submission was not challenged at that session. Indeed, most issues raised by SEIA were accepted by the ABARE staff. This session was recorded by Hansard, and your Secretariat may find it useful to refer to it. Senator Tchin participated in that session, too.

While ABARE may not have carried out studies *specifically intended* to assess the sectoral impacts of greenhouse response, the reality is that the computer models they use are broken down into sectors with differing characteristics, and the results from these sectors can – and have been – used for analysis of sectoral impacts of greenhouse policy.

To reinforce this, consider the following quote from a recent ABARE report:

"The economic variables [in models such as ABARE's GTEM] considered include the prices of consumer goods and inputs to production, *sectoral* [our emphasis] and regional output, trade and investment flows…." (p.26 ABARE Report 99.6 *Economic Impacts of the Kyoto Protocol*)

Later in the same report, a Table lists the 23 sectors the ABARE model simulates separately. These include four fossil fuels and electricity; 4 minerals and metal industries; 4 manufacturing industries; two services sub-sectors; 5 types of agricultural activity and 3 types of processed food production.

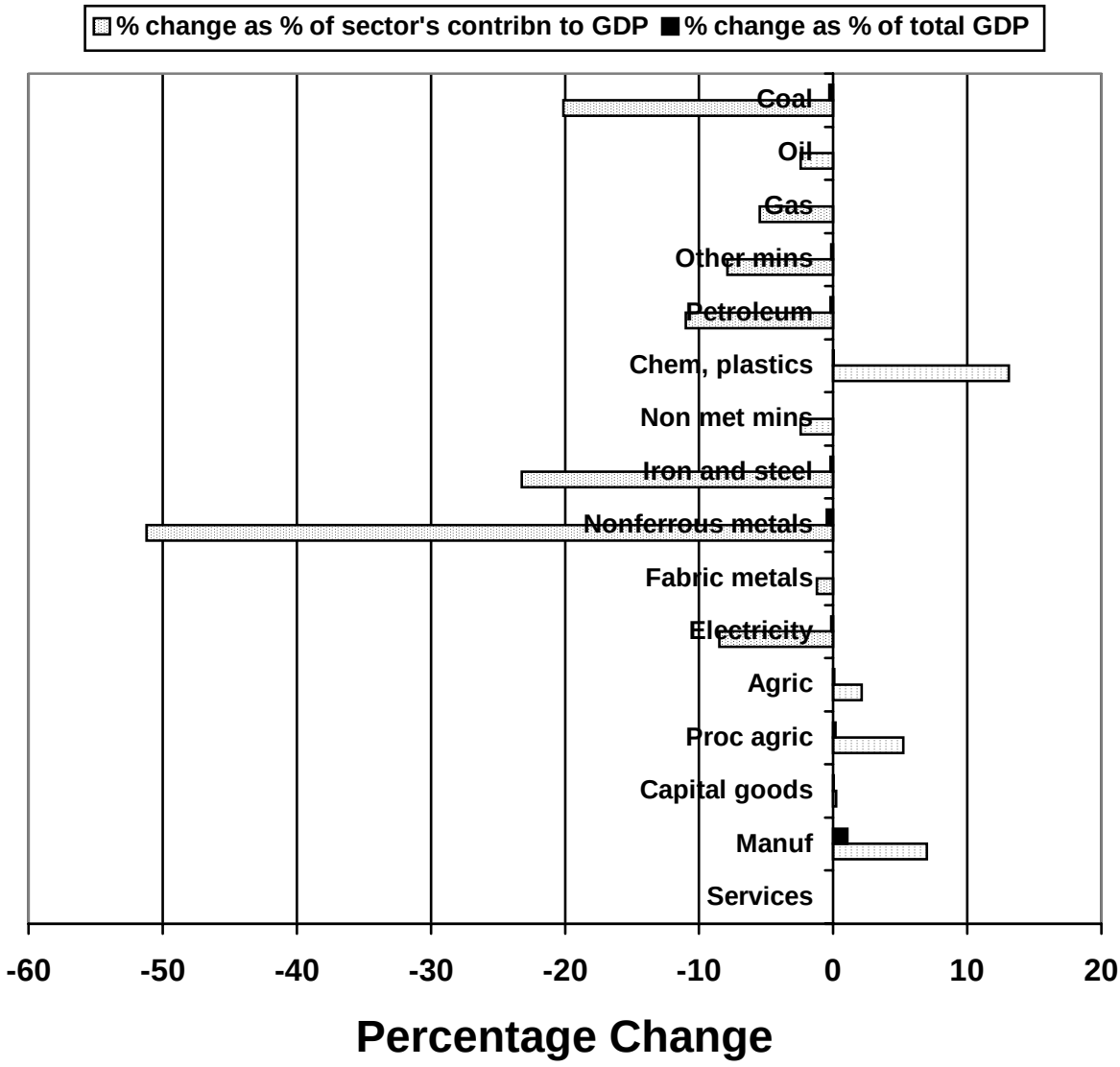
While it may be that ABARE does not routinely extract information on the impact on each of the above sectors of various greenhouse scenarios, it has clearly been done at least once. The graph reproduced from our previous submission below was copied and adapted from ABARE's 1997 report *The Economic Impact of International Climate Change Policy* (Report 97.4). That graph was reproduced on page 89 of the September 1997 DFAT report *Australia and Climate Change Negotiations*, along with a discussion of sectoral impacts based on interpretation of the graph.

The SEIA version of the graph presents the bars for the sectors in two ways. First, the light bars are shown as ABARE and DFAT originally presented them in the reports referenced above, showing the percentage impact on each industry's economic output resulting from application of greenhouse policy (specifically a large carbon tax or mandatory emissions trading). However, this creates a distorted perspective, as a large percentage change in the level of activity of a minor industry would still look large – and potentially mislead the superficial reader to think that the economic impact of the policy was devastating. To address this potential distortion, SEIA calculated a second set of dark bars. These take account of the scale of impact of greenhouse policy on the level of activity of each sector, as well as each sector's relative contribution to the economy. These second bars give the impact of the greenhouse policy from the perspective of the overall economy.

Key points that can be noted from review of SEIA's modified graph include:

- There is a negligible impact on the services sector due to the greenhouse policy modelled. Since this is the dominant part of the Australian economy, this is an important finding
- The enormous proportional impact on, for example, the nonferrous metals sector is in fact a very small impact on the overall economy, as this sector generates little more than 1% of Australia's GDP under Business As Usual.

Figure 2 [numbering from SEIA's original submission]. Impacts of ABARE greenhouse scenario on Australian economic activity as a percentage of each sector's Business as Usual economic activity, and as a percentage of the total economy.



It was on this basis that SEIA has made the public statement that over 85% of Australian business (based on shares of GDP) would be unaffected or better off under strong greenhouse policy. This public statement has never been challenged. This is not to say that SEIA supports a large carbon tax, but it highlights the fact that even so-called draconian greenhouse policies have many winners and by-standers, as well as some losers – who are free to take strategic action rather than waiting passively to suffer.

It should also be noted that ABARE's more recent modelling work (such as that in Report 99.6, referenced above) has shown a significantly reduced total economic impact from strong greenhouse response action. So the above graph should be seen as a pessimistic assessment of the impacts on Australian business.

As pointed out in our verbal presentation, the ABARE modelling results are based on a blanket application of a tax or emissions trading across the whole economy. Government could choose to apply different strategies to different sectors of the economy to avoid trauma and encourage constructive response by business, as it did with the GST and the Tax Package.

Clarification of Professor Lenzen's views on whether warming will occur

This is a critical issue, and it may be useful for the Committee to refer the following comments to Prof Lenzen for confirmation or correction. In the interests of advancing discussion, I would also appreciate correction of any misinterpretations I may have made.

My recollection of two aspects of Professor Lenzen's presentation is as follows:

- As quoted by a Committee Member during our evidence, he expressed a view that he thought there would be little or no warming
- On one of the Professor's transparencies, he made a comparison between the 'sensitivity' if only CO_2 caused warming, relative to the sensitivity estimated by the IPCC and some climate modellers. The 'sensitivity' for CO_2 only was 1 degree Celcius, and the IPCC and modellers' values were 2 and 4 degrees C. It may not have been obvious to some in the audience, but this transparency related to a critical aspect of warming effects, and the following is an attempt to explain this.

In reality, there are two broad factors contributing to global warming. First, the direct warming effect due to the increase in concentrations of greenhouse gases in the atmosphere and, second, the complex interactive effects that may amplify or damp warming (such as changes in clouds, etc). Professor Lenzen's first comment above seems to have been a view on the overall outcome of both of these factors combined. The transparency related to the first factor. Why does the difference matter? Read on.

The direct warming effect of increasing the concentration of CO_2 in the atmosphere is reflected in the 'sensitivity for CO_2 warming only' stated by Professor Lenzen as 1^o C. My understanding is that this means a doubling in the concentration of CO_2 in the atmosphere would lead to a rise in temperature of 1C *if there were no other interactive effects*. This warming effect is a real and unavoidable consequence of an increase in CO_2 concentration, and can be explained by fairly straightforward physics. Radiant energy of appropriate wavelengths leaving the earth is intercepted by molecules of CO_2, and some of it is re-radiated back towards earth, raising the equilibrium temperature at and near the surface. The more CO_2 molecules in the atmosphere, the greater the warming.

If, as could well occur by 2100, CO_2 concentration doubles or triples due to ongoing growth in fossil fuel burning and other activities, this would lead to an increase in global temperature of 1-2C due to CO_2 effects alone – as long as there are no other complications.

But there *are* complications, and this is where Professor Lenzen and many scientists differ. On his transparency, Professor Lenzen pointed out (quite correctly, as I understand it) that the IPCC and many modellers are predicting that the extent of warming will be significantly greater than that due to CO_2 alone – their estimates are 2-4 times that from CO_2 alone. This is because their modelling and studies suggest that the complex factors in the atmosphere will, overall, amplify the basic level of warming due to CO_2 alone.

Professor Lenzen and his colleagues take the view, based on their research and analysis, that the complex factors in the atmosphere will, overall, damp down the base level of warming to a great extent.

Professor Lenzen's general comment that he believes there will be little or no warming can be seen in this context.

Both Professor Lenzen and his opponents argue that real temperature data collected to date are consistent with their projections.

This creates a difficult dilemma for policymakers. If Professor Lenzen and his supporters are correct, we have some time to make a transition to low greenhouse emissions without much warming. If IPCC or other more extreme experts are correct, we have little or no time to act to limit warming within safe limits.

SEIA's submission made the point that Australia is failing to adopt many emission-reducing strategies at cost-effective optimum rates. Driving take-up of sustainable energy solutions is an economically positive strategy that is also a very effective path to reduction of greenhouse gas emissions. It resolves some of the policy tensions and gives more time for improved data and resolution of scientific debates.

Alan Pears

Adjunct Professor, RMIT University
Policy Officer, Sustainable Energy Industry Association