COMMONWEALTH OF AUSTRALIA

Official Committee Hansard

HOUSE OF REPRESENTATIVES

STANDING COMMITTEE ON ENVIRONMENT AND HERITAGE

Reference: Employment in the environment sector

MONDAY, 11 NOVEMBER 2002

CANBERRA

BY AUTHORITY OF THE HOUSE OF REPRESENTATIVES

INTERNET

The Proof and Official Hansard transcripts of Senate committee hearings, some House of Representatives committee hearings and some joint committee hearings are available on the Internet. Some House of Representatives committees and some joint committees make available only Official Hansard transcripts.

The Internet address is: **http://www.aph.gov.au/hansard**

To search the parliamentary database, go to: **http://search.aph.gov.au**

HOUSE OF REPRESENTATIVES

STANDING COMMITTEE ON ENVIRONMENT AND HERITAGE

Monday, 11 November 2002

Members: Mr Billson *(Chair)*, Ms George *(Deputy Chair)*, Mr Barresi, Mr Cobb, Mr Hunt, Mr Jenkins, Mr Kerr, Mr Lindsay, Ms Livermore and Mr McArthur.

Members in attendance: Mr Billson, Mr Jenkins, Mr Kerr, Mr Lindsay, Ms Livermore and Mr McArthur

Terms of reference for the inquiry:

To inquire into and report on:

- The current contribution of environmental goods and services to employment in Australia;
- The future potential growth, including barriers and opportunities for growth, of environmental goods and services and impact on employment;
- Current status and future requirements for an appropriately skilled workforce;
- Appropriate policy measure that could encourage the further development of the environmental goods and services sector; and
- Information and reporting systems that would support the uptake of environmental goods and services to enhance overall business performance and development of the sector.

WITNESSES

Committee met at 9.48 a.m.

BELT, Mr Richard Stanley, Manager, Environmental Industries Section, Department of Industry, Tourism and Resources

FARROW, Mr Malcolm Hope, Head, Energy and Environment Division, Department of Industry, Tourism and Resources

ACTING CHAIR (Ms Livermore)—I declare open this public hearing of the House of Representatives Standing Committee on Environment and Heritage inquiry into employment in the environment sector. This hearing is the second for the inquiry. Today the committee will receive evidence from the Department of Industry, Tourism and Resources and the Office of the Renewable Energy Regulator. I would like to welcome Mr Farrow and Mr Belt from the Department of Industry, Tourism and Resources. I think the circumstances this morning have been explained to you, having regard to delayed flights, bushfires and such things. Our chair, Bruce Billson, is on his way from the airport right now. So he will be with us shortly. In recognition of the time available to us this morning, we thought we should start.

Although the committee does not require you to give evidence under oath, I should advise you that these hearings are formal proceedings of the parliament and consequently warrant the same respect as proceedings of the House itself. It is customary to remind witnesses before they provide testimony that the giving of false or misleading evidence is a serious matter and may be regarded as a contempt of the parliament. Do you wish to make a brief statement in relation to your submission or some introductory remarks?

Mr Farrow—Thank you. I will make some opening remarks. I would like to start by saying that we are very pleased to appear today and propose to talk broadly about the environment industry and the two industry action agendas: the Environment Industry Action Agenda and the Renewable Energy Action Agenda. The renewable energy industry is generally regarded as part of the environment industry. However, we have done separate action agendas for both sectors, as the renewable energy industry received early attention as part of the government's response to climate change.

The government has undertaken the development of these action agendas because it considers these industries to be key emerging business sectors. The definition that we have used for the environment industry is the same as that used by the committee and is the one that has emerged from the OECD. That definition is that the environmental goods and services industry consists of activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to air, water and soil as well as problems related to waste, noise and ecosystems. This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use.

That is quite a long-winded definition and somewhat generic. We have found it useful to use a better snapshot, which has been provided by Environment Business Australia. They suggest that the industry includes activities encompassing water and waste water management, river system and coastal zone management, land management and rehabilitation, air quality monitoring and control, energy efficiency and renewable energy, waste minimisation, resource recycling, waste treatment and waste disposal, cleaner production technologies, monitoring and instrumentation and environmental research analysis and technology development.

The modelling that we have seen suggests that the environment protection expenditure results in an estimated employment of around 127,000 people in Australia. The environment industry is estimated to include approximately 3,000 businesses, with more than 80 per cent classified as small to medium sized enterprises. The domestic market for this industry is worth approximately $8.6 billion—that was the figure for 1996-97—with annual industry growth rates of approximately seven per cent. It accounts for around 1.6 per cent of the gross domestic product and the global market is estimated to be worth approximately $1,000 billion but exports from Australia were estimated to be only around $300 million in 1997.

As a subset, in the renewable energy sector, when we refer to it, we include transport fuel, such as ethanol, as well as bulk electricity generation from solar, wind, hydro and biomass sources and consumer supplies, such as remote area power supplies, solar hot water systems, photovoltaic systems et cetera. In 1995-96, the renewable energy industry in Australia employed approximately 6,400 people in manufacturing, sales, services and generation. It generated sales of around $850 million in goods and services, of which $490 million was in hydroelectricity sales and $140 million in wood heaters. The industry exported $100 million worth of goods and services comprising about $27 million in photovoltaics and around $30 million in associated equipment. This was mainly to Indonesia, the Philippines and Sri Lanka.

In September 2001, the Commonwealth government and representatives of the Australian environment industry agreed on and released the Environment Industry Action Agenda. The Renewable Industry Action Agenda was released in June 2000. Action agendas are long-term industry development strategies agreed between the government and key industry sectors. The aim of these action agendas is to increase the international competitiveness of the industry sector concerned. The Environment Industry Action Agenda is a 10-year strategy which sets out 18 key recommendations to enable the Australian environment industry to achieve its vision, which is to add value to all Australian businesses by enabling competitive outcomes and in the process build an environment industry with annual sales exceeding $40 billion by the year 2011.

The Environment Industry Action Agenda has four broad themes, and they have been defined to support this goal. These are: valuing and pricing the environment; building markets and competitiveness; innovation; and marketing the industry. The Renewable Energy Action Agenda is a strategic plan for the development of a sustainable and internationally competitive renewable energy industry over the next 10 years. Its vision is to achieve a sustainable and internationally competitive renewable energy industry which has annual sales of $4 billion by the year 2010.

The Renewable Energy Action Agenda includes five overarching strategies. These are: market development; building community commitment; building industry capability; setting the policy framework; and encouraging a culture of innovation. The department considers these action agendas to be relevant to the terms of reference of this inquiry. For both action agendas, the department prepared discussion papers. These considered the current state of the industries. There is the ‘Investing in Sustainability’ discussion paper for the environment industry and the ‘New Era, New Energy’ paper covering the renewable energy sector.

The environment industry discussion paper drew on all existing information sources in an attempt to present key industry statistics, such as employment. In particular, the committee might note the references to the work of the industry policy consultants on page 19 of that discussion paper. The work done by industry policy consultants suggests that the environment

protection expenditure in Australia results in employment of around 127,000 people. Some of these people would be overseas. I mentioned that figure earlier. More recently, however, the national capability statement on Australia's environment industry prepared for Environment Australia by the Victorian University of Technology has provided more up-to-date information on the environment industry in Australia. The committee might consider examining this more recent report as well.

The committee might also note that the lack of adequate information on the Australian environment industry is a matter of concern for both the government and the environment industry and is the subject of a recommendation in the action agenda. The available data tends to be disjointed and to represent only parts of the industry. Industry representatives have called for more consistent and comprehensive data for the whole of the Australian environment industry. To this end, the Minister for Industry, Tourism and Resources and the Minister for the Environment and Heritage have recently written to the Australian Statistician asking that the amount and level of statistical information available from the ABS on the environment industry be improved. While the ABS has considered the conduct of such a survey and developed methodologies for conducting the survey, the ABS at present does not have the funding to undertake such a survey.

I would like to end my opening remarks there. Suffice it to say that the government believes it is an important industry sector. It is growing worldwide, as governments and communities focus on sustainable development. It is an industry that is not yet dominated by major international, multinational firms, as in motor vehicles or the IT industry. The other thing about it, I suppose, is that it is just very difficult to draw a line around what is an environment industry, what falls into the definition, and, therefore, the data is not always readily available in a comprehensive form. Thank you.

ACTING CHAIR—Thank you, Mr Farrow. Are there any questions from my colleagues?

Mr KERR—I want to be provocative before I go and visit a school group briefly and then I will return. You mentioned the ABS and that it did not have funds. One issue that has been raised with me repeatedly by people both in the private sector and in the public sector organisations is that the ABS now operates outside the public good sector in large measure and must charge cost recovery for its work. That is a principle that is much attacked. It seems to me that this is perhaps another area where we ought to envisage the work of the ABS as being the provision of public good. I wonder about the degree to which the absence of statistical background and data in relation to this and related industries is actually cramping the capacity to make policy judgments.

Mr Farrow—It certainly was an issue raised in the development of the action agenda as a difficult area. Whether that translates into a difficulty in making policy and implementing other recommendations of the action agenda is another thing. I think it is good to get as much comprehensive information as we can about the industry. That may lead to areas of examination that we have not yet undertaken. While it is important, I do not think it is an insurmountable hurdle.

Mr KERR—On the provision of user pays, presumably ABS has not said, 'We do not have the resources.' What they have said is, 'If you care to pay for this, we will do this.' Is that what they have said?

Mr Belt—Yes, that is effectively it. We have worked with the ABS. As Malcolm said, it is quite difficult to come up with a methodology for defining the environment industry because it blends into many other sectors of industry as well. So we have done quite a bit of work with the ABS to help them define how they might undertake a survey. Ministers have written to the ABS to request that the amount of information on the environment industry be increased. The response essentially, as I understand it, went along the lines of, 'We've done some work to figure out how we might do it, but essentially we need funding to carry out a survey of that size.' And they have estimates of roughly how much that might cost. That is the situation, yes.

Mr KERR—So what is your department doing to provide the funding to undertake the task that you say is important to undertake? I am being provocative. What is your department now doing to provide the funding to undertake a task that you assert is important but which ABS does not have the internal resources to undertake?

Mr Farrow—We have just received a response from the ABS. As I say, we have worked with them on developing the methodologies and how that would go forward. The question of funding is something that is now back in our court. We have to look at how we might deal with that either individually as a department or on a broader basis with other departments and with the industry.

Mr KERR—Perhaps a better solution might be to fund the ABS adequately to undertake national interest research.

Mr Farrow—That is probably not something I can comment on.

Mr KERR—I have been sufficiently provocative. If you will excuse me, I will return. I have a school group here from my electorate; some of the parents I know well. I would be beaten about the head if I did not see them.

CHAIR—I apologise for my delay in getting here. The best meetings are when the chair is not here. It keeps everybody tidy. Again, my sincere apologies. Do you have any questions?

Ms LIVERMORE—Thank you, Chair. Welcome aboard. I was curious about any barriers that you see for the growth of the environment industry. I was at a conference a couple of weeks ago where concern was being voiced by business representatives about Australia's position on the Kyoto protocol and the implications for that in terms of access to trading mechanisms and the clean development mechanism within Kyoto. Could you comment on barriers in general but also answer those concerns that were raised by business recently?

Mr Farrow—I will move to the latter part first, I suppose, on Kyoto. You would know the government has said that it will not ratify the Kyoto protocol unless it is in Australia's national interest to do so. At the moment, it is not in Australia's interest to do so largely because it does not cover a significant proportion of the world's emissions without the United States and without developing countries. So it covers roughly 30 per cent of emissions. The government believes that that is not an effective response to the issue and places in jeopardy the competitiveness of Australian industry where other countries do not have similar disciplines.

That said, the emissions trading elements of the protocol are still under development. The broad principles have been agreed but are yet to be implemented in an international trading

regime. So we are yet to work out whether indeed our ratification or otherwise will be an impediment to participation in there. There is an element that Australia may not as a country be able to participate in it, but that does not necessarily extend to Australian firms who might operate overseas and gain access to credits that way.

Ms LIVERMORE—I did not make my question clear enough. The specific concern arose out of the announcement by the EU a few weeks ago. Has any analysis been done about what that announcement by the EU saying that they will not open their regime up to non-ratifying countries, or firms from non-ratifying countries, means? Have you done any analysis on where that leaves Australian industry?

Mr Farrow—As I understand it, what the European Union has said is that it will not allow European organisations to gain credits for activities that they undertake in non-members of the protocol. As I understand it, that would mean that a European firm or organisation that had some liabilities under the regime within Europe in a trading sense could undertake activities in another country and get credits for them and put them to its use in Europe. But to the extent that the new proposed legislation goes through, presumably those activities would not be able to take place in Australia. I do not think it necessarily translates into Australian firms not being able to operate in Europe or in other countries.

Ms LIVERMORE—And barriers more generally to the industry?

Mr Belt—We did examine a whole range of issues with potential barriers for industry in the action agenda. I guess the ones which seem to be most prominent, certainly in my mind, would be the structure of the industry in terms of it being predominantly made up of small and medium sized enterprises and where the largest organisations tend to be government owned corporations, such as Sydney Water and so on, which naturally have a focus closer to home and on the management of their particular territory rather than on, say, exporting. The structure of an industry with a very high SME content is one difficulty for the industry.

You can imagine that a lot of the industry's business is driven by regulation—Environment Protection Authority regulations in various states. That regulation is often different across the different states. We often hear quite a lot about regulatory differences across states preventing economies of scale for some of the companies operating across different markets. So those would be certainly some of the more prominent barriers that we are aware of.

Mr LINDSAY—I would like to focus on the innovation part of your strategy, if I may, and get you talking to us about where you see it going. I will then ask you some questions. Talk to me about the department's view on innovation.

Mr Belt—Certainly, innovation broadly is one of three key elements of the industry policy that the department is seeking to implement. Innovation is certainly a major feature of both the action agendas we have done. In the case of the environment action agenda, it is a little newer, so there has not been as much work done in terms of implementation. But the recommendations there focused on commercialisation and linkages. They are things where the government is trying to do a lot of work already through cooperative research centres and programs such as COMET helping to, if you like, take people from the scientific community and give them business skills and a strategic planning focus, things that can help them access venture capital and so on. That was the focus there. I think that is because a lot of the knowledge in this sector

is resident in universities and organisations such as CSIRO. The government spends quite a deal of money—somewhere between $200 million and $300 million—on environment related R&D directly through avenues such as that. So we are creating a lot of knowledge in those sorts of areas.

In the renewable energy area, there has been quite an investment by the government also in terms of trying to develop technologies there. In particular, I note that the renewable energy commercialisation program, which has been running since 1997, has been trying to seek to commercialise a range of renewable energy technologies. The government has also funded a CRC in renewable energy. Out of the Renewable Energy Action Agenda, the main project we have undertaken is the development of a renewable energy technology road map. Essentially, it is almost like a mini action agenda again, except with a technology focus. That has been going through an exercise to try to see where the most, if you like, attractive or lucrative renewable energy technologies are, given Australia's capabilities and natural strengths and therefore where we should invest some of our R&D money to try to get the best outcome. That exercise has been done with a range of people from the renewable energy industry, and we hope to release that report on Thursday, as a matter of fact, here in Parliament House.

Mr LINDSAY—And R&D programs?

Mr Belt—Sorry, certainly, yes. Malcolm has just reminded me that the department has an initiative by the name of REEF, the Renewable Energy Equity Fund, which provides venture capital, which is augmented with private funds as well. Up to about $26 million or $27 million worth of venture capital funds are available for renewable energy projects at the venture capital stage.

Mr LINDSAY—Looking at the innovation chain, it starts with people with ideas. It gets into the scientific development of those ideas and then the partnerships there and the commercialisation and ultimate sales either within Australia or across the world. First of all, do you agree that Australia has sufficient people who have ideas to drive innovation in this sector of the economy?

Mr Farrow—I think the short answer to that is yes. But one could always do with more. I say yes because there is a significant body of work being undertaken in all of the research institutions to which Mr Belt referred. That is all pretty exciting leading-edge activity. So, yes, I do believe we have sufficient creative and capable people.

Mr LINDSAY—But, moving on, the mechanisms by which ideas are developed, you have mentioned CRCs, universities—

Mr Farrow—CSIRO.

Mr LINDSAY—What about the private sector? Do you see the private sector in partnership with the three groups we have mentioned?

Mr Farrow—Yes, I would say more in partnership with the three groups mentioned. But there is private sector research and development being undertaken here. There would have to be some sort of analysis of the sort of innovation funding that we, through AusIndustry, pass out as

to exactly how much goes into this sector. But, yes, there is private sector, there is public sector and there are private-public sector partnerships.

Mr LINDSAY—As a department, are you seeing issues relating to who owns the intellectual property of the result of that partnership and how it is all managed? Do you understand what I am asking you?

Mr Farrow—Do we see it as a problem, as an impediment to development?

Mr LINDSAY—Yes.

Mr Farrow—From my perspective, no.

Mr Belt—Not that I am aware of. I mean, we work more in the policy arm of the department as opposed to the program area, which invests in particular projects through programs such as R&D Start and so on. But I am not aware of there having been problems of intellectual property ownership in particular investments, no.

Mr LINDSAY—In all that you do in your department, how important is the single issue of innovation? How would you rate that?

Mr Farrow—I would think it is rated very highly across all of the sectors. If you look at the structure of the department, I suppose, a fairly large proportion of the department is in program delivery. A large proportion of the funds that we give out to others is in innovation. In fact, the vast majority of it relates to innovation.

Mr LINDSAY—So your evidence to the committee is that innovation is right up there as being one of the most important drivers of jobs in the environment?

Mr Farrow—Yes, in as much as it is in leading-edge technologies where industries develop in doing old things in new ways, if you will. There is not anything much new in what we are trying to do. It is doing these things in new and better ways.

Mr Belt—For example, some of the biggest R&D Start grants that the department has done in recent times have been in areas such as hydrogen fuel cells and so on. So, yes, certainly, as Malcolm has said, innovation is a large part of our department's focus. From my experience, environment and renewable energy related technologies have been getting a good hearing or getting their fair share, if you like, of the program money going out through our innovation programs.

Mr LINDSAY—In relation to the commercialisation, you have given evidence that the Australian market is worth $8.6 billion and the world market is worth a trillion dollars. Do you agree that in bringing new products through innovation onto the market the Australian marketplace is just too small and that we should be encouraging Australian innovators to deal with the world rather than trying to just develop and deal with the Australian market?

Mr Farrow—Yes. And the action agendas provide specifically for that export focus as well. But it is a good testing ground—the Australian market—to develop. But I think in all industry

sectors we would encourage the players to look at the market as the global market, not just the Australian market.

Mr LINDSAY—I will go off that line of questioning. Solar energy is probably the most reliable form of renewable energy. Why haven't costs come down in terms of producing heat and electricity, or am I wrong?

Mr Farrow—I am not sure that you are wrong. I think you will find that costs have come down. What they have not done is come down to a point where they are competitive with other forms of electricity generation in Australia.

Mr LINDSAY—If they were competitive, what would that do to jobs in environmental industries?

Mr Farrow—It would depend a bit on the extent to which they are competitive. When I said that costs have not come down to those levels, in some instances solar energy is already competitive. So in remote area power supplies, for example, solar energy is being used. I was talking before about a development near Alice Springs where some very exciting technology is being used to develop a solar photovoltaic power system. So there are applications where this is being used in Australia. Building on that, we can look at export markets. There are many instances where communities are not linked by electricity grids. So you start to look at remote area power supplies. Once you start looking at remote area power supplies, solar can become a viable source of that provided you have a viable back-up system. So you have interesting battery technologies, for example, that help to support that back-up arrangement; interesting switching technologies that allow you to switch in and out of other fuels when solar is not going to be providing the amount of electricity you need. So as it becomes more and more competitive, obviously it will become a bigger employer. But whether it becomes as big an employer as the industries it replaces is another question.

Mr LINDSAY—In the work of your department, have you done any research on the community's attitudes to employment in the environment sector?

Mr Farrow—No, we have not. But that is not to say that other departments might not have, such as Environment Australia.

Mr JENKINS—In listing impediments, you have mentioned the different regulations across states and territories and the need for some form of harmonisation or something like that. What movement has there been to try to achieve that?

Mr Belt—The most relevant initiative there, as I understand it, is that Environment Australia has sought to put in place what they call national environment protection measures, or NEPMs. These national environment protection measures are in specific areas of environment regulation relating to air, water, contaminated land and so on. What Environment Australia seeks to do is negotiate with their state counterparts to agree on national standards. I understand that there are about six standards or so that have been negotiated so far. So that is the mechanism which the Commonwealth has sought to use to try to harmonise environmental regulation.

Mr JENKINS—Can you give a glaring example of an impediment that really has got the sector at sixes and sevens?

Mr Belt—Other than regulation?

Mr JENKINS—Within the regulatory framework, is there a classic example that the committee can get its head around?

Mr Belt—Unfortunately, I do not think I can give you that because I do not work in the environment regulatory sorts of areas. But my colleagues from Environment Australia may be able to give you some assistance with that. I have recently been to a conference, however, on remediation of contaminated sites. Comments were passed there about the inadequacy of data availability on toxicity of a whole range of chemicals and so on, which are typically found on contaminated sites and industrial areas, for example, and for which there just is not data available and where adoption of overseas standards can either be inappropriate for Australian conditions and Australian soil types and so on and where adoption of extremely high—setting very low levels of toxicity looks good in terms of human impact but for which there is just not instrumentation or so on to be able to test. So there are difficulties in adopting standards from overseas or setting standards too high where there is just not the instrumentation to be able to cope with that. So that is one example that I am aware of.

Mr JENKINS—Mr Belt has led me into my next question; otherwise it would have been based on my prejudice and ideology. The comments about Kyoto and the uncertainty in a regulatory framework that firms would be operating under I thought also blended into it. In our federal system we have this uncertainty because of cross-jurisdictional boundaries. Let us say we are looking to work not only domestically but into global markets and there is uncertainty about the frameworks—let us leave Kyoto aside because that might be a distraction, but take the example Mr Belt gave where there are international standards. One is the applicability to the local scene. But if we are trying to get companies to move into this sector and to be working globally, is there as much uncertainty about the frameworks that they would be working in that would lead them to have further impediments?

Mr Farrow—Certainly different countries have different standards and that does give rise to uncertainties. In a number of industry sectors we have worked where we can to try to work with other countries in either bilateral or multilateral fora on the development of international standards so that we work through them and it creates a general agreement on what is the right way to go about doing something and also opportunities for Australian industry to compete in those markets. As I say, we do that bilaterally but also multilaterally through agencies like APEC et cetera.

Mr Belt—I do not think there are as many difficulties on the international market. We have had companies which have been successful in markets like the United States and Europe in a field such as waste management particularly and, for example, Visy Recycling has done very well in recycling operations and waste management operations in the US. Cleanaway has done very well in a joint venture in the UK and is now proposing to expand that into Europe, with British partners there as well.

So we are able to cope with the standards and processes in developed countries such as that. In going into the developing world and nations closer to home here, we are often setting higher standards in those waste management and water treatment operations than those that exist there anyway. So I do not see it so much as a difficulty in approaching international markets. It is more a case of the exporter knowing which market it is more appropriate for.

Mr JENKINS—In the lead-up to my next set of questions, Mr Belt has now thrown me. I was going to ask about small to medium enterprises. I do not quite understand why that should be such a great impediment. You have then gone on to mention two largish organisations in Cleanaway and Visy, which maybe is part of the example. I would have thought that this is a developing sector that we acknowledge. There is a lot of uncertainty about it. In the discussions that Mr Lindsay introduced about innovation and things like that, these smaller and medium sized enterprises are sometimes better equipped to respond to changing circumstances. So when the action agenda highlights that one of the things we will have to address is the size of companies, what is it that we really see as the problem? Is it that they need more help to get into markets or to identify regulatory frameworks or whatever?

Mr Farrow—I will make a general comment. Mr Belt might follow it up. As a general rule, the difficulties that smaller organisations have in entering export markets is largely resource related. Companies have to bet the bank to go and export. That is not to say that many of them are not successful. They are successful in these overseas markets. But it is a large proportion of the resources of the firm often that become involved in entering these markets. I think that has been recognised by governments over time and there has been assistance in terms of getting firms export ready in various programs, not necessarily related to this industry alone. If I am not wrong, we have already led a trade mission to South America to open the doors. Often it becomes a role of trying to accumulate and get sufficient mass and then to have a look and open the doors for those companies in other countries.

Mr Belt—I think there are some large firms, which I have mentioned, which are successful in the industry and doing very well, but there are not a lot of them. You can probably count them on one hand. As I said, there are a couple of large organisations which are government owned corporations. Then you drop down to a large number of very small to medium sized firms. The exporting game can be very challenging for small firms. Some can be very successful. But in the technology game in particular, that is very difficult. A large part of the industry is service based. If you can imagine the waste management thing, it is actually selling services in a lot of cases. Our engineering companies obviously are selling their environmental engineering expertise in a lot of markets as well. So there is a lot of service selling. When you get into the technology game and selling water treatment technologies and filters and that sort of thing, that is a fairly challenging game, particularly for SMEs. But that is not an uncommon problem for Australian SMEs in other sectors as well.

As Malcolm said, I just want to give a little bit of promotion for the trade mission to South America. We organised it. The renewables, as I said, have been organised for a little longer. We were able to work with Austrade and take a small group of renewable companies to Chile, Brazil and Mexico. It was very successful. They were all companies with a little bit of export expertise around our region. We did some work with them to highlight the possible opportunities in South America. Some of you may be aware that South America is a focus for Foreign Affairs and Trade at the moment. I think all the companies were extremely happy with the outcome of that mission in terms of finding business and agents in South America. So we are very happy with that.

Mr JENKINS—I have a final set of questions. We have talked about impediments. We need to talk about drivers. Obviously there are drivers that are led by legal and regulatory regimes. One of the important drivers that a lot of your workers talked about is that there will be market forces and some of them will require what I call cultural or attitudinal changes. One thing that

intrigues me is that I do not believe Australia has been very good at marrying environmental focus and economic focus. We too often see them as opposing forces whereas other major nations have got together. I use the Canadian National Round Table on the Environment and Economy as an example of where they get all the players together and truly can talk about a future that is sustainable not only for environment and resource use but also in an economic sense. I suppose I am hoping you might be able to disabuse me of this perception that it is a little more rosy than I believe it is.

Mr Farrow—I think you made reference to the culture within Australia. I believe that there is a change happening there. A number of companies in a number of areas are now seeing the benefits of sustainable development to their own operations. Perhaps for other reasons they have found themselves needing to report on sustainable development outcomes from their operations. But once they are heading down that path, it is realising that that has led them to a company that is doing well. It is doing well in its overall governance and its overall performance. They have found areas to improve their performance in terms of sustainable development. Having headed down that path, they have also started to quantify a number of their inputs and costed some of their outputs so that it has led to more productive outcomes and more commercial outcomes. I think there is a change. I think you are right. In the past, maybe it was something that one endured rather than embraced. But I think that is changing. It is changing in a number of sectors.

CHAIR—I have a few quick questions. We are running a bit behind. You mentioned Visy. I would like to use it as an example of some confusion in the marketplace. Visy were not sure whether this inquiry was relevant to them. It does, in my view, underline a basic confusion about who is in the environment industry caper and who is not. The action agenda mentions efforts to coordinate, consolidate and bring together disparate activities. Is there some broader push to build awareness of what is virtuous and what is environmentally helpful and invite people to the table who might not realise they are part of the picture in the first place?

Mr Belt—That is a difficult question. I am not certain that you will ever quite lock down on certainly what the environment industry is, for exactly the reason you are talking about, particularly when you consider elements like cleaner production technologies. You can imagine that could come from just about any particular industry sector and it could apply anywhere. The core elements which we have thought of as being in the environment industry in the past are water and waste management. If you look at the numbers spent in Australia, they are by far the biggest sectors, with water the biggest sector.

CHAIR—And air cleaning is in the OECD definition. The question arises as to whether the marketplace embeds the work of the sector in its more general operations or whether it is viewed as a bolt-on because there is a blank chapter in the annual report and you do not want to upset the market. You want to be sensitive to these things. I wonder again whether the business case surrounding the adoption and embrace of this technology is sufficiently well argued. Again, it is not mentioned in the action agenda, but I wonder whether it is something that could be addressed going forward to build people's awareness. It is total quality management applied in a broader sense as much as anything.

Mr Farrow—Certainly I think that builds on the culture question that we referred to earlier. I agree that it is difficult to draw the line about where that is. I think I read out a few things in my opening remarks regarding what we had included as a practical definition.

CHAIR—Thanks for highlighting that. I missed that, Malcolm.

Mr Farrow—What I am really trying to highlight is conspicuous by its absence. Examples are things like paper recycling, metals recycling and the very significant environmental work associated with the mining industry of Australia. All of those issues are things that fall outside the definition that we are using. But if you ask me to explain why that is, I do not think I could. The issues that relate to those industries also give rise to what you have described as the bolt-on parts of it, where there is a large environmental consulting element. There is a large element of business that actually does go in to firms and say, 'You have a water treatment issue and we can deal with water treatment issues.' But it is that general definition of trying to work out what is in and what is not in. But that gives a bit of the problem. I can imagine that somebody might say, 'Why am I in the environment industry? All I do is recycle paper and make paper out of it,' rather than thinking, 'I'm doing that for the environment.' It is the same for metal recyclers.

CHAIR—We could do some productive work there trying to clarify and, in effect, invite people to the table.

Mr Belt—If I am understanding you to be inviting people to the table in terms of sustainable development and that sort of thing, I think there have been a number of initiatives by the government to do that. Clearly, the government has outlined a view that it wants companies to decide that this is in their own interests to improve their credentials or however they want to go about improving their environmental performance. In doing that, they have put forward a number of initiatives to try to assist that process.

Environment Australia has done booklets on how to do public environmental reporting. It has a web site which promotes those sorts of approaches, which gives companies some idea of how they can go about that. I understand that they also funded some extension officers out into organisations such as Australian Business Ltd and ACCI, which form a network where businesses could come in and seek some advice on how to tap into environmental performance programs running in Commonwealth and state governments and so on.

Obviously there are varying degrees of sign-on, but how important is this to parts of business? Certainly the view of the industry leaders that helped us with the Environment Industry Action Agenda was that this was a fairly important business issue. There are sectors in Australia which take these issues fairly seriously. There is a lot of work just in doing that extra chapter in the annual report for Environment, which is where a lot of the service industries are growing in providing that service to all sorts of businesses in Australia. But certainly in sectors such as mining, in the utilities sector, such as water and so on, there is very strong sign-on to these sorts of sustainable development issues. In mining, they say they need it as a licence to operate these days. You will see them take these issues very seriously. In the utilities and water sector, there is exactly the same reason; there are public health concerns at stake there.

CHAIR—We have heard about industry coordination around EnviroNET, Isonet and the environment industry development network's environment directory. All this good stuff is happening all over the place. The action agenda recognises the need to bring that together. The other thing that emerged out of that was that anybody can turn up and there is no great effort to verify the credentials of the claim that if you put a teardrop of a goanna in the tank of your car you will get better fuel economy and fewer emissions. We go, 'Okay. We'll put you in the

directory.' What is going on in that area of verification and building a credible basis for expansion of the industry?

Mr Belt—There is nothing that I am aware of at this stage other than existing law and regulation that prevents you from using things which do not work or are not up to standard. So in the various states you have law and regulation to which environmental equipment must perform.

Mr Farrow—Is your question, Mr Chairman, what is the sieve through which companies have to pass so that they can be registered on that network as being an environment industry company?

CHAIR—Evidence given to us is that there are no filters; it is self-selecting. It leads into the SRI, or the socially responsible investment, marketplace where they are developing their own filters to determine what is virtuous. I was trying to draw you in to some statements around verification and what could be done there so that the industry does not develop a bad reputation because it is not properly verified where claims are substantiated.

Mr Belt—If you talk about the environment industry specifically, certainly there is that risk there. As I said, other than in terms of purchasing the equipment and you meeting the existing standards, there is no other verification imposed on people coming into the industry. It is typical, I think, in a lot of the organisations which purchase environmental equipment to have panels of accredited suppliers and so on. The difficulty is that sometimes that works against innovation. If you have a specified piece of equipment that works all the time, you might not take on the new generation thing which does not look and feel the same way but can actually do the job better. We did have a look at a concept just before the action agenda commenced about two years ago called environment technology verification. The US government and a couple of US states and the Canadian government run programs called ETV programs, or environmental technology verification programs.

CHAIR—Is that published work?

Mr Belt—Yes, it is.

CHAIR—Could you steer us towards that?

Mr Belt—Yes, certainly. I think the US EPA has a web site which has their ETV program. I can send you the details of that. Anyone can get independent verification of a new technology if you go to someone independent. Typically in Australia you would go to a university or a laboratory or CSIRO or someone like that and they would verify the equipment. You would get a certificate which says 'This technology works' to whatever standard. What these programs provide is a government seal of authority to that and some government funding to that. In the case of the Canadian program, it is heavily subsidised, with just one price for all verifications. In the US EPA it is a little different and a little more comprehensive. They have comparative verifications.

CHAIR—Does that help enter other markets offshore? I guess the other part of that question, just to wrap up—I know we must move on—picks up some of the conversation around emissions trade and the like, where environmental criteria masquerading under the banner of

sustainability actually create trade barriers or opportunities for trading advantage. Are you seeing much of that? Is that on the radar screen of the action agenda group known as the Barton Group? Are there some comments you could leave us with around those subjects?

Mr Belt—Certainly I cannot recall that being an issue that has been of concern to the Barton Group at this stage.

CHAIR—Thank you, gentlemen. If there are any subsequent issues that arise out of today's dialogue, we would be more than happy to receive any written follow-up to the questions put to you or other issues that may arise from that. The ETV information would be very helpful as well. On behalf of the committee, I thank the Department of Industry, Tourism and Resources.

[10.48 a.m.]

ROSSITER, Mr David, Regulator, Office of Renewable Energy Regulator

WASS, Ms Karla, Manager, Office of Renewable Energy Regulator

CHAIR—Thank you both for coming. My apologies for us being a bit behind schedule. Although the committee does not require you to give evidence under oath, I should advise you that these hearings are formal proceedings of parliament and consequently warrant the same respect as proceedings of the House itself. It is customary to remind witnesses before they provide testimony that the giving of false or misleading evidence is a serious matter and may be regarded as a contempt of the parliament. Do you wish to make a brief statement in relation to your submission prior to us asking you some questions?

Mr Rossiter—I do.

CHAIR—Please proceed.

Mr Rossiter—I would like to make a statement relating to our submission. I thank the committee for the opportunity to talk to you today. Employment in the environment sector, as we have heard from the previous discussions, is a very broad topic. I will only talk on a very specialised subset of that topic. I will talk about renewable energy and electricity supplies.

The government has several initiatives in place to encourage renewable energy in the energy sector. The flagship measure has often been referred to as the mandatory renewable energy target. This is what we regulate through my office. The Renewable Energy Act came into force in early 2001, so this is still quite new. We are working our way through the initial process of getting the market operating. The act encourages increases in renewable electricity and electricity supplies. My role is as regulator under that act. As part of my work, I am privileged to see an extensive series of contacts throughout the renewable energy industry and see first-hand how the industry is moving towards complying with this act.

The target is not trivial. It is equivalent to two Snowy Mountains schemes in 10 years, not 30 years, or one Tasmanian hydro in 10 years, not 60 years or whatever you would ascribe to that. So it is certainly a challenge. Further, it is likely that from what economists and financial analysts have shown to date from various groups around the country, the majority of the projects needed to achieve this target will actually be brought into force probably in the period up to 2006. So it will not be over the 10-year period the target envisaged but probably over the first five years. This is for economic efficiency for people investing in projects. They will then get an earlier return on their investment and a longer period of return on their investment.

The mechanism under which the act operates accommodates that through the banking of certificates, so it is not a problem for operating the act. So it is a shorter period than I have indicated. It is about 10 times the historic rate at which renewable energy has been increasing. In the 1980s, renewable energy was increasing in electricity supplies at about seven per cent over the whole decade, not per annum. In the 1990s, that was about five per cent. The target

under this legislation is to increase by about 60 per cent over the 10-year period, so it is a challenge.

Many observers have tried to predict how this new market in renewable energy certificates will be met and who will provide the certificates. They generally agree that there is a capital investment of around $6 billion required to occur on or before 2010. In the broad, they agree that they will be for a variety of energy sources supporting the investment. The investment might come from three areas, in approximate cost order. They are existing generators, improving their effectiveness and the efficiency of their existing operations; new projects, probably using biomass wastes as the first cheapest, next rank in order. That would be things such as bagasse, sugarcane waste, municipal solid waste, landfill gas, rice hulls, macadamia nuts and shells. We have had all sorts of applications. There is cotton waste and wood waste and we have other areas in there too. The third area will probably be new projects based on the other eligible renewable energy sources permitted under the act, such as wind, solar water heaters, photovoltaics, tidal and so on.

As a result, the jobs are likely to be very diverse in nature and cover areas such as project planning and design, manufacturing, construction, operation and maintenance of plant, site management, emissions, waste management, environmental impact assessment, resource assessment, economic and market forecasting, energy trading, broking and tourism. The actual numbers of jobs are hard to predict because the mix in the market is not defined and it is as the market develops we will see what that mix is.

As an estimate, we think there are probably about 45,000 construction jobs to be had in this market over that period. These will vary in duration from maybe three months to three years or more. So they are very variable in that respect. Up to about 3,000 permanent jobs are expected. The details are in our submission. There is a table in the submission, which I will not go through at this point.

It is expected that additional manufacturing facilities will be developed because of the target. For example, at this stage, there is discussion of wind factories in Victoria and Tasmania. We have seen solar photovoltaics in New South Wales developing. With solar water heaters, there are currently proposals in many places, including Queensland, for example, at this time. We expect that many of the jobs will be located in rural and regional areas within Australia. I think that is probably enough as an introductory statement.

CHAIR—Thank you. Ms Wass, is there anything you wish to add?

Ms Wass—No.

CHAIR—I signal to the meeting that we will be pausing at 11 o'clock for a minute's silence. If any of the committee members feel that their momentum may be compromised by a brief pause, please bear that in mind.

Mr LINDSAY—Could you give us a broad outline about where Australia sits in relation to the rest of the world in what you are doing?

Mr Rossiter—In terms of the renewable energy certificate market, this is the first one in the world that operates at a national level and has a national target. Some states of the United States

have bigger populations than Australia that have renewable energy certificate targets as well. But at a national level, this is the first in the world. We adopted our target on 1 April 2001. The United Kingdom adopted a similar regime with a different target on 1 April 2002. I understand that the Japanese are going to do something in a similar vein on 1 April 2003. So there is a progression of countries interested in this. I know that a lot of European countries are interested in the framework that we are developing. I have spoken at conferences in Europe on this subject as well. It applies to many of the European countries. Other countries outside the normal range of countries that we deal with, such as South Africa, have expressed interest, perhaps as a result of the WSSD as well. We are looking forward to other countries adopting similar targets.

Mr LINDSAY—Knowing that Australia needs to be world competitive in its cost of energy, what are you seeing in the renewable energy sector that is trying to push down the cost per kilowatt hour to bring it to a world competitive price?

Mr Rossiter—We are seeing quite a lot of activity in trying to get locally based industries. For example, the wind industry is looking very carefully at trying to reduce its costs at this stage. We are seeing that happening in other industries as well. We have had recent discussions with solar water heater manufacturers, for example, where we see innovative technologies being developed in Australia and plants being set up in Australia to actually use innovative technologies. So there are things going on within Australia that are pushing that forward.

Mr LINDSAY—You have just introduced something which I would like to ask you about. It may not be your field of expertise. You mentioned solar heaters, for example. I am aware of the development of a plastic solar hot water system called Hot Harry, which has been available for more than 12 months.

However, the manufacturers and designers have not been able to get it onto the Australian market because the current producers have been resisting. It is going to impact on their product. I also understand the current producers are on some kind of industry board that approves these things. How do we get these innovations to market in a case like that, or is that outside your field of expertise? Are you aware of what I am talking about?

Mr Rossiter—Yes. I think the certificate market was created with a view to encouraging that kind of behaviour so that people would get into markets. I think perhaps prior to the legislation being passed and the certificates being available that particular product would not have come onto the market. How it gets over that threshold of meeting the standards required of the market is a difficulty for that area. But I am sure they will overcome that. I do not think the standards that are being laid down for the products are particularly onerous, but they are practical. As we know, Australian standards are developed. They improve with time. There may be some area where some updating of that standard can be done. A recent update of the standard for solar water heaters has just occurred. That has brought in new areas, such as heat pumps in particular, where solar water heaters can now compete in the market.

Mr LINDSAY—I saw your evidence about the proposed ethanol plant in Tamworth. Is that right?

Mr Rossiter—Yes.

CHAIR—I invite members and guests in the audience to stand to observe a moment's silence for Remembrance Day. Thank you. Lest we forget. Back to you, Mr Lindsay.

Mr LINDSAY—The feedstock for the ethanol plant in Tamworth; what is it?

Mr Rossiter—I think it is agricultural waste, but I am not familiar with the details of that particular plant.

Mr LINDSAY—I will finish there.

CHAIR—We have our own Hot Harry.

Mr JENKINS—Speaking of Hot Harry, I am a simple soul from the northern suburbs of Melbourne. We started making these certificates. I really need to have it explained to me in monosyllables how they are actually going to work. I think I started to reach part of an understanding. If we had this hot water service or something like that and it had the potential to achieve the top use of renewable energy, how practically would the certificate apply to that sort of thing?

Mr Rossiter—The way we operate is that a solar water heater has to be accredited under the act. It has to be accepted. You need to meet various criteria. One is to meet an Australian standard, AS2712, which is laid down in the act. You then need to be approved under that act and you need to be in the schedules attached to the regulations attached to the act as well. So the model name has to appear there. In the process of doing that, the solar water heater is tested. For any given postcode in Australia, a number of certificates can be allocated to it. Those certificates measure the displaced electricity that that system is now not requiring to be produced. So it is a displacement. The majority of our measure works on the basis of generating renewable electricity. The only thing that displaces electricity is solar water heaters. So you measure the displacement. So it has to replace the electric hot water service or specified requirements for a new building and so on.

Mr KERR—Do you take into account the energy input into the construction of the solar hot water system in the first place? Obviously there is a net gain.

Mr Rossiter—No. There is no requirement for that. It is just the operating, if you like.

Mr KERR—So you can manufacture something in a way that actually creates a net loss and still get credits. Is that right?

Mr Rossiter—Sure. But you are also displacing something else that would have generated the electricity that might have required some energy input, too. The two might balance.

Mr KERR—If manufacturing in energy terms is greater than the displaced cost of drawing that power from somewhere else, you have actually increased the load that our society is creating. You are using more coal-fired power and other inputs to make something and it is greater than what it saves by way of its lifetime use. It seemed to be a very one-sided calculation here. I am not against the industry; I think it is a wonderful industry

CHAIR—But there is the lifecycle in terms of use.

Mr Rossiter—There are lifecycle analyses done on lots of pieces of equipment that we use. To repay the emissions in the creation of the product, the longest I think take about three years, and that is photovoltaics. So there is a component, exactly as you say. But the power would be generated somewhere else if it were being produced and it was additional power. We have a growing market in Australia for electricity. It is growing pretty rapidly at about four per cent per annum. You would have to install some equipment somewhere else anyway to generate that electricity. So there is not 100 per cent displacement, but there is a matching number. But I take your point.

Mr JENKINS—I feel like the simple soul from the northern suburbs of Melbourne that stumbled into the tute on REC301 with my learned colleague from Tasmania. If I could resume my tute on REC101, I didn't swot up on lifecycle analysis for renewable energy certificates. I take it that that was an interesting discussion and a good point. I think in the overall scheme of things, at the end of the day we have to do that analysis. But I am still trying to get my head around what happens to these certificates. So we have manufactured this hot water service. We have done the analysis and you have adjudicated, as the regulator, that it attracts however many units. That then goes as an item to the manufacturer of the hot water service.

Mr Rossiter—It can do, but it in fact goes to the owner initially. So the owner of the solar water heater service, when they want to install it, is entitled to create those certificates. They typically assign the right—under the act they can assign the right once—to someone else to create the certificates. Typically, the solar water heater manufacturer or somebody else associated with it who might be a liable party under the act, such as a retailer or somebody of that nature, would then receive that assignment.

CHAIR—An energy retailer?

Ms Wass—It can be a hot water retailer.

Mr Rossiter—They create the certificates.

Mr JENKINS—Then this becomes a tradeable item. Can you help me by describing the circumstances under which one might contemplate trading it or selling it?

Mr Rossiter—One might purchase a solar water heater and it might cost, say, $2,000 more than a conventional water heater. You might have, say, 25 or 30 certificates. Those certificates have a value on the market. You can look at various web sites and they will give you a value, such as $35 or $40 possibly, for those certificates. You can then sell those certificates independently and receive some indirect rebate, if you like, off your solar hot water heater. Most people elect not to create the certificates but to assign that right on to the manufacturer or whoever is offering it and get a discount at the point of sale. So your trade would normally be a discount at the point of sale. But you can then, if you wish, create certificates and trade them.

Mr JENKINS—And what is the advantage to the purchaser?

Mr Rossiter—Lesser cost. Instead of it being $2,000, it might be $1,200.

Mr JENKINS—Sorry, the person who takes up the certificate?

CHAIR—The liability under the act.

Mr Rossiter—There is a liability drawing this at the other end. There is a requirement that certain viable parties, such as big purchasers of electricity, hold these certificates at the other end. So that is drawing it.

Mr JENKINS—So this is a driver for a change in attitude?

Mr Rossiter—Yes.

Mr JENKINS—A regulatory driver?

Mr Rossiter—Yes.

Mr JENKINS—Thank you.

CHAIR—The regulatory regime was touched on, not so much your regulatory regime but more the regulatory regime of asset deployment and the like. We are not all as lucky as Queensland, having Windy Hill designated as a wind farm site.

Mr KERR—You don't know where Windy Hill is.

CHAIR—There is a bit more work required in other parts of the country. What I was alluding to, though, is land use planning, town planning and, in some cases, state government environment approvals and the like. Are you seeing through your work an opportunity for greater consistency in those areas? Is that arising as a concern? Could you share with us some insights that you may have gained.

Mr Rossiter—I think there are a variety of approaches from the states and territories, who are responsible entities normally for these planning issues. The approaches vary from, 'Please apply to us and we will tell you what result you get' through to, 'Here's a set of guidelines. You can see where you would be applying. This is probably the likely outcome.' At the moment, these guidelines are pretty new. They have not been tested. The market is immature; I think that is the best description. It is still learning ways to do things better. Some of the states have just recently produced new wind guidelines, for example.

CHAIR—Designating areas that are more suitable than others and height constraints and those kind of things?

Mr Rossiter—Designating processes and so on, yes.

CHAIR—From your observation, is it fair to characterise photovoltaics and Hot Harry and those things as a domestic technology development area whereas some areas around wind and the like are an application of technology developed elsewhere? I am trying to get a sense of the industry itself, how that is maturing and where the ideas and technology are coming from.

Where is our advantage? Are we just picking up traffic through from Europe or something like that?

Mr Rossiter—I think in the solar water heater industry, for example, we have a fairly well established major manufacturer in Australia who is exporting. In fact, most of his products went overseas. So we have somebody who was already perhaps breaking those frontiers internationally as well. We are seeing other technologies emerging or other techniques within that solar water heater system emerging. Some of them may be very appropriate to Australia. The integration of PV with a hot water service, for example, is very appropriate in parts of Australia. We see that being researched at this stage. So those things are moving forward. We see quite a few industries that are adapting.

That is the smaller end of the market. In manufacturing it is still at the big end. There is a lot of production in those areas. On the wind farm side, we are still probably learning from overseas experience in that area. Being Australians, we are adapting very well and we are adopting the technology very rapidly. There are innovations that are coming in all those sorts of areas, particularly in construction technologies and so on.

CHAIR—Karla, do you have anything to add in that area?

Ms Wass—No.

Mr KERR—I was curious about your comment that you thought most of the jobs would be created in regional and rural Australia. Is there any positive policy impetus for that or is this just sort of imagining where these things might happen? If so, what is the rationale for that?

Mr Rossiter—I think it is essentially because of the geographic distribution of renewable energy. Renewable energy, and in particular solar, is incident around most of Australia, be it rural or urban. Energy crops, wood waste or something of that nature, tends to be a rural type of thing. In the case of hydro, you tend to have large catchment areas, which are rural again. Sugarcane waste production and, for example, bagasse, are rural activities. You have a lot of rural activities. But in terms of installing solar water heaters, as we were discussing earlier, it is more urban based. But a lot of the jobs I still see for wind farms and so on will be rural because wind farms are probably not appropriate to be in high density population areas. Maybe they will be; I do not know. We will see.

Mr KERR—I do not wish to be a naysayer here, but I have heard this mirage about the boom that is supposed to happen in regional Australia so many times. The information technology explosion was supposed to liberate us from the confines of the cities to enable people to work from any place as effectively as they could from Sydney or Melbourne. In fact, there has never been a greater period of centralisation and a centrifugal drawing together of large urban agglomerations as there has been over the last 20 years. Many of the industries that operate in regional areas now depend on fly-in, fly-out workers. They are the mining industry and the like. I can certainly see that wind farms are going to be in places where it is windy. But unless there is some sort of strategic underpinning of an investment into regional Australia, I cannot see how the same efficiencies of scale might operate when you have teams of people who are essentially urban-based flying in, doing the job, building these things and then returning to their city bases.

Most of the manufacturing growth that has occurred in recent times in renewables has not occurred in regional areas. I am not trying to be dismissive of this. Coming from essentially the most decentralised and regionalised community in Australia with an active program of trying to actually decentralise investment, it does strike me that sometimes there is too great a willingness to say that the market will do these things and it will be in rural and regional Australia. But the proof of the pudding thus far has been less than convincing.

Mr Rossiter—I think there is an element of saying that there will be regional and rural jobs created and there will be some in urban areas, which tends to be where the manufacturing influence is. Sugarcane is definitely a rural activity. We have had applications for rice hulls and macadamia nuts and cotton trash and issues like that. A solar tower has been mooted, and very much a rural location is proposed for that. We have seen municipal solid waste proposals, which are located in rural areas mainly because the land is cheaper or because there is an existing hole in the ground that needs to be filled that is a cheap one to buy. So we see them locating well out of the cities and so on. So they do create jobs in rural areas.

Mr KERR—Again, I am trying to tease this out a little. I am actually interested in a regional development strategy. Look at some of the industrial crops, such as sugar production now. It is increasingly less viable on the small farm. There are huge moves to agglomerate. There are support payments to enable people to move out of the industry. There is a whole range of things. You could massively increase the production of sugar with a dramatic decrease in the number of persons actually employed in the industry. If we are moving to the industrialisation of some of these cropping practices, you could well find that you have actually generated a significant decline in employment simply because of the type of rural industrial mechanisation that is required. I am not being dismissive. I am simply saying that I have seen so many Pollyanna expectations of what will happen as a result of regional development without there actually being an underpinning of policy to generate or to require those kinds of outcomes. I must say my expectation of employment growth in the cropping sector would be a continuing decline. I have no reason to believe that there would be a growth in the number of persons actually employed in agricultural production.

CHAIR—Perhaps we could agree that there are some indicative signs but there are other factors that will conspire in that link between activity and employment. I am not sure whether we will be able to resolve that. I do not know what we can add to that subject before we move over in the time available. David's point is right. There is stuff going on that is out of the metro areas, but that direct line to employment in those locations is not an absolutely clear one.

Mr JENKINS—My contribution to that part of the 301 tute is that I think there is a decline in rural employment. That will be held up a little as people get an opportunity to go into things associated with renewable energy. If you look at the use of biomass and things like that, that is an important aspect. You spoke of other situations internationally where they have adopted a renewable energy strategy around certificates. How equivalent are the types of standards and benchmarks that will be used? I understand your point that you have to analyse where some of these technologies might be being used, such as solar water heating. But wind generation and things like that would be comparable. Are all the systems, in a way, harmonised? Is this going to lead to difficulties if they are not?

Mr Rossiter—Take wind as an example. I think you will find that wind is something that is fairly universal in its use. You can take wind farm technology and you can use it fairly widely. I

am talking worldwide here. So there is no problem in actually achieving generation from wind. Even in the countries that would regard themselves as forefront leaders in wind technology, for example, the local content in their wind turbines is actually limited because of the generators and the gearboxes and things like that, which tend to come from a limited number of manufacturers worldwide. So Australia could build up its local content in those things. The standards and specifications required in Australia are very similar to the standards and specifications required elsewhere. There is a lot of commonality there. The specific siting of wind farms in Australia is very much an art. That art can be brought from elsewhere, but it also exists in Australia already and it is being developed. So micro siting is an important issue. Once you have decided this is a good windy spot, where is the best place to place your wind turbine? Which way should the rows run? How should they be staggered and so on to get your most uniform output and to get maximum output from the area? There are a lot of international specifications.

Look at solar water heaters, for example. The radiation we have in Australia is pretty high compared with major manufacturing areas in Europe and so on. So the tests we have here are probably more onerous than they are in some countries because our physical environment is a bit tougher. We have radiation of about 1,200 watts per square metre whereas in Europe it is about 1,000 or less. We have it a lot of the time whereas in a lot of places in Europe they do not have it so much. We have direct solar clear sky access whereas they tend to have a diffuse type of sunlight more often than we do. So a solar concentrator works in Australia well but it might not work so well in some overseas countries. So not all technologies you can switch backwards and forwards.

Mr JENKINS—What about the framework for the economic tool, the certificate? Does there become an international trade out of each of the jurisdictions? For instance, I take it that a foreign company can attract an Australian REC and trade in them. I think you mentioned Japan is moving towards such a regime. Can Australian firms operate in that market?

Mr Rossiter—I do not know the details yet and I do not think the Japanese know the details of their scheme. They have a hook in their act at the moment to create these regulations. I was in discussions with them in Japan only a month ago.

CHAIR—It would be fee for service as part of our development of the industry, of course.

Mr Rossiter—Yes. But I think you would probably find that an Australian investor going into Japan would be accepted. I do not know what the ultimate conditions would be. In terms of interchangeability of certificates between countries, that has not happened yet. I do not think anybody has worked out how you could do it. What is regarded as renewable in one country for various policy reasons is not necessarily regarded as renewable in another country. I cite the example in Australia of wood and wood waste. Wood would be clearly regarded as renewable in some countries for policy reasons while in other countries it is not. There are other cases where landfills are considered to be inept as ways of generating waste in some countries. In other countries, they are not. So interchangeability would be a whole new policy development between countries.

Mr JENKINS—You had your dot points about the categories of employment opportunities. I get the technical and the environmental expertise. As you can see, I am still struggling on other related sectors. Brokerage is one of the ones that I want to investigate further.

CHAIR—Just to wrap up, I want to look at the consumer end of the industry. We have had some advice that the take-up of green power seems to underperform when compared with the express interest in green power by the broader public. There are some ideas around marketing, the promotion of green power and even some about it being too difficult. Who rings their energy company often to say, 'I'd like to make the swap,' and go through all that? Do you have some thoughts on promoting the take-up of green power, if you could?

Mr Rossiter—Green power runs in parallel to us. It is additional.

CHAIR—I understand that.

Mr Rossiter—It is a beyond a measure. We have seen a lot of interest in what we are doing. I talk at lots of conferences and so on. People often talk about green power and renewable energy certificates. I think in the public's mind they are still intermeshed. Because we tend to deal with large wholesalers of electricity and large purchasers of electricity, they are really, if you like, our customer market. They are drawing the value out of this market. They tend to call the shots. So some retailers, you will find, are advertising quite actively that you can get renewable energy certificates by doing X, Y and Z, but other retailers are not. But they are tending to drive that market forward. So we have the green power side of it and the renewable energy certificate side. But one is customer based very much and ours is more customer generated, if you like, rather than customer demand.

CHAIR—With the behaviour of the retailers, are you seeing some actively overperforming against their liability because they have taken a more active marketing approach and want to position themselves as the sustainable energy provider of choice? Are you seeing that? Are people generally behaving in response to the regulatory obligation and making the best of it?

Mr Rossiter—We have seen behaviour change recently. I think most retailers, with the advent of full retail contestability in some of the larger states in particular under the national electricity market, have identified that there are very few areas where they can differentiate their product. Reliability tends to be good. The price is pretty well fixed. Being green is one of the things that we see. So some retailers have gone down that route. Some generators have gone down that route, identifying themselves as green. We will see more and more with time, I think, go down that route.

Ms Wass—But it does depend how you actually assess that as well. You could say that any retailer that complied with the requirements and then offered a green power product or continued to offer a green power product was taking steps to overcomply. But if you mean it as a term of holding, and whether there are retailers out there that have more certificates than they need for any given year, that would be the case. But whether or not that represents accumulation for a forward strategy, it would be very difficult to say. There is no mechanism under the legislation for a voluntary retirement. So even if someone did give excess certificates, it would not necessarily be an overcompliance. It may be an overcautionary response to the legislation and not wanting to seek a fine. But additional certificates could not be taken out of the marketplace. They would still sit there for later years.

CHAIR—With respect to the SO_x and NO_x experience up in the north-east of the United States, where non-market participants entered the market to buy up pollution rights—in our case it would be RECs—to take them out of the marketplace so people had to work a bit harder and

therefore take up the greater degree of renewable energy technology, that is not provided for under the law as it stands?

Mr Rossiter—It could be done.

Ms Wass—You can hold a certificate, certainly. Whether or not you then can permanently retire that from the market is—

CHAIR—So anyone can hold them even if they are not on the radar screen as an energy producer?

Mr Rossiter—Yes.

CHAIR—My final question is around the five-year delivery of the 10-year target. Does that suggest a greater capacity than we anticipated of a stronger target being embraced more readily than we might have first expected?

Mr Rossiter—I think it is probably more reflecting the economic realities of how people operate. If you have a 20-year time frame in which to develop something renewable, if you develop after 10 years, you probably have to charge twice as much for your certificates. So you look to see, as your technology drops in price, where that opportune moment is to invest to get the maximum period before you come up against the sunset clause, if you like. The year 2020 is the year of our sunset clause at this stage. So people are investing in that front part. They realise that it is first in, best dressed. They can offer renewable energy certificates at lower prices.

Mr KERR—I want to be parochial for a moment. I know there is a lot of concern in Tasmania about the advocacy from some sectors that improvements in efficiency in the production of existing hydro schemes be eliminated from eligibility for certificates. I wonder whether you had anything to say with regard to that issue. Obviously it is a crucial one for those from my state.

Mr Rossiter—It has been a controversial issue; there is no doubt about that. The act that I regulate is very clear that existing generators are included. If you look at the economic efficiency arguments about it, in any market that you might create, the incumbents within the market are probably the low-cost producers who have increased margins within that market. Ultimately they have to put in new equipment and so on. So if you look at the effectiveness improvements that might be obtained, say, in the sugar industry for waste bagasse in some mills at the end of the season, it has never been worth our while actually burning that bagasse. They just do not put it through the boilers. They burn it in the open air because it is cheaper and easier. They do not have to supervise the equipment. Things are changing. The retailers are now saying, 'Well, we value that as renewable electricity, even at the electricity price. We'll pay you more for that. And we'll pay you for an REC as well.' So suddenly that is worth their while.

So the efficiency end of things improves in that respect. It is an effective use of the resource in effect there. One would expect that to happen in any industry that you are encouraged to expand. So if you wish to ignore the economic efficiency of the incumbents in the industry, you could exclude them. But the act does not. It acknowledges that. Roughly said, one-third of it might come if we did not have this measure in place. The economic cost would be roughly zero,

balancing pluses and minuses in that area. Then there may be $2 billion of additional investment to get us through the other two-thirds of the measure.

CHAIR—Are you talking about the routine replacement of turbine technology, which would be of a better standard and generate better outcomes and, therefore, produce RECs?

Mr Rossiter—Yes, plus a more effective use of resources. For example, in some of the states where there are snow problems in the upper parts of the hydro schemes, they do not clear their channels at the end of the season. It is not economic to go up there and clear them out. It is now. So some of them are extending their season by another month to get more of the run-off coming off their high alpine areas, for example. This is changing the behaviour. We are seeing that in all sorts of areas as well. As you indicate, it is the efficiency. You replace your runners in your turbine. You replace your generator. If the technology in most hydro schemes is 40 years old or something like that, there are new edges to be had on that sort of stuff.

Mr KERR—But there is no advocacy coming from your organisation to alter the way in which that occurs.

Mr Rossiter—I have a regulatory act. I cannot really add anything in that respect. It seems to me that the economic efficiency argument was quite good in the first place for this.

Mr KERR—Yes. It was one I articulated very strongly, perhaps for parochial reasons. I thought, also correctly, if you have a significant new investment in improving energy efficiency in existing stock, you are actually entitled to the same credit as would a new investment. As a matter of logic, it seems to be correct.

Mr Rossiter—I think there is another argument associated with the way the act is actually structured in that by keeping the incumbents with a principle whereby they maintain their output at the baseline levels and they get certificates for anything they produce above that, you maintain that existing level of generation. Market share was an issue here. You do not want that diminishing with time because these people cannot participate. So giving them what you might call a stretch incentive to move into that area of better efficiency and get renewable energy certificates not for the existing generation but for the additional only is a very careful structure.

CHAIR—Before the hearing adjourns, may I first thank you both for your time today. If there is any further written evidence you would like to supply in addition to the comments recorded by Hansard, we are more than happy to receive them.

Resolved (on motion by **Mr Lindsay**):

That this committee authorises publication, including publication on the parliamentary database, of the proof transcript of the evidence given before it at public hearing this day.

CHAIR—There being no further business, I declare the meeting adjourned.

Committee adjourned at 11.35 a.m.