

The Chair
CABINET POLICY COMMITTEE

SUSTAINABLE ENERGY

PROPOSAL

- 1 This paper reports back on engagement with stakeholders on *Sustainable Energy: Creating a Sustainable Energy System*, a document released in October 2004 by the then Minister of Energy under the sustainable development programme of action. While fundamental change to the existing framework is not necessary, there is no room for complacency. Certain areas require considerable strengthening.

EXECUTIVE SUMMARY

- 2 Sustainable energy is one of four programmes of action under the sustainable development programme of action. Responding to the pressing challenges for energy of climate change and the coming of peak oil, it aims to place New Zealand's energy system on a more sustainable basis, i.e. a system that is reliable and resilient, environmentally responsible, and in which prices are fair and efficient.
- 3 The government is addressing sustainable energy through a wide range of policies, programmes and institutional arrangements that impact on energy use. There is no single path to sustainability: there are too many uncertainties to make this possible. The government's approach is one of setting direction while maintaining flexibility.
- 4 The sustainable energy programme is not intended to replace ongoing work programmes in individual policy areas but rather provide a coherent picture of actions and an assessment of where current government actions are sufficient and where more might need to be done.
- 5 In the recent round of engagement with stakeholders following the publication of *Sustainable Energy* late last year there were calls for the government to take more vigorous steps in some areas and articulate a more detailed strategy for effecting change.
- 6 Work is already underway to strengthen existing policy settings in key areas, e.g. more active steps to promote energy efficiency and renewables are being addressed in the context of a review of the National Energy Efficiency Conservation Strategy (NEECS), and issues relating to sustainable transport and oil are being addressed as part of an emerging work programme led by the Ministry of Transport.

- 7 Significant improvements have been and are continuing to be made in other important areas as part of ongoing work programmes, e.g. effective and well-regulated electricity and gas markets and the Resource Management Act. Officials are reviewing climate change policies following the recent re-assessment of the projected balance of units during the first commitment period.
- 8 This report notes the importance of continuing to place this work in the wider context of what the government is trying to achieve in sustainable energy so that connections can be made across areas. This should also help ensure that momentum is not lost in making the improvements discussed above. These are both important and pressing.
- 9 The report also proposes further investigation in some cross-cutting areas, namely:
- the contribution of research, science and technology to sustainable energy;
 - public awareness of sustainable energy issues;
 - the availability and quality of information to inform sustainable energy policies;
 - “transition management” approaches to sustainable energy;
 - the potential for government procurement decisions to contribute to sustainable energy.
- 10 It also proposes that the question of whether a follow-up document to *Sustainable Energy* should be prepared be assessed early in 2006 in the light of progress in the work described above.

BACKGROUND

- 11 Energy is one of four cross-cutting work streams under the sustainable development programme of action. The overall aim of the programme is to apply sustainable development principles to government decision-making such as the need to take a long-term view.
- 12 In October 2004, POL authorised the Minister of Energy to release *Sustainable Energy* as the basis of engagement with stakeholders over the following six months. The Minister was invited to report back on the outcome of the engagement, with any recommendations on further action, if appropriate. The document is not a plan or strategy for energy going forward. Rather, its purpose is to:
- identify the energy challenges and opportunities facing New Zealand (the two key underlying drivers being climate change and the coming of peak oil);
 - focus discussion on the provision of energy services and demand for energy, in addition to supply issues;

- explain the government’s strategic direction in energy policy;
- explain how existing energy and energy-related policies work in that strategic direction; and
- identify possible future directions for policy development.

STAKEHOLDER FEEDBACK

13 Since October, officials have held six stakeholder workshops in Auckland, Wellington and Christchurch, focusing on specific issues raised in the document and potential next steps in addressing these issues. They have also attended a number of external conferences or seminars to give presentations on the document and received numerous comments on the document via an email address. Key points to note from the engagement are:

- the sustainable energy document was generally well-received, and few questioned its main thrust;
- some thought it lacked a sense of urgency, and/or was too narrowly focussed (concentrated on energy as opposed to the contribution of energy to sustainable development);
- there was a general desire for the government to articulate a clearer strategy for achieving sustainable energy objectives over both the short and long term, although the term “strategy” tended to mean different things to different people, the main difference being the extent of prescription favoured;
- there was general agreement that any strategy should:
 - place an increased emphasis on the use of renewables and energy efficiency while maintaining a high level of assurance as to energy security;
 - encourage more sustainable transport use;
 - encourage better use of research, science and technology policy;
 - promote a higher level of awareness of the energy challenges facing New Zealand; and
 - develop a more informed and inclusive decision-making process;
- the workshops attracted a wide range of interests although business interests were not strongly represented.

PRESENT APPROACH TO SUSTAINABLE ENERGY

14 The government is addressing sustainable energy through a wide range of policies, programmes and institutional arrangements that impact on energy use, for example regulatory arrangements for electricity and gas, incentives for oil and gas exploration, transport and climate change policies, measures to promote the uptake of renewables and energy efficiency and underlying issues such as the effect of the RMA on infrastructure development.

- 15 The sustainable energy programme, launched under the sustainable development programme of action in January 2003 and given impetus in October 2004 with the release of *Sustainable Energy*, is not intended to replace ongoing work programmes in individual energy policy areas. Significant improvements have been, and are continuing to be, made in key areas, e.g. the formation of the Electricity Commission, aspects of climate change policy, the operation of the RMA etc. The effects of some of the changes will take time to bed in, e.g. rule-making by the Electricity Commission.
- 16 Instead, the programme aims to raise awareness about upcoming challenges in energy, provide a coherent picture of actions the government is taking to meet those challenges, and to provide an assessment of where current government actions are sufficient and where more might need to be done.

Objectives

- 17 Sustainable energy is about placing New Zealand's energy system on a more sustainable basis over time, i.e. a system that is reliable and resilient, environmentally responsible, and in which prices are fair and efficient. These objectives do not exist in isolation but in relation to the government's overall goals such as a growing and inclusive economy and more specific objectives such as those for climate change and transport.
- 18 Energy security is something that New Zealand wants to ensure all of the time. We want a high level of assurance that supply will be maintained. A standard has been set for electricity supply in dry years and a minimum level of oil stocks have to be held to comply with International Energy Agency requirements.
- 19 An energy system that is more environmentally responsible in terms of emissions and local effects is something that can only be achieved over time. Making significant energy emissions reductions and energy efficiency gains are very much dependent on such factors as the pace of technological developments, the nature of international commitments, and how consumer preferences will evolve. A similar level of uncertainty exists with respect to decisions under the RMA. The RMA requires decisions on proposals to be considered using principles of "sustainable management" which can lead to debates about balancing social, economic and environmental objectives.
- 20 The government wants to keep energy prices as low as possible consistent with meeting the objectives above. It is also important to manage effectively the effects of price changes on particular groups in society.
- 21 Stakeholders expressed a range of views on the meaning of a "sustainable" energy system. To some, this meant only environmental sustainability. They tended to favour the elimination of non-renewable, greenhouse gas-emitting fuels such as coal. This point is further addressed below.

Setting direction while maintaining flexibility

- 22 There is no single path to sustainability: there are too many uncertainties to make this possible. For example, the government cannot say precisely what climate change obligations the country will have to face over the next 10-30 years. But short of a radical reversal of the science or a step change in technology, it could reasonably expect that such obligations will become progressively more onerous. The sooner the economy is prepared for a future in which greenhouse gas emissions become progressively more costly, therefore, the better.
- 23 Similarly, the government cannot say precisely when the supply of oil and gas will become constrained to the point where price rises make existing uses uneconomic. But it could reasonably expect alternative technologies such as bio-fuels and hydrogen to move slowly closer to commercialisation. If a hydrogen economy eventuates, it can be expected that while much of the technology for storage and utilisation will be imported, technology for production will have to be developed or adapted in New Zealand to meet local circumstances.
- 24 In the face of such uncertainties, the government's general approach to sustainable energy has to be pitched at a level that balances the need for direction with the need for flexibility.
- 25 Direction involves setting and articulating clear objectives, establishing "anchor points" to help ground policies and programmes and provide a basis on which progress can be measured, and introducing measures that encourage investors, producers, transporters, and suppliers of energy services to make decisions that support these objectives. It requires the government to act consistently and provide as much certainty about policy settings as possible. As the United Kingdom white paper on energy puts it: "It is the government's responsibility to set the overall goals for...energy policy and to ensure that...energy markets and other policies deliver those goals." The white paper goes on to note the importance of "a clear, settled, long-term framework within which [energy producers, investors, business and consumers] can plan and make decisions with confidence."
- 26 Flexibility involves keeping as many options open as practicable given the direction set and maintaining a diverse portfolio of policy responses to challenges. It also requires the government to prepare for possible long-term changes to the extent this is sensible based on the information available, taking into account the relative costs of moving sooner rather than later.
- 27 For example, flexibility would caution against the government setting out a plan for how specific fuels such as coal should feature in New Zealand's energy future. The government's approach would be to set a general direction for the control of emissions (through a carbon tax and possibly such things as support for technology collaboration on carbon capture and storage) and to manage local environmental effects (through the RMA) rather than to try to control or influence the use of the fuels directly.

- 28 In particular circumstances, the government may decide to give more weight to one particular aspect of sustainability than another. While individual decisions are obviously important, it is the balance of decisions over time that counts, i.e. whether the country is moving progressively in the direction of sustainable energy. High quality information is needed to help gauge whether New Zealand is moving in the desired direction and to assess the performance of particular policies and programmes.

PRESENT POLICIES

- 29 Stakeholder assessments of current policy settings varied widely. Some argued that the government should take a more prescriptive approach in order to promote sustainability, while others were of the view that the government should take a step back.
- 30 The following section briefly considers the current state of current settings in the following key areas:
- energy efficiency;
 - renewables;
 - sustainable transport and oil;
 - effective and well-regulated electricity and gas markets;
 - linkages with research, science and technology;
 - climate change policy;
 - Resource Management Act;
 - public awareness of energy challenges;
 - informed and inclusive decision making.

Energy efficiency

- 31 More efficient energy use will contribute to a wide range of social, economic and environmental objectives, including enhanced security of supply, reduced environmental impacts and reduced cost of energy services. It is widely recognised that there is a large untapped potential to improve New Zealand's energy efficiency, even at current prices.
- 32 The workshops reinforced the need for more urgent steps to be taken to address both energy demand and supply options, including long-term behavioural change and technology development. Energy efficient buildings were identified by some as a specific area for greater focus.

- 33 There is a legislative requirement for the existing NEECS to be amended, replaced or rolled over in 2006. A review of the NEECS is now underway. This provides an appropriate context as well as a timely opportunity to consider enhanced measures in the energy efficiency area.
- 34 Energy efficiency requires a whole of government approach to policy development, supported by strong data and analysis. A key challenge will be to integrate the efforts of organisations such as the Energy Efficiency and Conservation Authority (EECA), Climate Change Office, the Electricity Commission, business organisations and local government.
- 35 Officials consider that the NEECS review provides an appropriate forum for departments to examine the adequacy of current energy efficiency policies, and that no additional report back on energy efficiency is needed under the sustainable energy work programme.

Renewables

- 36 Like energy efficiency, the greater use of renewables helps to reduce the level of harmful emissions. A more diverse energy supply also enhances the reliability and resilience of the overall energy system.
- 37 To date, the government has been supporting the uptake of renewables through such measures as:
- a wide range of promotional, industry development, and market facilitation measures driven by the NEECS target to increase energy supply from renewable sources by 30PJ per annum by 2012;
 - the awarding of emission units under the Projects to Reduce Emissions (PRE) mechanism;
 - recognising the benefits of renewable energy in the RMA and, in some cases, support for individual projects in the consenting process.
- 38 Taking into account feedback received during stakeholder engagement, officials consider potential areas for future focus include:
- supporting the commercialisation of promising renewable technologies (this point is addressed further below);
 - developing suitable access regimes to key natural resources e.g. access to the marine environment for ocean energy;
 - considering the future of the PRE in the light of the introduction of a carbon tax in 2007;
 - ensuring that the efforts of all government agencies involved are well-integrated.

- 39 As with energy efficiency, the review of the NEECS provides a timely opportunity to review what more should be done in the renewable energy area. Again, a key challenge will be to ensure that a whole of government approach is taken. Sustainable energy officials consider that no additional report back on renewable energy is required under the sustainable energy work programme.

Sustainable transport and oil

- 40 Transport largely runs on imported oil. This is of concern not only in terms of the effects of the coming of peak oil on supply and price, but also resulting greenhouse gas emissions which are both significant and growing.
- 41 As with other issues, stakeholders expressed a range of views on what the government might do to make the transport system more sustainable. Common themes included:
- making more use of demand-side management options (including through use of road pricing);
 - promoting better quality and increased uptake of public transport (including rail);
 - accelerating the uptake of non-hydrocarbon-based fuels such as bio-fuels (fuels produced from animal or plant fats and oils);
 - promoting earlier moves towards a more fuel-efficient transport fleet (such as through hybrid vehicles and smaller engined vehicles).
- 42 Views were more varied on the priority and extent to which more roads should be built (particularly in Auckland).
- 43 A range of work, led by the Ministry of Transport, has been undertaken or is underway which will impact on the key areas identified by stakeholders:
- a study of surface transport costs and charges was released in March 2005. It provides data on the economic, social and environmental costs that result from land transport, and considers whether these costs are being met by users of the system. Information on such costs will assist the government to make decisions on the relative position of road, rail for freight transport and of rail, bus and private car for passenger transport;
 - a range of transport-related work is being undertaken as part of the energy efficiency and renewable energy work programmes described above, including work to encourage the uptake of bio-fuels and develop supporting fuel standards;

- a report-back, scheduled for September 2005, will consider a range of options for promoting climate change objectives through transport policy, including greater support for bio-fuels, the desirability of mandatory and voluntary mechanisms such as vehicle energy and/or emission standards, price incentives and information, and the use of appropriate pricing mechanisms to create optimal transport choices.

44 Officials do not consider that a further report back on transport issues under the sustainable energy programme is required at this stage. It will be important to monitor the pace of progress carefully, however.

Effective and well-regulated electricity and gas markets

Electricity market regulation

45 Stakeholders expressed a wide range of views on the electricity sector. Some argued that an electricity market was antithetical to sustainability, others that the government should remove some of the recently applied regulation and centralised governance to reduce the risk of regulatory uncertainty on investment.

46 The governance and regulatory arrangements for the electricity sector were only established in 2003/04. The main objectives of the Electricity Commission (to ensure that electricity is produced and delivered in an efficient, fair, reliable and environmentally sustainable manner, and to promote and facilitate the efficient use of electricity) are entirely consistent with the principles of sustainability:

47 The Electricity Commission is making progress across the range of important initiatives as set out in the government's policy statement and is involving relevant stakeholders.

48 The government will continue to monitor the performance of the Commission and the wider electricity sector closely. Some of the detail of specific policy settings may evolve in the light of experience, but officials do not see any reason for further substantive change at this time.

Transmission and distribution

49 Stakeholders expressed a wide range of views on the question of possible upgrades of the electricity transmission system, particularly Transpower's proposed upgrade of the grid into Auckland. Some stakeholders argued that major upgrade should not proceed, both because of the immediate environmental effects and because the upgrade could foreclose renewable generation and demand-side management solutions to the underlying challenge. Others believed that the upgrade should proceed as soon as possible, both to enhance security of supply at a reasonable cost and to ensure the grid could support new generation (including renewables) regardless of location.

- 50 The government has recently confirmed that it expects the Electricity Commission to lead an open process in which all potentially viable options for assuring security of supply into Auckland are duly considered during its decision-making process in relation to Transpower's grid upgrade plan. The Commission will consider RMA-related costs that each option would be likely to incur.
- 51 Some issues remain to be addressed in this process. For example, if the Commission concludes that there is a more cost-effective option than upgrading the transmission system alone, then the question arises as to how such alternatives might be funded. This and other such issues will be addressed over the coming months.
- 52 A further matter raised by some stakeholders was the extent to which monopoly network companies had sufficient incentive to promote energy efficiency and to facilitate connection by distributed (mainly renewable) generation. The government is introducing regulations for connection by distributed generation, but further initiatives may be required.

Gas and LNG

- 53 Some stakeholders argued that the government should not be facilitating the discovery and use of gas because it is non-renewable and greenhouse gas-emitting. Others were of the view that the government should be doing far more to promote exploration and development of New Zealand's indigenous gas (and oil) resources.
- 54 In the context of sustainable energy, gas is the most environmentally benign of the thermal fuels that can help ensure cost-effective security of electricity supply. Uncertainty over future gas supplies might force electricity generators to utilise coal and/or LNG options as alternatives (depending partly on the level of economic renewable sources available). Direct use of gas can also be a more economically and environmentally efficient means of providing (for example) water and space heating than electricity.
- 55 In 2004, the government acted to enhance the royalty and tax regime for gas exploration, with a view to accelerating exploration and production. The government is also more actively seeking to attract new players to New Zealand to explore for gas.
- 56 The government has also established a centralised governance regime for the sector, adopting the co-regulatory model favoured by gas sector stakeholders. This should ensure that all parties can get their gas to market on a reasonable basis. The government is closely monitoring this set of initiatives and will act promptly should any unforeseen issues become apparent.
- 57 Stakeholders had strong views on importing LNG. Some were strongly opposed, including advocates for demand side, renewable, coal or indigenous gas solutions to the challenge of electricity security of supply.

- 58 The government's position is that decisions on fuel sources for generation are a matter for market participants, within the context set by the government's sustainable energy policy framework. As with other matters, the government is monitoring developments carefully, and will address any policy issues that might arise.

Conclusion

- 59 Sustainable energy officials have noted stakeholder comments in the context of ongoing work to establish effective and well-regulated electricity and gas markets. A further review of policies in this area in the context of the sustainable energy work programme is not considered necessary at this time.

Linkages with research, science and technology policy

- 60 Technological innovation and the smart uptake of new technology are essential to meet the challenges of sustainable energy. For the most part, New Zealand is a "technology taker", although it has the potential to be a market leader in some areas. A wide range of factors contributes to the ability to be a fast follower or market leader. Competition in the provision of energy services is a critical ingredient for driving technology uptake. Other important factors include support for research and development, support for the commercialisation of promising ideas and access to international research and development. In general, stakeholders considered that a more strategic, integrated and long-term approach was required in and across these areas.

Research and development

- 61 Public funding for energy research and development provided through the Foundation for Research, Science and Technology (\$12m p.a.) is modest by international standards and is widely considered by stakeholders to be insufficient given the strategic importance of sustainable energy to New Zealand's well-being.
- 62 Whatever its level, any spending should be well-aligned with the government's objectives for sustainable energy. The challenge is to articulate these in a way that will provide guidance for FRST in setting funding priorities, and be well-understood by researchers.
- 63 A related question is the process for developing an ongoing strategic view of energy research and ensuring that the best possible use is made of the research effort. In this respect, it should be noted that the University of Otago is proposing the development of a New Zealand-wide, strategic research institute for energy, similar in scope to the UK's National Energy Research Centre. The aim of the institute would be to provide a more strategic focus to research and development and improved collaboration across different institutions and disciplines, thus improving opportunities for leverage both in New Zealand and overseas. A key question in considering this proposal is how it would affect the present FRST model.

Technology testing

- 64 One of the problems faced in rolling out new technology is that they can be seen as high risk investment opportunities. In financial terms, high risk translates to a high cost of capital and therefore a reduced net present value of the proposed investment. This can act as an impediment to the take-up of promising clean technology. Technology demonstration projects bring together key systems to see if they perform as planned, thus helping to improve their “bankable feasibility”. They can also help to raise public awareness about sustainable energy issues and provide a practical basis for collaboration among stakeholders.
- 65 Energy demonstration projects have been sparse in New Zealand, unlike in Australia and many other countries. The need to develop a more vigorous approach to demonstration projects was a consistent theme of the workshops.

International technology collaboration

- 66 New Zealand institutions and firms are already developing connections with research and development taking place overseas, e.g. the recent decision of the Coal Association to participate in Australia’s carbon capture and storage programme “Coal 21”. While government support is not required in all areas, the government has an important role to play in helping to “open doors” where this is required or helping to establish a clearer context in which particular activities can be pursued.
- 67 An example is the recent decision to join the US-led International Partnership for the Hydrogen Economy which opens the door for New Zealand researchers to get abreast of leading developments in various aspects of hydrogen production, storage and utilisation. It also provides an opportunity to participate in joint demonstration projects where New Zealand has specific expertise to contribute.
- 68 With respect to the second role, officials are currently considering the need for a clearer strategy to guide relationships with China on sustainable energy, both in terms of trade in services and research linkages. India will also become increasingly important to those countries that can provide and support cost effective, low-emission technologies.
- 69 Another relevant piece of work underway is to place New Zealand’s international activities in energy more firmly in a sustainable energy context. The aim is to develop a more strategic approach to governmental activities and to align the work of the agencies with agreed priorities.

Conclusion

- 70 It is proposed that sustainable energy officials, led by the Ministries of Economic Development and Research, Science and Technology, report back to Ministers by 30 November 2005 on what steps, if any, should be taken to strengthen the contribution of research, science and technology to sustainable energy in the areas discussed above.

Climate change policy

- 71 The energy sector is a major and increasing source of greenhouse gas emissions, primarily through oil use for transport and coal and gas use for electricity generation.
- 72 Some stakeholders argued that uncertainty over climate change policy (the carbon tax in particular) was stifling necessary investment in energy projects, and so risking security of supply. Other stakeholders, concerned about New Zealand's ability to reduce greenhouse gas emissions, argued that the government should be doing more to reduce economy-wide emissions (for example by prohibiting new coal-fired power stations).
- 73 The government has an agreed climate change policy package, which includes a carbon tax, Negotiated Greenhouse Agreements, the Projects to Reduce Emissions mechanism, and a support programme for energy intensive businesses. These policies have continued to be refined since their inception (e.g. recent announcements on details of the implementation of the carbon tax) and improved (e.g. the recent NGA policy review). Officials are reviewing climate change policies following the recent re-assessment of the projected balance of units during the first commitment period.
- 74 Further work under the sustainable energy programme is not required but it will be important for energy-related aspects of climate change policy to continue to be seen in a wider sustainable energy context.

Resource Management Act

- 75 A number of stakeholders argued that the RMA was a higher-than-necessary barrier to some energy developments (including some renewable generation), which potentially threatened security of supply (one of the central elements of a sustainable system).
- 76 The RMA requires developers to consider and internalise environmental costs. Often the RMA works effectively, but its application has sometimes been criticised.
- 77 The recent amendment to the Act requires local authorities to have particular regard to energy efficiency and the benefits to be derived from renewables in developing plans and in considering proposals. Officials consider that RMA amendment legislation now in the House will, if passed as currently drafted, further enhance RMA processes, including for energy developments.
- 78 Work to develop national environmental standards and national policy statements covering aspects of energy should also go some way to providing greater guidance on energy issues at the level of both general plans and individual consents.
- 79 Sustainable energy officials will monitor the effects of these changes on the energy sector, and report to Ministers as necessary.

Public awareness of New Zealand's energy challenges

- 80 Stakeholder engagement identified the need for New Zealanders to have a better appreciation of sustainable energy issues to drive and reinforce the uptake of practical improvements, especially on the demand side.
- 81 Good quality information is already being made available by a number of agencies, especially the Climate Change Office and EECA. Less well-developed, however, are long-term educational initiatives. There is also a general absence of information on what drives consumer behaviour to help guide such initiatives.
- 82 An idea already being explored by the Ministry of Economic Development is the establishment of a learning discovery centre which would provide a hands-on experience for children, as well as a resource for schools. These are already being run successfully overseas, including in Australia.
- 83 It is proposed that sustainable energy officials consider what further steps could be taken to raise awareness of sustainable energy issues, for consideration by the Minister of Energy in the first instance.

Informed and inclusive decision-making

- 84 Stakeholder engagement identified the need for a more informed and inclusive decision-making process. Some highlighted the need to take a regional approach as a way of helping to get buy-in to sustainable energy objectives at a local level.
- 85 The government clearly cannot manage a transition to sustainable energy alone. It must work in partnership with stakeholders and encourage groups that tend to be factionalised to work together more closely. Overcoming conflicting perspectives and potentially overlapping roles are also ongoing challenges. The government must be prepared to work in new ways and experiment with different approaches to counter these effects.

Use of information

- 86 The way in which information is collected, used and disseminated is an important integrating mechanism. There is much more to learn about the nature of energy demand and supply options facing New Zealand, and how decisions are made. Critical areas in which to be well-informed are: the effectiveness of particular policies (how well they are working, and the contribution they are making to desired objectives); how to encourage best practice in energy use; and the policy implications of changes taking place in markets and the technology and other factors that drive them.
- 87 There is currently no coherent, overall strategy for addressing the above areas. Significant gaps exist in our understanding of energy use, especially in the transport sector, and in what motivates consumers to behave in the way that they do. There is also scope to improve energy and emissions projections using a mix of scenarios based on likely or possible energy futures. Policy-making could also be enhanced through the use of system simulation models.

- 88 In terms of existing work, MED has recently reviewed its modelling work ahead of next years' sustainable energy futures report (formerly "Energy Outlook") and is giving increased attention to data requirements. Officials are also preparing advice on possible indicators of the performance of four main infrastructure sectors, including energy, in delivering sustainable development objectives so that investors and others can broadly assess the state of infrastructure against the dimensions of sustainable development. Consideration is being given to ways to fill identified gaps so that the quality of information improves over time.
- 89 Organisations outside government such as the New Zealand Business Council for Sustainable Development and Auckland University's Centre of Excellence for Energy are increasingly active in developing energy scenarios. While recognising that independent modelling, scenario planning and policy research will be undertaken for a variety of purposes, officials consider that there is scope for greater co-operation which the government may be able to facilitate.
- 90 It is proposed that sustainable energy officials report to POL by 31 December 2005 on steps that can be taken to improve the availability and quality of information to support the development of sustainable energy policies. This exercise will include consideration of the need for a new energy statistical series (made by the Department of Statistics in the context of the 2006 Budget but not carried forward at that time).

New approaches

- 91 New Zealand can learn much from other countries such as the Netherlands which are managing a transition to sustainable energy in a highly innovative and participatory manner.
- 92 The Dutch have identified a number of broad transition "roads" within which a partnership of public and private interests is empowered to chart and implement particular transition paths. These take the form of transition experiments, the emphasis of which is on shared risk-taking and learning by doing. Officials consider that a modified version of this approach could well be applied in New Zealand in similar areas to those chosen in the Netherlands such as industrial energy efficiency and biomass.
- 93 There is also some further scope to encourage councils and communities to identify energy as an important issue in long-term council community plans and to assist communities to identify and deliver on specific objectives. EECA is actively promoting energy efficiency and renewable energy to local government through its long-standing "EnergyWise Councils" partnership programme. It has recently developed a resource for councils to stimulate thinking about the relationship of energy to community outcomes. EECA's work is supported by the "Communities for Climate Protection" programme which is overseen by the Climate Change Office and includes the promotion of sustainable energy practices.
- 94 It is proposed that sustainable energy officials report to POL by 31 December 2005 with recommendations as to the possible adoption of transition experiments modelled on the Netherlands' experience.

Government leadership

- 95 The workshops identified the need for the government to be more prepared to lead by example such as through supportive procurement policies.
- 96 The role of government in implementing energy efficient measures, including through procurement, has been highlighted with earlier cabinet papers on climate change policy for energy-intensive small and medium size enterprises and the Govt³ government procurement practice programme. All public sector agencies have been asked to show leadership in this area.
- 97 Further opportunities may exist such as promoting the use of hybrid-electric or small-engined vehicles in the government fleet and using solar hot water heating in government buildings where appropriate. It is proposed that officials report back to Cabinet by 31 December 2005 on possible actions to pursue sustainable energy objectives through government procurement decisions.

Machinery of government

- 98 The Ministry of Economic Development leads the sustainable energy programme across relevant government agencies. There is no equivalent process at a ministerial level although aspects of sustainable energy are discussed from time to time by an ad hoc group of Ministers on infrastructure issues. A question for Ministers is whether an ad hoc group on sustainable energy, chaired by the Minister of Energy and supported by the Ministry of Economic Development, is necessary or whether existing structures can suffice.
- 99 A further question is whether more needs to be done going forward to ensure that different agencies have the appropriate incentives to co-operate and commit the necessary resources to engage. Experience and expertise are thinly spread in places, and there are some potential overlaps and gaps in what is a fairly crowded stage. Officials consider that this question should be kept under review.

OVERALL WAY FORWARD**Work in progress**

- 100 As noted above, work is already underway to strengthen existing policy settings in specific areas, e.g. more active steps to promote energy efficiency and renewables are being addressed in the context of the NEECS, and issues relating to sustainable transport and oil are being addressed as part of an emerging work programme led by the Ministry of Transport.
- 101 Significant improvements have been and are continuing to be made in other key areas as part of ongoing work programmes, e.g. effective and well-regulated electricity and gas markets, climate change policy and the Resource Management Act.

- 102 It is important to continue to place this work in the wider context of what the government is trying to achieve in sustainable energy so that connections can be made across areas. This should also help ensure that momentum is not lost in making the improvements discussed above. These are both important and pressing.
- 103 This report also proposes further investigation in some cross-cutting areas, namely:
- the contribution of research, science and technology to sustainable energy;
 - public awareness of sustainable energy issues;
 - the availability and quality of information to inform sustainable energy policies;
 - “transition management” approaches to sustainable energy;
 - the potential for government procurement decisions to contribute to sustainable energy.

Sustainable energy strategy

- 104 An issue emphasised strongly during stakeholder engagement was the need for the government to articulate a clearer strategy for achieving sustainable energy objectives.
- 105 Those who took this view acknowledged that while *Sustainable Energy* provided a useful context for a discussion about sustainable energy what was now needed was a more detailed set of actions the government would take both now and over time to achieve its objectives.
- 106 Implicit in such calls is the view that the government should take a more deliberate approach to creating a sustainable energy future. It was also apparent from the engagement that there was still a lack of appreciation about the breadth of the government’s sustainable energy programme.
- 107 Officials see merit in continuing to explain government policies and programmes against the wider context of sustainable energy. By mid to late 2006, it should be possible to provide an update of policy and other developments since the first document was published and thus be less speculative about ways forward. Officials recommend that the need for, and scope of, a possible follow-up document be considered in early 2006 in the light of progress in the work proposed by this report.

CONSULTATION

- 108 The Ministries of Transport, Environment, Research, Science and Technology and Foreign Affairs and Trade, the Treasury, DPMC, and EECA have been consulted on this paper.

FISCAL, HUMAN RIGHTS AND LEGISLATIVE IMPLICATIONS, REGULATORY IMPACT AND COMPLIANCE COST STATEMENT

109 Not applicable, although the report-backs proposed by this paper can be expected to lead to budget proposals.

PUBLICITY

110 It is proposed to make this paper publicly available in due course by posting it on the Ministry of Economic Development's website, together with summaries of the workshop conclusions which are already publicly available.

RECOMMENDATIONS

111 It is recommended that the Committee:

Background

- a **note** that *Sustainable Energy: Creating a Sustainable Energy System*, which was released for public discussion in October 2004, was generally well-received and few questioned its main thrust, although some thought it lacked a sense of urgency;
- b **note** that stakeholders expressed a general desire for the government to articulate a clearer strategy for achieving sustainable energy objectives;

Sustainable energy objectives

- c **confirm** that the government's objectives for sustainable energy are to create an energy system that is reliable and resilient, environmentally responsible, and in which prices are fair and efficient;

General approach to sustainable energy

- d **agree** that the government's general approach to sustainable energy has to be pitched at a level that balances the need for direction with the need for flexibility;

Existing work programmes

- e **note** that work is already underway to strengthen existing policy settings in specific areas, e.g. more active steps to promote energy efficiency and renewables are being addressed in the context of a review of the National Energy Efficiency Conservation Strategy (NEECS) and issues relating to sustainable transport and oil are being addressed as part of an emerging work programme led by the Ministry of Transport;
- f **note** that significant improvements have been and are continuing to be made in other key areas as part of ongoing work programmes, e.g. effective and well-regulated electricity and gas markets, climate change policy and the Resource Management Act;

- g **agree** that it is important to continue to place the work described above in the wider context of what the government is trying to achieve in sustainable energy so that connections can be made across areas and momentum is not lost in making improvements which are both important and pressing;
- h **note** that in respect of the NEECS review a key challenge will be to articulate coherent strategies for accelerating the uptake of energy efficiency and renewables that draw on and integrate the various efforts of relevant organisations, especially EECA, the Electricity Commission, the Climate Change Office, the Ministry of Transport, business organisations and local government;
- i **note** that a scheduled report back for September 2005, led by the Ministry of Transport, will focus on aligning transport policies to contribute to climate change objectives, including exploring options for reducing fuel use, optimising transport choices and promoting alternative fuels;
- j **note** that the Ministry of Economic Development has recently undertaken a review of its modelling work ahead of a sustainable energy futures report (formerly “Energy Outlook”) which will be released by mid-2006;

Further actions

- k **direct** sustainable energy officials, led by the Ministry of Economic Development and the Ministry of Research, Science and Technology, to report to POL by 30 November 2005 on what steps, if any, should be taken to strengthen the contribution of research, science and technology policy to sustainable energy, including in the areas of research and development, technology testing and international technology collaboration;
- l **direct** sustainable energy officials, led by the Ministry of Economic Development, to consider what further steps, if any, could be taken to raise awareness of sustainable energy issues, and report their conclusions by 31 December 2005 to the Minister of Energy in the first instance;
- m **direct** sustainable energy officials, led by the Ministry of Economic Development, in consultation with local government and industry groups, to report to POL by 31 December 2005 on steps that can be taken to improve the availability and quality of information to support the development of sustainable energy policies;
- n **direct** sustainable energy officials, led by the Ministry of Economic Development, in consultation with local government and other relevant stakeholders, to report to POL by 31 December 2005 with recommendations as to the possible adoption of transition experiments modelled on the Netherlands’ experience;

- o **direct** sustainable energy officials, led by the Ministry of Economic Development, to report to POL by 31 December 2005 on what additional actions could be taken to pursue sustainable energy objectives through government procurement decisions;
- p **note** that officials do not consider that any machinery of government changes for sustainable energy are required at present, but recommend that this question be kept under review;

Overall way forward

- q **direct** sustainable energy officials, led by the Ministry of Economic Development, to report back to POL by 31 March 2006 on whether the government should produce a further public document on sustainable energy and, if so, what the nature of that document might be.

Trevor Mallard
Minister of Energy