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Monash Governance Research Unit

Carbon Pollution Reduction Scheme Green Paper Submission
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Dear Sir/Madam,

SUBMISSION TO CARBON POLLUTION REDUCTION SCHEME GREEN PAPER

Name of organisation:

> The authors are members of academic staff, Monash University. This submission is not made on behalf of the University.

Name/s of author/s:

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>
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Date:

> 10 September 2008.

Confidentiality statement

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We do not want this submission to be treated as confidential and/or anonymous.
This submission does not contain personal information of any third party individual.

The submission-proper follows this page.

Yours sincerely,

Ken Coghill
Monash Governance Research Unit.

Amanda Lynch
Federation Fellow

GOVERNANCE FOR 2020
2020 Watts per person BY 2020

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2020 Watts per person BY 2020

Executive Summary

Main points of submission.

- Community engagement is a key to effective governance of carbon pollution reduction policy.

- An aspirational target (**2020 by 2020**) should be used as a theme to focus community engagement.

- Reduced vulnerability, increased resilience, and enhanced adaptive capacity are key features of governance needed to implement carbon pollution reduction policy.

- Democratic participation makes for easier identification of flawed analysis, better decisions, more effective implementation of policy and greater life satisfaction.

- A high-powered, joint Houses parliamentary committee should be established to link parliament and community on climate change.

- A process similar to the process used to develop National Competition Policy should be used to facilitate community engagement and the further development of carbon pollution reduction policy.

- ClimateCare, modelled on Landcare, should be established and supported in communities throughout Australia to foster community engagement and local initiatives. Business should be engaged in a similar way.

- "Coal seat" communities (i.e. highly dependent on coal mining, export or generators) should be given special, intensive assistance in the transition to a low carbon world.

- The **2020 by 2020** target and the governance arrangements suggested should be used to develop a strong negotiating position for the successor to the Kyoto protocol.

GOVERNANCE FOR 2020

2020 Watts per person BY 2020

Introduction

The CPRS Green Paper recognises that the challenge of ensuring the sustainability of the climate and natural environment that supports us is the most important issue facing our current generation.

Meeting that challenge requires close relationships between government and community. This submission builds on the Preferred Positions related to those relationships, suggesting evidence –based structures and processes for education, outreach and involvement. In particular ClimateCare, modelled on Landcare, is proposed to provide links between government and community. In doing so, the submission supports the overall direction and thrust of the CPRS Green Paper and builds on and adds to it in order enhance the effectiveness of its proposals.

The measures proposed in and flowing from the Green Paper have the potential to involve unprecedented, massive and rapid changes affecting the lives of everyone living in Australia. As such, these changes risk being perceived as destabilising to personal life and to society more generally. Accordingly, it is crucial that the measures are developed and implemented in ways which maximise public acceptance and minimise the risks of unmovable apathy, white-anting or outright rejection.

The major focus of this submission is the governance required for effective implementation of the CPRS and achievement of its underlying objectives, with particular reference to public engagement and support. These proposals are also consistent with a number of principles of international environmental law e.g. the precautionary principle, intergenerational equity, stewardship, impact assessment, subsidiarity, public participation are among the principles well recognised in treaties and declarations to which Australia is a party.

The governance arrangements proposed include an integrated package of steps to facilitate the effective implementation of Preferred Positions included in the Australian Government Carbon Pollution Reduction Scheme Green Paper, especially those discussed in Chapter 13 Governance Arrangements and Implementation.

Further more, the proposal would address the risk, identified by Alan Pears in his submission, that the CPRS could "disempower voluntary action by those who are not Liable Parties". Rather, it would enable voluntary action to support and facilitate the policy objectives underlying to CPRS.

These governance arrangements could be integrated under the theme of 2020 by 2020: an aspirational target of per capita non-renewable energy consumption of 2020 Watts by not later than 2020. (i.e. 17.42MWh per person per year, equal to 64 Gigajoules (GJ) per person per year).[1]

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1 Watts (W)(power) = joules (energy)/time

   1 kWh = 3.6 MJ = 860 kcal = 3,412 Btu = 0.86 kgoe (kg of oil equivalent)

   1 toe = 11.83 MWh = 42.6 GJ = 10 million kcal = 39.68 million Btu

   1 MJ = 238.8 kcal = 947.8 Btu = 0.024 kgoe = 0.28 kWh

The year 2020 is within a time horizon to which most people can relate. It is not so long as to be beyond the period for which many people can foresee their lives and yet it is long enough for people to accept that major change is possible. It is only slightly longer that Al Gore's target of 10 years for the conversion to renewable energy sources and phasing out of coal-fired power stations in USA.[2].

The target of 2020 Watts is derived from Swiss research demonstrating the potential of achieving a 2,000 Watt society. The 2,000W (approximately 63 GJ) consumption was premised on a maximum of 1500W from non-renewable sources and 500W from renewable sources. Swiss energy consumption was then approximately three times that level.[3]. Australian energy consumption is currently around four times this level and approximately 95% is currently derived from non-renewable sources. However, Australia is especially well placed to greatly expand energy production from renewable sources and, over the period to 2020, to progressively substitute energy from renewable sources for that from non-renewable sources. **Only non-renewable energy would be included in the 2020 Watts cap; gross energy consumption would not be limited and would be expected to exceed 2020 Watts.** Australian CO_2 emissions would be reduced from approximately 27 tonnes per person to about 7 tonnes.

2020 is a worthy, realistic target for Australia. As a theme for national policy, **2020 BY 2020** is alliterative, memorable and meaningful.

The governance measures proposed in the submission draw on observation, research and theory relevant to the circumstances in which populations facilitate major changes affecting themselves and which, it is argued are conducive to the successful introduction of carbon pollution reduction at the scale necessary for the survival of civilisation. These governance measures include the role of the Parliament, an expanded role for the regulator or like body, and ClimateCare - a community-based, publicly supported scheme.

The submission also proposes a number of specific policy measures which build on or complement the Green Paper Preferred Positions.

2 Broder, J. M. 2008. Gore urges change to dodge an energy crisis. New York Times, July 18.

3 Jochem, E., Favrat, D., Hungerbühler, K., Rudolph von Rohr, P., Spreng, D., Wokaun, A., Zimmermann, M., Semadeni, M., Goldblatt, D., Kemmler, D., Stephan, A., Lienin, S., Janssen, A., Gutzwiller, L., Keller,

P., Kölble, C., Primas, A., Weber-Marin, A. S., Maréchal, F. & Richter, K. 2003. Steps towards a 2000 Watt-Society: Developing a White Paper on Research & Development of Energy-Efficient Technologies,

Prestudy - Final Report. Retrieved from https://www.rdb.ethz.ch/projects/project.php?proj_id=7742 8 August 2008.

Governance

Climate change is the most pervasive and dangerous market failure mankind has known. This market failure is a product of extraordinarily long lag times for "market signals" to be recognised, much less have effect, and the capacity of greenhouse gas emitters to externalise the impact of their actions. Cap and trade emissions trading schemes seek to partly redress this failure by re-designing the market to force emitters to recognise their impacts and provide incentives to reduce or eliminate emissions. Only government can enforce such a change to the framework within which business and other emitters operate.

The adaptation required to avert catastrophic effects of climate necessitate huge changes in mankind's governance of almost every aspect of civilised societies, including Australia. The nature of the required changes in energy use and sources are well argued and documented elsewhere and will not be re-iterated here. Rather, this submission argues that the range and magnitude of those changes is such that exceptional governance is essential to enable society to make the changes. To attempt to rely on governance arrangements which have sufficed in times of peace and prosperity is fraught with risk. At worst, the dangers are to social stability, national security and personal safety.

The scale and rapidity of changes arising from climate change are outside the historical experience of our civilisation. They require us to re-think the very nature of progress and to re-orientate it towards environmental sustainability (see Appendix 1).

The direction and extent of change in the past was predicted from prior experience and historical records – it was largely linear, or was subject to regular cycles. We are now witnessing highly non-linear and rapid change – change that is not a simple extrapolation of past events. The changes are consequences of the interactions of a wide range of factors in a complex evolving system[4]; the particularity of changes is uncertain and is outside our historical experience. The society must develop its capacity to learn and understand what is happening to our environment, to accept its significance and to create and implement appropriate responses.[5] This resilience is essential to the successful implementation of the policy underlying the Carbon Pollution Reduction Scheme.

Research tells us much that can assist in the development of effective governance arrangements to build a society with reduced vulnerability, increased resilience, and enhanced adaptive capacity.

Vulnerability is perhaps best understood as a component of risk. There are three elements of risk: hazard (e.g. drought), vulnerability (e.g. choice of crop), and exposure (e.g. legal liability). Adaptation measures can be applied to each of the components, and they should be considered in an integrated fashion where possible. The insurance industry can contribute to our understanding of efficient risk-sharing mechanisms. Indeed, the insurance industry itself is likely to be a victim of heightened risk exposures to climate events, which requires adequate incorporation of climate risks in setting premiums and risk management.

In his classic paper of 2000 in *Progress in Human Geography*, Neil Adger defines social resilience as "the ability of groups or communities to cope with external stresses and disturbances as a result of

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4 Mitleton-Kelly, E. 2003. Complex systems and evolutionary perspectives of organisations: The application of complexity theory to organisations. Ten Principles of Complexity & Enabling Infrastructures

2003. Retrieved from http://www.psych.lse.ac.uk/complexity/PDFiles/publication/Ch2_Mitleton_Kelly.pdf.

5 Lebel, L., Anderies, J. M., Campbell, B., Folke, C., Hatfield-Dodds, S., Hughes, T. P. & Wilson, J. 2005. Governance and the capacity to manage resilience in regional social-ecological systems. Ecology

and Society 11 (1).

social, political and environmental change". This definition draws from the idea of ecological resilience, an analytical framework emerging in ecology in the 1970s in reaction to ideas of equilibrium. The link between social and ecological resilience is clear for social groups or communities that are dependent on ecological and environmental resources for their livelihoods. But it is less clear whether resilient ecosystems enable resilient communities in such situations. Coping strategies to maintain ecologically-based livelihood systems can in fact work against long-term adaptation.

The idea of resilience does not recognize that social and economic disturbance often implies *transitions* to renewed forms of production, consumption and distribution with new combinations of organization, institutions and technology. It is important to recognize when transformational strategies meet policy objectives more effectively than preservation.

Whether resilience or transformation is sought, redundancy is vital: it "provides safety factors, permits flexible responses to anomalous situations and provides a creative potential for those who are able to see it."[6] Duplication, overlap and ambiguity allow an organization to suppress error and generate alternate routes of action. It ensures that there is less likelihood of single point failure.

Adaptive capacity can be thought of as an *enabling environment* for responding to stressors such as natural disaster, economic recession and social conflict. That is, adaptive measures are likely to be most effective in reducing losses arising from the impacts of stressors where adaptive capacity is highest. Elements of the environment that have been shown in the literature to have a positive impact on the outcomes of investment in measures include:

- wealth,

- access to technology and infrastructure,

- access to salient information, knowledge and skills,

- responsive, flexible institutions,

- redundancies and reserves,

- equity, and

- social capital.

Adaptive capacity is necessary but not sufficient as a condition for successful outcomes of measures. Exceptional individuals – leaders, local heroes and champions – have an important and essentially unpredictable role to play in ensuring outcomes.

One leading democratic theorist, Robert Dahl accepted "rule by the people"; Michael Saward, argued that the essence of democracy is "responsive rule", in which decisions reflect the self-perceived interests of the citizens.[7] Dahl, unlike most theorists, however, asked "what do we mean by 'the people'"?   He reported that "Having puzzled over the problem for years… I have become persuaded that there is no theoretical solution to the puzzle, but only pragmatic ones."[8] One pragmatic principle he suggested was: "If a matter is best dealt with by a democratic association, seek always to have that matter dealt with by the smallest association that can deal with it satisfactorily."[9] Others have

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6 Martin Landau, Redundancy, Rationality, and the Problem of Duplication and Overlap, p. 356.

7 Saward, Michael. 1996. Democracy and Competing Values. Government and Opposition 31 (4):467-486.

8 Robert A. Dahl, After the Revolution? (New Haven: Yale University Press, 1970), p. 59.

9 ibid. p. 102.

echoed this principle. It is similar to the principle of subsidiarity, which is central to the philosophy underpinning the European Union, (Commission of the European Communities 1992) In 2000, William Clark suggested that "political experience increasingly demonstrates that it is at sub-national scales that civil society is most energetically and effectively mobilizing to reassert democratic answers to how development and environment should be balanced for particular people and groups."[10] More recently, Thomas Willbanks noted that "Within this complex pattern of often incompatible mosaics, we know that different scales tend to have different potentials and different limitations for action. To oversimplify considerably, local scales offer potentials for participation, flexibility, and innovativeness, while larger scales offer potentials for resource mobilization and cost-sharing."[11]

In the case of climate change policy this suggests distributed knowledge and decision support processes which provide

- multiple connections between participants that cut across various levels (polycentric networks);

- sustained and adaptive organizations which allow for iterated interactions between participants;

- a focus on modest policy approaches that can afford to fail, and

- an authoritative framework established by government.

Here participants include decision- and policy-makers, community members with legitimate interests, and researchers able to contribute knowledge support. Polycentric networks encourage innovation and flexibility; through redundancy they also protect the overall system from the failure of any one of its parts. Iterated interactions increase the relevancy and legitimacy of knowledge support for participants. Modest policy evolves through a "learning-by-doing" approach and does not risk a single large investment with a concomitant requirement to get it right the first time: a "don't bet the farm" strategy. Finally, to argue for strong community involvement is not to argue for no role for government, or simply a role in providing resources. Government retains a crucial role as the legitimate authority establishing the framework within which civil society and the market sector operate. In this context, a strong culture of inclusivity and accountability can help to defuse problems associated with populist backlash or political instability when difficult decisions must be taken.

It should be noted that this approach explicitly engages the dynamics of diffusion and adaptation in political systems, which is built on the propositions that human behaviour is motivated by problems and directed toward realizing goal values; that when attention is directed to a new strategy with *demonstrable* success, uptake is more likely; and that a new strategy is reinforced as a varied range of payoffs is experienced. These dynamics point the way to an explicit strategy of field testing a diverse range of responses to climate change. Indeed, "'One-size-fits-all' seldom fits at all."[12]

Appropriate structures, processes and relationships through which people can voice their interests, discharge their obligations and reconcile differences are keys to this resilience.[13] The complexity of

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10 William C. Clark, "Environmental Globalization," in Joseph S. Nye Jr. and John D. Donahue, eds., Governance in a Globalizing World (Washington, D.C.: Brookings Institution Press, 2000), Ch. 4, 86-

108, at 101.

11 Thomas J. Wilbanks, "Scale and Sustainability," Climate Policy 7 (2007), 278-287, 292. Climate change mitigation generally is assumed to be the context in the more theoretical parts of this article.

Section 6, 284-285, considers "Climate Change Adaptation as an Example."

12 "Ten Suggestions for Policymakers," in Steve Rayner and Elizabeth L. Malone, eds., Human Choice & Climate Change, Volume 4: What Have We Learned? (Columbus, Ohio: Battelle Press, 1998), p.

129.

13 Podger, A. 2002. Whole-of-government innovations and challenges. In Institute of Public Administration Australia (IPAA) National Conference. Adelaide.

climate change issues requires even more interaction among officials in local, national and international organizations, councillors and parliamentarians at all levels and the community which is 'claiming a larger voice in the policy decisions that will most affect them in the future'(p.15).[14]

Democratic involvement makes for greater satisfaction

A remarkable piece of research taking advantage of the diversity of levels of participation within one country has demonstrated dramatic effects on people's satisfaction with life. Frey and Stutzer studied the people living in a range of Swiss cantons with basically similar political structures but significant differences in the opportunities available to citizens to actually participate in policy decisions. Citizens of cantons with greater levels of democratic participation were more satisfied than their counterparts enjoying less participation. Non-citizens, who had no political rights to democratic participation were also studied. Swiss citizen residents were more satisfied than their non-Swiss neighbours who lacked rights. People with greater opportunities to participate in the political life of the cantons in which they lived had clearly higher levels of life satisfaction.[15]

Participation aids decision quality and acceptance

The explanation for these effects of equitable, democratic participation lies in part in peoples responses to decision-making affecting risks, as shown by Arvai.

In testing the factors that affected people's willingness to accept decisions affecting the risk to which they were exposed, Arvai has shown that they were more willing to accept decisions in which they had been involved even where the decision was not the one they preferred. This extends to people who had the opportunity to participate but chose not to. They had confidence in the process because they were able to relate to those who chose to participate. Their satisfaction with the process was more important than the actual outcome. He suggests that the benefits of participatory decision-making lie in the "higher quality decisions that are the product of more widely accepted decision processes" (p.281).[16]

This empirical evidence shows that governance arrangements and measures that most effectively enable societies to be resilient and adaptive in the face of threats to their stability are those which facilitate communication between citizens as social actors. Citizens' engagement in decisions and actions which they perceive to be of significance to themselves facilitates a society's adaptive capacity.

However, such societies are not loose groups of self-organising individuals. Their capacity to function is strongly influenced by the existence and nature of rules affecting the interactions between individuals and between groups. The absence of rules leads to anarchic situations in which those most able to use power to dominate others divert the society's resources to their own benefit. Conversely, highly rigid, tight control stultifies the communication, creativity and innovation necessary to generate adaptation to changes in a society's internal environment (e.g. disease epidemic) or external environment (e.g. climate change).

In the Swiss case, the cantons providing greatest life satisfaction to their residents do so through formal structures and governmental processes and informal cultural norms and processes which enable interactions to function smoothly *(some might say 'like Swiss clockwork'!),* equitably and democratically.

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14 Bourgon, J. 2007. Responsive, responsible and respected government: Towards a New Public Administration theory. International Review of Administrative Sciences 73 (1):7-26.

15 Frey, B. S. & Stutzer, A. (2000). Happiness, economy and institutions. The Economic Journal, 110(October), 918-938.
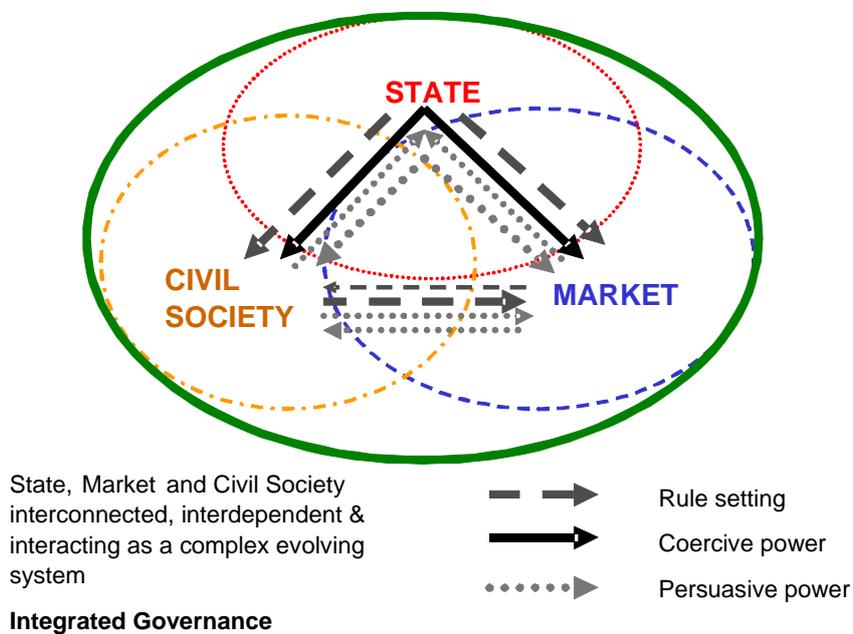
16 Arvai, J. L. 2003. Using risk communication to disclose the outcome of a participatory decision-making process: Effects on the perceived acceptability of risk-policy decisions. Risk Analysis, 23(2): 281-289.

Climate change policy: the 'joined-up community' approach

Blamey and his colleagues and Hartz-Karp also argue that there are major advantages in involving citizens in the climate change policy-making process. Hartz-Karp reports successful examples of direct democracy techniques used within frameworks established by government in order to ensure equity and fairness in participation.[17]. Innovative techniques involving Perth citizens demonstrated that they offered "a real opportunity to reshape and reform our policy making processes so they are not only more relevant, but more capable of bringing about the change they intend." This last point is immensely significant for the extent of change foreshadowed by the Green Paper.

Government rule-setting crucial for success

As noted, to argue for a strong role for community involvement is not to argue for small government. The role of government includes establishing the framework within which civil society and the market sector (business) operate as parts of an integrated system of governance - illustrated in the figure below.

State, Market and Civil Society interconnected, interdependent & interacting as a complex evolving system

- - → Rule setting

——→ Coercive power

••••► Persuasive power

Integrated Governance

The coercive power of government is a necessary but incomplete condition for changes such as those flowing from the Carbon Pollution Reduction policy to be accepted and reflected in behaviour. Attempts by democratic governments to impose unpopular decisions are fraught with risks of populist backlash and political instability – the very antithesis of the conditions needed for effective, society-wide actions to address climate change.

Furthermore, as Crook and Manor have noted, "the presence of a strong public 'culture of accountability'—generally fostered by a strong central political force—as the most important factor in explaining good government performance at the local level" (Bergh 2004) (p. 788).[18] Markets require market design to operate efficiently and effectively, as other types of social structure also rely on rules

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17 Blamey, R. K., James, R. F., Smith, R. & Niemeyer, S. 2000. Citizens' juries and environmental value assessment Canberra. Research School of Social Sciences, Australian National University; Hartz-Karp, J. (2007). Climate change policy: the 'joined-up community' approach. Retrieved from http://cpd.org.au/article/climate-change-policy-joined-up-community-approach

18 Bergh, S. 2004. Democratic decentralisation and local participation: A review of recent research. Development in Practice 14 (6):780 - 790.

for their operation; under good governance, these rules curb the impulses of those who seek to exploit circumstances for their own benefit.

Challenging flawed orthodoxies

A further fundamentally important role of open processes engaging the community is the in-built capacity to test and where necessary challenge conventional wisdom, orthodoxies and other ideas that are commonly believed but may be ill-founded.

For example, if it is required that carbon capture and sequestration (CCS) will be successful (technically and economically), there is a serious risk that that unproven expectation will crowd out research effort into other promising initiatives. For example, the case against the dispersed installation of photovoltaic panels on household roofs is founded on the costs of the electricity supplied. Such a narrow case fails to acknowledge that the underlying justification is the maximisation of renewable supply; nor does the argument recognise the advantages, including redundancy and security, of distributed systems. Neither does it recognise the potential for accelerated technological development of alternative technologies and accelerated reduction in costs through increased economies of scale. A balanced portfolio of measures that includes investment in renewable energy technologies as well as sequestration technologies is good risk management practice.

Another example is the untested assumption of the role of a price signal in emissions trading, notwithstanding empirical evidence. For instance, in the US, emissions trading was used to great effect in phasing out SO_2 and NO_x pollution from power plants, lead in petrol, and ozone-depleting substances in a variety of products. In each case, however, emission trading did *not* achieve the emissions reduction by generating price signals that radiated throughout the economy, motivating behaviour changes in other sectors, as is predicted by economic models and is postulated for greenhouse gases. The entities that responded were primarily the firms that were capped, by employing new inputs or existing technologies that had not been used previously. For example, existing power plants modified combustion by switching from high to low sulphur coal or installed a scrubber – existing technology – to remove emissions post-combustion. Fundamental technological innovation, energy conservation, or a switch to renewables all played little role. There was minimal adjustment in other sectors in response to price signals radiating from the capped sector. In the case of greenhouse gases, we are stuck with the wrong set of assets – traditional coal-fired power plants. It will take time, resources, and new technologies to change the capital stock. In this context, we seek to balance a short-run goal of emission reduction with a long-run goal of decarbonization.

These real-life examples demonstrate the risks of not opening debate and policy to wide participation, scrutiny and challenges to assumptions.

Engagement's Advantages

For government, active engagement of the community has at least four key advantages:

- Policy design is improved where greater input has generated more creative ideas and their application in innovative solutions;

- Substantive engagement enables people to accept that their voices have been heard;

- People seek to play key roles in effective action (as seen in water conservation and recycling); and

- Populist electoral backlash is less likely to emerge and is more difficult to orchestrate.

The submission proposes that

- The national regulatory authority be required to educate, consult and collaborate with the community in decisions and actions to achieve the target; and

- ClimateCare groups be fostered in all local communities, with roles including participation in policy development and implementation in collaboration with the national ETS/etc regulatory authority.

This model is based on the extensive evidence of the superior social outcomes of democratic processes whereby people affected by policy decisions feel that they have genuine opportunities to contribute to those policy decisions.

This is illustrated by selected examples of public participation in climate change and sustainability policy making, research findings based on careful analysis of empirical evidence and experimental results.

Samso Island, Denmark

A small conservative Danish island is a surprising example of a community which made a successful decision to move to a carbon neutral economy.[19]. This farming community made its own decision, without coercion, to improve the efficiency of its energy use and to make full use of the locality's abundant wind energy. Over a few years it moved from a conventional energy mix to making and implementing the decision to rely on renewable sources, principally wind.

Vauban, Germany

Vuaban is a remarkable new suburban community in South Western Germany, near the French border south of Strasburg. Despite a climate far less endowed with solar energy than most of Australia, the community is a net energy exporter i.e. it uses less energy than is produced from the solar energy falling on its rooftops.[20]. The development has been successful in its sustainability objectives, in attracting buyers and in the sustainable behaviour practiced by its residents.

Drake Landing, Alberta, Canada

Alberta, where winter temperatures drop below minus $20^{o}C$, seems an unlikely spot for North America's first completely solar powered residential development. Yet, solar energy contributes 90% of annual hot water and heating.[21]. The figure below summarises the energy flows built into the development. It is a far more challenging environment than any within Australia.

19 Kolbert, E. 2008. The island in the wind: A Danish community's victory over carbon emissions. Retrieved from http://www.newyorker.com/reporting/2008/07/07/080707fa_fact_kolbert?printable=true 8 August 2008.

20 Scheurer, J. & Newman, P. forthcoming 2009. Vauban: A European model bridging the green and brown agendas.

21 Rose, S. 2008. Canadian community first to go completely solar. Retrieved from http://www.tgdaily.com/content/view/38583/118/ .
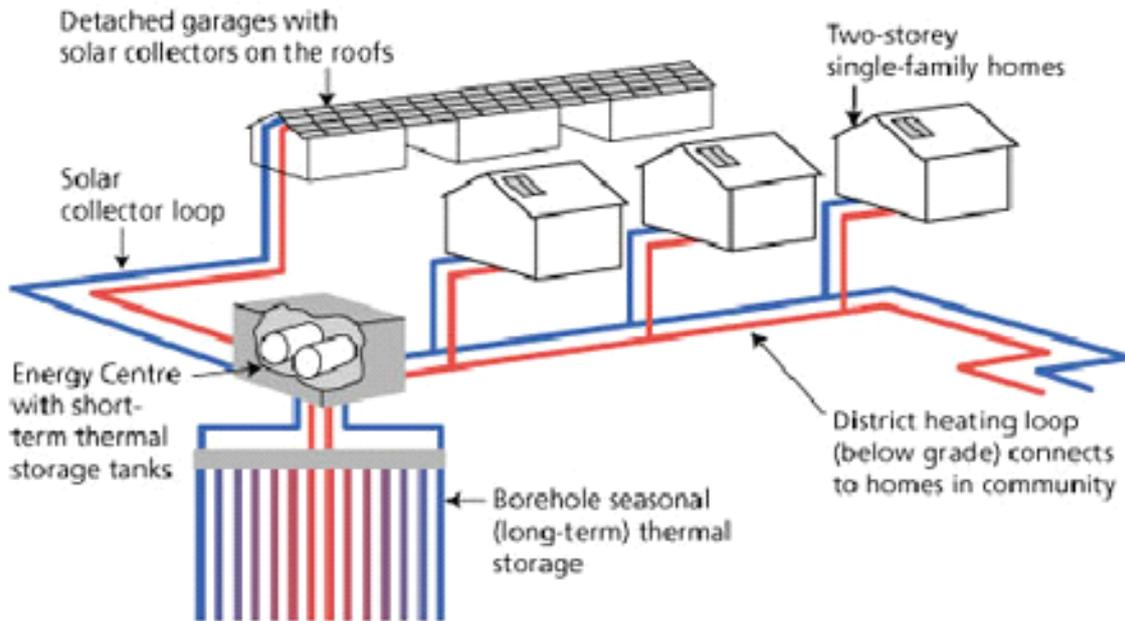
Drake Landing, Alberta, Canada
(Source: Rose, S. 2008)

Hepburn, Victoria

There are great examples in Australia of local communities taking the initiative to adopt reliance on non-renewable sources of energy. In Central Victoria, the community at Hepburn has developed a policy to facilitate the development of wind farms and it has established a cooperative to enter into a joint venture for a wind farm. [22] . Note that acceptance of wind energy generators by this community is another example of how participation can enhance acceptance of new technologies, where-as without participation, wind farms have often been perceived as impositions by industry and government

In this context, national government processes and organisations of the type discussed in the Green Paper have indispensible roles.

The submission now proceeds to discuss those processes and structures.

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22 Hepburn Renewable Energy Association. undated. Hepburn Renewable Energy Association. Retrieved from http://www.hrea.org.au/ .

Parliament

The Parliament can play at least four crucial roles supporting the introduction, refinement and implementation of Carbon Pollution Reduction policy:

- It must enact the necessary legislation

- It can accept a fiduciary duty (which is applied to parliaments and parliamentarians in Canada and UK)[23, 24] to act in the interests of all Australians and to function so as to address policy issues through consensual decision making to the maximum extent possible, averting the risk of policy in this area being undermined by counter-productive populist appeals;

- The idea of public trusteeship ("it is a principle purpose of government to promote the interests of the general public"[25]) can also be invoked;

- Parliamentary committee functions can provide a valuable opportunity for individuals and organisations to participate, be heard and for their legitimate concerns to be taken into account in enacting the legislation and in its implementation;

- The Parliament scrutinises Executive Government and holds it accountable for the implementation of policy.

The potential of parliamentary committees is supported by Arter (2006), who concluded
"... that peripatetic Scottish committee practices have facilitated the expression of voices that would not be heard in most other systems." (p.258)[26]

Accordingly it is proposed that the terms of reference of a joint Houses Committee specifically provide for own motion powers to initiate inquiries and that the committee be required to:
- review the implementation of policy to achieve the objectives of Carbon Pollution Reduction policy, including the manner and extent to which public support for its implementation is fostered;

- provide opportunities for members of the public to be fully aware of the Committee's role and activities;

- consult widely with the Australian community through the maintenance of a website, receipt of submissions and public hearings, on the implementation of the policy including its effects;

- report at least annually to the Parliament.

These suggested powers are more suited to fostering effective Carbon Pollution Reduction policy than the limited role and powers of the current House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts and Senate Standing Committee on Environment, Communications and the Arts.

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23 Finn, P. D. (1995). A sovereign people, a public trust. Sydney: The Law Book Company.

24 Kidd, Scott. 2006. Keeping Public Resources in Public Hands: Advancing the Public Trust Doctrine in Canada. Journal of Environmental Law and Practice 16 (2):187-210.

25 Sax, J 1972 Defending the Environment: A Strategy for Citizen Action. Vintage Books, p.163

26 Arter, D. 2006. From 'spectator democracy' to 'inclusive democracy'? The peripatetic Scottish committees as linkage. Regional & Federal Studies 16 (3):23- 262.

National Sustainability Policy[27]

Australia has a world class model on which to draw in order to develop a whole-of-government approach to the implementation of climate change and sustainability policy, encompassing government expenditure, taxation, regulation and investment.

The National Competition Policy (NCP) process brought us reforming headline policies such as energy markets, and countless other improvements across our economy. By integrating the actions of governments at every level – national, state, territory and local – and re-writing the rules to force business into genuine competition, NCP helped us avoid the threatened "banana republic status" of which then Treasurer Keating had warned.

The NCP process was as important as the particular reforms. It brought government, business and other interests together in a way no single policy reform could have. It was launched by the Hilmer Report, commissioned by the Prime Minister, Premiers and Chief Ministers. Hilmer recommended principles for introducing the benefits of competition whilst protecting the public interest and guarding against adverse impacts. Those principles were applied through a re-distribution of regulatory powers and a comprehensive review of all legislation which could affect trade.

Governments joined to make competition policies, parliaments legislated to give them effect and the Australian Competition and Consumer Commission (ACCC) was established to monitor and enforce associated competition laws.

In so doing, NCP has transformed the economy into a dynamic and innovative engine in which economic growth delivers social benefits. The closer, more cooperative working relationships which emerged still help the nation address all manner of issues.

A **National Sustainability Policy** process has the potential to transform our society into one which is environmentally sustainable and socially equitable. It could help us to act out of recognition that our economy and society are founded on the largesse of our natural environment – a favourable climate, clean air and water, biodiversity and fertile soil - and that we can only survive within the limits of that environment.

International models

California established the California Air Resources Board (CARB) in 1996. The role of CARB is to develop regulations and market mechanisms to reduce California's greenhouse gas emissions to specified targets. It is empowered to:

- Establish a California-wide greenhouse gas emissions cap for 2020, based on 1990 emissions by January 1, 2008.
- Adopt mandatory reporting rules for significant sources of greenhouse gases by January 1, 2009.
- Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms and other actions.
- Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas, including provisions for using both market mechanisms and alternative compliance mechanisms.

27 This proposal was previously submitted by Professor Amanda Lynch (Monash University), Professor Philip Adams (Monash University), Professor David Karoly (The University of Melbourne) and

myself to the Victorian Government as a submission in response to A CLIMATE OF OPPORTUNITY Summit Paper, addressing the major governance challenges associated with the implementation of

government policies addressing climate change.

- Convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee to advise CARB.
- Ensure public notice and opportunity for comment for all CARB actions.
- Prior to imposing any mandates or authorizing market mechanisms, CARB must evaluate several factors, including but not limited to impacts on California's economy, the environment and public health; equity between regulated entities; electricity eliability, conformance with other environmental laws and ensure that the rules do not disproportionately impact low-income communities.[28].

This Californian model arose a decade later than the Hilmer Report and emerged in a completely differently policy environment. Its features should be considered in developing an Australian National Sustainability Policy.

There are also many lessons to be learned from European Union experience.[29] These lessons include retaining a focus on social values and improving whilst also simplifying legislation.[30] Within the EU framework Germany, for example, has set a medium-term target of a 40 per cent reduction in carbon emissions from 1990 levels by 2020, subject to other member states achieving a 30 per cent reduction.[31]

The Sustainability Policy: Process and Structure

We suggest a process and a structure that mirrors the NCP, by creating the following:

1) A public inquiry to build on and extend the Garnaut Report and policy processes within state and federal departments into the governance arrangements needed to effectively implement carbon trading and the myriad other changes we need to make in the way we live. Like the Hilmer Report, it should recommend principles for the review of the rules that we live by – the acts and regulations that affect our use, misuse and waste of energy and water.

2) A national Sustainability Principles Agreement negotiated through the Council of Australian Governments (CoAG) to establish policies which

- set out obligations and liabilities in the areas of energy intensity, carbon neutrality, environmental impacts assessment, urban and regional planning, and circumstances for draw-down of environmental capital
- apply the reforms to local government;
- set out a (non-exhaustive) list of common interest factors to consider when assessing the costs and benefits of a particular policy or course of action.

3) A Sustainability Conduct Code Agreement by which State and Territory governments:

- commit to extending the prohibitions against unsustainable behaviour to every business operating or based in Australia; and
- undertake to notify the Australian Sustainability Commission when each jurisdiction enacts primary or sub-ordinate legislation in respect of which it requests an exemption from prohibitions against unsustainable decisions.

4) An Agreement to Implement National Sustainability Policy and Related Reforms (Implementation Agreement) which:

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28 Schwarzenegger, A. 2006. Gov. Schwarzenegger signs landmark legislation to reduce greenhouse gas emissions . Retrieved from http://gov.ca.gov/index.php?/press-release/4111/ .

29 European Communities, Commission of the. 2007. Limiting global climate change to 2oC: The way ahead for 2020 and beyond. Retrieved from http://eur-

lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0002:FIN:EN:HTML

30 European Union, Council of the. 2007. Presidency conclusions. Retrieved from http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/93135.pdf

31 Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit. 2005. The national climate protection programme 2005 summary. Retrieved from

http://www.bmu.de/files/english/climate/downloads/application/pdf/klimaschutzprogramm_2005_en.pdf

- sets out the reform obligations accepted by all national, state, territory and local governments and which they undertake to apply to their instrumentalities including all entities incorporated under Australian law or otherwise subject to any domestic legal authority; and
- provides for payments by the Commonwealth to the States, Territories and local governments where they achieve satisfactory progress with the implementation of the National Sustainability Policy and related reforms.

5) The introduction of an Environmental Practices Act, the provisions of which would require all entities (i.e. including national, state, territory and local governments and their instrumentalities and all entities incorporated under Australian law or otherwise subject to any domestic legal authority) to act in accordance with the Sustainability Principles Agreement, in a similar manner to the regulation of trade practices by the Trade Practices Act 1974 e.g.

> The object of this Act is to enhance the welfare of Australians and the fulfilment of Australia's international obligations through the promotion of environmental sustainability.

6) A National Sustainability Council be established by all Australian national, state, territory and local governments to act as a policy advisory body to

- monitor and report to CoAG on the implementation of National Sustainability Policy;
- review the progress of developing a set of national environmental accounts, including carbon and water accounts;
- advise on the design of environmentally sustainable policies, including the reform of existing legislation and regulation;
- use the national accounts to audit against climate change and sustainability objectives.

Like the National Competition Council, the Sustainability Council will be funded by the Commonwealth Government, but accountable to all Australian States and Territories through the CoAG. As a statutory body, the Council will be independent of the executive (political) arm of governments.

The Challenge

The nature and extent of the changes required are extra-ordinary and exceed those required at the outbreak of World War 2, when Australia and other Allied nations undertook urgent, massive and rapid restructuring of governance, infrastructure and production systems.(Spratt and Sutton 2008) The changes must occur in almost every aspect of life. Government must establish a framework within which individuals, households, businesses and communities are given a clear sense of leadership and direction, and the capacity to respond with high levels of autonomy. An effective governance system requires a high level of education and support, especially during their establishment, and strong co-ordination of implementation. Existing environmental protection agencies (EPAs) would be too fragmented to harmonise action nationally, but they have the potential to perform an important role in establishment of the system and the enforcement of the national Environmental Practices Act within their jurisdictions. These issues suggest an urgent need for the public inquiry into governance arrangements to consider the merits of various approaches.

The process we propose is similar to the way in which governance policy reform to achieve an efficient competitive national economy overcame the incapacity of any one level of government to implement comprehensive re-structuring of markets, arising from the limiting effects of the distribution of constitutional powers. The National Competition Policy process showed how governments can work together to overcome major structural problems.

The governance challenges in addressing sustainability are no less daunting than was a competitive economy. We believe that the process itself is an essential element of successfully addressing sustainability and will facilitate the emergence of better policy. The process we propose – a **National Sustainability Process -** offers a way of Australian national, state, territory and local governments meeting the challenge of developing and applying shared environmental policy objectives.

Subsidiarity

Subsidiarity is a governance concept also recognised in international environmental law as a sound basis for more effective policy development and implementation. It was a founding principle of the European Union, where:

> (i)t is intended to ensure that decisions are taken as closely as possible to the citizen and that constant checks are made as to whether action at Community level is justified in the light of the possibilities available at national, regional or local level. Specifically, it is the principle whereby the Union does not take action (except in the areas which fall within its exclusive competence) unless it is more effective than action taken at national, regional or local level. It is closely bound up with the principles of proportionality and necessity, which require that any action by the Union should not go beyond what is necessary to achieve the objectives of the Treaty.[32]

The complexity and pervasive nature of CPRS and its underlying policy objectives make subsidiarity a particularly valuable principle on which to base climate change policy and administration. It would provide a principle on which to base relationships between the national and sub-national governments.

States, territories & local government

Whilst the text of section 13.4 appears to recognise the significance of a strong role for the states and territories consistent with the spirit of the Government's commitment to cooperative federalism, Preferred Position 13.6 appears to downplay this, proposing that the states and territories "be informally engaged" through COAG.

There are major benefits to be had from enhancing the roles of state, territory and local government in pursuit of the objectives underlying CPRS. These benefits flow from the importance of effective and efficient feedback loops - mechanisms whereby the federal government can be more quickly and fully aware of the effects, successes and hick-ups in the implementation of CPRS. Timely, reliable intelligence enables the national government to more rapidly and effectively adjust policy, implementation and enforcement.

 At least equally importantly, collaborative, inclusive relationships encourage state, territory and local government to develop genuine commitments to climate change policy and to become more effective partners in its development and implementation.

Accordingly, it is suggested that 13.6 Preferred Position be:

> **The scheme will be implemented through unitary Commonwealth legislation. States, territories and local government will be engaged as part of ongoing cooperation and coordination on climate change policy through the Council of Australian Governments.**

Specialist agency?

This proposal builds on and adds to the CPRS Green Paper Proposed key functions of the scheme regulator, in particular "conduct education, information and outreach activities relating to the scheme" (p.446). However, it may be argued that as the processes and functions we have recommended are so important to the overall objectives and as there is a potential for conflict between regulation and community involvement ("outreach"), that they should be the responsibility of a separate agency.

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[32] Europa Glossary. undated. *Subsidiarity.*Available from http://europa.eu/scadplus/glossary/subsidiarity_en.htm

ClimateCare[33, 34]

To advance the level of public participation in accordance with the arguments above, a new public-community-partnership ((PCP)[35] between government and local communities is proposed to tackle climate change through a ClimateCare program. The proposal addresses the desirability of: people in the community increasing their knowledge about climate change impacts and adaptive needs and possibilities; increasing the climate change resilience of the Australia's regions and communities; and supporting individuals and communities to get active on climate change. In other words, it addresses achieving behavioural change at the personal level through community involvement in applying and executing policy in accordance with government leadership.

Effective action to tackle climate change will require actions at all levels of society and governance – global, national, state, local government and the smallest of communities. This is because to be effective, major changes in behaviour will be required at the most local level but will rely on global cooperation and the authority of national and state legislative powers and policies. Many of these changes will be unpalatable and potentially politically unpopular. For example, Monash researchers Damon Honnery and Paddy Moriarty have estimated that car travel must be reduced by a massive 80% to achieve sustainable CO_2 emissions.[36] Australians will find it very difficult to adjust to such a huge change. Internationally, strong public protests are already being seen in response to early portents of the changes which will be experienced, such as rapid increases in prices for petroleum based transport fuels – petrol and diesel fuel.

There is abundant evidence that the coercive powers of governments, although a necessary condition, is not a sufficient condition for such changes to be accepted and reflected in behaviour. Attempts by democratic governments to impose and force acceptance of unpopular decisions is fraught with risks of populist backlash and political instability – the very antithesis of the conditions needed for effective, society-wide actions to address climate change.

However, we know from experience and research such as that reported by Arvai that people are much more willing to accept unpalatable policy decisions where they have been involved in the decision-making.[37] The "watermark Australia" project is a remarkable example of the value of giving people the opportunity to become involved in understanding and responding to environmental issues affecting them, their local communities and the nation.[38] [39]

It is also known that people are much more accepting of unpalatable changes if they perceive that the changes are affecting members of the community fairly. That is already a key factor in the global debate – rich and poor nations are seeking evidence that the impact of global measures on their populations will be equitable. Within countries, it has happened in war-time and it has been seen in recent public responses to water shortages in Australia. Governments have provided leadership and introduced rules recognised as generally fair to all.

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33 This proposal has previously been presented to the Victorian Government in a submission responding to A CLIMATE OF OPPORTUNITY Summit Paper.

34 Note that the name Climate Care is registered for use by at least four Australian businesses and is also used by the UK based JP Morgan Environmental Services group.

35 Scheurer, J. & Newman, P. forthcoming 2009. Vauban: A European model bridging the green and brown agendas.

36 Honnery, D. & Moriarty, P. 2008. Car is doomed, energy experts warn. Retrieved from http://www.monash.edu.au/news/feb08-car-doomed.html 1 June 2008.

37 Arvai, J. L. 2003. Using risk communication to disclose the outcome of a participatory decision-making process: Effects on the perceived acceptability of risk-policy decisions. Risk Analysis, 23(2): 281-289.

38 The Victorian Women's Trust. 2007. Our water mark. Melbourne: The Victorian Women's Trust.

39 Watermark Australia. 2008. Welcome to the Watermark Australia Project. Retrieved from http://www.watermarkaustralia.org.au/info.asp?pg=groupprocess .

Accordingly, within Australia, people require to know that changes affecting them are shared equitably across the State and between individual, household, business and other sources of CO_2 emissions. For example, curbs on fuel for private car use must be matched by those on polluting industries. People also need to know that they have real opportunities to be involved in the actions to implement change.

Community involvement models

Fortunately, Australia has experience of three contemporary world-class community involvement programs from which to learn in implementing climate change and sustainability policy, linking local community with government. These are Landcare, aspects of the Country Fire Authority - Victoria (CFA) and Watermark Australia.

Landcare was developed and introduced in Victoria in the 1980s to address land degradation through government support for local community action.[40] It was adopted by the Australian Government and is also being increasingly recognised internationally, being "now underway in the USA, Philippines, South Africa and New Zealand" and promoted in other countries.[41]

Landcare groups are concentrated in rural areas and membership is largely landholders:

> Landcare is a uniquely Australian partnership between the community, government and business to 'do something practical' about protecting and repairing our environment. More than 4,000 volunteer community landcare groups - including bushcare and urban landcare, rivercare, coastcare and sustainable agriculture groups - are tackling land degradation in every corner of Australia.[32]

Landcare provides a ready-made, proven and widely known model on which to base a partnership between government and communities to address climate change issues and help people throughout Australia make the necessary changes to behaviour and practices. Group members learn from each other with the support of professional support staff and they help restore and conserve areas threatened with degradation. Their role is already defined so broadly as to readily embrace climate change issues. It exists "to help protect our natural environment" and some Landcare groups are using the language of sustainability.[42] In practice, Landcare plays a valuable role in building social capital in addition to successfully addressing environmental land management issues.[43]

The success of Landcare and other land management bodies which complement it lies in -

1. Articulating and communicating separate roles for community groups and regional planning bodies.

2. Linking local community groups and regional planning bodies using Catchment Management Committees in ways that empower and resource local communities, facilitate effective regional planning, ensure accountability to national stakeholders, and support adaptive management approaches.

3. Developing rigorous and transparent cost sharing principles that can be used to allocate public money for work on private land where there are community benefits.

4. Development of an agency culture that supports community participation.

40 Curtis, A. & Lockwood, M. 2000. Landcare and catchment management in Australia: Lessons for state-sponsored community participation. Society & Natural Resources, 13(1): 61 - 73.

41Landcare Australia. (undated). Landcare Australia homepage. Retrieved from http://www.landcareonline.com/index.asp 1 June 2008.

42 Landcare Victoria. (undated). Landcare Victoria gateway. Retrieved from http://landcarevic.net.au/ 1 June 2008.

43 Curtis, A. & Lockwood, M. 2000. Landcare and catchment management in Australia: Lessons for state-sponsored community participation. Society & Natural Resources, 13(1): 61 - 73.

5. Creating robust, healthy community- agency partnerships.

6. Acknowledging the importance of professional management of volunteer programs.

7. Identifying flexible policy packages to accommodate the diversity of landholders' circumstances and motivations, including incentives for landholder s to maintain the supply of public benefits, particularly for biodiversity conservation (pp.70-71).[44]

These features are readily adaptable to a ClimateCare program to involve the community in tackling climate change and moving towards sustainable living.

However, there are lessons from other programs which could be added to strengthen the model.

CFA model

CFA brigades are remarkably effective in drawing men and women into community service. The CFA is one of the world's largest volunteer organisations of its type. In both rural and outer metropolitan areas, local brigades build awareness, offer education and advice to people in their communities on how to modify their behaviour and practices to reduce fire risks to themselves and their neighbourhoods and train their own members. As with Landcare, professional staff provide expert support and training. Government assists with capital equipment and specialist facilities (Country Fire Authority).

Watermark Australia

The third model familiar to many Australians is Watermark Australia. The project was

> … a process of learning and community conversations on water from early 2005 to mid 2007. … The essence of the Water*mark* Australia process was that ordinary people (brought) together small groups, meeting monthly to discuss water, then sharing their thoughts, anecdotes and 'folk-wisdom', bringing it all back to the Water*mark* Australia team.

> What emerged was a shared vision for the future, a program of guiding principles and decisive action on water; people working together like never before, with new information, confidence and agreement to adopt solutions for water on many levels - households, local communities, regions, states, and nationally.[45]

As with Landcare and CFA Brigades, Watermark was supported by expert advice and a secretariat. The secretariat helped identify and brief community leaders who convened local groups. Notes were developed to help group leaders stimulate discussion and assist groups to develop their knowledge and thinking on the issues. Scientists helped generate simply expressed technical information and also received feedback on public perceptions of key issues. There were two dialogues - series of discussions - the first building knowledge followed by a review by the secretariat and scientists of group outputs and the second aiming to identify prospective actions. The three-way exchange of views and information between (i) the secretariat and scientific experts, (ii) groups and the secretariat and (iii) groups and scientists was crucial in individuals moving progressively from holding opinions to accepting responsibilities for issues ("ownership of issues"), a preparedness to seek solutions and ultimately, readiness to accept and live with solutions.

Simultaneously, the scientists got valuable feedback which helped them to deal with technical matters with greater sensitivity to community values and to re-express information more clearly.

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44 Curtis, A. & Lockwood, M. 2000. Landcare and catchment management in Australia: Lessons for state-sponsored community participation. Society & Natural Resources, 13(1): 61 - 73.

45 Watermark Australia. 2008. Welcome to the Watermark Australia Project. Retrieved from http://www.watermarkaustralia.org.au/info.asp?pg=groupprocess .

Watermark, like Landcare and CFA brigades, demonstrated the potent strength of facilitating and coordinating community based processes. These are the changes in individual and community attitudes to action which are essential to meeting climate change policy objectives.

These models also have parallels in the Vox Bandicoot "Sustainability Street" model.(Vox Bandicoot undated)

ClimateCare

ClimateCare would combine and build on the best features of these successful models.

We propose that ClimateCare be established to complement Landcare. It would not subsume Landcare, although some Landcare groups may choose to become ClimateCare groups. Similarly, other groups could choose to become ClimateCare groups, subject to demonstrating the necessary potential to do so successfully.

Community-based groups such as Lighter Footprints[46] already exist in many Australian communities. They bring together enthusiastic, committed members of their communities, who wish to help each other, share ideas and experiences, improve public awareness, promote more sustainable living and encourage public policy orientated to sustainability. These groups provide fertile ground for building a network of community-based climate actions groups modelled on Landcare, the CFA and the Watermark Australia process.

Building on the strengths of Landcare and lessons learned from the CFA, Landcare and Watermark Australia, we propose that the Government investigate establishing a ClimateCare model.

ClimateCare would promote local take up of initiatives to reduce carbon emissions through actions based on analysis of and reduction in consumption of energy, goods and services. It would be facilitated with a light hand at state level, and could be supported by local government. Its strength would be the motivation and drive of local community groups.

The government support would be largely through the provision of information, access to scientific expertise and support for seminars and workshops. This way, the government could review the work of the groups and any need for refinement of the model.

Local groups (established or newly formed) would be attracted to join ClimateCare for the access it provided to information, training and the advice of scientific experts, rather than to grants or equipment. Individuals and families would be encouraged to join established groups or form new groups.

ClimateCare's features would include:

1. Articulating and communicating separate roles for community groups and Commonwealth, State, Territory and local government bodies;
2. Linking local community groups ("ClimateCare groups"), local government and Commonwealth, State and Territory governments, using existing community-based agencies where available and sponsoring their establishment in other cases, in ways that empower and resource local communities, facilitate effective regional planning, ensure accountability to national stakeholders, and support adaptive sustainability management approaches
   - Any group accepting the objectives of ClimateCare and the use of its resources for related purposes would be entitled to become a ClimateCare group
   - ClimateCare groups would have legal status similar to Landcare groups *(i.e. each would be or become an incorporated body or become a member of an incorporated*

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46 Lighter Footprints is a small group of concerned residents from Surrey Hills, Canterbury and the local neighbourhood (Victoria, Australia) who came together in late 2006 to see where they might focus

their energies in response to the pending changes to our climate. They agreed to work together to reduce their own footprints on this earth. They want to address the issue of the continued survival of

life on this planet from a local perspective, focussed around the overall reduction of green-house gas emissions. Details available from http://www.lighterfootprints.org/

body with rules allowing groups that comply with the objectives of a ClimateCare group to join it)[47]

- Local community ClimateCare groups could include Landcare groups, voluntary environmental action groups (e.g. CERES, Lighter Footprints, Sustainability Street Villages) and new groups which emerge in response to government support for ClimateCare
- ClimateCare groups would be autonomous and not subject to government direction or restrictions on public comment
- Local government would be empowered to
  - support the establishment of ClimateCare groups within their communities
  - to take a pro-active role in incorporating sustainability into the many planning decisions it makes affecting land use and economic and social development and
- Community-based agencies which could be encouraged to participate in ClimateCare include catchment management committees, neighbourhood houses and learning centres;

3. ClimateCare groups would -
- Be supported by
  - a secretariat to advise and assist community leaders in establishing and maintaining groups, to receive, evaluate and communicate feedback from groups and to liaise with scientific experts
  - expert advice from and feedback to scientists
  - coordinators *(usually part-time or shared between ClimateCare groups)* similar to Landcare coordinators[48]
- Inform and ed*ucate people in their communities on achieving sustainab*ility and on global, national and state targets in a similar way to Landcare e.g. site visits, demonstration sites, displays, workshops and forums
- Share ideas and experiences on achieving more sustainable behaviour and practices
- Help each other through working bees and other activities
- Assist elderly, disabled and other people with limited capabilities to adopt more sustainable lifestyles
- Join together in community projects to introduce more sustainable behaviour and practices
- Facilitate access to public subsidies, grants, other funding and advice on governance arrangements, measures and technology orientated towards sustainable behaviour and practices by individuals, households, businesses and communities
- Monitor local progress towards sustainability
- Build social capital through engaging their local communities
- Collaborate in networks of ClimateCare groups;

4. Development of a culture within government, public sector agencies and private providers of public services that supports participation by ClimateCare groups;
5. Creating robust, healthy community- agency partnerships;
6. Acknowledging the importance of professional management of volunteer programs;
7. Developing rigorous and transparent cost sharing principles that can be used to allocate public money for work on privately owned land and facilities where there are community benefits
- ClimateCare groups would be eligible for professional management and funding support in similar ways to Landcare groups;

47 Department of Primary Industries (Victoria). 2008a Incorporation for landcare groups. Retrieved from http://www.dpi.vic.gov.au/DPI/nreninf.nsf/childdocs/-C835B1CE4BC7F1D04A2568B30004FC37-
B5A34F7046B3A5D2CA256BC80003FB2F-437BDEAE238ABEF74A256DEA00295FAB-6D78B8EE2A7CF84ACA256BCF000AD4D2?open

48 Department of Primary Industries (Victoria). 2008b Activities of a landcare coordinator. Retrieved from http://www.dpi.vic.gov.au/DPI/nreninf.nsf/childdocs/-C835B1CE4BC7F1D04A2568B30004FC37-
23DB7A50F31EE75ACA256BC80004109E-84CEAD2FC2BB8A484A256DEA00293F1C-B6102E0CFD8A44D1CA256BCF000AD4D8?open

8. Identifying flexible policy packages to accommodate the diversity of citizen circumstances and motivations, including incentives for citizens to maintain the supply of public benefits, particularly for improving sustainability.

The following table compares ClimateCare with other public-community-partnerships.

Community involvement programs compared.

Feature	Landcare	Country Fire Authority	Watermark Australia	ClimateCare
Governance	National and state administrative infrastructure Local groups largely autonomous	State legislation and administrative & coordinating infrastructure Local brigades largely autonomous	Watermark Australia administrative infrastructure and coordination. Links to scientific expertise. Local groups largely autonomous	State secretariat administrative and coordinating infrastructure Scientific expert advice and two-way feedback Local groups largely autonomous
Funding (including sponsorship)	Grants for equipment and plantables Salaries for co-ordinators Members voluntary	Grants for equipment Training facilities Salaries for regional officers Members voluntary	Funded by independent donors to VWT Participants voluntary Program of discussion topics prepared from Watermark Australia team's own reading, research and discussion with water experts	Grants for equipment Training opportunities Salaries for secretariat Support for scientific input Coordinators *(usually part-time or shared between ClimateCare groups)* Members voluntary
Supervision & training	Workshops and conferences	Local brigades train own members Specialist training by CFA	Group Convenors brought together small groups	Workshops and conferences, supported by co-ordinators Notes to assist groups with ClimateCare

Community involvement programs compared.

Feature	LandCare	Country Fire Authority	Watermark Australia	ClimateCare
				processes and technical issues
Activities	Revegetation Fencing Weeding Information dissemination (latest research, government incentives & programs, new tools & methods etc) Fund-raising	− Responding to a variety of fire and emergency incidents − Fire safety building inspections − Delivering community awareness, education and safety programs − Post incident analysis and fire investigation − Fire prevention planning and land use planning at a municipal level − Working together with Forest Industry Brigades.	− Group Convenors convene monthly meetings to discuss water (e.g. prepared topics), over stated period - 4 months − share their thoughts, anecdotes and 'folk-wisdom', − Group Convenors bring these back to the Watermark Australia team. − Validation process, and second run of sessions over four months with input from expert group − Findings written up by secretariat with input from experts	− Information dissemination (latest research, government incentives & programs, new technologies & practices etc) − Feedback to scientific experts and to secretariat − Neighbourhood by neighbourhood household energy auditing & retro-fitting − Neighbourhood by neighbourhood household water consumption auditing and retrofitting of water saving and recycling technology − Promotion of more energy efficient transport means and routes − Promotion and supervision of walking school bus − Operating a local household carbon budgeting scheme with emissions trading − Bike hire − Electric car hiring & pooling − Energy efficient power tool & appliance hire − Promotion and Maintenance of local, decentralised power supplies − Public landscaping/traffic calming − Trouble-shooting

The table above compares ClimateCare with Landcare, CFA Brigades and Watermark Australia. It shows the common features and strengths which are proposed to be incorporated in ClimateCare.

ClimateCare could be promoted internationally in the same way as Landcare.

Complementary programs

A number of program already exist which could be easily integrated with ClimateCare and extended nationally. A number are associated with the Government's "Designer Carrots" program of market-based natural resource management change.[49] They include BushTender and EcoTender, both administered by the Victorian Government.

Bushtender

> BushTender is an auction-based approach to improving the management of native vegetation on private land. Under this system, landholders competitively tender for contracts to better protect and improve their native vegetation. Successful bids are those that offer the best value for money, with successful landholders receiving periodic payments for their management actions under agreements signed with the Department of Sustainability and Environment (Victoria). These actions are based on management commitments over and above those required by current obligations and legislation. [50]

Ecotender

> EcoTender involves a competitive tender process that creates the incentive for landholders to reveal the cost to them of undertaking the actions in their bids. Landholders' bids are assessed as a function of the environmental benefits they offer and the cost of their bid. Contracts are offered to those who produce the most environmental value for money.[51]

Biosequestration

Biosequestration offers the greatest immediate potential for the absorption and removal of CO_2 from the atmosphere. A program developed from the Victorian Government's former Carbon Tender[52] (now closed) could complement ClimateCare.

> CarbonTender was a program to undertake carbon offset contracts with landholders to revegetate areas on their property using permanent native vegetation. As well as 'absorbing' carbon dioxide, these carbon sinks also help restore local ecosystems. Sinks could be located to connect and buffer existing remanent vegetation, and make natural environments more resilient to climate change.

49 Designer Carrots. Available from http://www.marketbasedinstruments.gov.au/MBIsinaction/Nationalprograms/NationalMBIPilotProgram/DesignerCarrotsprogram/tabid/125/Default.aspx

50 Bushtender. Available from http://www.dse.vic.gov.au/DSE/nrence.nsf/LinkView/15F9D8C40FE51BE64A256A72007E12DC37EBE3A50C29F4F8CA2573B6001A84D5

51 Ecotender. Available at http://www.marketbasedinstruments.gov.au/MBIsinaction/MBItypesinaction/Conservationtenders/EcoTenderVictoria/tabid/226/Default.aspx

52 Carbon Tender. Available from http://www.greenhouse.vic.gov.au/greenhouse/wcmn302.nsf/LinkView/8E0845E3C9EF7394CA2571990080FBDA63A6638B2484D9BECA2571A800119C9D

In addition, CarbonTender offered landholders the potential for two new income streams:

- Guaranteed performance-based payments from the state government for five years;
- Future income opportunities from carbon trading - already a reality in some markets.

Industry engagement

The engagement of industry is a key to the success of meeting CPRS objectives. Industry is a major consumer of energy, crucial to generating the surpluses on which society depends and employs a large part of the paid workforce. Enterprises are among the social actors best able to make significant efficiencies in the use of energy and also the most vulnerable to adverse impacts if ill-prepared.

It is in the national interest that corporations and their directors and senior executives be engaged by the regulator and assisted in the development of strategies that re-direct investment into sustainable goods, services, exports and imports, in the same way as it is proposed communities be engaged.

ClimateCare has the potential to engage a wider range of enterprises than Landcare and to play a valuable role in assisting them to make the sometimes difficult transitions to the production and supply of low carbon goods and services.

Summary

ClimateCare is a public-community-partnership designed to bridge the gap between government policy making and policy acceptance and implementation at community level. It builds on tried and proven models of public-community partnership that are familiar and respected within both government and the community.

ClimateCare can help facilitate the most difficult aspect of climate change and sustainability policy– the challenge of winning public support and commitment.

"Coal seat" Politics

The votes of coal industry (coal mines, export facilities and coal-fired generators) workers and personnel servicing them and their families represent a particular quandary for the policy process. They are commonly believed to be important in determining the outcome of elections in a number of House of Representatives electorates ("seats") and to therefore have the potential to influence which party or coalition forms government. Exactly which seats are affected is ill-defined but there is little doubt that the perception of the electoral significance of "coal" votes is a constraint felt by the major parties that influences their policies towards the industry. That is proper in a true democracy in which the principle of responsive rule prevails.[53, 54]

This potential of "coal seats" to influence or undermine the objectives of the CPRS must be taken into account in the manner in which it is designed and implemented. The experience of changes such as the scaling down of the workforce in the Latrobe Valley in the course of productivity increases confirms that such reductions in employment in an industry can have devastating impacts on regional communities.

Accordingly, the CPRS should incorporate processes to facilitate the transition of vulnerable communities to an economic environment in which there a large reductions in demand for their coal and coal-fired electricity generators as a consequence of carbon pollution reduction. The processes should acknowledge that these communities are to be the subject of policy change driven by the wider public interest, that their legitimate interests are not being overlooked for the sake of others and that the changes are not merely the perverse effects of market forces. In fact, the people are to be affected by remedies of the largest market failure known.

Approaching change in these communities as change made in the wider public interest offers the opportunity to include and embrace members of these communities in the process. To do so is to ease the process for both those people and the wider political system, as Arvai,[55] Blamey et al,[56] and Frey & Stutzer[57] have shown (discussed above).

Accordingly, it is proposed that the CRPS make special, explicit provision for the regulator to actively engage communities reliant of the extraction and/or combustion of carbon-based energy sources, including the relevant local government authorities and state governments, in planning for the future of the communities and the transition to sustainable economies. This should include fostering and supporting the development of community-based organisations (e.g. ClimateCare) which can facilitate community strengthening in collaboration with local, state and federal government.

Regional assistance

There are many Australian precedents for assistance to regional communities to re-structure in the face of major disruptions to their economy beyond the capacities of the affected communities. The communities facing threats to their viability as a result of CPRS and other policies necessary to address climate change should be assisted in similar way. In this case, the argument for special assistance is

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53 Saward, Michael. 1996. Democracy and Competing Values. Government and Opposition 31 (4):467-486.

54 However, it would be improper for these policies to be influenced or be seen to be influenced by donations to political parties by corporations whose earnings would be affected by the effects of the Carbon

  Pollution Reduction Scheme. This adds to the case for a complete ban of donations to political parties by corporations – a matter addressed on other forums.

55 Arvai, J. L. 2003. Using Risk Communication to Disclose the Outcome of a Participatory Decision-Making Process: Effects on the Perceived Acceptability of Risk-Policy Decisions. Risk Analysis, 23(2): 281-

  289.

56 Blamey, RK, RF James, R Smith, and S Niemeyer. 2000. Citizens' Juries and Environmental Value Assessment Canberra: Research School of Social Sciences, Australian National University.

57 Frey, Bruno S., and Alois Stutzer. 2000. Happiness, Economy and Institutions. The Economic Journal 110 (October):918-938.

even stronger as it is in conjunction with deliberate public policy rather than market forces or other unpredictable events.

Assistance to affected industries and associated communities is implicit in the Green Paper's discussion of assistance for strongly affected industries, again recognising that the communities concerned are to be the subject of policy change driven by the wider public interest. This should be clearly foreshadowed as part of a wider strategy to support and involve communities especially affected by climate change policies.

International issues

The United Nations Framework Convention on Climate Change (UNFCCC) was opened for signature at the Earth Summit in Rio de Janeiro in June 1992. The climate change regime was formally established in March 1994 when the fiftieth national government ratified the Convention. Since then at least 189 national governments have ratified it and joined the Conference of the Parties to the UNFCCC. The ultimate objective of the Convention, as stated in Article 2, is "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference in the climate system."[58] As a first step toward meeting the ultimate objective, the Convention itself included Article 4(2), a non-binding commitment of 36 industrialized countries specified in Annex I to the Convention to reduce their emissions of greenhouse gases to 1990 levels by the year 2000. In December 1997, the Conference of the Parties to the Convention negotiated a successor policy, the Kyoto Protocol. The Protocol went into effect in February 2005, after ratification by the Russian Federation met the prescribed threshold, ratification by 55 Parties to the Convention, including Annex I countries accounting for at least 55% of the total carbon dioxide (CO_2) emissions of Annex I countries in 1990. Each of the parties to the Protocol formally committed itself not to exceed a specified amount of emissions of six greenhouse gases, calculated as CO_2-equivalent emissions and averaged over the five-year period 2008-2012. In the aggregate the Parties overall would reduce their emissions by at least 5% below 1990 levels using whatever joint and national means they deemed appropriate.[59] Australia ratified the Protocol late in 2007, leaving the United States as the only Annex I country not party to it. As early as 2004, attention turned to negotiating another emissions-reductions policy to follow termination of the Kyoto Protocol in 2012.[60]

The significance of these and other policies in light of the ultimate objective depends on the standards applied. To be sure, some progress has been made in reducing greenhouse gas emissions by the counter-factual standard – the level of emissions that would have occurred without the UNFCCC – but this standard is relatively difficult to estimate as a gauge of progress. A more widely used standard is the level of greenhouse gas emissions that occurred in 1990 when measurements became available for most industrialized countries and climate change was still a relatively new issue. Using this standard, the UNFCCC reported in October 2006 that the country with the most emissions, the United States, increased its emissions of greenhouse gases by 21.1% from 1990 to 2004.[61] The United States and 22 other industrialized countries increased their aggregate emissions by 12.1% from 1990 to 2004. However, when 10 industrialized countries in transition to market economies are folded in, aggregate emissions decreased by 4.9% during the same period. This reflects primarily the depth of economic decline in the former Soviet bloc after the end of the Cold War, not policies implemented under UNFCCC auspices. Meanwhile, developing countries not included in the Kyoto Protocol or Annex I to the Convention have significantly added to global greenhouse gas emissions, but their reporting capabilities are not sufficient to gauge aggregate emissions trends.[62] However, in November 2006 the International

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58 The Framework Convention and related sources can be accessed at the Gateway to the UN System's Work on Climate Change, http://www.un.org/climatechange/projects.shtml.

59 See the UNFCCC's Background information on the Kyoto Protocol, accessed September 5, 2007 at http://unfccc.int/kyoto_protocol/background/items/3145.php. See also Susan R. Fletcher and Larry Parker,

   Climate Change: The Kyoto Protocol and International Actions, CRS Report for Congress RL 33836 (Washington, D.C.: Congressional Research Service, Updated June 8, 2007).

60 David A. King, "Climate Change Science: Adapt, Mitigate, or Ignore?" Science 303 (9 January 2004), 176-177. At the time King was science advisor to her majesty's government in the United Kingdom. For

   details on the Kyoto Protocol, including exceptions, see http://unfccc.int/kyoto_protocol/background.php.

61 This figure and the following figures include adjustments for land use, land-use change and forestry, and are limited to countries reporting emissions for both 1990 and 2004. The figures can be found in

   UNFCCC, National Greenhouse Gas Inventory Data for the Period 1990-2004 and Status of Reporting, FCCC/SBI/2006/26 (19 October 2006), Table 5, p. 13.

62 However, some data are starting to be analyzed. Michael Raupach and colleagues (Michael R. Raupach, Gregg Marland, Philippe Ciais, Corinne Le Quéré, Josep G. Canadell, Gernot Klepper, and

   Christopher B. Field, "Global and regional drivers of accelerating CO_2 emissions," Proceedings of the National Academy of Sciences 104(24) (June 12, 2007), 10288-10293 (DOI 10.1073/pnas.0700609104)

Energy Agency in Paris projected that China, with soaring coal consumption fueling rapid economic development, will surpass the United States in CO2 emissions in 2009. More recent estimates suggest that Chinese emissions already may have surpassed the United States' .[63]

Against this background, it would be disingenuous of major emitters to now claim that the introduction of a CPRS is unexpected. Every director of every board has had both opportunity and responsibility to inform him or herself of the implications of the UNFCCC provisions, to act accordingly in discharging those responsibilities in determining corporate strategy and to plan for the introduction of policies giving effect to the UNFCCC provisions.

Nonetheless, rather than simply disparaging corporations and their directors and senior executives, it is in the national interest that they be engaged by the regulator and assisted in the development of strategies that re-direct investment into sustainable goods, services, exports and imports, in the same way as it is proposed communities be engaged .

Negotiating Kyoto post 2012

Australia must enter the 2009 negotiations for an international agreement to succeed the Kyoto Protocol with a strong position underpinned by a philosophy and policies which are at the forefront of global thinking.

The aspirational target of **2020 by 2020** together with the governance arrangements proposed in this submission are the bases for such a negotiating position.

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note that "Together, the developing and least-developed economies (forming 80% of the world's population) accounted for 73% of global emissions growth in 2004 but only 41% of global emissions and only 23% of global cumulative emissions since the mid-18th century."

63 Joseph Kahn and Jim Yardley, "As China Roars, Pollution Reaches Deadly Extremes," New York Times (August 26, 2007),1, reported that "the International Energy Agency has said China could become the emissions leader by the end of this year, and the Netherlands Environment Assessment Agency said China had already passed that level." See also Keith Bradsher, "China to Pass U.S. in 2009 in Emissions," New York Times (November 11, 2006), C1. Bradsher also reports a projection by the International Energy Agency that worldwide coal consumption, mostly for power generation, will increase CO2 emissions 55% by 2030.

Policy Measures

It is proposed that the following policies be progressively implemented by 2020:

- Research and development funding and activities be orientated to the target of 2020 Watts per person

- The legislated objective of energy supplies be to rely on renewable sources which do not compete with food production, rather than cost of supply being the primary motivator

- Electricity suppliers be subject to "carrots and stick" incentives to make maximum use of distributed sources of energy, such as solar sources including photovoltaic panels installed at domestic and business premises

- Only coal-fired generators operating at near 100% CCS remain operating beyond 2020

- The Commonwealth negotiate with the States and Territories for legislative provisions requiring that all building demolition, construction and renovation be subject to approval by local government, subject to

  o demotion of a dwelling being authorised only where construction of a replacement building (including embedded energy) would consume less energy than renovation to meet the target AND the replacement building would meet the target

  o provision of independent evidence of design features to meet the target to the maximum feasible extent

  o independent performance audit 12 months after completion, and

  o sanctions to apply (to each party involved) for failure to meet the target

- Local government rates provide for a rebate for buildings meeting the target

- All residential-use hot water be provided by solar heaters, with gas boosters designed to operate only under extreme adverse weather conditions

- A subsidy be offered for the scrapping of all least energy efficient refrigerators

- Storm water be collected, treated and recycled for industrial &/or domestic use

- Solar-powered water purification be used to substitute for desalination to the maximum extent possible

- All new housing be required to be net energy feed-in suppliers (per annum)

- All new office building be required to be net energy feed-in suppliers

- All low income households and landlords of low income accommodation be supported to retrofit/renovate dwellings to maximum energy efficiency to as nearly as possible net energy feed-in supply (per annum)

- Adequate public transport be available to meet all intra-urban and inter-city needs

- A Carbon Pollution Tax be applied to all new cars sold from the date of commencement of the Carbon Pollution Reduction Scheme (1 July 2010). The tax rate would apply to all cars

manufactured from that date and would be related to the quantity of CO_2 emitted in grams per kilometre according to the EU standard. The initial rate should be \$10 per gram per kilometre, escalating at \$1 per year to \$20 per gram per kilometre from 1 July 2020. The tax collection provisions would be modelled on the current Luxury Car Tax Acts.

- The application of fringe benefit tax to cars, other those capable of being recharged from solar panels and of operating solely on that electric-power in normal operation (e.g. intra-urban work journey and domestic trips), be phased out over the period 2010-2020

- The Commonwealth negotiate with the States and Territories for car registration fees to be progressively differentiated according to CO_2 emissions. The Republic of Ireland introduced a differentiated rate from 1 July 2008, shown below:

Vehicle Registration Tax rates from 1 July 2008			
	CO2 emissions levels	**VRT rates**	**Minimum** (AUD at 25 Aug 08)
Band A	under 120 grams per kilometre	14% of market value	\$ 477
Band B	121 – 140 grams per kilometre	16% of market value	\$ 545
Band C	141 – 155 grams per kilometre	20% of market value	\$ 681
Band D	156 – 170 grams per kilometre	24% of market value	\$ 818
Band E	171 – 190 grams per kilometre	28% of market value	\$ 954
Band F	191 – 225 grams per kilometre	32% of market value	\$ 1,090
Band G	over 225 grams per kilometre	36% of market value	\$ 1,227
Adapted from Citizens Information (Ireland) 2008 (Citizens Information (Ireland) 2008) [64]			

An administratively simpler scheme is suggested for Australia. It is proposed that Australian State and Territory schemes be directly related to the quantity of CO_2 emitted in grams per kilometre according to the EU standard e.g. an annual registration fee of \$1.00 per gram per kilometre, subject to a nominal minimum fee, say \$50, for vehicles capable of being recharged from solar panels and of operating solely on that electric-power in normal operation (e.g. intra-urban work journey and domestic trips).

The differentiation would be introduced from commencement of the Carbon Pollution Reduction Scheme for vehicles first registered from that date and progressively for currently registered vehicles over the period 2010-2020, reaching the maximum differentiation in 2020.

- The Commonwealth negotiate with the States and Territories for car registration fees to include a pass for a significant period of free use of public transport

- A subsidy be offered for the voluntary scrapping of the older, least energy efficient cars, trucks and buses

- The Commonwealth negotiate with the States and Territories for car registration fees for non-electric vehicles to progressively increase until they reach a strong disincentive to registration of such cars, with concessions in special circumstances (e.g. remote residences beyond the range of electric cars)

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64 Citizens Information (Ireland). 2008. Buying a new car in Ireland. http://www.citizensinformation.ie/categories/travel-and-recreation/motoring-1/buying-or-selling-a-vehicle/buying_a_new_car.

- Sales of new cars be limited from 2020 to vehicles capable of being recharged from solar panels and of operating solely on that electric-power in normal operation (e.g. intra-urban work journey and domestic trips) and, except for special purpose vehicles for which such technology is not available (e.g. taxis)

- Daytime off-street carparks be required to provide solar powered charging for electric cars, at each parking spot by 2020

- Dry cell battery sales be limited to rechargeable batteries

- The Commonwealth negotiate with the States, Territories and local government for the introduction of a "treekeepers" local government property rates rebate, say $30, for every metre of tree over 3 metres

Conclusion

The challenge of ensuring the sustainability of the climate and natural environment that supports us is the most important facing our current generation. It will shape every aspect of our lives from food security to international trade to medicine. There is no single policy which can respond to every aspect of this challenge. Further, almost every aspect of policy choice will be affected by the imperative of achieving sustainability of our environment, society and economy.

This submission argues that the range and magnitude of those changes is such that exceptional governance is essential to enable society to make the changes. To attempt to rely on governance arrangements which have sufficed in times of peace and prosperity is fraught with risk. At worst, the dangers are to social stability, security and personal safety.

The Green Paper proposals mark a major step forward in policy, including governance arrangements. The proposals are to be commended and generally supported. They provide a valuable foundation on which to build.

This submission draws attention to observation, research findings and theory from which lessons can be drawn for the design and operation of governance arrangements. These lessons emphasise the benefits to government and the public to be derived from engagement of the community in policy design, decision-making, implementation and review. That engagement is a two-way, interactive and iterative process.

We make a number of specific recommendations which build on and add to the Preferred Positions outlined in the Green Paper in order to facilitate meeting its objectives.

Appendix 1[65]. Progress as Progress Towards Environmental Sustainability

Mankind's civilisation can only survive if progress is re-orientated towards environmental sustainability.

What do we mean by progress? Progress is neither a constant nor a universal concept. Neesham has identified dominant paradigms (scientific-technological, economic and political) and recessive paradigms (social relations, ecological, moral, aesthetic and spiritual).[66]

In times of war, progress is the reduction and cessation of hostilities. Most regard the centuries-long trend of reduced violence between and within societies as progress. Other measures of "progress" include growth in Gross Domestic Product (GDP), increases in the Human Development Index (HDI) and improvements in people's freedom to fulfil their desires. Less tangible are improvements in ethical behaviour, in spiritual development and in standards of governance.

For a business, it may be growth in the corporation's single bottom line, higher productivity of capital, plant or personnel, increased market share, development of new domestic or export markets, improved efficiency of energy use, research and development success, better standards of corporate social responsibility or combinations of these and other measures,

Political leaders often fail to reflect on this basic issue. A Singapore Minister who has thought more deeply about this that many is Mah Bow Tan, the National Development Minister. Last February he told the Singapore Parliament that "(w)e just feel that economic growth does not necessary lead to progress and may not benefit the environment and people".[67].

Contrast that with the "revealed preferences" [68] of many in our society, for whom progress often appears to mean ever increasing conversion of limited resources into goods and services to boost material lifestyle. Features include processed foods, refrigerated and other superior forms of food preservation and storage, greater reliance on labour-saving devices, larger and more complex homes, rapid transport of people and goods by powerful cars and trucks and sophisticated communications.

The pursuit of this type of progress is fuelled by several drivers. Population increases produce demand for particular goods, services, and jobs. Technological innovation and changes in design, whether functional, purely aesthetic or fashionable, lead to increases beyond maintaining a steady-state. "Success" is represented by growth in consumption rather than maintenance of acceptable levels of consumption.

Our dependence on an economy in which surpluses are generated by processes that are destroying the features of the environment required for our more basic needs is a paradox that highlights some of the enormous adaptive difficulties we face. The writer Ronald Wright has highlighted a paradox reflected in what he calls "progress traps". These are innovations that appear to offer attractive solutions but actually have longer-term counterproductive effects. Wright asks whether these traps arose from the selection pressures to which man was exposed during evolution.[69]

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65 Adapted from Coghill, K. (in review) Unsustainable Directors Monash Business Review

66 Neesham, C. 2008. Human & social progress: VDM Verlag.

67 Mah, B. T. 2008. Debate on estimates of expenditure for the financial year 1st April, 2008 to 31st March. Retrieved from

http://www.parliament.gov.sg/parlweb/get_highlighted_content.jsp?docID=883709&hlLevel=Terms&links=SUSTAIN,DEVELOP,STILL,DEVELOP,SUSTAIN,DEVELOP,STILL,DEVELOP&hlWords=%20Sustain

able%20development%20is%20still%20about%20development%20&hlTitle=&queryOption=5&ref=http://www.parliament.gov.sg:80/reports/public/hansard/full/20080228/20080228_HR.html#1 14 May 2008.

68 Houthakker, H. S. 1950. Revealed preference and the utility function. Economica, New Series 17 (66):159-174.

69 Wright, R. 2004. A short history of progress. Melbourne: Text Publishing.

However, the paradox of reliance on unsustainable expropriation of resources of the land, water and air can be resolved if it is recognised that there are alternative, viable conceptions of progress. Redefining Progress, a US based NGO, has proposed a Genuine Progress Indicator (GPI). The GPI recognises that the quality of lives can be improved without increasing material consumption. The GPI integrates social and environmental capital such as clean air, safe streets, and the preservation of habitat into a single measure which better reflects the things that make our lives more secure and satisfying (Table 1).

| Table 1. Genuine Progress Indicator component factors			
Positive factors (contribute to GPI)		Negative factors (high values diminish GPI)	
B	Personal Consumption	C	Income Distribution Index
D	Weighted Personal Consumption (BxC)	J	Cost of Crime
E	Value of Household Work and Parenting	K	Loss of Leisure Time
F	Value of Higher Education	L	Cost of Underemployment
G	Value of Volunteer Work	M	Cost of Consumer Durables
H	Services of Consumer Durables	N	Cost of Commuting
I	Services of Highways and Streets	O	Cost of Household Pollution Abatement
		P	Cost 0f Motor Vehicle Accidents
		Q	Cost 0f Water Pollution
		R	Cost 0f Air Pollution
		S	Cost 0f Noise Pollution
		T	Loss of Wetlands
		U	Loss of Farmland
		V	Loss of Primary Forests and Damage from Logging Roads
		W	Depletion of Non-renewable Energy Resources
		X	Carbon Dioxide Emissions Damage
		Y	Cost of Ozone Depletion
Z	Net Capital Investment		
AA	Net Foreign Borrowing (NB may be +ve or -ve)		
Genuine Progress Indicator = D+E+F+G+H+I-J-K-L-M-N-O-P-R-S-T-V-W-X-Y+Z+AA			

Source: Adapted from Talberth, Cobb, and Slattery 2006

In using such an indicator, note that some constituent components are incommensurate - the classical paradox of comparing "apples and oranges". For example, having arrived at a good public transport service, how can one unit of public transport quality be compared with the quality of a manufactured product? The relative values assigned to them are at best matters of judgement. Making such judgements is often outside the responsibilities and importantly outside the experience of very many company directors and others making relevant day to day decisions.

Nonetheless, this indicator has conceptual value. It can be used to compare the conventional measure of growth in consumption, GDP, with the improvement in the quality of our lives, GPI, as Talberth, Cobb and Slattery (2006) [70] have shown in Figure 1.

Figure 1. Per Capita Gross Domestic Product
v. Genuine Progress Indicator (USA)

FIGURE 3: Real GDP and GPI Per Capita 1950-2004
in $2000
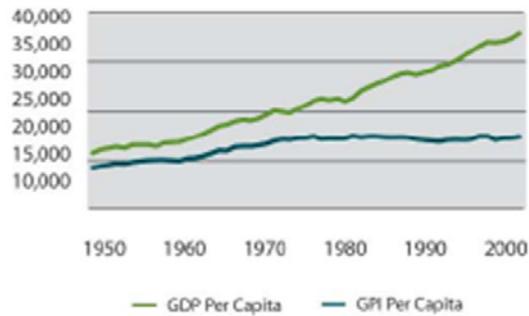
Source: (Talberth, Cobb, and Slattery 2006)

Talberth, Cobb and Slattery 's findings clearly suggest that there is a significant, growing gap between consumption and the real quality of life as suggested by Talberth writing with Boharab.[71] In other words, increasing consumption has not been accompanied by significant progress in the factors which do make for better lives.

Another indication that material standards of living are not correlated with happiness and satisfaction with life as a whole is found in the World Values Survey prepared by Ronald Inglehart (2006). All societies have a broadly similar proportion of people who are happy and satisfied with life as a whole. The one significant departure in the past 50 years was the low proportion recorded in the former communist states of central and eastern Europe.

The unfamiliar philosophical challenge for government is to satisfy human needs through goods and services that improve the real quality of life rather the mirage of materials goods. Citizens and government must face the futility and ultimate risk posed by products that increase consumption thereby causing damage to the environment on which our lives depends and depletion of the resources on which those material standards of living depend. Most dangerously, such production brings a declining sustainability to our lifestyles and a heightened risk to both consumption levels and the security that is such an important part of our real quality of life.

We do not face any shortage of technical solutions to greenhouse gas emissions. They are well known. Massive efficiency improvements could be easily and economically introduced. Many "new" technologies have been known for decades. Most are affordable and relatively simple. Other potential technical solutions are under development.

These solutions enable government to re-direct strategies into services and products more consistent with sustainability and thereby assist mankind to rely on environmentally sustainable activities through

70 Talberth, J., Cobb, C. & Slattery, N. 2006. The genuine progress indicator 2006: A tool for sustainable development. Retrieved from

http://www.rprogress.org/publications/2007/GPI%202006.pdf 3 May 2008.

71 Talberth, J. & Boharab, A. K. 2006. Economic openness and green GDP. Ecological Economics 58 (4):743-758.

which to generate the economic surpluses necessary for essential services and an acceptable quality of life.

The problems are not technological but concern mankind's capacity to avoid another of Wright's progress traps. The fundamental necessity is to reduce consumption of carbon-based fuels and other resources. Technological innovations such as carbon capture and sequestration reek of "progress trap" rather than promise of a long-term solution. The problems require behavioural changes.

The great challenge facing citizens and government is a re-thinking of progress as orientated towards environmental sustainability. Rather than squandering of limited resources as the source of economic surpluses, the focus will be switched to placing a high value on the production of social and environmental goods and on curbing damage to our shared atmosphere and other parts of the environment.

Their responsibilities require that government understand deeper issues affecting society and its productive enterprises. Leadership on these issues has been coming for several years including through bodies such as the World Economic Forum and the World Business Council for Sustainable Development.[72] [73]

Companies increasingly recognise "the intrinsic link between sound sustainability performance and long-term business viability".[74] They have been guided by the Global Reporting Initiative (GRI) since 2002. GRI's board includes a leading Australian director, Dr. Judy Henderson, Chair Northern River Catchment Management Authority, NSW Government.[75].

By rethinking "progress" and re-orientating government strategies towards a focus on sustainability following the advice of the GRI, government can make the reforms mankind must achieve for sustainability.

Further reading

Coghill, K., Black, L., Holmes, D.; Stubbs, W. 2005. *Corporate Social Responsibility: Guidance for Investors. Discussion paper*. Melbourne: Australian Council of Super Investors

Global Reporting Initiative. (2008). Global Reporting Initiative. Accessed 22 August 2008. Available from http://www.globalreporting.org/Home

Goodyear, C. 2005. Licence to Operate. BHP Billiton Sustainability Report 2005. Melbourne: BHP Billiton. Accessed 22 August 2008. Available from http://sustainability.bhpbilliton.com/2006/index.asp

Houthakker, H. S. 1950. Revealed Preference and the Utility Function. *Economica, New Series* 17 (66):159-174.

Inglehart, R. 2006 *Collection of Graphs Presenting WVS Data* 2006 Accessed 22 June 2008. Available from http://www.worldvaluessurvey.org/.

Kitney, G. 2007, Climate changes in Davos *Australian Financial Review,* 29 January. p. 52.

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72 Kitney, G. 2007. Climate changes in Davos. Australian Financial Review, 29 January. p. 52.

73 World Business Council for Sustainable Development. 2007. Powering a sustainable future: Policies and measures to make it happen. Retrieved from
  http://www.wbcsd.org/DocRoot/2EsWkXKfCWuo6fkL3tnc/Powering%20a%20Sustainable%20Future-
  %20policies%20and%20measures%20to%20make%20it%20happen.pdf .

74 Goodyear, C. 2005. Licence to operate: BHP Billiton sustainability report 2005. Retrieved from http://sustainability.bhpbilliton.com/2006/index.asp .

75 Global Reporting Initiative. 2008. Global reporting initiative. Retrieved from http://www.globalreporting.org/Home 22 August 2008.

Mah B. T.. 2008. *Debate on Estimates of Expenditure for the Financial Year 1st April, 2008 to 31st March, 2009* (28 February) Accessed 14 May 2008. Available from http://www.parliament.gov.sg/parlweb/get_highlighted_content.jsp?docID=883709&hlLevel=Terms&links= SUSTAIN,DEVELOP,STILL,DEVELOP,SUSTAIN,DEVELOP,STILL,DEVELOP&hlWords=%20Sustainabl e%20development%20is%20still%20about%20development%20&hlTitle=&queryOption=5&ref=http://ww w.parliament.gov.sg:80/reports/public/hansard/full/20080228/20080228_HR.html#1.

Neesham, C. 2008. *Human & social progress*: VDM Verlag.

Parliamentary joint committee on corporations and financial services. 2006. *Corporate responsibility: Managing risk and creating value*. Parliament of Australia Accessed 22 June 2008. Available from http://www.aph.gov.au/Senate/committee/corporations_ctte/completed_inquiries/2004-07/corporate_responsibility/report/index.htm.

PriceWaterhouseCoopers. 2008. *Carbon Countdown*. PriceWaterHouseCoopers Accessed 22 June 2008. Available from http://www.pwc.com/Extweb/onlineforms.nsf/docid/0EDACFFBA83712AB852573DB000F55FF/$file/Carb onCountdown.pdf.

Redefining Progress. 2008. *About us*. Redefining Progress 2006 Accessed 3 May 2008. Available from http://www.rprogress.org/sustainability_indicators/about_us.htm.

Talberth, J.; Boharab, A. K.. 2006. Economic openness and green GDP. *Ecological Economics* 58 (4):743-758.

Talberth, J.; Cobb, C.; Slattery, N. 2008. *The Genuine Progress Indicator 2006. A Tool for Sustainable Development*. Redefining Progress 2006 Accessed 3 May 2008. Available from http://www.rprogress.org/publications/2007/GPI%202006.pdf.

World Business Council for Sustainable Development. 2007. *Powering a Sustainable Future: Policies and Measures to Make it Happen.* 27 November. Retrieved 6 January, 2008, from http://www.wbcsd.org/DocRoot/2EsWkXKfCWuo6fkL3tnc/Powering%20a%20Sustainable%20Future-%20policies%20and%20measures%20to%20make%20it%20happen.pdf

Wright, R. 2004. *A short history of progress*. Melbourne: Text Publishing.

Appendix 2. 2,000-Watt Society (Kolbert)

Extract from: Elizabeth Kolbert 2008 "The Island in the Wind. A Danish community's victory over carbon emissions."[76]

... a group of Swiss scientists who were working on similar issues performed a thought experiment. The scientists, all of whom were affiliated with the Swiss Federal Institute of Technology, asked themselves what level of energy use would be sustainable, not just for an island or a small European nation but for the entire world. The answer they came up with—two thousand watts per person—furnished the name for a new project: the 2,000-Watt Society.

"What it's important, I think, to know is that the 2,000-Watt Society is not a program of hard life," the director of the project, Roland Stulz, told me when I went to speak to him at his office, in the Zurich suburb of Dübendorf.

"It is not what we call *Gürtel enger schnallen*"—belt tightening—"it's not starving, it's not having less comfort or fun. It's a creative approach to the future."

Stulz, who is sixty-three, is a softspoken man with dark wavy hair and a salt-and-pepper mustache. He was trained as an architect and later became interested in energy-efficient building. In 2001, when he took over the 2,000-Watt Society, his mandate was to push it into the realm of the practical. (His work is funded in part by the Swiss Federal Institute of Technology, which has campuses in Zurich and Lausanne, and in part by private donations.) He began holding meetings that brought researchers together with government officials from cities like Zurich and Basel.

"I divided them into groups," Stulz recalled. "And I told them, At four o'clock each group must come and tell the whole session what project they will do in the future, and who will lead the projects. And they said, Oh, it's not possible. But at four o'clock everybody came with a project. And that's how we started." The cantons of Geneva and Basel-Stadt and the city of Zurich subsequently endorsed the aims of the 2,000-Watt Society, as did the Swiss Federal Department of the Environment, Transport, Energy, and Communications. "At first glance, the objective of a two-thousand-watt society appears unrealistic," Moritz Leuenberger, the head of the federal department, has said.

"But the necessary technology already exists."

One afternoon, Stulz took me to visit the headquarters of an aquatic-research center known as EAWAG, which was designed to meet the 2,000-Watt Society's energy-efficiency goals. (EAWAG is an acronym for a German name so complicated that even German speakers can't remember it.) We drove over in his Volvo, which runs on compressed natural gas produced in part from rotting vegetables. When I first caught sight of the place, I thought it was covered with banners; these turned out to be tinted-glass panels. Inside, hanging from a set of chains in a large atrium, was what I took to be a sculpture of a bug. This turned out to be a model of a water molecule, enlarged some ten billion times.

Among the many unusual features of the EAWAG Center is a lack of usual features. The building, which opened in 2006, has no furnace; it is so tightly insulated that, on most days, the warmth thrown off by the office equipment and the two hundred people who work inside is enough to keep it comfortable. Additional heat is provided by the sun—in winter, the outside panels tilt to allow in the maximum amount of light—and by air sucked in from underground. The building also has no conventional air-conditioners: in summer, the panels tilt to provide shade, and if the building gets hot during the day, at night the windows at the top of the atrium open, and the warm air rushes out. It supplies about a third of its own electricity with photovoltaic panels installed on the roof, and gets its hot water from solar collectors. Its bathrooms are equipped with specially designed "no mix" toilets that separate out urine, which contains potentially useful phosphorus and nitrogen. ("Exploiting common waste as a resource is a mark of sustainable civilization," a booklet on the building observes.) "It's not a miracle, such a building," Stulz told me when we went to have a cup of coffee in the center's cheerfully modernist cafeteria. "It's just putting smart elements together in a smart way." Outside, it was rainy and forty-three degrees; inside the temperature was a pleasant seventy.

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76 Kolbert, E. 2008. The island in the wind: A Danish community's victory over carbon emissions. Retrieved from

http://www.newyorker.com/reporting/2008/07/07/080707fa_fact_kolbert?printable=true 8 August 2008.

One way to think about the 2,000-Watt Society is in terms of light bulbs. Let's say you turn on twenty lamps, each with a hundred-watt bulb. Together, the lamps will draw two thousand watts of power. Left on for a day, they will consume forty-eight kilowatt-hours of energy; left on for a year, they will consume seventeen thousand five hundred and twenty kilowatt-hours. A person living a two-thousand-watt life would consume in all his activities—working, eating, travelling—the same amount of energy as those twenty bulbs, or seventeen thousand five hundred and twenty kilowatt-hours annually.

Most of the people in the world today consume far less than this. The average Bangladeshi, for example, uses only about twenty-six hundred kilowatt-hours a year—this figure includes all forms of energy, from electricity to transportation fuel—which is the equivalent of using roughly three hundred watts continuously. The average Indian uses about eighty-seven hundred kilowatt-hours a year, making India a one-thousand-watt society, while the average Chinese uses about thirteen thousand kilowatt-hours a year, making China a fifteen-hundred-watt society.

Those of us who live in the industrialized world, by contrast, consume far more than two thousand watts.

Switzerland, for instance, is a five-thousand-watt society. Most other Western European countries are six-thousandwatt societies; the United States and Canada run at twelve thousand watts. One of the founding principles of the 2,000-Watt Society is that this disparity is in itself unsustainable. "It's a basic matter of fairness" is how Stulz put it to me. But increasing energy use in developing countries to match that of industrialized nations would be unacceptable on ecological grounds. Were per-capita demand in the developing world to reach current European levels, global energy consumption would more than double, and were it to rise to the American level, global energy consumption would more than triple. The 2,000-Watt Society gives industrialized countries a target for cutting energy use at the same time that it sets a limit for growth in developing nations.

The last time Switzerland was a two-thousand-watt society was in the early nineteen-sixties. By the end of that decade, energy use had reached three thousand watts, and by the mid-seventies it was up to four thousand watts.

This rapid rise could be said to follow from technological advances—the spread of automobiles, the advent of jet travel, the proliferation of appliances and electronic devices—or it could be seen as just the reverse: a failure to apply technology where it is needed. A few years ago, a group of Swiss scientists published a white paper—or, to use the Swiss term, a "white book"—on the feasibility of a 2,000-Watt Society. Relying on widely agreed-upon figures, the scientists estimated that two-thirds of all the primary energy consumed in the world today is wasted, mostly in the form of heat that nobody wants or uses. ("Primary energy" is the energy contained in, say, a lump of coal; "useful energy" is the light emitted by a bulb once that coal has been burned to produce steam, the steam has been used to run a turbine, and the resulting electricity has been transmitted over the grid to heat the bulb's filament.) This same paper concluded that, with currently available technologies, buildings could be made eighty per cent more efficient, cars fifty per cent more efficient, and motors twenty-five per cent more efficient.

In Switzerland, I visited several other buildings that, like the EAWAG Center, had been specifically designed to maximize efficiency. One was an upscale apartment building in Basel. The apartments have eighteen-inch-thick walls filled with insulation, triple-paned windows coated with a special reflective film, and a heat-recovery system that captures eighty per cent of the energy normally lost through ventilation. Instead of a boiler, it has a geothermal heat pump, which essentially sucks energy out of the groundwater. In the summer, the same system is used for cooling. (In compliance with Swiss building codes, the building also contains a bomb shelter.) "The construction industry is very traditional," Franco Fregnan, an engineer who showed me around the apartments, said. "If you bring an innovation to them, you usually have to wait another generation until it arrives into a building. And we are trying to change that, step by step."

"It usually makes sense to become more intelligent in any human activity," Stulz told me. "As the former Saudi Arabian oil minister Sheikh Yamani once said, the Stone Age didn't end because there were no more stones. It ended because people became more intelligent. "

What would it take to lead a two-thousand-watt life? When I posed this question to Stulz, he gave me another research paper, which offers case studies of six fictionalized households. The Jeannerets are an imaginary family of four who live in Glattbrugg, a town north of Zurich. They own an energy-efficient house, travel by electric bike or train, and occasionally rent a car—they belong to a car-sharing service—to do their grocery shopping. The Moeris, fictional farmers who live northeast of Bern, generate their own electricity with natural gas produced from cow manure; and Alain, Michel, Angela, and Marlène, fictional students living in Geneva, share all their appliances, use the tram, and like to go hiking in the French Alps during school breaks. "There is no formula for how to achieve a two-thousand-watt society," the paper declares. "Three things are needed: societal decisions. .. technical innovation, and the resolve of every individual to act in an energy-conscious way."

Very broadly speaking, the average Swiss today uses energy as follows: fifteen hundred watts per day for living and office space (this includes heat and hot water), eleven hundred watts for food and consumer items (the energy that it takes to produce and transport goods is referred to as "embodied" or "gray" energy), six hundred watts for electricity, five hundred watts for automobile travel, two hundred and fifty watts for air travel, and a hundred and fifty watts for public transportation. Each person's share of Switzerland's public infrastructure, which includes facilities like water- and sewage-treatment plants, comes to nine hundred watts. Reducing these five thousand watts to two thousand would seem to require a significant reduction in every realm. Assuming that infrastructure-related consumption could be cut to five hundred watts, a person who continued to use fifteen hundred watts for living and office space would have nothing left for food, electricity, and transportation. Similarly, a person who continued to travel and use electricity at current rates would consume two thousand watts without having anywhere to live or work, or anything to eat.

While I was in Switzerland, I kept looking for people who actually led two-thousand-watt lives.

"I'm pretty close, except for this stupid air travel," Gerhard Schmitt, the vice-president for planning and logistics at the Zurich campus of the Swiss Federal Institute of Technology, told me. "I go once to Shanghai and it's gone." (A round-trip flight between Zurich and Shanghai is the equivalent of using something like eight hundred watts continuously for a year.) "Let's skip that question," Stulz said when I put it to him. While he lives in an energy-efficient apartment, he, too, travels a great deal; when I visited, he had just returned from a conference in New Delhi, a round trip that used roughly the equivalent of six hundred watts for the year.

The one person I spoke to who did seem to be leading a two-thousand-watt life, or something very near to it, was an engineer named Robert Uetz. Uetz works in the same building as Stulz, and when we returned from visiting the EAWAG Center he was still in his office, even though it was after six. Stulz encouraged me to go talk to him.

"We don't experience it as a restriction," Uetz told me of his two-thousand-watt life style. "On the contrary. I don't feel that we're giving up anything." Uetz and his wife, a dentist, live with their two children in the city of Winterthur, near Zurich. About ten years ago, they bought a two-thousand-square-foot house in a newly built energy-efficient development. The house is heated with a geothermal heat pump—"It's crazy to heat a house with fossil fuels," Uetz said—and has a solar hot-water system. Uetz added photovoltaic panels to the roof to produce electricity; in the winter the panels produce somewhat less power than the house uses—it's equipped with the most energy-efficient lights and appliances the family could find—and in the summer they produce somewhat more, so that over the course of the year the house's electricity use nets out to zero.

"The most important decision was that we wouldn't have a car," Uetz told me. "That was a conscious decision.

We looked for a house where we didn't need a car." Driving a lot—even in what, by today's standards at least, counts as an energy-efficient vehicle—also makes it difficult to live within two thousand watts. A person who drives a Toyota Prius ten thousand miles a year consumes roughly two hundred and twenty-five gallons of gasoline. This is equivalent to consuming around eight thousand kilowatt-hours, or to using nearly a thousand watts on a continuous basis. (For a family of four, the same gasoline consumption would come to almost two hundred and fifty watts per person.) "It's a matter of what you're used to, but I find taking the train a lot more pleasant than driving," Uetz went on.

"On the train I can work and relax. If I took a car, I'd have to worry about parking and traffic, rain, snow, and a certain number of people who can't drive but are on the road anyway." When Uetz and his family go on vacation, they travel by rail. "The only thing I'd say that is sort of a restriction is the flying," he said. "Because, obviously, with the train where you can go is limited. We can't go to China, or if we did it would take a week."

"I don't make a religion out of it," he added. "I wouldn't do it if I didn't feel good about it—it's how I like to live."

By the 2,000-Watt Society's own reckoning, cutting consumption is just half—or, perhaps more accurately, a quarter—of what needs to be done. The project's ultimate goal is a world where people consume no more than two thousand watts apiece and where fifteen hundred of those watts come from carbon-free sources. In such a world, everyone would use energy sparingly, like Robert Uetz, and generate it renewably, like Jørgen Tranberg. In such a world, filled with windmills and net-zero houses, carbon emissions would fall sharply, and the concentration of CO_2 in the atmosphere would slowly level off.

Appendix 3. 2,000-Watt Society Report

Extract from Jochem, E., Spreng, D. & Semadeni, M. 2006 *Steps towards a 2000 Watt-Society: Challenges for the Technological Development in Switzerland - Analysis of Technological and Organisational Long-Term Potentials* [77]

Results

The saving potentials, given in relative and absolute terms in the various sectors, technological fields and behavioural areas cannot be added because of mutual interference of several efficiency improvements along the energy chain. But nevertheless, assuming substantial efficiency improvements of the Swiss conversion sector due to partial substitution of nuclear power plants after 2020 by decentralised integrated systems, there is some indication that the total necessary efficiency gains in the final energy sectors required for the vision of a 2000 W/cap society may be realised under very optimistic assumptions of further technological progress in all sectors of the economy and the residential sector. Of course, this estimate is highly hypothetical, but indicates that the vision is not out of any theoretical probability.

Results in the individual fields can be summarised as follows:

- Major savings of more than 200 PJ can be expected from the building sector by new insulation techniques of walls, roofs, windows and basements, tighter and solar gains adapted construction of houses and buildings.

- A similar reduction of final energy use may be achievable in the transportation sector, particularly from the car sector, by lighter vehicles and substantially improved propulsion systems, better logistics and transferability between the different modes; still increasing mobility by air transport may diminish the saving potentials.

- Smaller and less clear potentials are possible in industry, in the commercial and agricultural sector as well as cross cutting technologies such as information and communication technology, but also by improved material efficiency and substitution, recycling, and intensification of product use, the latter demonstrating that energy services from vehicles, machines or appliances can be differently organised and will, hence, change the demand for energy services.

- Finally, organisational changes and entrepreneurial innovations or policies influencing behaviour and even lifestyles, have substantial energy saving potentials by realising economically attractive, but not perceived efficiency potentials.

Most relevant obstacles to R&D or to the application of technologies to be developed are shortly mentioned, as they may hint to application risks and/or to the need of further technical solutions to alleviate them. With regard of the main study, priorities have been set on the basis of absolute energy saving potential, homogeneity of the technology concerned, the export potential for Swiss technology producers, and the R&D risks involved.

Some first recommendations are given on the basis of the pre-study (priority setting for R&D in a small country like Switzerland, a continuous ongoing process of evaluation of the opportunities and the comparative advantages of the Swiss research and innovation system, policy change that accepts energy efficiency R&D policy as a part of an innovation policy towards a sustainable development, not only for Switzerland, but globally).

Finally, it is suggested that the main study, which aims to analyse in more detail the potentials of a 2000W per capita society, promising technologies and the most advanced research groups and institutions in these fields, should be carried out between 2003 and 2005. It should cover the technological and organisational areas identified in the pre-study and should be conducted by a broad

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77 Jochem, E., Spreng, D. & Semadeni, M. 2006. Steps towards a 2000 Watt-Society: Challenges for the technological development in Switzerland - Analysis of technological and organisational long-term potentials. Retrieved from http://www.cepe.ch/research/projects/2000_watt_society/2000_watt_society.htm 8 August 2008.

team of directly involved scientists of the Swiss scientific community, taking advantage of the many formal and informal co-operations with researchers and research institutions in other countries.

Appendix 4. 2,000-Watt Society Conclusions

Extract from Jochem, E., Favrat, D., Hungerbühler, K., Rudolph von Rohr, P., Spreng, D., Wokaun, A., Zimmermann, M., Semadeni, M., Goldblatt, D., Kemmler, D., Stephan, A., Lienin, S., Janssen, A., Gutzwiller, L., Keller, P., Kölble, C., Primas, A., Weber-Marin, A. S., Maréchal, F. & Richter, K. 2003. *Steps Towards a 2000 Watt Society: Developing a White Paper on Research Development of Energy-Efficient Technologies* [78]

The pre-study reaches the following definitive conclusions:

(1) Achieving 2000Watt per capita by the middle of this century implies a complete re-investment of the capital stock in industrialised countries (and a complete refurbishment of the building stock to be used in 2050).

(2) In light of these requirements, energy research must be understood to encompass all technical systems that use energy during their operation and production phases, not solely energy conversion technologies.

(3) Reducing current per capita energy demand by two-thirds within five decades requires not only research in natural and technical sciences but also behavioural research on decision making and day-to-day operation and innovation in industry, services, crafts, transportation, and private households.

(4) Moreover, the transition to a 2000 Watt per capita society needs the support of a fundamental change in innovation system (e.g. research policy, education, standards, incentives, intermediates and entrepreneurial innovations). This system must be continuously extended, evaluated, and improved over the coming decades with the perspective being part of a Swiss policy on sustainable development.

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[78] Jochem, E., Favrat, D., Hungerbühler, K., Rudolph von Rohr, P., Spreng, D., Wokaun, A., Zimmermann, M., Semadeni, M., Goldblatt, D., Kemmler, D., Stephan, A., Lienin, S., Janssen, A., Gutzwiller, L., Keller, P., Kölble, C., Primas, A., Weber-Marin, A. S., Maréchal, F. & Richter, K. 2003. Steps towards a 2000 Watt-Society: Developing a White Paper on Research & Development of Energy-Efficient Technologies, Prestudy - Final Report. Retrieved from https://www.rdb.ethz.ch/projects/project.php?proj_id=7742 8 August 2008.

References

Arter, D. 2006. From 'spectator democracy' to 'inclusive democracy'? The peripatetic Scottish committees as linkage. *Regional & Federal Studies* 16 (3):239 - 262.

Arvai, J. L. 2003. Using risk communication to disclose the outcome of a participatory decision-making process: Effects on the perceived acceptability of risk-policy decisions. *Risk Analysis*, 23(2): 281-289.

Bergh, S. 2004. Democratic decentralisation and local participation: A review of recent research. *Development in Practice* 14 (6):780 - 790.

Blamey, R. K., James, R. F., Smith, R. & Niemeyer, S. 2000. *Citizens' juries and environmental value assessment Canberra*. Research School of Social Sciences, Australian National University.

Bourgon, J. 2007. Responsive, responsible and respected government: Towards a New Public Administration theory. *International Review of Administrative Sciences* 73 (1):7-26. .

Broder, J. M. 2008. Gore urges change to dodge an energy crisis. *New York Times*, July 18.

Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit. 2005. *The national climate protection programme 2005 summary*. Retrieved from http://www.bmu.de/files/english/climate/downloads/application/pdf/klimaschutzprogramm_2005_en.pdf

Citizens Information (Ireland). 2008. Buying a new car in Ireland. http://www.citizensinformation.ie/categories/travel-and-recreation/motoring-1/buying-or-selling-a-vehicle/buying_a_new_car.

Coghill, K., Black, L., Holmes, D.; Stubbs, W. 2005. *Corporate Social Responsibility: Guidance for Investors. Discussion paper*. Melbourne: Australian Council of Super Investors

Commission of the European Communities. 1992. The principle of subsidiarity - Communication of the Commission to the Council and the European Parliament.

Country Fire Authority. 2008. *About CFA.* Retrieved from http://www.cfa.vic.gov.au/about/index.htm

Curtis, A. & Lockwood, M. 2000. Landcare and catchment management in Australia: Lessons for state-sponsored community participation. *Society & Natural Resources*, 13(1): 61 - 73.

Department of Primary Industries (Victoria). 2008a *Incorporation for landcare groups*. Retrieved from http://www.dpi.vic.gov.au/DPI/nreninf.nsf/childdocs/-C835B1CE4BC7F1D04A2568B30004FC37-B5A34F7046B3A5D2CA256BC80003FB2F-437BDEAE238ABEF74A256DEA00295FAB-6D78B8EE2A7CF84ACA256BCF000AD4D2?open

Department of Primary Industries (Victoria). 2008b *Activities of a landcare coordinator*. Retrieved from http://www.dpi.vic.gov.au/DPI/nreninf.nsf/childdocs/-C835B1CE4BC7F1D04A2568B30004FC37-23DB7A50F31EE75ACA256BC80004109E-84CEAD2FC2BB8A484A256DEA00293F1C-B6102E0CFD8A44D1CA256BCF000AD4D8?open . .

European Communities, Commission of the. 2007. *Limiting global climate change to 2°C: The way ahead for 2020 and beyond. Retrieved from* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0002:FIN:EN:HTML

European Union, Council of the. 2007. *Presidency conclusions. Retrieved from* http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/93135.pdf

Families Facing Climate Change. 2008 [Cited 20 July 2008] Available from http://www.climatechange.org.au/about.htm

Finn, P. D. (1995). *A sovereign people, a public trust*. Sydney: The Law Book Company.

Frey, B. S. & Stutzer, A. (2000). Happiness, economy and institutions. *The Economic Journal, 110*(October), 918-938.

Global Reporting Initiative. 2008. *Global reporting initiative*. Retrieved from http://www.globalreporting.org/Home 22 August 2008.

Goodyear, C. 2005. *Licence to operate: BHP Billiton sustainability report 2005.* Retrieved from http://sustainability.bhpbilliton.com/2006/index.asp .

Hartz-Karp, J. (2007). *Climate change policy: the 'joined-up community' approach.* Retrieved from http://cpd.org.au/article/climate-change-policy-joined-up-community-approach /

Hepburn Renewable Energy Association. undated. *Hepburn Renewable Energy Association*. Retrieved from http://www.hrea.org.au/ .

Honnery, D. & Moriarty, P. 2008. *Car is doomed, energy experts warn. Retrieved from* http://www.monash.edu.au/news/feb08-car-doomed.html 1 June 2008.

Houthakker, H. S. 1950. Revealed preference and the utility function. *Economica, New Series* 17 (66):159-174.

Inglehart, R. 2006. *Collection of graphs presenting WVS Data 2006*. Retrieved from http://www.worldvaluessurvey.org/ 22 June 2008.

Jochem, E., Favrat, D., Hungerbühler, K., Rudolph von Rohr, P., Spreng, D., Wokaun, A., Zimmermann, M., Semadeni, M., Goldblatt, D., Kemmler, D., Stephan, A., Lienin, S., Janssen, A., Gutzwiller, L., Keller, P., Kölble, C., Primas, A., Weber-Marin, A. S., Maréchal, F. & Richter, K. 2003. *Steps towards a 2000 Watt-Society: Developing a White Paper on Research & Development of Energy-Efficient Technologies, Prestudy - Final Report.* Retrieved from https://www.rdb.ethz.ch/projects/project.php?proj_id=7742 8 August 2008.

Jochem, E., Spreng, D. & Semadeni, M. 2006. *Steps towards a 2000 Watt-Society: Challenges for the technological development in Switzerland - Analysis of technological and organisational long-term potentials.* Retrieved from http://www.cepe.ch/research/projects/2000_watt_society/2000_watt_society.htm 8 August 2008.

Kidd, Scott. 2006. Keeping Public Resources in Public Hands: Advancing the Public Trust Doctrine in Canada. *Journal of Environmental Law and Practice* 16 (2):187-210.

Kitney, G. 2007. Climate changes in Davos. *Australian Financial Review,* 29 January. p. 52.

Kolbert, E. 2008. *The island in the wind: A Danish community's victory over carbon emissions.* Retrieved from http://www.newyorker.com/reporting/2008/07/07/080707fa_fact_kolbert?printable=true 8 August 2008.

Landcare Australia. (undated). *Landcare Australia homepage.* Retrieved from http://www.landcareonline.com/index.asp 1 June 2008.

Landcare Victoria. (undated). *Landcare Victoria gateway*. Retrieved from http://landcarevic.net.au/ 1 June 2008.

Lebel, L., Anderies, J. M., Campbell, B., Folke, C., Hatfield-Dodds, S., Hughes, T. P. & Wilson, J. 2005. Governance and the capacity to manage resilience in regional social-ecological systems. *Ecology and Society* 11 (1).

Lighter Footprints. (undated). *Lighter footprints homepage.* Retrieved from http://www.lighterfootprints.org/ 1 June 2008.

Mah, B. T. 2008. *Debate on estimates of expenditure for the financial year 1st April, 2008 to 31st March.* Retrieved from http://www.parliament.gov.sg/parlweb/get_highlighted_content.jsp?docID=883709&hlLevel=Terms&links=SUSTAIN,DEVELOP,STILL,DEVELOP,SUSTAIN,DEVELOP,STILL,DEVELOP&hlWords=%20Sustainable%20development%20is%20still%20about%20development%20&hlTitle=&queryOption=5&ref=http://www.parliament.gov.sg:80/reports/public/hansard/full/20080228/20080228_HR.html#1 14 May 2008.

Mitleton-Kelly, E. 2003. *Complex systems and evolutionary perspectives of organisations: The application of complexity theory to organisations. Ten Principles of Complexity & Enabling Infrastructures* 2003. Retrieved from http://www.psych.lse.ac.uk/complexity/PDFiles/publication/Ch2_Mitleton_Kelly.pdf.

Neesham, C. 2008. *Human & social progress*: VDM Verlag.

Parliamentary joint committee on corporations and financial services. 2006. *Corporate responsibility: Managing risk and creating value*. Parliament of Australia Accessed 22 June 2008. Available from http://www.aph.gov.au/Senate/committee/corporations_ctte/completed_inquiries/2004-07/corporate_responsibility/report/index.htm.

Podger, A. 2002. Whole-of-government innovations and challenges. In *Institute of Public Administration Australia (IPAA) National Conference*. Adelaide.

PriceWaterhouseCoopers. 2008. *Carbon Countdown*. PriceWaterHouseCoopers Accessed 22 June 2008. Available from http://www.pwc.com/Extweb/onlineforms.nsf/docid/0EDACFFBA83712AB852573DB000F55FF/$file/CarbonCountdown.pdf.

Redefining Progress. 2008. *About us*. Redefining Progress 2006 Accessed 3 May 2008. Available from http://www.rprogress.org/sustainability_indicators/about_us.htm.

Rose, S. 2008. *Canadian community first to go completely solar.* Retrieved from
http://www.tgdaily.com/content/view/38583/118/ .

Scheurer, J. & Newman, P. forthcoming 2009. *Vauban: A European model bridging the green and brown agendas.*

Schwarzenegger, A. 2006. *Gov. Schwarzenegger signs landmark legislation to reduce greenhouse gas emissions* . Retrieved from http://gov.ca.gov/index.php?/press-release/4111/ .

Spratt, David, and Phillip Sutton. 2008. *Climate Code Red: the Case for Emergency Action*. Carlton North, Vic Scribe Publications.

Talberth, J. & Boharab, A. K. 2006. Economic openness and green GDP. *Ecological Economics* 58 (4):743-758.

Talberth, J., Cobb, C. & Slattery, N. 2006. *The genuine progress indicator 2006: A tool for sustainable development.* Retrieved from http://www.rprogress.org/publications/2007/GPI%202006.pdf 3 May 2008.

The Victorian Women's Trust. 2007. *Our water mark*. Melbourne: The Victorian Women's Trust.

Vox Bandicoot. undated. Sustainability Street.
http://www.voxbandicoot.com.au/SustainabilitySt/Index.htm.

Watermark Australia. 2008. *Welcome to the Watermark Australia Project*. Retrieved from
http://www.watermarkaustralia.org.au/info.asp?pg=groupprocess .