szencorp
sustainable development

Head Office
Level 4, 40 Albert Road
South Melbourne 3205 Australia
Telephone +61 3 8807 4666
Facsimile +61 3 8807 4602
www.szencorp.net

21 April 2009

Senator the Hon Richard Colbeck
Chair
Senate Select Committee on Climate Policy
Parliament House
CANBERRA ACT 2600

Dear Senator

SUBMISSION TO SENATE SELECT INQUIRY ON CLIMATE POLICY

Thank you for the opportunity to submit comments to the Senate Select Committee's current wide ranging inquiry into Commonwealth climate policy.

Established in 1983 and headquartered in Melbourne, Szencorp group companies are at the forefront of Australian industry in the commercialisation and installation of innovative technologies to create lower emission energy generation and use. The Group employs approximately 60 people in Australia and 20 in Southeast Asia. Its core businesses specialise in delivering energy efficiency, waste-to-energy solutions and property development. Szencorp's leadership in and commitment to a lower-emission future is demonstrated by its corporate headquarters at 40 Albert Road, South Melbourne, a green building rated at the very top of the Australian scale on both design and operational measures.

Szencorp's submission to the Garnaut Review process is relevant to this Inquiry, and can be found at http://www.garnautreview.org.au/CA25734E0016A131/pages/submissions#5. Comments of additional note are provided below, and naturally I would be pleased to amplify any of these ideas if they are of further interest to the Committee.

Yours sincerely

Peter Szental
Chairman

Brief comments on the Carbon Pollution Reduction Scheme (CPRS)

Szencorp supports the immediate Australian introduction of emissions trading and a resultant carbon price as a market-wide reform to allow better allocation of responsibility for greenhouse emission reductions. It is noted that this method of overcoming price barriers is a fundamental plank of a wider policy suite required to target a wider range of non-price and behavioural barriers that limit the uptake of emission reduction opportunities. Having said this, the current scheme has fundamental flaws in relation to three key areas:

Proposed emissions cap to 2020 – the Government's current targets for greenhouse abatement are patently out of keeping with the scale of the problem, the potential risks posed by inaction, Australia's global obligations, and representations made to Australians at the 2007 election. The physical greenhouse gas abatement task is not subject to politics; rather it becomes more and more challenging the longer we delay. According to the IPCC's 2007 reports, the developed world as a whole needs to reduce its emissions by 25-40% over 1990 levels by 2020, and 80-95% by 2050. Today the scientific evidence is that deeper cuts still are required to effectively tackle the impacts of climate change.

Compensation to polluters – transition to a low-emissions economy is required at speed if the worst impacts of climate change are to be avoided. Minister Wong has said recently, "*We are embarking on an economic transformation to create the low pollution jobs of the future, but it is a transformation that will take time. To pretend we can make this transformation without assistance measures to support Australian jobs along the way is economically irresponsible*" (Sydney Morning Herald, 23 February 2009). However, the Government's current approach to compensation does not encourage or require industrial change. Compensation for transition assistance to the largest polluters should only be offered on the condition of successful transition. It should not be assistance to continue business-as-usual operations as currently contemplated under the proposed CPRS.

Incentives for improving efficiency in energy use – On 19 August 2008 the Prime Minister referred publicly to energy efficiency as "the second plank" of the Government's greenhouse response, alongside an emissions trading scheme. However, energy efficiency has not received the attention or profile of efforts to introduce a carbon price. Despite this, and irrespective of the introduction of emissions trading, the Government can take a number of steps in energy efficiency which simultaneously address greenhouse abatement and create financial savings, and that will almost certainly receive bipartisan support. It is largely technology ready and can be implemented immediately - indeed the International Energy Agency argued last year that energy efficiency would likely account for 54% of required global abatement between now and 2030. Some positive framing of a low-carbon vision, involving energy efficiency and a shift to decentralised generation bringing associated industry

opportunities, is not only an essential element of tackling climate change but would help establish the Government's climate change policies in a more positive economic light.

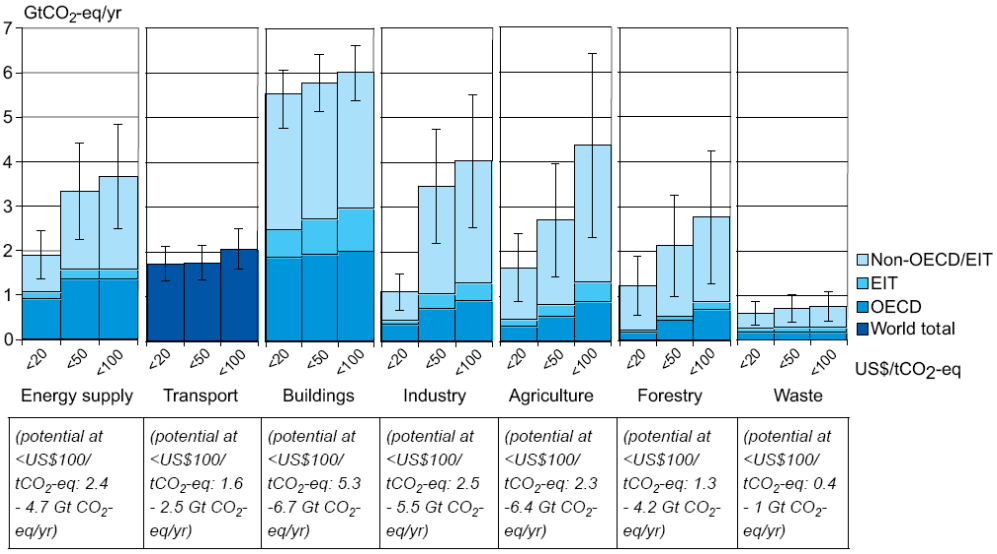
Further comments on the role of energy efficiency in contributing to Australia's climate policy

While energy efficiency has long been recognised as the most cost effective response to greenhouse emission reductions, much political focus has been on the emissions intensity of electricity generation, the exorbitant cost of re-configuring our electricity supply system, the "cap" and resultant emissions price that will be prescribed by an ETS, and the importance of a supply-side target that ensures renewables contribute at least 20% of generation by 2020. Reduction of energy waste has not featured as heavily in the discussion, despite the fact that:

- According to recent reports by the Intergovernmental Panel on Climate Change (particularly its report received from Working Group III), there is global potential to cost-effectively reduce approximately 30% of projected baseline emissions by 2020 from the residential and commercial building sectors, the highest among all sectors studied.
- This figure only considers negative cost opportunities (i.e. benefits), that were found to be so abundant that higher cost opportunities were not considered. This figure is therefore known to be an underestimate of the available opportunities.

The IPCC goes on to quote numerous published studies showing that energy savings of 50 to 75% can be achieved in commercial buildings through aggressive implementation of integrated sets of measures.

Figure 1 – IPCC's Fourth Assessment Report Working Group III
Estimates of abatement potential by sector



The benefits of energy efficiency to Australia have been pointed out extensively under economic modelling carried out for the National Framework for Energy Efficiency. In addition, recent Australian research completed under the auspice of the Australian Sustainable Built Environment Council (ASBEC 2007, 2008) shows that, inter alia:

- The building sector accounts for approximately 23 per cent of greenhouse gas emissions, or approximately 130Mt.
- By 2050, GDP could be improved by around $38 billion per year if building sector energy efficiency is adopted, compared to previous economy-wide estimates of the 60 % "deep emission cuts" scenario.
- Energy efficiency in residential and commercial buildings could halve electricity demand by 2030, and reduce it by more than 70 per cent by 2050, on a cost-neutral basis.
- Energy savings in the building sector (which accounts for 23 per cent of greenhouse gas emissions) could reduce the costs of greenhouse gas abatement across the whole economy by $30 per tonne (or 14%) by 2050.
- Without complementary measures the building sector is expected to reduce emissions by around 8 Mt of CO2-e a year from the price signal received from the CPRS (that is, through increased electricity prices). However, with complementary measures and encouragement to achieve the fuller energy efficiency potential of the building sector, GHG savings of around 60 Mt per annum are achievable in the longer term (by 2030).

If these figures are accepted as accurate, then reducing building sector emissions by 35% by 2020 would see a reduction in Australia's emissions of approximately 45-50Mt, which would be delivered at zero net cost to the economy. If a figure of 50-70% savings is possible, then this would result in a 65-95Mt reduction.

The non-negotiable ETS target of 5% below 2000 emission levels by 2020 means annual emissions for Australia of 525Mt CO_2e. Based on the White Paper's own estimates, Australia's "with measures" emissions would be 664Mt in 2020. This implies an abatement task of approximately 140Mt over the first decade of the scheme. The raw figures therefore show that over half of the ETS target could feasibly be delivered through energy efficiency at a financial dividend, rather than cost, to the economy. This conclusion does not examine all aspects of the socio-economic benefits that may accrue from energy efficiency measures, for instance in employment creation and in the future value of positioning Australia as a leader in this export industry of the future, or as a community engagement tool that creates political acceptance for harder emissions reductions measures that will need to follow.

Accordingly Szencorp firmly believes that existing building retrofitting should be a clear focus of any mitigation efforts, as the earliest "no regrets" greenhouse response preceding any broader economic transition that will be required. New buildings make up a tiny percentage of overall building emissions and policies that target them such as incremental improvements to building codes and standards will not provide the scale of momentum required for implementation of energy efficiency.

The need for specific climate policy measures that target energy efficiency

There is a general view held by some economic theorists that the potential for cost effective energy efficiency in existing buildings is being taken up; in economic terms, this view holds that agents are behaving rationally in delivering an optimal level of energy efficiency. From this logic follows a conclusion that complementary measures for energy efficiency alongside an emissions trading scheme are not required. However it is conclusive that the market operates less than perfectly in delivering energy efficiency due to a number of non-price sensitive market characteristics. This means that, despite the apparent economic incentives, smarter energy use is often not taken up. A great deal of relevant work has been done that examines the true dynamics of decision making for energy efficiency, and its non-rational behavioural aspects (see in particular IEA (2005) and works authored/co-authored by Richard Thaler in "Useful References and Further Reading" listed below).

Clearly, private actors face barriers other than financial barriers, real or perceived, which inhibit better energy practice. As a result incremental increases in financial incentives by, for instance, attributing a price to carbon dioxide emissions through emissions trading will not in themselves unlock the energy savings potential through ever louder appeals to economic rationality; complementary measures are required to be directed specifically at initiating smarter energy use. In relation to energy efficiency a case can be made for what Sunstein and Thaler (2003) called "libertarian paternalism", that is, attempt to steer people's individual choices in welfare-promoting directions without eliminating freedom of choice, to the achievement of broader societal goals.

Barriers to the uptake of smarter energy use practice have been well recognised in many studies (including under the National Framework for Energy Efficiency, and in the Garnaut Review's Issues Paper 5), the most important of which broadly include:

- ***Behavioural issues (e.g. lack of priority, short-termism, cultural inertia, non-core business activity)*** - electricity typically makes up a small percentage of business costs (estimated by the National Institute of Economic and Industry Research) at under 3% of total expenditure for most economic sectors. Further, there is a lack of understanding of potential cost-effective savings options and available expertise or mechanisms for financing and delivering them.

- ***Split incentives*** – in many cases the party incurring the capital cost of energy efficiency measures does not receive the saving benefits of the upgrade, e.g. between landlords and tenants of a building.
- ***Transaction costs (especially measurement and/or verification)*** - the recognition of savings often requires the aggregation of a large number of small energy saving actions, making transaction costs of realising the incentives prohibitive in some cases.
- ***Coupling of energy consumption and electricity retailer and distributor profits*** (noting that energy savings techniques and products can offer greater margins for retailers than the sale of electricity)
- ***Network pricing (avoided infrastructure investment)*** - due recognition is not currently given to the important role some technologies can play in reducing network costs and/or peak loads.
- ***Bidding schemes*** – Efforts put into submitting bids for funding waste scarce industry resources (engineering) and can create long delays or uncertainty for suppliers and customers
- ***High hurdle rates and incrementalism*** - the selective implementation of opportunities that could be considered "low hanging fruit" impedes implementation and cost-effectiveness of deeper saving programs. Technology for energy savings cannot be applied on a purely incremental basis – often to achieve greater savings projects must be tackled in an integrated way to achieve synergies.
- ***Access to capital*** – while energy efficiency can provide an attractive return there are many competing and better understood demands for investment capital.
- ***Research, development and deployment issues.***

It can be argued that many of these transaction costs and information asymmetries do not automatically and of themselves justify government intervention. However, given the existence of an emissions cap and a carbon price under emissions trading, the public good nature of the greenhouse abatement benefits and the reduced overall cost of abatement that can potentially be generated create a clear role for government to provide incentives to accelerate uptake of energy efficiency over other abatement measures that would be pursued on a price signal alone.

As noted in the fifth dot point above, not only does smarter energy use lower the cost of reducing greenhouse emissions, it reduces the costly network infrastructure investments otherwise required to meet growing demand. From an infrastructure point of view, it is conclusively cheaper to meet growing electricity demand at the margin not by creating new network capacity, but by improving the capability of the existing network by reducing waste. Estimates by NEMMCO put the cost of upgrading/augmenting Australia's electricity delivery

infrastructure at approximately $37 billion dollars to 2020; approximately $4-6 billion a year has been committed for the next five years (sourced from reports at http://nemmco.com.au/nemgeneral/040-0048.htm). Recent decisions in NSW have also seen $18bn committed to network upgrades in that State alone between now and 2015.

Alongside the network infrastructure savings are savings in electricity transmission losses, which are significant depending on the age and condition of existing infrastructure. It is much more cost effective to generate electricity locally for local use than to create an electricity transport requirement through insistence on centralised power supply. This also carries benefits for the security of supply to particular regions. Current network pricing and regulatory regimes pay little acknowledgement to this aspect of electricity supply, such that distributed/embedded generation appears unfairly expensive in comparison to centralised options (e.g. fossil fuel, nuclear, large-scale wind or geothermal power supply options).

Important energy efficiency measures that could be deployed

Setting an energy efficiency target

The need for an articulation of the overall level of ambition related to energy efficiency is very important to structure appropriate policy responses. In the lead up to its election in November 2007, the Commonwealth Government articulated a desire to "put Australia on track to being at the forefront of OECD energy efficiency improvement." This statement is somewhat layered; accordingly a high-level energy use target needs sharper definition in order to drive the reformation of a national over-arching energy efficiency framework, and to inform the scale and extent of proposed policy measures in this area. Better information is required by Government as a priority, through research and analysis aimed at translating its statement of intent into a quantifiable and feasible amount of energy savings for which we are aiming, and therefore into clear goals for specific energy savings measures.

Szencorp believes that a goal of restricting electricity demand growth by up to 2% per year to reach a 20% improvement by 2020 is eminently realistic. This compares to:

- recent EU estimates which set its cost-neutral, technically feasible energy savings potential at more than 20%, which equates roughly to a 1% annual reduction in energy use over the next 20 years (Commission of the European Communities, 2006). Note that Australia is currently much more energy inefficient than the EU and other developed countries, using up to three times more energy per unit of GDP.
- California also has a similarly ambitious target which effectively equates to a 20% reduction by 2020, and its energy agency along with its public utilities commission has created a long term strategic plan to achieve this.

- New Zealand recently set in place a comprehensive suite of sectoral targets for energy efficiency, summarised by a reduction in overall energy intensity coupled with a reduction in economy-wide greenhouse emissions to 1990 levels by 2012.

Szencorp believes that a high level energy efficiency target, delivered in large measure by schemes that create incentives not just for end users but for market intermediaries and others in the supply chain, is an important building block of Australian energy and greenhouse policy.

A national retailer obligation (white certificate) energy efficiency scheme, alongside emissions trading

Energy efficiency schemes are in operation in a number of countries with promising early experience emerging (World Energy Council, 2008). An Australia-wide market based mechanism/retailer obligation to support energy efficiency (extending to and expanding on the NSW and Victorian schemes) could operate in a similar manner to RET. It is appropriate that existing state schemes be rolled up into a national scheme to avoid duplication and reduce transaction costs. If well designed, this can be an effective way to target and provide incentives for energy savings improvements for existing buildings across residential, commercial and industrial applications. To further overcome transaction costs, pre-qualification of certain technologies would be appropriate, for example greenhouse savings from upgrades of chillers and lighting controls can be assessed according to a pre-approved methodology, rather than having to be assessed on a case by case basis for applicability. Special provision, also, should be given to projects which reduce transmission losses and peak demand requirements (e.g. distributed and intermittent generation technologies). Such a scheme would run in parallel to an emissions trading scheme and, similar to MRET, would provide an appropriate complementary measure to emissions trading in stimulating investment in particular types of emission reductions activity that have broader public benefits. It is difficult for such schemes to be technology neutral, because Government must decide on what qualifies under the scheme; however robust methodologies are currently being developed to ascertain the value of inclusion of particular technologies and activities.

An avoided network infrastructure fund for energy efficiency projects

Such funds are already in existence in Australia, e.g. the Climate Change Fund used in NSW, to recognise the cost effectiveness of both distributed generation alongside energy savings in avoiding or deferring network infrastructure costs. The money for the fund could be raised via a levy on electricity network businesses, with the rationale that the impost on network companies will be more than offset by reduced energy consumption that will avoid the need for them to undertake costly network augmentations; essentially the fund should therefore provide a net positive financial outcome or at the very least be cost neutral. Additionally, the Government has already earmarked funds raised from the auctioning of permits under an emissions trading scheme to be diverted to energy savings activities through its Climate

Change Action Fund, this could be a source of permanent revenue and be substantially ramped up. Given the sortof funding currently allocated to the more inefficientand greenhouse intensive upgrade of networks, a fund of at least $1 billion per annum is justifiable. In terms of its administration, a fund must be flexible enough to target both "direct measures", i.e. activities that bring about cost effective greenhouse abatement, and "market transformation", i.e. those non price barriers that prevent even more widespread take-up of smarter energy use.

Beyond this, funds would also need to be allocated to research and development in energy efficiency, which does not stand still in a technology sense – new products and techniques are constantly emerging that can improve efficiency outcomes. While a great deal of focus is on costly development of new energy supply technologies, there is little or no focus on development of energy savings technologies. From an equity perspective, some of the fund could also be targeted at lower income households through a "voucher"-style scheme which allows recipients to spend the money only on specific energy saving appliances. This also allows the fund to remain as broad based and market driven as possible.

Citywide retrofitting programs for existing building stock

Under a city "Building tune-up" Program, commercial building owners within a municipality will be engaged to participate in a building refurbishment program, whereby their building will be

a) benchmarked according to accepted energy and water performance standards;
b) upgraded to a significantly higher standard, with the costs of upgrade recovered through the energy and water savings generated.

This is a model that has been effectively employed on a small scale and progressed on a larger scale by some municipalities, e.g. the City of Melbourne's '1200 Buildings' program. The core purpose of the 1200 Buildings program is to make a sizeable contribution to the City of Melbourne's Zero Net Emissions Strategy for 2020.

To implement such a program, **first of all, high level commitment** to the program must be achieved from all parties wishing to progress energy efficiency in commercial buildings as a first response to climate change. This will include a commitment to work together on behalf of

- Federal, State and Local elected representatives
- Public sector delivery agencies at each tier of Government
- Industry bodies, trade associations and suppliers that will be affected by an increased uptake of energy efficiency in buildings
- NGOs and opinion leaders able to raise the profile of the initiative

Commitment must be articulated simply and clearly, on a time-bound, common basis, through a short Memorandum of Understanding outlining the shared aspiration to progress energy

efficiency in commercial buildings, and the implementation activities that are expected to occur.

Second, a funding path must be clearly established for the expected capital works. While the result of energy efficiency upgrades is eventually expected to generate a return which will exceed the value of the initial investment, this initial investment will not be recouped for some time, making capital raising for upfront investment a priority. There may be a number of paths to funding, including grant funding from Governments, revolving funding from Governments, commercial funding from private financial institutions, subsidised funding from private financial institutions, or private placements/funding by building owners themselves. Each of these will provide different degrees of incentive to participants.

Third, a value proposition for participants must be created and accepted by building owners. This value will be created in both a financial and promotional sense, for example:

- Offering accelerated depreciation for investments in energy saving equipment, increasing the tax effectiveness of those investments
- Subsidisation of initial NABERS rating for buildings participating, which carry an added benefit of linking to mandatory disclosure requirements.
- Creating incentive through avoided network infrastructure funds, by formally recognising the role that the energy savings can play in reducing the requirement for electricity networks.
- Highlighting the potential viability of energy efficiency projects through case studies of savings and payoffs
- Offer profile through awards, media, and public recognition

This value proposition would be presented to the owners of each of the 1200 buildings for their consideration, with a view to securing their formal and public commitment to undertake the energy efficiency retrofit of their asset.

Fourth, capacity building for implementation on behalf of both suppliers and customers is essential for the early stages of take up of the initiative. It is clear that a program of this level of ambition will need to resolve a range of issues, including but not limited to:

- A widespread energy savings awareness, profile raising and training effort for facility managers and those involved in project implementation – broad scale awareness programs are needed to provide relevant information, contacts, business cases, case studies and support for organisations that have decided to retrofit their buildings. Information and training sessions are required for this introductory phase, to be jointly developed, use existing professional development channels and be supported by a web presence.

- Establishing baseline energy performance and the resultant energy savings potential of each building – this can be done using NABERS ratings linked to the rollout of mandatory disclosure.
- Scaling up of the energy efficiency service and supply industry to meet the expected increase in level of demand. Incentives for suppliers may be important at this point, such as white certificate schemes that can engage and incentivise key parts of the supply chain.
- Finalising financial institution participation – basis for access to the identified funding for each project is crucial. Building owners must be made familiar with the performance contracting model, under which the savings are guaranteed by the implementing company.
- Addressing ongoing policy and regulatory barriers to the stimulus of retrofitting activity, including price signals, market barriers, regulatory disincentives and information failures. This work assists the efforts of building owner participants and includes reform to National Electricity Market issues such as the limitations placed on distributed generation; price distortions such as interval pricing, TUOS and DUOS; and methods for interaction/recognition of abatement generated under a national emissions trading cap.
- Implementing the Energy Savings Measures – assistance with procurement is required for building owner participants so that identified savings can be successfully realised.
- Communication and promotion of the program's outcomes and results, which will be important for encouraging building owner participation and program replication. Savings could achieve recognition in levels (e.g. 20% saving bronze, 35% silver, 50% gold). Annual Awards could also be devised (e.g. the '1200' Awards) to recognise top performaers and showcase efforts, as well as media exposure with well known identities,

Expected outcomes from such a Tune-Up program include that building owners will be encouraged to take up energy efficiency in their commercial buildings sector over and above current practice, because:

- They will have part of their project involvement costs covered by Government funding. Funding is justified on a range of fronts, including deferred network infrastructure investment, reduced economy-wide carbon prices and efforts to create stimulus for business investment
- Increased project volumes will mean that building owners will have access to structured training sessions, resources and associated materials about retrofitting
- Building owners will likely have access to finance for capital works at more competitive interest rates to what they may be able to attract privately

- Building owners will gain public exposure for improving the environmental performance of their assets

Energy service providers and suppliers will clearly gain substantial business from the initiative, as well as building the capacity of their industry to argue for replication of such programs elsewhere.

Government involvement is largely facilitative but, to create the appropriate incentives for participation, will involve providing funding for the project inception phase (or assisting in requesting same from the Commonwealth Government) and to ensure that monitoring and verification meets requirements under the white certificates or other incentive schemes. It is possible that this funding be provided on a revolving basis; i.e. that it is recovered/repaid to State Government through the energy and water savings generated by the program. The extent to which this is done is proportional to the amount of incentive offered to building owners; i.e. if project inception costs are all to be recouped, then longer payback periods will result.

References

ASBEC Climate Change Task Group (2007), *Capitalising on the building sector's potential to lessen the costs of a broad based GHG emissions cut*, September 2007, Centre for International Economics

ASBEC Climate Change Task Group (2008), *The Second Plank – Building a Low Carbon Economy With Energy Efficient Buildings*, September 2008, Centre for International Economics

IPCC (2007), *Summary for Policymakers* in: Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

International Energy Agency (2005), *The Experience with Energy Efficiency Policies and Programmes in IEA Countries: Learning from the Critics*, IEA Information Paper

Loewenstein, G. and Thaler, R. (1989), *Anomalies: Intertemporal Choice*, The Journal of Economic Perspectives, Vol. 3, No. 4 (Autumn 1989), pp. 181-193

Mullainathan, S. and Thaler, R. (2000), BEHAVIORAL ECONOMICS, Massachusetts Institute of Technology, Department of Economics Working Paper 00-27

Sunstein, C. and Thaler, R. (2003), *Libertarian Paternalism Is Not an Oxymoron*, AEI-Brookings Joint Center for Regulatory Studies, Working Paper No. 03-2

World Energy Council (2008), *Energy Efficiency Policies around the World: Review and Evaluation*, ISBN 0 946121 30 3