

Submission to Senate Inquiry into the *Renewable Energy (Electricity) Amendment Bill*

May 2010

Visy welcomes the opportunity to provide input to the Senate's review of the *Renewable Energy (Electricity) Amendment Bill*.

Visy's investment and jobs focus on environmental systems

Visy employs 5,500 people directly in its Australian and New Zealand recycling and manufacturing businesses. It is a first-mover in clean technology, and has already invested in technology and products that capitalise upon Australians' emerging environmental consciousness.

These include:

- Water-recycling, including the world most water-efficient pulp & paper mill
- Renewable energy systems for manufacturing process power
- Efficient transport solutions
- Advanced papermaking technology to maximise heat and electrical energy conservation, and renewables
- Materials conservation in product design and customer education
- Plantation timber utilisation and replanting
- Non-bleaching technology in kraft paper-making
- Advanced recycling/sorting systems

Additional opportunities are currently being explored with investment feasibility studies underway in many areas.

These current projects comprise, in aggregate, over \$1.1bn of new capital investment, including:

- Biomass and other renewable energy plants
- Closed-loop materials use
- Energy recovery from residual processing wastes
- Cogeneration and energy efficiency in manufacturing systems

However, Visy's capacity to continue to invest in these advanced manufacturing technologies will depend on it maintaining competitiveness and profitability with its current core business activities.

This requirement to maintain Australian manufacturing jobs and investment whilst pursuing energy use and generation reform is the most important public policy issue that needs to be addressed in assessing the shape of the law changes proposed in the *Renewable Energy (Electricity) Amendment Bill*.

Visy's comments on the Bill

1. Visy strongly supports energy use reduction, energy efficiency and the reduction of carbon emissions from industry and the wider community.
2. However Visy believes that in pursuing this objective the Government needs to exercise extreme care in advancing policies which, on the one hand seek to support the expansion of renewable energy, and at the same time supporting existing jobs and investment through competitive electricity prices.
3. Recent history and commentary indicates that the proliferation of renewable energy schemes and mechanisms, and the high level of policy flux associated with them, is causing an upward pressure on electricity prices. This is already affecting Australia's overall energy costs, and will act as an impediment to future manufacturing activity, jobs and investment.
4. While it is expected that a mandated renewable energy generation percentage will have some electricity price impact, Visy can only support a system where pricing impacts are transparent (and not opaque or hidden), and where price discovery is possible to underpin future investment.
5. Visy believes the original Mandatory Renewable Energy Target (MRET) scheme, introduced in 2001, was well conceived and very successful in incentivising renewable energy development. It addressed the need for investment in new energy generation (including decentralised or "distributed" systems), but at the same time recognised there was a cost to this policy, reflected in the Renewable Energy Certificate (REC) price and the statutory penalty imposed on retailers for non-performance.
6. Separately, the Government recognised the benefits of encouraging small solar generation in households and other community facilities, and implemented the *Solar Homes and Communities Plan* in 2000. Solar power was considered desirable, but clearly sub-economic due to the high cost of panels and connections and high transactions costs. This is why the Government chose not to embed this program's costs into the overall electricity pricing system, but to rather offer rebates from separate public funds. Visy believes this approach with respect to these types of small generation was the right way to go because it clearly identified and allocated the ongoing costs.
7. The later merging of the small domestic solar and heat pump scheme with the MRET – in an attempt to pass the costs of the rebate onto the overall electricity market, and avoid future Government-funded incentives – has severely damaged the MRET as an effective large-scale renewable energy investment mechanism. The REC price collapsed, and there was no reliable forward price discovery upon which to base renewable energy investment plans.
8. The Government's proposed remedy to this problem is the separation of small RECs and large RECs within the same MRET Scheme, as reflected in the *Renewable Energy (Electricity) Amendment Bill*.
9. While Visy acknowledges the Government's attempted remedy, we believe the separation between the small solar systems and the larger renewables investments should be a complete one. This would effectively return the renewable energy system to the earlier model (see point #5 above) and would allow the recovery of the investment basis for large renewable energy systems.

10. In turn, the Government should put the incentivisation of small solar schemes back where they belong, with a Government-funded rebate program. Any continuing linkage of the price impact of small RECs with that of the large REC component will cause further damage to the scheme.
11. Visy believes the Bill's proposed "washing" of the price impact of uncapped "small RECs" into the overall Expanded RET system is a retrograde step. This is because it effectively undoes the level of market/price discipline and the transparency of the former MRET Scheme by imposing an additional *uncapped* price burden on the national electricity market. The proposed adjustment mechanism for cosmetically capping each year's small REC quantum, whilst somewhat buffering the price impact, will not address the lack of price/cost certainty.
12. Despite our severe reservations about the proposed changes, Visy believes the expansion of small solar systems and other domestic energy-efficient systems still warrants encouragement. However these schemes should continue to be funded by special budget allocations rather than allowing the costs to be merged with the "large REC" mechanism.
13. The Expanded RET has rightly recognised the need to protect Australia's domestic trade-exposed and energy-intensive industries through the provision of a partial exemption mechanism linked to EITE classification/status. Visy supports this mechanism.
14. Visy believes that promoting practical energy efficiency is the most effective way to reduce primary energy use and reduce carbon whilst maintaining Australia's competitiveness in manufacturing and associated investments.
15. On this point, under the current RET arrangements only the *electrical* output of industrial renewable generation can attract RECs. Visy believes this is a significant shortcoming, because it is the associated *heat* capture in cogeneration systems which imparts the distinctive energy efficiencies of this type of investment.
16. Visy's submission to the Prime Minister's Energy Efficiency Task Group makes further comment on the need to incorporate the heat capture of industrial cogeneration systems in the large REC scheme. Relevant extracts from that submission are attached for the assistance of the Senate Committee (Attachment 1).

Further information

Visy would welcome the opportunity of meeting with the Committee to further discuss the issues in this submission.

For further information, contact:

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Attachment: *Visy's submission to the Prime Minister's Energy Efficiency Task Group*

Extract from

Submission to Prime Minister's Energy Efficiency Taskgroup

May 2010

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Incentivising capture of industrial heat energy

Visy has always advocated that governments should recognise heat as a valuable energy resource in Australia's industrial landscape. Unfortunately, this is currently a significantly underplayed aspect of Australia's energy conservation opportunity.

Prior to the release of the PM's Taskgroup Issues Paper, heat was seldom mentioned in public policy documents. Public programs have been dominated by *electrical* energy, mainly because mandated renewables schemes have been mediated via electricity retailers.

In recent submissions¹ Visy has proposed that the enhanced RET mechanism be utilised to incentivise where such heat is generated and captured as part of an industrial cogeneration circuit. However, even if the RET is not chosen as the vehicle for recognising and incentivising heat utilisation, Visy believes the Government should still grasp this heat opportunity without further delay.

Cogenerated heat in manufacturing industry

Heat capture and utilisation is relevant in several major industrial sectors in Australia, such as sugar, refining and pulp and paper. Visy has most experience in the pulp and paper industry. These facilities can play a major role in harnessing heat from combustion processes, particularly those involving renewable fuels. Some mills have already invested in a certain level of cogeneration, which Visy defines as the simultaneous or serial production of electricity and heat. Cogeneration involves the utilisation of the waste heat from primary electricity generation as an energy source of for industrial processes - which may include further electricity generation via combined cycle, which can achieve *up to 45% higher energy conversion efficiencies* than conventional grid power generation.

However such investments are costly compared with conventional power systems, and it is unsurprising that, in the absence of targeted Government assistance, Australia lags behind other jurisdictions in this aspect of energy efficiency.

Government assistance or facilitation is clearly warranted to incentivise the initial investment in further capturing and utilising this heat. Over time, this would deliver further advantages in cost competitiveness and energy efficiency.

Table 1 compares the nominal fuel efficiency of various forms of electrical generation technologies. It shows that natural gas or renewable-fuelled *cogeneration* can capture up to *twice the useful energy* as systems that don't invest in heat capture.

¹ For example, in its submission on *Enhancing the Renewable Energy Target* (April 2010)

Table 1 – Comparative fuel efficiency of various forms of electrical generation

Type of Generation	Nominal fuel efficiency	Fossil-fuel offset potential (C-intensity)	Current relative unit cost of generation
Brown coal conventional	25% - 35%	Nil (1.3 t/MWh)	Low
Black coal conventional	30% - 40%	Nil (1.0 t/MWh)	Low
Gas-fired Open Cycle	30% - 40%	Nil (0.7 t/MWh)	High (peak power only)
Gas-fired Combined Cycle	45% - 55%	Low (0.5 t/MWh)	Medium
Cogeneration (Natural Gas)	70% - 85%	Med (0.3 t/MWh)	High (i.e. needs initial investment incentive)
Cogeneration (Renewable)	70% - 85%	Max (0 t/MWh _e) (0 t/MWh _{th})	Very high (i.e. needs initial investment incentive)

As noted above, Visy is concerned that heat capture has largely been overlooked in Australia's renewable energy policy. There is a strong case for the Government to include in its enhanced RET mechanism cogenerated heat from electricity generation in industrial processes. Rewarding heat capture could be achieved by crediting it through Renewable Energy Certificates on the same basis as renewable electricity, that is: 1 MWh_{thermal} = 1 MWh_{electrical}.

Visy has already invested heavily in renewable electricity generation to supply process power to its paper mills. At Tumut, for example, over \$150m has already been committed to develop energy circuits for biomass-based electricity production. The investment objective is to capture the heat from this circuit and use it in place of fossil-fuel supplied process energy.

Under the current RET arrangements, only the *electrical* output of our generator can attract RECs. This is a significant shortcoming, because it is the associated *heat* capture which creates the distinctive efficiencies of this type of investment.

Avoiding policy 'floodgates' on heat capture

In its discussion with Government on this matter, Visy has acknowledged possible concerns regarding the potential "floodgates" issue involved in allowing renewable heat to qualify for REC creation. To address this we would propose limiting the measure to *situations where that heat is captured as part of a renewable electricity generation circuit*.

This proviso is important to maintain the policy integrity of the RET, viz "... reduction in emissions of greenhouse gases in the *electricity sector*...". It will also serve to "ring-fence" the measure to situations where renewable electricity production is the principal objective (as distinct from heat alone as in, for example, wood-fuelled space heaters, etc.).

The pulp and paper industry could generate major benefits for Australia's overall energy efficiency imperative if investments in associated heat capture were incentivized. For example, it would provide:

- a substitute for grid-supplied electricity energy *per se*, displacing conventional MWh_{electrical}, and
- a substitute for conventional thermal energy as a direct consequence of, and in connection with, the substitute electricity generation. This forms an important contribution to the wider energy sector's renewable energy ambitions. For example, capture of heat from renewable-fuel direct-fired boilers can aid in greenhouse gas emissions reductions *even though these may not be part of the electricity network*.

The recently-released Pulp & Paper Industry Strategy Group's report (April 2010²) recommended *inter alia*, the:

- encouragement of greater investment in embedded renewable energy generation at pulp and paper facilities, including establishing a Council of Australian Governments (COAG) working group to review incentives that influence investment in site-based electricity and steam generation, with the intent of increasing the uptake of these energy generation options, and
- amending the expanded RET rules to enable renewable energy certificate creation from the renewable heat component of co-generation circuits

Visy strongly supports these recommendations.

Australia lags other jurisdictions in recognising the environmental value of heat capture

As noted above, from the perspective of policy and practice, Australia lags behind many other developed nations in investment in heat capture. For example:

- Europe passed a formal cogeneration directive in 2006, binding member states to specific action. According to COGEN Europe, combined heat and power (CHP), provides 11% of the EU27's total electricity production today, placing cogeneration ahead of wind, solar and biomass combined, in terms of the amounts of electricity generated.
- The UK Government actively supports CHP as part of its goal of achieving a 60% reduction in carbon dioxide emissions by 2050. It has set progressive targets to source its government electricity use from CHP systems. Other UK measures to encourage CHP growth are financial incentives, grant support, a greater regulatory framework, and government leadership and partnership. In particular, the UK exempts companies that invest in CHP from its Climate Change Levy, and expects this single incentive will deliver around 7 GW of new generation capacity, and reduce emissions by 3.2 million tonnes of carbon dioxide.
- The International Energy Agency believes that expansion of cogeneration in France, Germany, Italy and the UK alone will effectively double the existing primary fuel savings by 2030, dramatically cutting greenhouse gas emissions.

² www.innovation.gov.au/Section/Industry/Pages/PulpandPaperIndustryStrategyGroupFinalReportMarch2010.aspx

- The US is actively encouraging heat capture through CHP investments. McKinsey recently reported* that "... NPV-positive deployment of combined heat and power systems could increase from 85 GW in 2008 to 135 GW in 2020, representing a substantial opportunity to increase efficiency in primary energy and drive 1,390 trillion BTUs of primary energy savings, reduce facility-level energy costs by \$77 billion, and abate greenhouse gas emissions by 100 megatons of CO₂e."

Australia would benefit from adopting an aggressive pro-investment policy framework towards heat capture and utilisation, especially in industrial systems.

Visy contends that this needs to be led by the Government. Otherwise investments will drift naturally toward the lowest-cost (and unfortunately lowest-efficiency) options, or to offshore locations where proactive programs exist.

Incorporating this measure into the enhanced RET would greatly assist Australia to achieve the nation's energy use and greenhouse gas reduction aspirations. However the PM's Taskgroup may identify other avenues for implementation of this initiative and, provided the transaction costs were reasonable, and duplication of schemes was avoided, Visy would consider supporting other such avenues.

Tradable instruments for energy efficiency

Visy has been an active participant in the NSW GGAS since its inception, and has developed investments that have been supported by the various rules offered by that scheme.

Visy believes the GGAS has been one of the most effective, incentivising mechanisms for investments in energy efficiency and carbon abatement. In its submissions on the possible transition from the GGAS to national schemes³ (CPRS, EE, or similar), Visy has argued for the benefits (and experience) gained under the GGAS *Generation Rule* and the *Demand Side Abatement Rule* to be maintained under new national arrangements, including a possible national energy efficiency trading scheme.

Visy is a registered participant under the new NSW Energy Savings Scheme and is already creating ESCs through projects in its NSW paper mills. Further projects are being developed.

From Visy's perspective as a major manufacturing business, tradable instrument schemes such as the NSW ESS are an accessible and practical way to capture energy efficiency benefits within existing enterprises, and to encourage better design of new ones.

Visy therefore urges the PM's Taskgroup to consider this type of scheme as a means of encouraging energy efficiency whilst not impeding jobs and investment opportunities in the Australian manufacturing sector.

* Granade, H.C., Creyts, J., Derkach, A., Farese, P., Nyquist, S., and Ostrowski, K. 2010. *Unlocking energy efficiency in the U.S. economy*. McKinsey & Company.

³ For example, Visy submission to the NSW Government - *Transition from the NSW Greenhouse Gas Abatement Scheme to an Australian Emissions Trading Scheme* – April 2008

Benefits of recycling

Recycling conserves energy and reduced greenhouse gas emissions.

Visy is Australia's largest recycling and domestic remanufacturing company. Its recycling activities have a major positive impact on energy conservation and greenhouse gas emissions. This occurs in two main ways:

- (a) avoidance of methane-generating landfill decomposition by diverting paper and fibre-based waste to remanufacturing through investment in recycling infrastructure. For each tonne of waste paper Visy re-manufactures almost 1 tCO₂e is emitted in the re-manufacture of the paper. However, at the same time, 2.12 tCO₂e are abated due to the paper not being disposed to landfill. This results in a *net emission reduction* of 1.15 tonnes CO₂-e per tonne of waste paper remanufactured;
- (b) retention, through recycling, of the intrinsic embodied energy of glass, plastics and metals that would otherwise be discarded. In the absence of domestic recycling facilities (i.e. Visy's investments), in excess of 900,000 tonnes of glass, metals and plastics would be landfilled each year. While these materials are largely inert in landfill, their alternative use as manufacturing feedstock would be lost, together with the emissions savings that would have accrued by exploiting their embodied energy (see section Table 2 below). This would represent in excess of 1.9 million tonnes of lost CO₂-e savings per year.

The major energy efficiency gains from recycling are mainly implicated in (b) because of the resource use efficiency of utilising recycled feedstock over virgin materials.

Visy's contribution to greenhouse reduction through materials recovery and recycling amounts to 8.2 million tonnes CO₂-e each year, as shown in Table 2 (2006/07 data).

Table 2 - Visy's contribution to GHG abatement

Material	Tonnes collected/ sorted by Visy	Embodied energy (GJ / tonne)	Tonnes CO ₂ -e in embodied energy	Total embodied energy (GJ)	Total CO ₂ -e saved
Paper and cardboard	1,470,000	42.3	4.1	62,181,000	6,027,000
Glass	460,000	22.5	2.2	10,350,000	1,102,000
Aluminium	16,000	206	20.2	3,296,000	323,000
Steel	45,000	34.7	3.4	1,561,000	153,000
Plastics	79,000	78.2	7.7	6,177,800	608,300
Total					8,213,300

Source: 2006-2007 year, data audited and verified by Ernst & Young.

The greenhouse benefits of the landfill avoidance and recycling accrue at the point of transformation, that is, where the used materials are physically reprocessed into a new product. As such, Visy's investments generate greenhouse benefits by diverting and processing more materials within its own closed-loop system and also by diverting and on-selling materials to other recyclers, both domestic and off-shore.

Visy believes the PM's Taskgroup should seek to further encourage the diversion of energy-rich manufacturing feedstocks to domestic industry rather than to landfills, through recognition of their embodied energy value under relevant energy efficiency instruments.