



Accelerating cleantech

Future tax measures to accelerate the delivery
of clean technologies in Australia

Clean Energy Council

30 October 2009

 ERNST & YOUNG

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30 October 2009

Dear Matthew

**Accelerating cleantech
Future tax measures to accelerate the delivery of clean technologies in Australia**

Please find enclosed our report in relation to the use of tax incentives as a mechanism for stimulating investment in clean technologies. We have prepared the report in accordance with the terms of our engagement letter of 11 September 2009.

In summary, our report:

- ▶ outlines the existing general tax incentives that are available to participants in the cleantech industry;
- ▶ discusses how such tax incentives may be expanded and/or modified to cater more specifically to the particular needs of start up entities, established entities and investors in Australia's cleantech industry; and
- ▶ identifies and discusses new targeted tax incentives that could be considered by the Federal Government in order to promote investment and encourage further growth and development of the cleantech industry.

This report does not consider or document contemporary or best practice from other jurisdictions in any detail. These broader issues, along with other funding considerations, will be addressed as part of a separate report to be prepared by Ernst & Young for the Clean Energy Council.

We trust that this report is sufficient for your present purposes. If you have any questions or would like to discuss this further, please contact Marc on (02) 9248 5659 or David on (02) 9248 5059.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Marc Newson'.

Marc Newson
Partner - Oceania Cleantech Leader

A handwritten signature in black ink, appearing to read 'David Burns'.

David Burns
Partner - Oceania Tax Climate Change Leader

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1. Executive summary

Australia's Federal, State and Local Governments have a significant interest in the development of clean technology ("cleantech") because of the positive contribution such technology could make towards Australia's energy self-sufficiency, transition to a low-carbon economy and employment levels.

Like many emerging industries, the cleantech industry requires support from both the public and private sectors in order to grow and develop at an acceptable rate. No more so than with the delivery of clean energy. However, while Australia has an abundance of high quality clean energy resources from solar, geothermal, wave, wind and others, this is not enough to attract the large-scale investment needed to deliver a portfolio of low carbon energy solutions. The fundamental economics of clean energy investment also requires a strong electricity price and government incentives.¹

To date, the Federal Government has promoted investment in cleantech primarily through the provision of grants to entities undertaking eligible cleantech activities. Whilst the role of government grants is important in funding the development of cleantech, the Federal Government is unable to fund the entire development of the cleantech industry. As such, the Federal Government should consider providing targeted tax support for the development of cleantech in order to stimulate private investment in cleantech businesses.

Tax incentives are potentially a highly effective, efficient and equitable way for the Federal Government to supplement existing and proposed policies to encourage the growth of cleantech.

1.1 Existing tax incentives

There are no specific income tax incentives in existing Australian tax law to encourage private investment in cleantech. However, some investment activities undertaken by participants in the cleantech industry may qualify for existing non-targeted tax concessions.

The Federal Government should consider expanding and/or modifying the existing general tax incentives to cater more specifically to the particular needs of start up entities, established entities and investors in the cleantech industry.

1.2 Future targeted tax incentives

The Federal Government should also consider implementing targeted, specific tax incentives to encourage investment in cleantech.

Any such tax incentives would need to be carefully designed to cater to the diverse tax profiles of entities that are operating in the industry. For example, specific tax incentives which benefit established entities, such as accelerated depreciation deductions, may not necessarily be of benefit to early stage entities. This is because early stage entities are likely to be unprofitable for an extended period of time and during that period will generate tax losses, whilst established entities are more likely to be profitable and generate revenue which will be subject to tax.

In addition, any specific tax incentives will need to be carefully designed to protect the Federal Government's tax revenues and monitored to ensure that any unintended consequences and distortional effects are identified and promptly rectified.

¹ 20-20 Vision: Investment challenges and opportunities arising from Australia's 20% renewable energy target. Ernst & Young, November 2008.

1.3 Types of tax incentives

The types of tax incentives which could be implemented by the Federal Government include:

- ▶ Tax incentives which encourage private investment in cleantech equipment, including:
 - ▶ Enhanced accelerated tax depreciation (also referred to as “capital allowances”) for expenditure on new cleantech capital investment and retro-fitting of clean technology to existing plant to reduce carbon emissions;
 - ▶ Immediate deductions for exploration-type expenditure incurred for the purpose of identifying potential locations for geothermal, wave and other technologies that involve the prospecting of natural resources (similar to existing exploration concessions for the resources industry);
 - ▶ Investment allowances for plant used in eligible cleantech activities; and
 - ▶ Expansion of the proposed new research and development tax credit scheme to provide more thorough coverage for the cleantech sector.
- ▶ Tax incentives which encourage private investment in cleantech businesses, including:
 - ▶ Capital gains tax concessions and exemptions and concessional treatment for dividends received in relation to investments in cleantech entities, similar to the types of concessions which were previously available for Pooled Development Funds and are currently available for Early Stage Venture Capital Limited Partnerships; and
 - ▶ An improved tax loss regime for cleantech entities which would enable tax losses to be flowed through to investors, convertible into refundable tax credits and/or carried back for offset against prior year taxable income.

Section 3 of this report sets out some of the potential tax incentives that could be considered for implementation by the Federal Government. The tax incentives discussed in this report are not exhaustive. Rather, they are intended to stimulate discussion on this issue and assist in the advancement of the tax policy development process.

2. Cleantech in Australia

The transition to a low carbon economy will require innovation and will impact many industries, similar to how regulatory influence drove successive innovation in the transport and communication industries. The cleantech industry is an essential part of this innovation.

Australia's Federal, State and Local Governments have a significant interest in the development of cleantech for the following reasons:

- ▶ Cleantech is important for Australia's energy self-sufficiency;
- ▶ Cleantech represents an important source of future growth for Australia, creating new employment opportunities as efforts continue to:
 - ▶ protect scarce and natural resources, including water and agricultural land,
 - ▶ reduce the emissions intensity of primary industries; and
 - ▶ protect and extend Australia's metals and energy-based exports with innovative new techniques;
- ▶ Cleantech is also relevant for achieving the objectives of the Federal Government's proposed Carbon Pollution Reduction Scheme.

2.1 What are clean technologies?

The term "cleantech" typically describes the diverse range of innovative products and services that optimise the use of natural resources or reduce the negative environmental impact of their use, whilst creating value by lowering costs, improving efficiency or providing superior performance.²

The development of cleantech tends to be reliant on small businesses and entrepreneurs in the energy, property and construction, transport, water and waste sectors. Cleantech is also present in the manufacturing sector (for example, nanotechnology³) as well as the agriculture and forestry sectors (for example, biochar, algae and other forms of bio-sequestration).

² Cleantech Insights, June 2009, Ernst & Young

³ Nanotechnology is the branch of engineering that deals with things smaller than 100 nanometers (especially with the manipulation of individual molecules)

Examples of how cleantech initiatives are aligned to both the consumer and supply side of industry sectors are set out in the table below.

Consumer side	Supply side
Energy sector: <ul style="list-style-type: none"> ▶ Batteries ▶ Commercial solar photovoltaic ▶ Energy efficiency ▶ Fuel cells ▶ Grid demand response ▶ Power and efficiency management systems ▶ Residential solar photovoltaic ▶ Smart metering 	Energy sector: <ul style="list-style-type: none"> ▶ Bioenergy ▶ Coal seam gas ▶ Geothermal hot rocks ▶ Geo-sequestration ▶ Hydro ▶ Large scale photovoltaic ▶ Large scale solar thermal ▶ Microgrids ▶ Wave and tidal ▶ Wind
Property and construction sectors: <ul style="list-style-type: none"> ▶ Air filtration ▶ Heating, ventilation and air conditioning (HVAC) efficiencies ▶ Heatpumps ▶ Lighting technologies (e.g. LED) ▶ Solar hot water 	Property and construction sectors: <ul style="list-style-type: none"> ▶ Batteries ▶ Building integrated solar photovoltaic ▶ Fuel cells ▶ Geothermal direct heating and cooling ▶ Tri-generation plants for localised power, heating and cooling ▶ Urban wind
Transport sector: <ul style="list-style-type: none"> ▶ Electric cars ▶ Hybrid cars 	Transport sector: <ul style="list-style-type: none"> ▶ Biofuels ▶ Electric car grid infrastructure
Water sector: <ul style="list-style-type: none"> ▶ Conservation and monitoring systems ▶ Water purification 	Water sector: <ul style="list-style-type: none"> ▶ Waste water treatment ▶ Water re-use and recycling technologies
Waste sector: <ul style="list-style-type: none"> ▶ Re-use and recycling programs 	Waste sector: <ul style="list-style-type: none"> ▶ Biochar production⁴ ▶ Energy recovery and use ▶ Recycled materials and products

The cleantech industry is likely to change quickly as technology costs reduce and regulations change. There will also be opportunities for vertical integration, such as solar panel manufacturing and component integration that makes access easier for customers, and opportunities for emerging horizontal industry structures.

In addition, there may be some unintended consequences arising from the development of cleantech. For example, improvements in energy efficiency may increase (rather than reduce) energy consumption, as often happens when technology developments increase the efficient use of particular resources.

The clean technologies currently being pursued by each of the above noted industry sectors are at various stages of commercialisation. For example, wind energy is a mature technology and entities operating in this area can develop bankable projects. On the other hand, wave and geothermal energy production, biochar, fuel cells and many others are still to achieve commercial scale demonstration and are therefore reliant on equity from investors with different return expectations and varying degrees of patience.

⁴ A type of charcoal produced from heat treatment of waste and natural organic materials

2.2 Entities that invest in cleantech

One of the keys to investment policy design for cleantech, and the proper targeting of appropriate and affordable tax incentives, is to consider the profiles of entities that are operating in the industry.

Essentially, from an investment perspective, there are two types of entity that directly invest in cleantech and invest in its development:

- ▶ Entities that are in the early stages of developing cleantech (hereafter referred to as “early stage entities”). These entities are likely to spend a significant amount of money on research, development and demonstration, and it can be years before their technology or product becomes commercially viable and starts generating revenues. Early stage entities are likely to be unprofitable for an extended period of time and during that period will generate tax losses.
- ▶ Entities that are more established and have already developed new commercially viable cleantech (hereafter referred to as “established entities”). Some of these entities have been developing a technology for at least 10 years. Others may be longstanding and well known corporations that are in the energy, property, transport, water, waste, agriculture and manufacturing sectors and are now attempting to implement these new technologies across their operations. Established entities are more likely to be profitable and generate revenue which will be subject to tax.

In addition to the Federal Government, private investors play a vital role in the development of cleantech. In this regard, funding from private investors, such as venture capitalists, corporate partners and high wealth individuals, will be necessary for the development of a robust cleantech industry.

An additional complication faced by the cleantech industry, particularly in the energy sector, is that many cleantech projects are large-scale in nature and therefore require significant upfront capital investment. In this regard, tax incentives may play a key role in encouraging such investment.

2.2.1 Early stage entities

For early stage entities, available tax deductions for expenditure on cleantech will generate tax losses that may be carried forward and potentially utilised against future assessable income. However, the value of these losses is diminished over time and the related tax deduction may confer no tangible cash benefit to the entity at the time it is most needed, namely when the relevant expenditure is incurred.

Since the cleantech industry in Australia is primarily made up of these types of entities⁵, the Federal Government should consider alternative tax incentives to encourage early investment in the industry.

2.2.2 Established entities

Established businesses in the cleantech sector, while no longer in the early stages of their development, will continue to face risks arising from scaling up their technologies for continued investment in cleantech, which may reduce their tax liability or move them into a tax loss position.⁶

⁵ The descriptive statistics for the current profile of the cleantech industry are being presented in a second report based on a survey conducted by Ernst & Young.

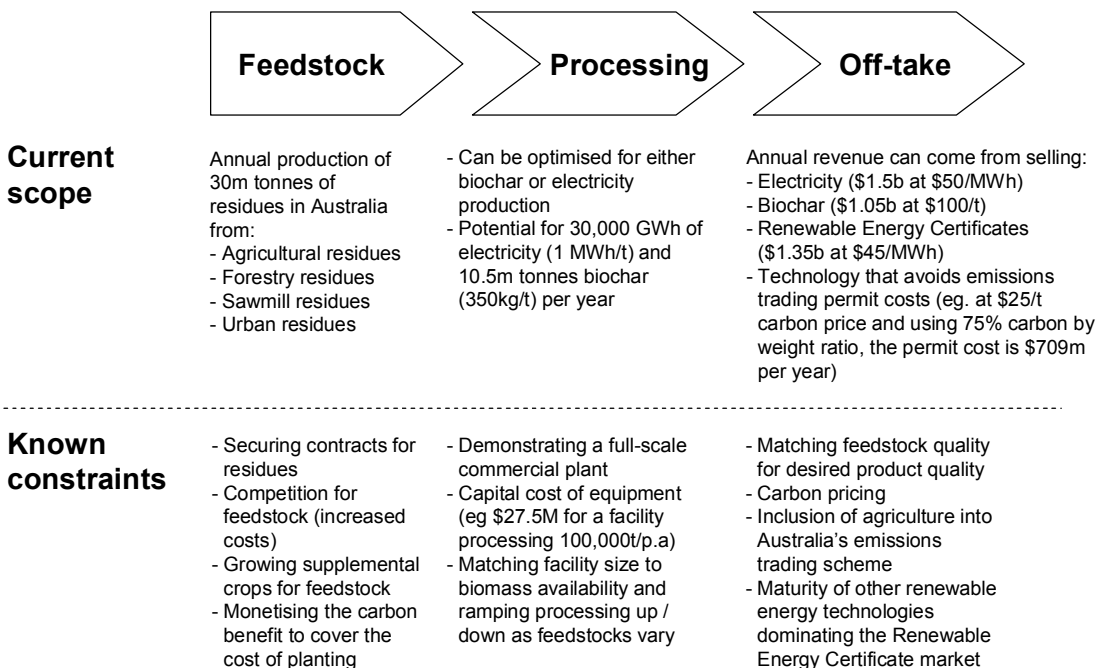
⁶ For example, as wind technology continues to move offshore and the demand for different generation profiles increases, the related technology risk increases. While Australian banks may provide funding for wind farms using 2.5MW or 5MW turbines, funding such projects using the latest 7MW turbines may be considered too risky from a technology perspective.

As discussed in Section 3.3.2 below, the Federal Government should consider making the existing tax loss regime more favourable for investors in order to reduce the investment risk for established entities.

2.2.3 Technology risk

As can be seen in the emerging value chain for biochar below, technology risk (or the perception of technology risk⁷) for cleantech can take many forms. While current policy may be focused on supporting the value of the production 'off-take' and grants to support research and development, the commercialisation of this cleantech will require quickly overcoming several key hurdles and potentially raising multiple rounds of private finance for large-scale demonstration and deployment before the off-take can be secured.

Technology risk in the production of biochar



Source: Cleantech matters. Going big: the rising influence of corporations on cleantech growth, Ernst & Young (forthcoming)

Reductions in technology risk generally lead to an increase in the willingness of investors to fund research, development and demonstration in cleantech. However, the emerging nature of the cleantech industry makes technology risk inevitable. For this reason, as discussed in section 3 below, any government tax incentives geared toward encouraging private capital investment in cleantech should aim to reduce the risks of 'trapped losses' if businesses are not successful.

2.3 Existing and proposed policies supporting cleantech

Like many emerging industries, the cleantech industry requires initial support from both the public and private sectors in order to grow the sector at an acceptable rate. A range of existing policies currently apply at the Federal, State and Local Government levels and some of the more significant policies are set out below.

⁷ In some cases, for example geothermal energy production, the technology risk is more akin to the resource quality risks that any mining or oil and gas exploration project faces.

2.3.1 Renewable Energy Target (RET)

On 1 April 2001, the Federal Government established the RET with the aim of ensuring that 10 per cent (15,000 GWh) of Australia's electricity would be generated from renewable sources by 2010. It also created the framework for the existing market in renewable energy certificates ("REC").

More recently, the RET has been increased to a target of 20 per cent by 2020 in line with the OECD average. This target will require approximately 10,600MW of new generation capacity, assuming a capacity factor of 35 per cent with an increase in Australia's ability to supply renewable energy from approximately 15,000 GWh to 60,000 GWh.

2.3.2 State-based energy efficiency schemes

A number of states have a scheme designed to make electricity retailers and other liable parties responsible for energy efficiency improvements. These schemes create a separate class of tradeable certificates. In order to comply, liable parties can either create these certificates through eligible energy efficiency activities or purchase certificates from other parties.

2.3.3 State-based premium feed-in tariffs

At present, each state has its own scheme (either in operation, or soon to commence), paying rates between 20 and 60 cents per kilowatt hour. Feed-in tariffs pay a premium rate for electricity fed back into the electricity grid from a renewable energy resource. These tariffs only apply to solar photovoltaic (with the exception of ACT) and are limited in size to either 5kW or 10kW.

2.3.4 Clean Energy Initiative

In the 2009 Budget, the Federal Government announced a \$4.5 billion Clean Energy initiative to support innovation in clean energy and low-emission technologies over 9 years. This initiative included the Carbon Capture and Storage ("CCS") Flagships, the Solar Flagships program and the establishment of the Australian Centre for Renewable Energy. While this is an important initiative, it does not provide any incentive for the broader portfolio of emerging technologies in the cleantech sector.

2.3.5 Fiscal stimulus packages

To date, fiscal stimulus packages have included rebates for the installation of certain types of hot water systems, insulation and rainwater tanks in homes, funding for businesses which have projects that improve the energy efficiency of buildings, appliances and industrial processes or projects that reduce the demand for electricity and water.

2.3.6 Carbon Pollution Reduction Scheme

The Federal Government's proposed Carbon Pollution Reduction Scheme ("CPRS") will be the primary mechanism for driving Australia towards a low carbon economy. However, on its own, the pricing of carbon through the CPRS is unlikely to provide an adequate financial incentive for the development of cleantech businesses in the near-term.

As such, the Federal Government should consider other business measures to provide sufficient incentives for Australian industry to make the transition to a low carbon economy. In this regard, additional tax incentives combined with the policies discussed above, should provide effective mechanisms that can be used by the Federal Government to accelerate the development of cleantech.

3. Tax policy issues

Australia's attractiveness as a location for private investment in cleantech for energy continues to remain mid-ranked across 25 developed countries.⁸ In this regard, the Federal Government's White Paper on emissions trading and the Garnaut Climate Change Review both recognised cost as being one of the greatest barriers to innovation and the development of appropriate infrastructure. As such, the Federal Government should consider using tax incentives to reduce this barrier and encourage the development of, and greater private investment in, cleantech.

We set out below some of the potential tax incentives that could be considered for implementation by the Federal Government. The tax incentives discussed in this report are not exhaustive. Rather, they are intended to stimulate discussion on this issue and assist in the advancement of the tax policy development process.

3.1 The role of tax incentives

As mentioned in section 2, there is a range of existing policies and programs at the Federal, State and Local Government levels to support specific cleantech initiatives. These programs provide grants to eligible entities engaged in eligible cleantech activities.

The Federal Government has requested that the current Review of Australia's Future Tax System chaired by Treasury Secretary Ken Henry (the "**Henry Review**") consider the merits of using the tax system to assist in the transition to a low carbon economy.

Tax incentives are potentially a highly effective, efficient and equitable way for the Federal Government to supplement existing and proposed climate-related regulatory reforms and encourage the growth of cleantech. A number of tax incentives and structures which have been implemented in other jurisdictions, including direct clean energy tax breaks, accelerated tax depreciation on clean energy assets and tax-efficient equity investment vehicles for individuals.⁹ For example, the US Renewable Energy Production Tax Credit ("**PTC**") system provides a per-kilowatt-hour tax credit for electricity generated by qualified energy resources and sold by the taxpayer to an unrelated person.

Some of the advantages of providing incentives and concessions through the tax system are:

- ▶ Tax concessions are generally considered to be more equitable than government grants as they are accessible to any qualifying taxpayer.
- ▶ Tax concessions are a more "market-based" solution and provide greater accountability and transparency in respect of the utilisation of public funds. By contrast, grants involve the perception of governments "picking winners" by targeting specific entities for grants or subsidies.
- ▶ Tax concessions reduce the political risk of grants being perceived to be awarded inappropriately or without appropriate discipline. Grants can steer a more conservative course (possibly at the expense of long-term benefits) due to greater public scrutiny and the expectation of immediate results.
- ▶ Tax concessions provide greater flexibility and allow businesses and investors to react relatively quickly to new developments and changing circumstances.

⁸ Renewable energy country attractiveness indices, Ernst & Young, Issue 22 (August 2009)

⁹ Renewable energy country attractiveness indices, Ernst & Young, Issue 22 (August 2009)

- ▶ Tax incentives that are properly structured can assist in getting early stage projects up and running. In an emerging industry such as cleantech, this is a particularly important point as participants need to be encouraged to experiment with new technologies. An appropriate tax concession would mitigate some of the inherent commercial risks in such experimentation and would encourage innovation in ways that most likely could not be achieved through direct government grants.
- ▶ Tax concessions can be tightly regulated but with simpler administration than grants and subsidies, which require labour intensive application processes, administrative processes and political intervention to deal with grant applications and approvals¹⁰.
- ▶ Tax concessions can be tightly regulated to prevent inappropriate outcomes and unforeseen revenue costs. This can be achieved through reporting to experienced and accountable Government agencies including the Australian Taxation Office (“ATO”).
- ▶ With reduced front-end demand on public service and government resources to assess investment proposals, government resources can be freed up to focus on policy development and regulation.

Importantly, any specific tax incentives will need to be carefully designed to protect the Federal Government’s tax revenue base. In addition, they will need to be monitored to ensure that any unintended consequences and distortional effects are identified and promptly rectified.

3.2 Tax incentives for cleantech participants

3.2.1 Lack of specific tax incentives

As there are no specific tax provisions which deal with cleantech, the tax treatment of cleantech expenditure is governed by the general tax provisions¹¹ (i.e. the existing tax provisions have been designed for the broader business community without reference to the cleantech industry).

In certain circumstances, the tax treatment of cleantech expenditure is unclear and may not be deductible for tax purposes. For example, existing tax law may not permit a deduction for preliminary expenditure undertaken before cleantech can be installed, such as expenditure for temporary access and pipe installation.

We have set out below a brief description of some of the existing tax measures that are relevant to cleantech and our suggestions as to how they might be modified to accelerate cleantech development.

3.2.2 General capital allowances deductions

3.2.2.1 Existing measures

The capital allowances rules apply to most tangible (excluding land), and some intangible, assets and provide tax depreciation deductions on an amortised basis over their effective lives¹². Accordingly, as the tax deduction for the cost of the asset is spread over many years, the present value of the tax benefit will be less than an upfront deduction.

¹⁰ The scientific and Australian cultural sectors confirm the significant investment of time and effort on the part of participants and governments in administering grants-based funding processes.

¹¹ Having regard to the wider context of moving to a low carbon economy, a 2007-08 Federal Budget measure provides for an allowable tax deduction for the establishment costs of qualifying carbon sink forests (one form of carbon bio-sequestration).

¹² The effective life of an asset for tax purposes, prescribed under s.40-105 of the *Income Tax Assessment Act 1997*, is not necessarily the same as the economic life, or annual deterioration in value for economic purposes.

The Federal Government has recognised this tax inefficiency in relation to the tax treatment of assets with long effective lives.

In this regard, it has previously provided concessions to adjust the capital allowances rules in order to promote certain tax policy objectives. For example, tax depreciation deductions have been accelerated in the past by using loadings of 18% or 20% on top of standard depreciation rates.

Currently, the capital allowances rules contain a 200% diminishing balance method which doubles the diminishing value rate that would otherwise be determined based on the effectively life of the asset (e.g. an asset with a 10 year effective life would have a 20% diminishing value rate). Such a loading is not available for plant and equipment where the prime cost (straight line) method is used.

In addition, currently some assets used in certain industries¹³ benefit from statutory effective life caps which are shorter than the asset's effective life. These effective life caps accelerate tax depreciation deductions, as they allow the cost of the asset to be deducted over a shorter time period than the life of the asset.

3.2.2.2 Options for future measures

Options which the Federal Government should consider for the expansion of the accelerated depreciation concessions include:

- ▶ increasing the 200% loading under the diminishing balance method;
- ▶ introducing a loading on existing depreciating rates for assets using the prime cost method;
- ▶ reducing the write off period for capital allowances by reducing or capping the effective lives of relevant cleantech assets. For example, the effective life might be set at a designated shorter period e.g. 5 years for an asset with a 10 year expected life.

These concessions could be targeted at certain assets used in cleantech businesses, with an eligible list of assets compiled through consultation, or be provided for all assets used by "eligible cleantech entities". As it could be challenging to develop a suitable definition of "eligible cleantech entities" which is narrow enough to minimise the chances of unintended consequences, alternatively an activity¹⁴ or value of assets test could be used to establish the scope of the concession.

Tax incentives for expenditure on existing (as opposed to new) assets should also be considered. This type of expenditure may not relate to a depreciable asset in its own right but rather could be treated as additional expenditure on an existing asset under the capital allowances rules.

For example, the commercial property sector faces a challenge of funding the conversion of old building stock into green building stock. The increasing demand for green star rated buildings makes it difficult for owners of old stock to secure long-term tenants. This leads to reduced rental rates and income which, in turn, leads to increased operating costs, impaired capital returns and subsequently loss in value. Tax incentives should therefore also be designed to encourage cleantech improvements to old building stock.

Expenditure on existing assets may require a reassessment of the effective life of the underlying asset to which the expenditure relates. Such expenditure may result in an

¹³ This includes investments in certain aircraft, transport equipment and pipelines benefit under s.40-102 of the *Income Tax Assessment Act 1997*.

¹⁴ For example, the eligibility rules for Renewable Energy Certificate generation are based on defined technologies or activities.

increase in the effective life of the existing asset for the purpose of the capital allowances rules. Where the reassessed effective life is not in line with the true commercial economic life, tax incentives could address this disconnect.

3.2.3 Specific capital allowances deductions

3.2.3.1 Existing measures

Existing measures in the specific capital allowances rules which could be modified to apply to investment in cleantech include:

- ▶ Specific capital expenditure concessions for expenditure on certain primary production assets and exploration in the resources industry. For example, in the case of mining exploration, expenditure is generally deductible in full in the year that it is incurred.
- ▶ Tax deductions on an amortising basis for mining capital expenditure which is not directly related to exploration.
- ▶ Specific capital allowances for capital 'project expenditure' which is not otherwise depreciable under the general capital allowances rules.
- ▶ A five year write-off is available for expenditure that is not otherwise eligible for tax relief under any other provision of the tax law. This write-off is restricted, but can apply to certain start up and establishment costs, such as capital raising and establishment of a business structure.

3.2.3.2 Options for future measures

The Federal Government should consider expanding the immediate deduction for exploration in the resources sector to cover exploration type activity in the cleantech industry. For example, geothermal energy production involves exploration activities similar to those in the mining sector, such as drilling to locate attractive sources of geothermal energy. It would be relatively straightforward to include geothermal exploration activities in the definition of exploration expenditure for the purposes of accessing the existing tax concession.

Likewise, wave energy companies are currently receiving investigative licenses for large areas of seabed for a finite period to conduct exploration type activities. The nature of clean energy resources is such that, while there may not be fuel costs, the cost of exploring and prospecting the resource quality can be high regardless of whether it is geothermal, wave or any other natural resource. The definition of exploration expenditure could be expanded to include these types of prospecting activities for the purposes of accessing the existing tax concession.

It could also benefit the cleantech industry by including it in the specific project deductions that currently apply to other mining capital expenditure. The scope of the provisions could be widened to include cleantech capital expenditure. Alternatively, a narrower approach could be adopted by expanding the definition of mining capital expenditure to include activities such as geothermal and wave resource prospecting.

The Federal Government should also consider rules to allow an immediate or accelerated deduction for some or all of the expenditure incurred on retro-fitting technologies to existing equipment to allow the use of lower carbon fuels or reduce emissions. Some of this expenditure may already be immediately deductible as an ordinary business expense. However, in the majority of cases, it is likely to be either capital in nature and not immediately deductible or classified as an improvement to an existing asset and deductible over the effective life of the relevant asset.

3.2.4 Investment allowances

3.2.4.1 Existing measures

Investment allowances have been used by the Federal Government to promote various policy agendas, particularly in times of economic downturn. For example:

- ▶ There was a 40% investment allowance from 1976. This investment allowance was reduced to 20% from 1978 and to 18% from 1981 until its termination in 1983.
- ▶ During the period between 1993 and 1995, there was a 10% deduction in respect of eligible capital expenditure.

The current "Small Business and General Business Tax Break" investment allowance applies in relation to capital expenditure on new, tangible depreciating assets in excess of a minimum threshold that is committed to on or after 13 December 2008 and before 31 December 2009. The allowance is a bonus tax deduction (over and above whatever depreciation is allowable) at the rate of:

- ▶ 50% for small businesses (with annual turnover of less than \$2 million); and
- ▶ 30% for other businesses (reducing to 10% if the expenditure was committed to after 30 June 2009).

Expenditure on eligible assets used in the cleantech industry will qualify for the current investment allowance. It is likely that the introduction of the current investment allowance has influenced expenditure on cleantech projects (e.g. rooftop solar photovoltaic for businesses, energy conservation, etc.).

3.2.4.2 Options for future measures

The Federal Government could consider extending the timeframe for the current investment allowance or introducing a new investment allowance that specifically covers expenditure on new and existing equipment used in the cleantech industry.

The policy basis for such a tax incentive is that installing cleantech equipment is likely to be expensive. For example:

- ▶ Retro-fitting of existing plant is likely to be more expensive than having the technology designed for new plant (e.g. design, fabrication and labour costs might be significant components of this expense). Such equipment is also likely to have a shorter economic life than comparable new equipment and may be subject to a higher rate of technological obsolescence.
- ▶ Converting old building stock into green building stock will require, in addition to the cost of individual floor meters and tri-generation plant, significant funding for ancillary cabling or pipework, temporary access and recommissioning.
- ▶ A gas turbine engine could be retro-fitted onto a closed landfill site for the purpose of redirecting flared methane gas into electricity production. This would also require significant additional costs for new pipework, monitoring equipment and the construction of buildings to house the turbine and components.

This type of investment is further challenged by the current uncertainty around a carbon price and the global financial crisis.

An investment allowance or similar tax concession may encourage investment in cleantech and be a positive driver of innovation and growth in the cleantech industry. Such an incentive could include:

- ▶ a specific timeframe with greater benefits for those prepared to invest sooner;
- ▶ different benefits for different types of taxpayers and different assets; and
- ▶ adjustment of the concession after its first announcement to refine the incentive.

3.2.5 Research and development

3.2.5.1 Existing measures

Under the existing tax law, entities which incur expenditure on or in relation to eligible research and development (“R&D”) may qualify for a deduction of up to 125% of the expenditure. An additional 50% deduction may also be available where the current year R&D expenditure has increased above the average R&D expenditure for the prior three years.

Following the recommendations of the Cutler Report into innovation in Australia (released on 9 September 2008), the Federal Government plans to replace the existing R&D tax concession regime with a new tax credit system. This represents a major policy shift and will impact most businesses conducting R&D across all industry sectors.

The new R&D tax credit system is intended to offset tax payable and is proposed to be refundable to small businesses. It is proposed to commence from 1 July 2010. However, the eligibility rules are still being developed and a consultation paper was released on 18 September 2009.

3.2.5.2 Options for future measures

Under the existing R&D measures, there are restrictions on the availability of depreciation deductions in respect of plant and equipment used in eligible R&D activities. As an additional tax incentive to encourage the development of cleantech, the Federal Government could consider removing these restrictions. This would enable eligible entities to effectively claim a bonus deduction in respect of the relevant plant and equipment, similar to the bonus deduction available under the current investment allowance.

The Federal Government could also consider changes to the proposed R&D tax credit system, such as an increase in the percentage amount of the credit for eligible expenditure in relation to cleantech. The eligibility rules for the R&D tax credit relating to expenditure on cleantech could be suitably defined through the consultation process.

The proposed R&D tax credit system could also be improved. For example, the percentage amount of the credit could be increased and the refund made available to all taxpayers, rather than just small businesses. Such changes would recognise the policy imperative of moving to a low carbon economy, the role of the R&D tax credit in assisting that process and the role to be played by all types of entities in developing new technologies. This would include all entities from small start-up enterprises driven by the desire to bring new products to market, to established large corporations seeking to change their production processes. A more universally available and refundable R&D tax credit would acknowledge the important role to be played by all businesses and enterprises in shaping Australia’s low carbon future.

3.3 Tax incentives for cleantech investors

The cleantech industry requires significant capital investment in order to fund the innovation and technological development necessary to grow and become commercially viable. Given the economics of cleantech, and the depressed investment climate caused by the current worldwide economic conditions, it is difficult for large scale cleantech investors to obtain the significant capital investment needed to gain traction and become viable. Market forces alone are unlikely to bring about the shift to a low carbon economy in the timeframe established by the Federal Government without further policy initiatives.

This situation is exacerbated in Australia as a result of the widening gap between an almost negligible venture capital industry and the increasing competition for capital following the global financial crisis. Lending margins have risen steadily over the past 12 months, reflecting the premium that banks are placing on the use of their capital. In addition, businesses (including energy companies) have seen an increase in the cost of raising corporate debt. This has led to a tightening of capital budgets and a reduction in investment programs.

It is therefore important that tax incentives are developed to encourage investment in emerging cleantech businesses.

3.3.1 Capital investment structures

Entities seeking to develop and commercialise cleantech face, amongst other things, long lead times, technical risk, spillover effects and intellectual property constraints. These risks are magnified with the global uncertainty and slow recovery from the global financial crisis. Therefore, as with any emerging industry, there is significant risk and uncertainty involved for investors.

In order to encourage capital investment in the cleantech industry and emerging cleantech businesses, the tax system should apply fairly to investors in early stage entities and those which invest in established entities. Otherwise, investors will tend to invest in safer, lower risk investments.

3.3.1.1 Existing measures

The Federal Government operated a pooled development funds (“PDF”) program that encouraged the investment of start up equity capital in eligible activities carried on by small to medium enterprises up until 2007. Under this program, PDFs were taxed as companies but are subject to concessional rates of tax on certain components of their income.

Shareholders in PDFs were generally:

- ▶ exempt from capital gains tax in relation to their shares; and
- ▶ not taxed on dividends received from the PDF.

Eligible activities for PDFs included the establishment of new business activities, substantial expansion of production capacity or services and the development of new markets or the expansion of existing markets.

Special venture capital franking rules were also linked to the PDF program to encourage superannuation-related entities to invest in PDFs. The effect of these rules was that eligible investors were able to:

- ▶ receive dividends from PDFs tax free; and
- ▶ recover the tax that had been paid by the PDF at the corporate level.

The PDF program still operates for entities that were registered as PDFs before 21 June 2007. Since that date, the PDF program has been replaced by a new “early stage venture capital limited partnership” (“**ESVCLP**”) program.

Rather than being treated as companies, ESVCLPs are taxed as partnerships, meaning that there is flow-through tax treatment under which the partners are taxed according to their particular status. These investors are generally exempt from capital gains tax in relation to their venture capital investments.

3.3.1.2 Options for future measures

As set out above, the Federal Government could consider a scheme similar to the former PDF regime or the current ESVCLP scheme for taxpayers who invest in cleantech. Under such a scheme, investors could be entitled to:

- ▶ concessional CGT treatment with respect to their equity interests; and/or
- ▶ more favourable taxation treatment of their dividends or other distributions.

Tax concessions for the cleantech industry under such a scheme could be targeted directly towards investors. Alternatively, they could be implemented at the entity level and flow through to investors. This could be achieved by modifying the current ESVCLP scheme or creation of a new venture capital franking regime that might be broadly similar to the previous PDF regime for superannuation fund investors.

In this regard, the Federal Government will need to develop eligibility criteria based on the types of activities undertaken by cleantech entities. This eligibility criteria should be tailored to ensure the scheme achieves its objective to encourage investment in cleantech businesses. The experience with the venture capital concessions is that the initial concessions were too narrowly focused and did not achieve Government objectives, requiring second-round policy adjustments to improve the investment incentives.

3.3.2 Tax losses

3.3.2.1 Existing measures

Australia’s current tax loss rules provide no incentive for the investment of funds in companies and businesses which are exposed to commercial risks. These tax loss rules and their impact on investment is an area of focus for the Henry Review.

Under the existing tax loss rules, investors in early stage companies or trusts are taxed immediately on distributed profits (if and when they are eventually achieved), but any tax losses are quarantined and cannot be distributed to investors. If the business does not succeed, the tax losses will be trapped in the company or trust and not available to be distributed as deductible losses to its investors.

Generally, diversified investors will have investment portfolios which include investments with significant gains, investment with significant losses and investments which broadly break-even. Whilst the investors might ultimately be entitled to capital losses on their loss making investments, the use of such losses is restricted as they can only be offset against current and future capital gains. Therefore, an unsuccessful investment may achieve no cash tax benefit in respect of the loss, whilst the tax cost of a successful investment might be up to 46.5% of the gain (depending on the mix of company tax, investor taxes, capital gains tax and franking outcomes).

The treatment of tax losses for investors in companies or trusts is asymmetric with the treatment of income generated by a company or trust¹⁵. This asymmetry is a significant tax disincentive to investing in early stage or emerging industries.

Whilst a solution to the issues set out above could be for investors to invest into cleantech partnerships, such investment structures create legal and commercial risks for the partners, result in complicated documentation for investors and financiers and are cumbersome for introducing new equity.

3.3.2.2 Options for future measures

The Federal Government should consider specific tax loss concessions to encourage investment in the cleantech industry, including:

- ▶ a mechanism to flow through losses from the business to cleantech investors or allow the business to transfer the losses to its investors in exchange for capital. Similar regimes exist in Canada and other countries for entities in the resources industry. This treatment would allow tax losses that are often generated in the start-up phase of operations to be passed on to investors, who may be able to utilise them immediately.
- ▶ a loss-to-credit conversion whereby a business might obtain a tax refund in exchange for its losses; or
- ▶ a loss carry-back regime similar to those operating in some foreign jurisdictions, which would enable losses to be offset against taxable income in prior years, thus generating tax refunds in respect of those earlier years.

As a final point, as with any changes to the tax system, any specific tax loss concessions for the cleantech industry would need to be carefully designed to protect the Federal Government's revenue base and preclude any inappropriate tax minimisation.

¹⁵ "...at least since the contribution of Domar and Musgrave (1944) economists have recognized that the tax system may actually encourage risktaking when losses are fully deductible ... Similarly, where income and losses are treated asymmetrically, for example where full loss offset is not provided, the tax system can lead to a bias against risky investments" - *"Taxing Capital Income – Options For Reform In Australia"*, Draft paper for the Australia's Future Tax System Conference, June, 2009, by Peter Birch Sørensen, University of Copenhagen, and Shane Matthew Johnson, Department of the Treasury

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