A CLEANER FUTURE FOR POWER STATIONS

INTERDEPARTMENTAL TASK GROUP DISCUSSION PAPER

Introduction

On 23 July 2010 the Government released[1] the *Cleaner Future for Power Stations* election commitment which includes the establishment of new emissions standards and reporting requirements for power stations, and in particular that all new coal-fired power stations will be required to meet best practice emissions standards and be built Carbon Capture and Storage Ready (CCS-Ready). Specifically, the Government announced:

1. *Best practice emissions standards for new coal-fired power stations:*
    - all new coal-fired power stations will be required to meet an emission standard set with reference to best practice coal-fired generation technology;
    - the standard for best practice will be determined in consultation with stakeholders;
    - the starting point for consultation will be below the level (0.86 tCO_2-e/MWh) at which transitional assistance was proposed under the Carbon Pollution Reduction Scheme (CPRS); and
    - the standards are to commence in 2011.
2. *CCS-Ready standards:*
    - approval will only be granted to new coal-fired generators which meet the emissions standard and are capable of retrofitting CCS technologies;
    - all new coal-fired generators will be required to retrofit CCS technologies within an appropriate time after they become commercially available; and
    - the standard for CCS-Ready, tailored for Australian conditions, will be determined by the Government in consultation with stakeholders. The National CCS Council (formerly the National Low Emissions Coal Council) will play a key role in assisting with the work on the CCS-Ready standard.
3. *Expansion of Energy Efficiency Opportunities (EEO) program to cover* all existing generators, including coal-fired power stations.
4. *Publication of National Energy and Greenhouse Reporting (NGER) data:*
    - The Government will publish annual facility-level greenhouse gas emissions and electricity production data by electricity generation facility.

The Government has established an Interdepartmental Task Group (ITG) to develop these measures, in consultation with energy market institutions, State and Territory Governments, industry, and environmental stakeholders.

This discussion paper is intended to facilitate initial consultation with stakeholders on the *Cleaner Future for Power Stations* measures. It outlines the Government's commitment in relation to each of these elements, discusses the context of these measures, and proposes a way forward to defining and implementing measures. It also raises a series of important questions, for which stakeholder feedback is sought.

Written submissions to the ITG Secretariat are invited by 24 December 2010.

The ITG intends to undertake a consultation forum prior to the 24 December, and to continue consultation with stakeholders throughout the development and finalisation of these measures.

[1] Julia Gillard – speech at University of Queensland, 23 July 2010; Julia Gillard, Martin Ferguson and Penny Wong, Joint Media Release, Tough Emissions Standards for New Coal-fired Power Station, 23 Jul 2010 http://www.alp.org.au/federal-government/news/tough-emissions-standards-for-new-coal-fired-power/

Best Practice Emission Standards for New Coal- Fired Power Stations

Announced commitment

In relation to best practice emissions standards the Government announced:

- all new coal-fired generators are to meet an emission standard set with reference to best practice coal-fired generation technology;
- the standard for best practice will be determined in consultation with stakeholders;
- the starting point for consultation will be below the level (0.86 tCO_2-e/MWh); and
- the standards are to commence in 2011.

Context

Coal-fired electricity generation is critical for ensuring adequate, reliable, and affordable energy supply in Australia. Approximately three quarters of Australia's electricity is generated by coal, and just over 80 per cent of electricity generated in the National Electricity Market. This reflects the abundance of coal resources close to major electricity loads, and its competitiveness as a source of base load power generation. While there is expected to be an increase in gas and renewable generation; coal-fired electricity is likely to continue to play a major role in Australia's electricity generation requirements into the foreseeable future[2].

Currently, the electricity sector represents around 36 per cent of Australia's total greenhouse (GHG) emissions. Of this, coal-fired electricity generation accounts for 89 per cent of the electricity sector's GHG emissions[3]. The emissions-intensity of existing coal plants ranges from around 0.80 to 1.38 tCO_2-e/MWh ('as generated')[4] reflecting differences in plant age, design, and the type of coal used.

Significant progress has been made over the last two decades at improving the efficiency, and subsequent emissions-intensity of coal-fired generators. Given the long lifespan of generation assets (between 30 and 40 years), it is important that new coal-fired generators meet best practice emissions-intensity standards to reduce Australia's future GHG emissions.

Some State Governments have already implemented conditions for new coal-fired generators. The Victorian Government is developing a proposal to restrict approval of new coal-fired generators with emissions intensity above 0.80 tCO_2-e/MWh. The Queensland Government's conditions for new coal-fired generators require world's best practice low emission technology in order to achieve the lowest possible levels of emissions; and carbon capture and storage (CCS) readiness including retrofitting that technology within five years of CCS being proven on a commercial scale.

The purpose of establishing an emissions standard for new coal-fired power stations (referred to hereafter as 'the Standard') is to ensure that new investment in coal-fired generation is consistent with deployment of best practice emissions-intensity coal-fired electricity generation technology.

Most coal-fired generators in Australia (and globally) are based on combustion of pulverised coal (PC) in boilers to generate superheated steam that drives steam turbines to generate electricity. The heat and pressure of the steam determines the relative efficiency of the plant. Efficiencies vary from 20 per cent to more than 40 per cent,

[2] Geoscience Australia and ABARE, 2010, Australian Energy Resource Assessment
[3] Department of Climate Change and Energy Efficiency
[4] Unless otherwise stated emission intensity figures identified within this discussion paper are on an "as generated' basis.

depending on the thermal content of the coal used and specific design of the generation plant[5]. The emissions-intensity in PC generation varies depending on a large range of factors, including:

- type of coal used (eg, brown or black coal);
- boiler and steam turbine temperatures and pressures (subcritical, supercritical and ultra-supercritical);
- the type of plant cooling (air or water);
- design and type of generator; and
- age of the plant.

Coal is ranked in terms of moisture, carbon, and energy content. Sub-bituminous (black coal) - a low rank coal, and bituminous-thermal (black coal) - a higher ranked coal, are used for electricity generation in Queensland, New South Wales and Western Australia. The emissions-intensity of black coal-fired generation in Australia ranges from around 0.80 – 1.11 tCO_2-e/MWh ('as generated'). Lignite (brown coal) is a low rank coal, with high moisture content and low energy content. It is used for electricity generation mainly in Victoria. The emissions-intensity of brown coal-fired generation in Australia ranges from around 0.90 - 1.38 tCO_2-e/MWh ('as generated')[6]. Pre-drying brown coal has the potential to reduce carbon dioxide emissions close to a level achieved by black coal.

Co-firing is also used to generate electricity using coal with other fuel sources such as gas or biomass, the emissions-intensity of this form of generation is dependent on the proportion of gas or biomass used[7]. Electricity can also be generated as a co-product of other production processes, such as coal-to-liquids and coal-to-urea projects.

Boiler and steam turbine temperatures and pressures (referred to as subcritical, supercritical and ultrasupercritical) used in PC generation have different emissions-intensity. Subcritical generators operate at a relatively low temperature and pressure. Supercritical generators operate at a higher temperature and pressure, and are a more efficient form of electricity generation. The ultra-supercritical pulverised coal boilers can potentially increase efficiency significantly (to over 45 per cent) and reduce (by up to 40–50 per cent) CO_2-e emissions.

The type of plant-cooling also influences the emissions-intensity of electricity produced. While water cooling is less emissions-intensive than air cooling, water constraints can limit the use of water-cooled plants. While technologies can improve the energy-intensity of air-cooled plants, the overall improvement in emissions-intensity will not be as marked as for water cooled plants.

Carbon capture and storage (CCS) is a greenhouse gas mitigation technology that can potentially reduce CO_2 emissions from existing and future coal-fired power stations by more than 80 per cent. There are three main approaches to reducing emissions from coal use by removing CO_2. One of these removes CO_2 before the coal is burnt to produce electricity (i.e. pre-combustion using Integrated Gasification Combined Cycle technology) whereas the other two remove the CO_2 after combustion (oxyfuel combustion and post-combustion capture)[8].

The emissions-intensity of new entrant black coal Integrated Gasification Combined Cycle technology (IGCC) in Australia is estimated at around 0.70 tCO2-e/MWh. Integrated Drying Gasification Combined Cycle technology (IDGCC) using brown coal generates electricity at an estimated average emissions-intensity of around 0.73-0.78 tCO_2-e/MWh[9]. Advanced turbine technologies aimed at further increasing the efficiency of IDGCC, are in the research and development phase.

[5] Geoscience Australia and ABARE, 2010, Australian Energy Resource Assessment
[6] ACIL Tasman, 2009 Fuel resource, new entry and generation costs in the NEM
[7] Geoscience Australia and ABARE, 2010, Australian Energy Resource Assessment
[8] Geoscience Australia and ABARE, 2010, Australian Energy Resource Assessment
[9] Victorian Government Climate Change Action Plan 2010

IGCC CCS plants are estimated to have an emissions-intensity of 0.06 tCO_2-e/MWh. Oxyfuel combustion using black coal with CCS has an estimated emissions-intensity of 0.093 tCO_2-e/MWh[10]. While CCS technologies offer promising emissions reductions, CCS is not yet commercially available. This technology is further discussed in the subsequent chapter on "CCS-Ready Standards".

By comparison, alternative base load electricity generation from gas is estimated at 0.62 tCO_2-e/MWh from gas using Open Cycle Gas Turbines, and 0.37 tCO_2-e/MWh using Combined Cycle Gas Turbines. Accordingly, dual-fuelled power stations that generate electricity from coal-fired generation units and gas-fired generation units will have lower emissions-intensity than power stations that generate electricity from coal only.

There are differences of opinion in the estimated emissions-intensity of new power stations, being dependent on a range of factors. Indicative estimates for the emissions-intensity of new entrant and emerging technologies are depicted in the following table and graph, as a guide for discussion.

Table 1: Type, and estimated emissions-intensity of new entrant power stations

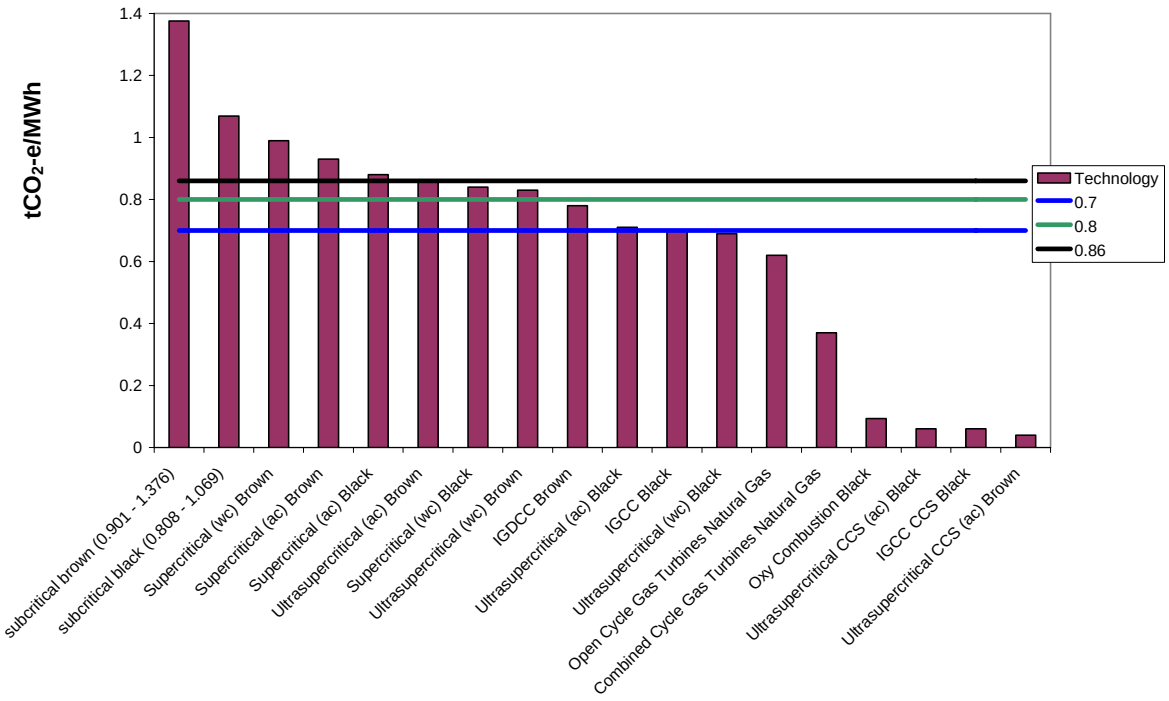
Technologies	***Fuel type***	***Estimated emissions-intensity*** **tCO_2-e/MWh** ***(as generated)***
Subcritical	Brown	0.901 - 1.376
Subcritical	Black	0.808 - 1.069
Supercritical (ac)	Brown	0.93
Supercritical (wc)	Brown	0.99
Supercritical (ac)	Black	0.88
Supercritical (wc)	Black	0.84
Emerging technologies expected emissions-intensities		
Ultrasupercritical (ac)	Brown	0.86
Ultrasupercritical (wc)	Brown	0.83
Ultrasupercritical (ac)	Black	0.71
Ultrasupercritical (wc)	Black	0.69
Emerging technologies expected emissions-intensities		
Ultrasupercritical CCS (ac)	Brown	0.04
Ultrasupercritical CCS (ac)	Black	0.06
Oxy Combustion	Black	0.093*
IGCC	Black	0.70
IGDCC	Brown	0.78**
IGCC CCS	Black	0.06
Emissions- intensity of alternate base load power plants		
Combined Cycle Gas Turbines	Natural Gas	0.37
Open Cycle Gas Turbines	Natural Gas	0.62

*Source: Derived from ACIL Tasman. *EPRI **Victorian Government Climate Change White Paper.*

ac= air cooled, wc = water cooled.

[10] EPRI Assessment of Electricity Generation Technologies in Australia 2010

Graph 1: Emissions-intensity of generation technologies



These estimates provide an indication of which technologies could be eligible under different emissions-intensity standard thresholds for new coal-fired power stations. As an example, 0.86 tCO_2-e/MWh threshold (indicated by the black line) would limit new coal-fired power stations to: best practice black coal subcritical and supercritical generation; and new technologies not currently used at commercial scale in Australia. Currently in Australia, only five subcritical and four supercritical power stations would meet this threshold. An emissions-intensity threshold set at this point would represent a significant reduction in the emissions-intensity of the next generation of coal-fired power stations.

A 0.80 tCO_2-e/MWh threshold (indicated by the green line) would limit new coal-fired plants to generators using black coal ultrasupercritical combustion technology, or emerging IGCC and IDGCC technologies which are not yet used commercially in Australia. A 0.70 tCO_2-e/MWh threshold (indicated by the blue line) would set coal-fired technology at the estimated best practice new entrant - IGCC technology.

The costs and implications of requiring best practice technologies, including capital cost, operating risk (particularly for emerging technologies, not currently used in Australia) will affect investment decisions, and the cost of electricity. It is important that consideration is given to the implications for Australia's energy mix and the capacity to provide reliable, adequate and affordable electricity to households and industry, as well as the abatement potential achieved.

Proposed way forward

The Government's announcement indicates that the Standard will be set with reference to best practice coal-fired generation technology, and at an emissions-intensity threshold below 0.86 tCO_2-e/MWh. This threshold was based on the *Carbon Pollution Reduction Scheme* 'as generated' threshold for *Electricity Sector Adjustment Scheme* assistance. In terms of setting the emissions-intensity threshold, the ITG intends to continue to use an 'as generated' standard, rather than 'sent out'.

The Standard could be set at different thresholds or take different forms, for example:

1. **At or below 0.86 tCO_2-e/MWh**
2. **At or below 0.80 tCO_2-e/MWh**
3. **At or below 0.70 tCO_2-e/MWh**
4. **A differentiated threshold by best-in-class existing and emerging systems i.e. subcritical, supercritical; ultrasupercritical, IGCC, and IDGCC;** or
5. **A Standard set with review and possibility of a declining threshold to account for improvements in technology.**

The Government seeks stakeholder views on the range of thresholds provided above, including any reasons for a preferred standard, with a view to the Government analysing this suite of options, and the implications and benefits associated. This will include analysis on the ability to retrofit certain types of plant to carbon capture and storage (CCS) technologies (see subsequent CCS-Ready section).

Coverage

In accordance with the announcement of the *Cleaner Future for Power Stations* commitment, the Standard will cover '*all new coal-fired power stations'*. A new coal-fired power station could be defined as

"A generation complex, generation complex project or generation unit that uses coal to generate electricity and may be grid connected or non-grid connected generation"

The announcement of the *Cleaner Future for Power Stations* commitment stated that the new requirements will not impact upon existing plants. However, the Standard may cover expansion of plant units. Applying the Standard to significant expansion of units would level out investment opportunities in Greenfield, and Brownfield generation, and provide for emissions-intensity improvements in existing generation assets. However, there is a risk that this could discourage capacity expansions. There are three options in relation to coverage of the Standard:

1. exclude existing generators, including future expansion generation units;
2. exclude existing generation units; and exclude expansion units if they are of a lower emissions intensity than the existing generation units; or
3. exclude existing generation units; however apply the standard to new expansion units.

The Standard would not apply to maintenance and refurbishment of existing generation units. The ITG seeks stakeholder views on the coverage of the Standard.

The announcement of the *Cleaner Future for Power Stations* commitment stated that '*planned investments which already have environmental approvals, and are determined by the energy market institutions as being sufficiently advanced in their regulatory approvals at commencement of these standards, will be exempt from them'*. In this regard, the Standard may not apply to 'advanced' or 'committed' projects. A 'committed project' could mean a project which energy market institutions considers has been fully committed by the project proponent taking into account the following factors:

a) the project proponent's rights to land for the construction of the project;
b) whether contracts for the supply and construction of the project's major plant or equipment, including contract provisions for project cancellation payments, have been executed;

c) the status of all planning and construction approvals and licences necessary for the commencement of construction of the project, including completed and approved environmental impact statements;

d) the level of commitment to financing arrangements for the project; and

e) whether project construction has commenced or a firm date has been set for it to commence.

An 'advanced proposal' could be considered as any project that meets at least three, and shows progress on two, of the five criteria specified for a committed project.

The ITG seeks stakeholder views on the most transparent and efficient process for determining inclusion; the level of detail required to provide certainty to investors; and, appropriate criteria to inform energy market institution assessment.

Date of Commencement

The announcement of the *Cleaner Future for Power Stations* indicated that the standards would commence in 2011. There are a number of options for the date when the Standard could come into effect, such as:

- Date of Royal Assent 2011; or
- 31 December 2011.

The ITG acknowledges that the date of commencement may affect coverage of individual plants, and seeks stakeholder views on the impact of the commencement date and how to best provide certainty to investors.

Implementation and Administration

Legal form

Given the Standard places a requirement for emissions-intensity thresholds to be met, with implications for the approval process, it will be necessary to enact the Standard through legislation. There are two likely ways in which the Standard could be enacted:

- a stand alone Act of Parliament incorporating the Standard, and CCS-Ready requirements; or
- insertion of a trigger in existing legislation, for example relevant State or relevant electricity market legislation.

Stand alone legislation is likely to provide a more expeditious and transparent form of enacting the Standard, and subsequent modification over time, if required. The Government seeks stakeholder views on the legal form of this legislation.

Administration

The Standard will require a form of administrative regime and an Authority to receive, and assess applications, make approval decisions, and monitor performance. The application process is likely to be on the basis of an independent expert technical report which estimates the predicted performance of the generator over a 2 year introductory period. The appropriate Authority could take a range of forms including:

- a existing national regulator;
- a new national regulator or body;
- Commonwealth Minister;

- State-based approvals bodies with an existing role in power station approvals (such as the Environmental Protection Agencies, the State regulators, or State planning authorities)

In designing an appropriate administration regime, the Government seeks stakeholder views on any administration issues, including issues which can impact project costs and development milestones, including: appropriate timing for applications and approvals; requirements for level of detail; and, appropriate criteria for independent assessors.

Monitoring and Compliance

While a plant may be deemed capable of meeting the threshold for approval, the plant performance may change over time due to under-performing assets, changes in fuel quality, the age of the plant, and changes in its performance over time. Administration of the Standard may require ongoing monitoring and compliance to ensure coal-fired plants are meeting the Standard.

Stakeholder views are sought on the form of an appropriate compliance and monitoring regime, and whether a form of penalty should apply to plants that operate at a level in excess of the Standard.

Phase Out

The Government's announcement of the Standard indicated that it would consider phasing out the new requirements upon the introduction of an economy-wide carbon price. The ITG seeks stakeholder views on any implications of a phase-out on investment, construction and planning activities. The ITG also seeks stakeholder views on an appropriate time frame to review the Standard.

KEY QUESTIONS FOR STAKEHOLDERS

Stakeholder views are welcomed on all aspects of this discussion paper, and in particular the following:

1. What are your views on the form of the standard?
2. What is the most appropriate threshold, given the implications associated with the range of options canvassed in this discussion paper?
3. Is the definition of the Standard appropriate?
4. Is the proposed coverage of the standard appropriate, particular in relation to existing power stations and advanced projects?
5. What is the most appropriate commencement date for the standard, and what are the implications for specific projects?
6. What criteria should be applied to the Authority and administration regime to minimise the costs and impacts on projects, whilst ensuring effective administration?
7. Should the standard be enforced though ongoing compliance or should approval for new coal-fired power stations be granted at commencement only?
8. Should the standard be phased out with the introduction of a carbon price, and what would be the implications of this for planning, investment, and construction activities?
9. Should the Standard be reviewed in the future?

CCS-Ready Standards

Announced commitment

In relation to CCS-Ready standards the Government announced:

- approval will only be granted to new coal-fired generators which are capable of retrofitting CCS technologies;
- all new coal-fired generators will be required to retrofit CCS technologies within an appropriate time after they become commercially available; and
- the standard for CCS-Ready, tailored for Australian conditions, will be determined by the Government in consultation with stakeholders. The National CCS Council (formerly the National Low Emissions Coal Council) will play a key role in assisting with the work on the CCS-Ready standard.

The development of a CCS-Ready Standard will give full consideration to both current state government policies and international work/developments.

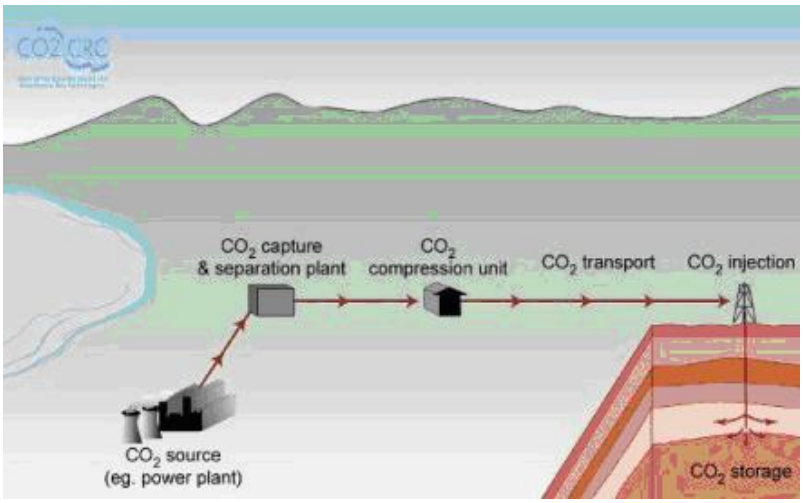
Context

Studies such as the International Panel on Climate Change (IPCC) Fourth Assessment Report (2007), the Stern Report (2006) and the International Energy Agency's (IEA) annual World Energy Outlooks have stated that the development and deployment of CCS technologies across all major emitting economies can make a significant contribution to the reduction of global GHG emissions. Furthermore, according to the IEA's Energy Technology Perspectives, CCS will need to contribute approximately one fifth of the emissions reductions necessary to reduce global greenhouse gas emissions (GHG) emissions by 50 per cent by 2050.[11] In the absence of CCS, the annual cost of meeting this emissions reduction target is approximately 70 per cent higher.[12]

As described in the preceding chapter on "Emission Standards", given Australia's abundant fossil fuel resources, CCS technologies have the potential to significantly reduce GHG emissions from the extraction, processing and use of these energy sources. Bringing forward broad scale deployment of CCS in Australia could help to achieve Australia's emissions reduction targets at least cost.

CCS involves the combined processes of capture, transport and geological storage of CO_2 and/or other greenhouse gases as shown in the diagram below.

[11] IEA (2008) *Energy Technology Perspectives*, Paris
[12] Intergovernmental Panel on Climate Change (IPCC) (2005) *Special Report on Carbon Dioxide Capture and Storage*, Cambridge University Press. Metz B, Davidson O, De Coninck H, Loos M and Meyer L

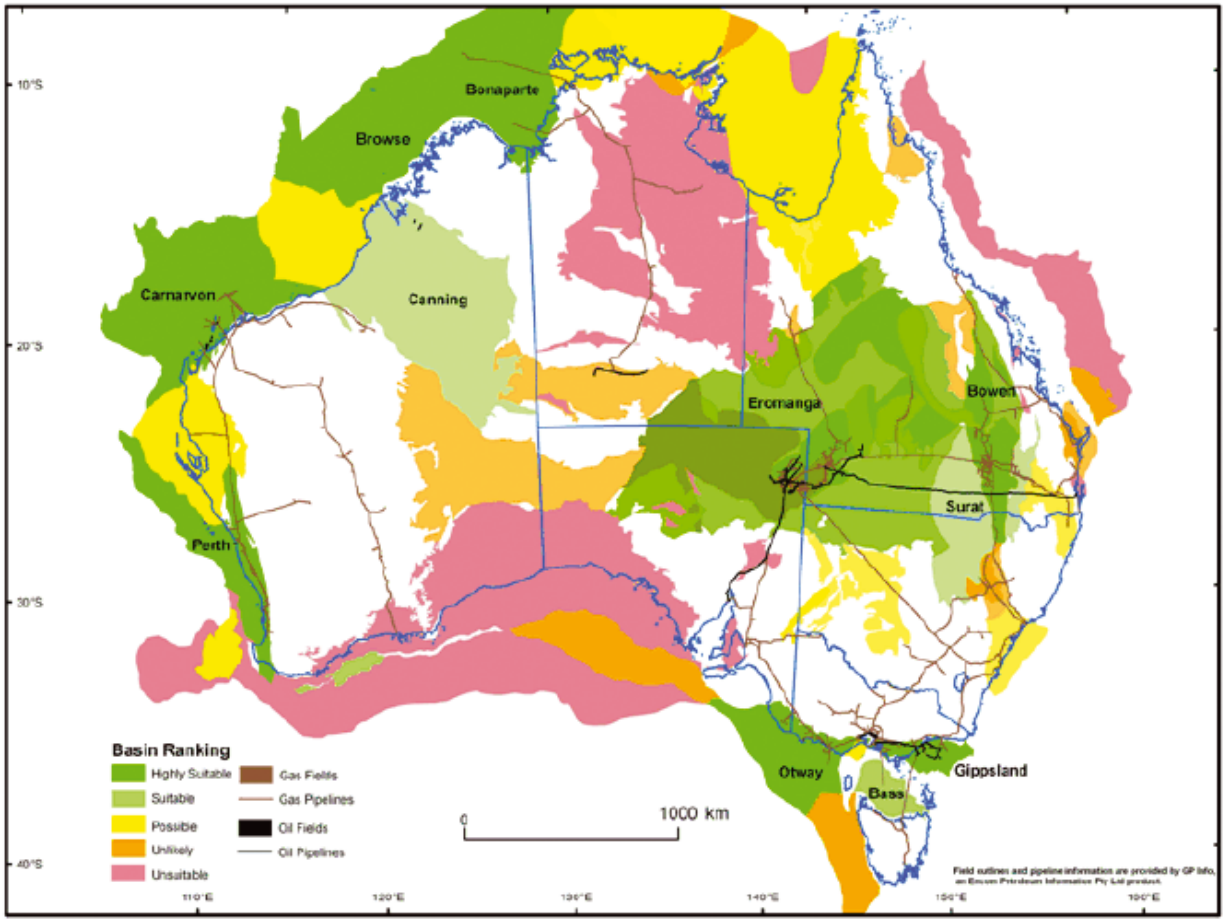


Source: CO2CRC

CO_2, a major greenhouse gas may be produced by the combustion of fossil fuels, or co-produced as a result of oil and gas extraction or some industrial processes. Instead of allowing CO_2 to be released into the atmosphere, they are captured at the emission site where they are separated from other substances. The separated stream is then compressed into a concentrated volume and transported from the source location (emission site) to the injection location. Geological storage comprises:

- the injection of the compressed CO_2 into geological formations in the deep sub-surface;
- its migration away from the immediate vicinity of the injection point; and
- its subsequent trapping in geological formations.

A figure ranking Australia's potential CO_2 storage basins is shown in the figure below.



Source: Carbon Storage Taskforce (2009)

Captured CO_2 can also be used in several industrial processes and is commonly referred to as CO_2 Use. Examples of these industrial processes are: mineralisation (carbonation); pharmaceutical and chemical processing; agriculture; and other biological applications.[13] As these processes do not consume large amounts of CO_2, they will need to be used in conjunction with permanent storage.

To capture the CO_2 before it can be emitted into the atmosphere, the CO_2 must first be separated from other gases and particulates resulting from combustion or processing. It is then compressed and purified to make it easier to transport and store. Some gas streams resulting from industrial processes, such as natural-gas purification and ammonia production, are very pure to begin with, whilst others may not be.

The three major technology options, as identified in the preceding chapter, that are available for the capture of CO_2 are:

- Post-combustion systems, which separate CO_2 from the flue gases produced by combustion of a primary fuel (coal, natural gas, oil or biomass) in air;

[13] Major Economies Forum on Energy and Climate (2009), *Technology Action Plan: Carbon Capture, Use and Storage*, Prepared by Australia and the United Kingdom in consultation with MEF Partners, p 26.

- Oxy-fuel combustion, which uses oxygen instead of air for combustion, producing a flue gas that is mainly H_2O and CO_2 and which is readily captured. This is an option still under development; and
- Pre-combustion systems, which involve processing the primary fuel in a reactor to produce separate streams of CO_2 for storage and H_2 which is used as a fuel.

Successful demonstration of CO_2 capture technologies open the way for large-scale production of low-carbon electricity and fuels for transportation, as well as for small-scale or distributed applications. Further, the IPCC indicates that the environmental risks of capture are generally considered low and can be largely governed by existing regulatory processes.[14]

The energy required to operate CO_2 capture systems reduces the overall efficiency of power generation or other processes, leading to increased fuel requirements relative to the same type of base plant without capture. However, as more efficient plants with capture become available and replace many of the older less efficient plants now in service, these impacts will be reduced.

CCS-Ready facilitates the transition to CCS and reduces the potential for stranded assets after CCS becomes commercially viable. The Global CCS Institute defines a stranded asset as a plant that is shut down before the end of its planned operational lifetime, as it is uneconomic to retrofit CCS.[15]

International developments

In 2008, the G8 Energy Ministers endorsed recommendations from the IEA and the Carbon Sequestration Leadership Forum (CSLF) that "further work [was] required to understand and define the concept of 'capture and storage ready' plants and its value as a viable [climate change] mitigation strategy." Since then, the Department of Resources, Energy and Tourism (DRET) has been part of a process with the Global CCS Institute, the IEA, the CSLF and a number of other countries to develop a globally recognised definition for CCS-Ready. This work was included in the June 2010 IEA and CSLF report to the G8.[16]

Defining CCS-Ready – Work Commissioned by the International Energy Agency, Carbon Sequestration Leadership Forum and the Global CCS Institute

The globally recognised definition contains several essential requirements to be met before a facility can be considered CCS-Ready. Essentially the project developer should:

- carry out a site specific study in sufficient engineering detail to ensure the plant is technically capable of being fully retrofitted for CO_2 capture, using one or more choices of technology which are proven or whose performance can be reliably estimated as being suitable;
- demonstrate that retrofitted capture equipment can be connected to the existing equipment effectively and without an excessive outage period and that there will be sufficient space available to construct and safely operate additional capture and compression facilities;
- identify realistic pipeline or other route(s) to storage of carbon dioxide;
- identify one or more potential storage areas which have been appropriately assessed and found likely to be suitable for safe geological storage of projected full lifetime volumes and rates of captured CO_2;

[14] Intergovernmental Panel on Climate Change (IPCC) *Special Report on Carbon Dioxide Capture and Storage*, Cambridge University Press. Metz B, Davidson O, De Coninck H, Loos M and Meyer , p 107.
[15] Global CCS Institute (2010) *CCS Ready – Issues Brief,* no.1. Available at: http://new.globalccsinstitute.com/community/groups/ccs-policy-and-regulations
[16] See IEA Papers (2010) *IEA/CSLF Report to the Muskoka 2010 G8 Summit*, 'CCS: Progress and Next Steps'. Available at: http://www.iea.org/papers/2010/ccs_g8.pdf

- identify other known factors, including any additional water requirements that could prevent installation and operation of CO_2 capture, transport and storage, and identify credible ways in which they could be overcome;
- estimate the likely costs of retrofitting capture, transport and storage;
- engage in appropriate public engagement and consideration of health, safety and environmental issues; and
- review CCS-Ready status and report on it periodically.

In considering principles of the CCS-Ready framework it is acknowledged that a degree of flexibility in the way jurisdictions apply the definition is essential, to take account of region and site specific issues and the rapidly-changing technology, policy and regulatory background to CCS and CCS-Ready globally.

The Global CCS Institute, IEA and CSLF definition applies to all industrial applications including power generation. For example, the United Kingdom's 'Carbon Capture Ready' policy extends to all combustion power plants including gas-fired power stations. The Australian Government is proposing to apply CCS-Ready only to new coal-fired power generation given its large contribution to overall national emissions. In the future, it may be appropriate to widen the scope of the CCS-Ready standard to encompass other sectors that contribute significantly to national emissions.

More recently, the Global CCS Institute released an issues paper to provide updated advice to governments wishing to implement CCS-Ready policy.[17] The paper builds upon the previous international work in this area.

State Government CCS-Ready policies

Three state governments: Queensland, New South Wales (NSW) and Western Australia (WA) have considered and/or implemented CCS-Ready policies in their respective jurisdictions. It is proposed that a national approach be taken to CCS-Ready to harmonise these policies.

Queensland

On 20 August 2009, the Queensland government announced a new commitment through its *ClimateSmart 2050* policy restricting the approval of new coal-fired power stations unless certain requirements were met.[18] The policy requires that a new power station:

- uses the world's best practice low emission technologies;
- is CCS-Ready; and
- will retrofit that technology within five years of CCS technology being proven on a commercial scale.

The Queensland government's definition of CCS-Ready requires generators to demonstrate that new plants have been designed with plans and milestones for incorporation of operational CCS and that there are no known barriers to installation once the technology has been proven on a commercial scale.

To some extent this policy was achieved through the amendment to the *Electricity Act 1994* (Qld) which requires that all new power stations obtain a Generation Authority issued by the Regulator. In deciding whether to grant the Generation Authority, the Regulator must consider, among other things:

[17] Global CCS Institute (2010) *CCS Ready – Issues Brief,* no.1. Available at: http://new.globalccsinstitute.com/community/groups/ccs-policy-and-regulations

[18] See Department of Employment, Economic Development and Innovation, 'Conditions for new coal-fired electricity generation'. Available at: http://www.climatechange.qld.gov.au/pdf/factsheets/1energy-n4.pdf

- the objectives of the Electricity Act; and
- "relevant government policies about environmental and energy issues and the likely environmental effects of building and operating the generating plant."[19]

CCS requirements will be one of the relevant government policies to be considered by the Regulator in determining whether to grant the Generation Authority.

New South Wales

The 2007 Inquiry into Electricity Supply in NSW (the Owen Inquiry) first considered the issue of CCS-Ready.

CCS-Ready has not been legislated in NSW; however, the Director-General of the NSW Department of Planning has the ability to set requirements for an Environmental Assessment under section 75F of the *Environmental Planning and Assessment Act 1979* (NSW). This ability of the Director-General has led to Environmental Assessments considering CCS in numerous cases including the Bayswater B Power Station application. The NSW Minister for Planning has granted concept approval for the Bayswater B power station project.

In the Bayswater matter, the Director-General's Requirements prescribed that an assessment must be undertaken on key issues including greenhouse gases. The evaluation needed to include "the availability and feasibility of measures to reduce and/or offset the greenhouse emissions of the project including options for carbon capture and storage."[20] The requirement went on to say that "where current available mitigation technology is not technically or economically feasible, the Environmental Assessment must demonstrate that the proposal will use the best available technology, including carbon capture readiness and identify options for triggers that would require a staged implementation of emerging mitigation technologies."[21]

Western Australia

The application of CCS-Ready requirements by the WA Government is similar to that of NSW. CCS-Ready requirements are not found in legislation; rather the requirements have been implemented through conditions recommended by the WA Environmental Protection Authority (EPA).

For example in March 2010, the EPA recommended to the Minister for Environment that the proposed Griffin Power Bluewaters coal-fired power station expansion only be approved if it was CCS-Ready, i.e. if it was retrofitted for CCS when the EPA determined that CCS is economically and technically proven, and at least equivalent to benchmarked best practice for greenhouse gas intensity. The EPA further recommended that these requirements remain in place until the EPA determined that they were no longer complementary with a Commonwealth emissions trading system. The Minister has followed the EPA's recommendations.

Proposed way forward

It is proposed that the most relevant principles from the international definition be adopted by Australia as mandatory requirements that a new power station must meet to satisfy being classed as a CCS-Ready facility.

Six proposed mandatory requirements consider issues pertaining to the retrofit of CCS which will avert the future risk of a 'stranded asset'. The requirements are:

1. Demonstrate sufficient space and access on site and within the facility to accommodate carbon capture and compression facilities for the majority of the plant's CO_2 emissions;

[19] See section 180(5) of the *Electricity Act 1994* (Qld).
[20] http://majorprojects.planning.nsw.gov.au/files/37092/Director-General's%20Requirements.pdf
[21] Ibid.

- *Proponents will submit a site plan that satisfactorily details the footprint of the CCS equipment needed (i.e. CO_2 compression and capture equipment, chemical storage facilities) to capture the majority of the plant's CO_2 emissions. The site plan must allow sufficient space, as determined by design studies, for needed equipment, construction zone and the effective handling of environmental and safety issues.*

2. Identify potential areas for long term geological storage of captured CO_2 (meeting the plant's capture needs);

- *Proponents will estimate the total CO_2 to be captured for the plant's life and identify geological formations that could realistically store this amount. A storage assessment will evaluate the formations based on pre-competitive data, such as work completed by state governments, the Australian Government and the Carbon Storage Taskforce. Proponents are not required to obtain a permit for these areas until CCS must be retrofitted. A risk assessment must be included, including key environmental considerations, such as post-injection CO_2 leakage and land use conflicts in the proposed basins, based on the information utilised in the storage evaluation.*

- *Where a project developer proposes to use an option other than geological storage of CO_2 to dispose of part of the captured CO_2, the proponents must identify the proportion of CO_2 expected to be disposed of by an alternative method and the site requirements and timeline for the conversion process plant. The Government may consider developments in emerging technologies in the future, and reassess the proportion of captured CO_2 that may be disposed of by alternative methods.*

3. Undertake a site specific assessment into the technical and economic feasibility of the CO_2 capture retrofit using one or more technology choices;

- *Proponents will identify an appropriate capture technology and prepare a feasibility study on retrofitting this technology into the plant's design. This must include an economic analysis of capture implementation and identify environmental and safety approvals required. Proponents are not required to obtain these approvals until CCS must be retrofitted.*

4. Identify a realistic transport method to identified storage sites;

- *Proponents will identify a transport method technically capable of transporting the total CO_2 to be captured for the plant's life. Proponents must include an assessment addressing land use conflicts and environmental and safety approvals. However these approvals are not required to be obtained until CCS must be retrofitted.*

5. Demonstrate measures and approvals that deal with the collection and treatment of pollutants resulting from the capture process and provisions for increased water requirements; and

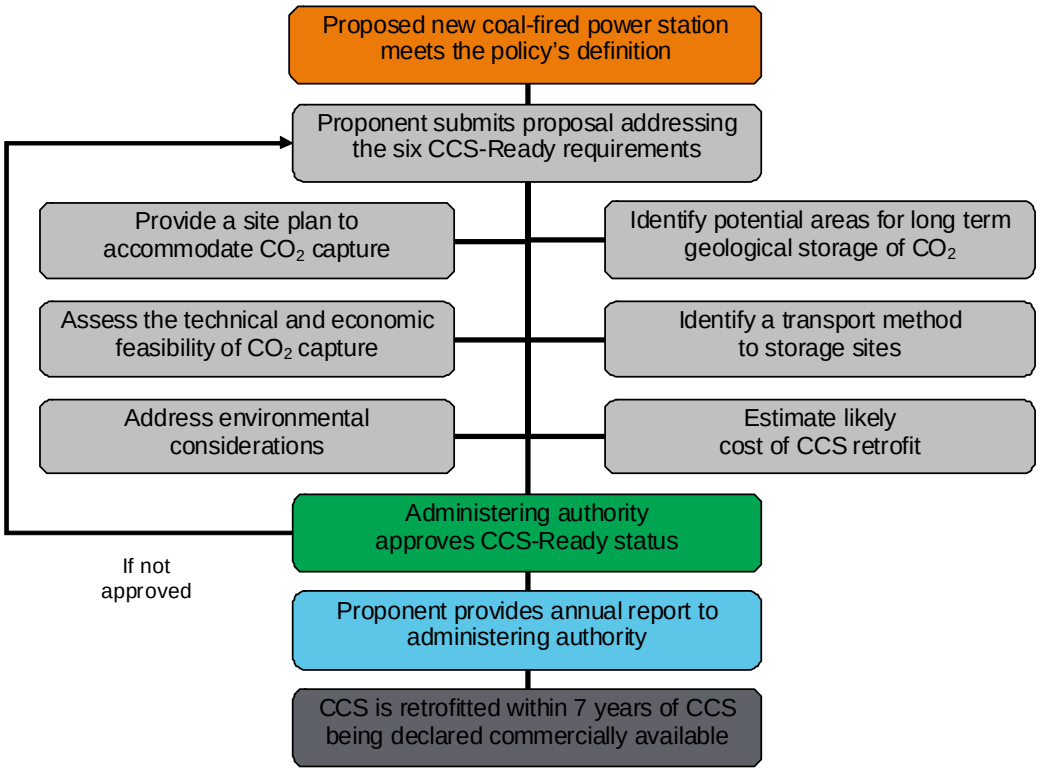
- *Proponents will address further environmental considerations by providing an environmental impact statement. This must outline measures that will be taken to manage chemical wastes and increased water use including any environmental or safety approvals required. Proponents are not required to obtain these approvals until CCS must be retrofitted.*

6. Estimate the likely costs of retrofitting capture, transport and storage.

- *Proponents will provide a detailed economic feasibility study of retrofitting CCS.*

Although all of the requirements must be applied, item 6 is classed as the key requirement.

A flow chart of the process is included below:



Coverage

It is proposed that the CCS-Ready standard should apply to all new coal-fired generators as referenced in the preceding chapter.

Implementation and administration

Legal form

It is proposed that the CCS-Ready standard could be implemented through the same instrument as the best practice emissions standards, to ensure consistent application and streamlined processes.

There are a number of ways in which the standards could be enacted, as referenced in the preceding chapter.

Administration

It is proposed that the CCS-Ready standard could be implemented through the same process as the best practice emissions standards, to ensure consistent application and streamlined processes.

There are a number of ways in which the standards could be administered, as referenced in the preceding chapter.

Reporting

Proponents will provide an annual report to the administering Authority on the plant's compliance with the standards, ensuring that the Authority is aware of any change in circumstance that affects the CCS-Readiness of the plant. Proponents must respond to developments in CCS and update feasibility assessments accordingly.

How will CCS be assessed as commercially available?

Several demonstration projects are planned in Australia as there are currently no plants operating at a level sufficient to demonstrate that the integrated technology is effective at scale. CCS is in a similar situation worldwide.

New coal-fired generators covered by the CCS-Ready standard will be required to retrofit CCS technologies within an appropriate timeframe after they become commercially available. A commitment of this nature requires a trigger point to define when CCS is considered commercially available and a defined appropriate time for retrofit.

To determine whether CCS is considered commercially available the Australian Government, in consultation with bodies such as the Global CCS Institute and IEA, would undertake a review process every two years. The review would consider:

- the technical viability of CCS, and whether retrofitting a plant is both operable from an engineering perspective and of a comparable scale (an indicative scale-up will be advised at a future date);
- the operational viability of each element of the technology in conjunction with other elements (i.e. carbon capture along with CO_2 transport and storage); and
- Australia-specific factors affecting the commercial availability of CCS.

Further, the Australian Government would define commercial availability as:

- integration of carbon capture, transport and storage has been proven at a comparable scale and technology in several demonstration plants worldwide;
- the systems comprising CCS are readily attainable; and
- safety and environmental risks of CCS have been minimised (e.g. the potential for carbon leakage from storage sites).

If the report positively assesses that CCS is commercially available, the Minister for Resources and Energy may make a declaration that a retrofit must occur. Due to the costs and planning involved with CCS being retrofitted to power generators, it is proposed that it will be mandatory to implement the planned CCS retrofit within four years and complete the retrofit within seven years of it being declared. This may allow the CCS retrofit to be implemented in a graduated manner.

KEY QUESTIONS FOR STAKEHOLDERS

Stakeholder views are welcomed on all aspects of this discussion paper, in particular the following:

10. Are there exceptions where it is not appropriate for the CCS-Ready standard to apply to the same activities and entities as the best practice emissions standards?

11. Are there reasons to enact the CCS-Ready standard through a different legislative process than the emissions standards? If so, what alternative would be suggested?

12. Are there reasons to administer the CCS-Ready standard through a different Authority or process than the emissions standards? If so what alternative would be suggested?

13. What criteria need to be covered in regulation or guidance material on what CCS-Ready facilities may require to demonstrate their CCS readiness?

14. What level of detail, if any, is required or practical when assessing whether a plant is CCS-Ready?

15. Should proponents be required to secure rights to potential storage areas to meet the CCS-Ready criteria?

16. Could the definitions create any unintended incentives, inconsistent with minimising long term emissions?

17. Is annual reporting appropriate to ensure that new power plants continue to comply with CCS-Ready standards?

18. Is it appropriate to phase out the CCS-Ready standard once a carbon price is introduced?

19. What level of detail should be required in the economic feasibility study?

The Extension of the Energy Efficiency Opportunities Program inclusion of electricity Generators

Announced commitment

In its announcement the Government also stated that it would:

- extend the Energy Efficiency Opportunities (EEO) program to all existing generators, including coal-fired power stations.

Context

Energy Efficiency Opportunities (EEO) program is designed to improve identification and uptake of cost-effective energy efficiency opportunities and thereby improve business productivity and reduce greenhouse gas emissions. Participation of generators in EEO will enable public recognition of the focus the energy supply sector already has on energy efficiency, and the rigorous and comprehensive assessment requirements will assist companies in the sector to identify new cost effective ways to improve efficiency.

The EEO program is enabled by the *Energy Efficiency Opportunities Act 2006* and the Energy Efficiency Opportunities Regulations 2006. It requires large energy-using businesses to carry out rigorous and comprehensive assessments to identify and evaluate cost effective energy efficiency opportunities, and report publicly on the results. Decisions on which energy efficiency opportunities to implement are made at the discretion of the business, but these decisions will be under public scrutiny through the public reporting requirement.

The Energy Efficiency Opportunities (EEO) program is mandatory for corporations in Australia that use more than 0.5 petajoules (PJ) of energy per year. There were over 280 controlling corporations registered for the EEO program as at October 2010.

Currently, corporations engaged mainly in electricity generation are temporarily exempt from obligations under the EEO legislation (until 30 June 2013). Electricity generators that operate non exempt activities (such as coal mining or gas production) that use more than 0.5 PJ of energy per annum are; however, not exempt for those activities and must register for the program and are required to undertake energy efficiency assessments.

The EEO program is designed to accommodate a wide range of business circumstances, so that it can be integrated into normal business processes and become an effective tool for assisting participants to improve their energy efficiency. While EEO is a legislative requirement, companies undertaking assessments to date have found significant energy and financial savings that are delivering genuine business benefits. In May 2010 the Department of Resources, Energy and Tourism published *First Opportunities A Look at Results from 2006 - 2008* which reports the outcomes from the first two years action by participants under the EEO program. This report is available on the Department's website at:

http://www.energyefficiencyopportunities.gov.au

On 4 November 2010 the Minister for Resources and Energy announced the latest results from action under the EEO Program. Details are contained within the '*Continuing Opportunities – A Look at Results for the Energy Efficiency Opportunities Program 2006-2009'*. 199 companies with trigger years 2005-06 and 2006-07 reported at the end of 2009 on progress over the first three years of the program. They reported that they had assessed 82 per cent of their energy use. From these assessments they had identified energy efficiency opportunities with annual savings of 113.7 petajoules (PJ) or 8.3 percent of energy use assessed. These potential savings are worth a net annual benefit of over $1 billion, and the Government estimates this will save 8.9 million tonnes of CO2 equivalent or 1.5 percent of Australia's 2007-08 total emissions if implemented. 93 PJ of these opportunities have a better than 4 year payback.

From these identified opportunities companies reported they were committed to implementing annual energy savings of 61.5 PJ, or 54 percent of the identified savings. This is worth more than $650 million pa in net financial benefits, saving an estimated 5.4 million tonnes of CO2 equivalent pa or 1 percent of Australia's 2007-08 total emissions. 60.3 percent of savings with a payback of better than 4 years are being adopted by companies.

Companies' implementation commitments for savings with a better than four year payback rose 64 percent from 34.1 PJ to 56 PJ of annual savings from 2008 to 2009.

Savings to be implemented represent an average net abatement saving of approximately $110 per tonne of CO2 reduced. This means that companies are getting a large financial return, not a cost, for saving greenhouse emissions from their energy efficiency opportunities.

Another 32 percent of opportunities (36.1 PJ) were under further investigation and 14 percent (15.8 PJ) were not to be implemented at the reporting date. This report, '*Continuing Opportunities – A Look at Results for the Energy Efficiency Opportunities Program 2006-2009',* is also available on the Department's website at:

http://www.energyefficiencyopportunities.gov.au

Efficiency improvements for electricity generators have previously been encouraged through programs including the Generator Efficiency Standards and Greenhouse Challenge programs. The Generator Efficiency Standards program ceased in 2009.

Generation businesses may have obligations under state based programs such as the Victorian Energy and Resource Efficiency Program, the Queensland State Energy Savings Program and the New South Wales Energy Savings Action Plan program. Many corporations with generation activities already report under the National Greenhouse and Energy Reporting System (NGERS) administered by the Department of Climate Change and Energy Efficiency.

The EEO Program is committed to working with other Commonwealth and state based agencies to minimise the burden of duplicative obligations across programs. Substantial progress has been made in aligning reporting requirements with the NGERS Scheme through the OSCAR online reporting system. This work is ongoing in accordance with the COAG National Greenhouse and Energy Reporting Streamlining Protocol.

Proposed way forward

Coverage

Participation in the EEO Program is determined by corporate group energy use. Generation corporations with operational control of energy use across their corporate group exceeding 0.5 PJ would be required to register and participate in the program. Corporate responsibility for energy use under EEO is aligned with the operational control definition of responsibility under NGERS. Energy sources applicable for determining energy use of a corporate group are listed in Schedule 1 of the *National Greenhouse and Energy Reporting Regulations 2008* http://www.climatechange.gov.au/en/government/initiatives/national-greenhouse-energy-reporting.aspx

Expansion of the EEO Program to the electricity generators is estimated to result in the registration of approximately three dozen additional corporate groups.

The EEO extension is intended to apply to generators from 1 July 2011.

Implementation and Administration

Legal form

The current exemption for electricity generation is effected by regulation under the *Energy Efficiency Opportunities Act 2006.* it is proposed that this regulation be amended to remove the exemption. Generators that meet the EEO registration requirements (described below) would then be subject to EEO obligations.

Administration

The EEO program operates on a rolling five-year assessment cycle. There are a number of obligations spaced across the EEO 5 year assessment cycle.

http://www.ret.gov.au/energy/efficiency/eeo/industry_guidelines/Pages/default.aspx

Registration

Corporations have 9 months from 1 July to apply to register for the program if their corporate group's energy use exceeded 0.5 petajoules in the trigger year – the preceding financial year, which is intended to be 2010-11 for generators. This would mean a registration deadline of 30 March 2012.

Assessment and Reporting Schedule

Registered corporations are then required to submit an Assessment and Reporting Schedule by 31 December – 18 months following the end of the trigger year. The Assessment and Reporting Schedule provides information to the government about baseline energy use and corporate structure and sets out a plan of how the corporate group will carry out the required assessments to address the key elements of the Assessment Framework.

Assessments

Businesses registered under EEO are required to undertake detailed assessments to the regulated standard in order to identify cost-effective opportunities to improve the efficiency of their energy use, with a financial payback of up to four years. Under the program, participating corporations must assess a minimum of 80 percent of their baseline corporate energy use during the first five year cycle. In addition all sites that use more than 0.5 PJ must be assessed. Second and subsequent assessment cycles require a minimum of 90 percent of corporate energy use to be assessed over five years

Each member of the corporate group scheduled to carry out assessments must complete its first assessments of at least one site, key activity or business unit within the first two years of the assessment cycle – ie by 30 June 2013.

Reporting

The first annual public report, and the first report to Government, are due by 31 December – 30 months after the end of the trigger year, Public reports are then required annually, The outcomes of assessments are reported both publicly and to the Government. Reports focus on the energy savings opportunities identified in the assessment/s and the business response to those opportunities, and later reports update the previous ones – i.e. reports are cumulative.

The Assessment Framework

The program's Assessment Framework takes a whole of business approach to assessing energy use and energy savings opportunities, rather than a narrow energy audit approach. The framework requires corporations

to look at the many factors influencing energy use, including leadership, management and policy; the accuracy and quality of the data and analysis; the skills and perspectives of a wide range of people; decision making; and communication of assessment outcomes. Participants are expected to meet minimum requirements in each of these areas.

The Assessment Framework is set out in the Energy Efficiency Opportunities Regulations 2006. The Assessment requirements were developed by building on the Australian/New Zealand Energy Audit Standard (3598:2000), drawing on experience from businesses and extensive industry consultation.

The Assessment Framework is made up of six key elements:

- Leadership support for the assessment and the improvement of energy use.
- The involvement of a range of skilled and experienced people, and people with a direct and indirect influence on energy use during the assessment process.
- Information and data that is appropriately, comprehensively and accurately measured and analysed.
- A process to identify, investigate and evaluate energy efficiency opportunities with paybacks of four years or less.
- Business decision making and planning for opportunities that are to be implemented or investigated further.
- Communicating the outcomes of the assessment and the investment decisions made regarding the opportunities identified and proposed business response, to senior management, the board and personnel involved.

Further detailed information on the EEO Assessment Framework and all program requirements are available in the Energy Efficiency Opportunities Industry Guidelines and NGERS Supplement:

http://www.ret.gov.au/energy/efficiency/eeo/industry_guidelines/Pages/default.aspx

Capacity Building

The EEO Program has published a series of materials to assist participating companies and the energy services sector meet the Program's requirements. The EEO Program places a large emphasis on communicating with participants to ensure that they are aware of the Program's requirements, and have access to tools and publications that will assist them. A range of guidance, case studies and technical materials have been developed and published.

The Department communicates with EEO Program stakeholders primarily through Client Liaison Officers, who each work with a group of companies in a particular industry to help them meet their compliance obligations. Other methods of communication include: the EEO website www.energyefficiencyopportunities.gov.au; quarterly e-newsletters; targeted emails and mail-outs; and a dedicated EEO Hotline.

Each year the Department organises national workshops to provide participants with information about how to meet Program requirements and achieve better results.

Compliance and Verification

The EEO legislation provides for fines of up to $110,000 per offence for non-compliance.

The program takes an approach through its capacity building efforts of assisting corporations to comply, and expects a constructive and cooperative approach from participants. However penalties will be pursued if corporations persist with wilful non compliance.

The Department undertakes verification activities, both desktop and on-site visits, to identify non-compliance. Around 100 corporations a year participate in desktop verification with 20-30 corporations a year being subject to full verification including site visits.

KEY QUESTIONS FOR STAKEHOLDERS

Stakeholder views are welcomed on all aspects of this discussion paper, in particular the following:

20. Are there particular EEO requirements that would be very difficult to apply to electricity generators?

21. Are there particular areas of the requirements where specific guidance for electricity generators is needed?

22. Are there any further changes needed to ensure the requirements deliver on the intent of the Act with regard to generators? For example, learnings from participation in the Generator Efficiency Standards Program? Issues regarding internal cost accounting for energy sources such as coal/gas/diesel sourced internally that may affect project payback calculations?

23. EEO Energy Use Rules currently include – solar, wind, water and geothermal energy use for electricity generation. Are there any potential considerations for specific requirements or exclusion of these energy sources?

National Energy and Greenhouse Reporting

Announced Commitment

The Government has committed to publishing annual facility-level greenhouse gas emissions and electricity production data for electricity generators. This requires amendments to the *National Energy and Greenhouse Reporting Act 2007* (NGER Act) to allow for publication of this data by the Greenhouse and Energy Data Officer (GEDO).

Context

Publication of NGER emission and energy production data at facility-level will better inform markets and the community about the performance of electricity generators as Australia moves to a low carbon economy. The electricity sector represents more than a third of Australia's greenhouse gas emissions and it is important for greater information to be available regarding the emissions intensity of existing generators.

Under the *National Greenhouse and Energy Reporting Act 2007* (the NGER Act), reporting entities are obliged to report information regarding their greenhouse gas emissions, energy production and energy consumption to the Greenhouse and Energy Data Officer (GEDO), provided certain thresholds are met. For financial year 2010-11, controlling corporations are required to register and report if:

1. they or a member of their corporate group have operational control of a facility that emits 25 kilotonnes or more of greenhouse gases (CO_2-e), or produces or consumes 100 terajoules or more of energy; or
2. their corporate group emits 50 kilotonnes or more of greenhouse gases (CO_2-e), or produces or consumes 200 terajoules or more of energy.

Reporting entities will need to provide their 2010-11 report to the GEDO by 31 October 2011.

Section 24 of the NGER Act requires the GEDO to publish each registered controlling corporation's scope 1 emissions, scope 2 emissions and energy consumption by 28 February following each NGERS reporting (financial) year. Therefore, 2010-11 NGER data will be published by 28 February 2012.

Proposed way forward

Coverage

The Government has committed to publishing annual facility-level greenhouse gas emissions and electricity production data for electricity generators, supplied under the NGER Act.

As such facility-level emissions and electricity production data would be published for electricity generation facilities with emissions over 25 kt or energy production over 100 terajoules (TJ) per year.

Implementation and administration

As generators must already report this data (as all would normally meet the relevant thresholds for reporting) the proposal to publish facility level emissions and electricity data will not require them to report any additional information.

In order to implement this commitment, an amendment would be made to the NGER Act requiring the GEDO to publish facility level emissions and electricity production data reported by electricity generators, similar to the GEDO's existing data publishing obligations under section 24 of the NGER Act. This amendment would apply to

the 2010-11 reporting year, with the first set of facility-level data for generation being published by 28 February 2012.

Controlling corporations that are required to report their greenhouse gas emissions and energy data can apply under section 25 of the NGER Act to request to have their information withheld from publication where it considers that publication of the information in question reveals, or could reveal, trade secrets or other confidential information that has a commercial value and such disclosure may destroy or diminish the value of the trade secrets or other information. To give effect to the commitment that emissions and energy production data for electricity generators at facility-level is publicly available, it is envisaged that electricity generators would not have access to this provision.

The amendments to the NGER Act would need to provide or make reference to a definition of an electricity generation facility. The *NGER Regulations 2008* defines industry sectors by Australian and New Zealand Standard Industrial Classification (ANZSIC) codes. Electricity generation is identified by ANZSIC code 261, which covers the industrial sub-sectors of fossil-fuel electricity generation, hydro-electricity generation and other electricity generation (which includes other types of renewable generation such as wind). The NGER Regulations also define a facility as an activity or series of activities attributable to a single industry sector, with the principal activity at the facility determining what industry sector each facility should be attributable to. These definitions would be replicated in the NGER Act to identify facilities that will have their data published by the GEDO by restricting the publication of facility-level emissions and electricity production data to cover only those facilities where the *principal* activity is electricity generation as identified by ANZSIC code 261.

This would mean other facilities where electricity is generated but where the principal activity is not electricity generation would not have their data published. For example, landfill sites which generate electricity from landfill gas or sugar mills that generate electricity from sugar cane bagasse would not have facility-level data published.

KEY QUESTIONS FOR STAKEHOLDERS

Stakeholder views are welcomed on all aspects of this discussion paper, in particular the following:

24. Should the definition of an electricity generation facility cover all types of electricity generation identified under ANZSIC code 261?

25. Are there particular problems in publishing this data?

26. How could or should the annual publishing of emissions and electricity production data relate to any compliance arrangements for new plant under the emissions standard?

27. Could annual reporting at facility level (under current facility definitions) create any unintended incentives, inconsistent with reducing costs in moving towards a low carbon future?

How to Respond

The ITG is seeking written submissions from interested individuals and organisations **preferably in electronic form submitted** by email to cleanerfuturepowerstations@ret.gov.au as an attached Adobe PDF or MS Word format document. The email must include full postal address and contact details.

Submissions should be received by 24 December 2010.

Written submissions may be submitted in hard copy/and or an electronic copy by e-mail, or letter to:

Cleaner Future Power Stations ITG Secretariat
Energy and Environment Division
Department of Resources, Energy and Tourism

E-mail: cleanerfuturepowerstations@ret.gov.au

Industry House
9/10 Binara St
Canberra City, ACT 2601
GPO Box 1564,
Canberra City, ACT 2601

Important: Please indicate clearly if you want your submission to be treated as confidential (that is, not to be made public) or anonymous (that is, the content can be made public but the author is not to be disclosed).

Confidentiality statement

All submissions will be treated as public documents, unless the author of the submission clearly indicates the contrary by marking all or part of the submission as 'confidential'. Public submissions may be published in full on the website, including any personal information of authors and/or other third parties contained in the submission. If your submission contains the personal information of any third party individuals, please indicate on the cover of your submission if they have not consented to the publication of their information. A request made under the *Freedom of Information Act 1982* for access to a submission marked confidential will be determined in accordance with that Act.

An electronic copy of the consultation document is available at: http://www.ret.gov.au

Next Steps

The ITG intends to hold a stakeholder forum on 16 December 2010 to hear stakeholder views on this discussion paper.

The ITG intends to consult stakeholders on the *Regulatory Impact Statement* relating to these measures in early 2011.

The ITG also intends to consult stakeholders on the *Exposure Draft* legislation on these measures.