24 May 2010

Committee Secretary
Senate Standing Committee on Environment, Communications and the Arts
PO Box 6100
Parliament House
Canberra ACT 2600
Australia

Dear Sir / Madam

Inquiry into the Renewable Energy (Electricity) Amendment Bill 2010, the Renewable Energy (Electricity) (Charge) Amendment Bill 2010 and the Renewable Energy (Electricity) (Small-scale Technology Shortfall Charge) Bill 2010

Please find below a joint written submission on behalf of Energy Developments Limited (ENE), Envirogen Pty Ltd (Envirogen) and Clarke Energy (Clarke).

1 BACKGROUND

Our three companies, ENE, Envirogen and Clarke are all strongly supportive of government policy action to tackle dangerous climate change. In fact, our companies are leading edge specialists in the development and deployment of abatement technologies. We see both important environmental benefits from policy reform as well as significant commercial opportunities to improve green-friendly technologies and grow jobs, domestically and internationally.

Together, ENE and Envirogen currently own and operate environmentally friendly power stations which make an unparallelled contribution to fugitive emission abatement of waste coal mine methane in Australia and therefore strongly support Australia in meeting its Kyoto targets. ENE and Envirogen wish to continue providing this carbon abatement into the future.

ENE is Australia's largest provider of low or zero emission energy from a range of fuel sources including landfill gas, WCMG, LNG and CNG. ENE abates over 6 million tonnes CO_2-e per annum from its Australian projects. ENE is Australia's largest landfill gas power generator with 83 MW at 17 sites in major capital cities on the Eastern Australian seaboard and one of the world's largest LFG generators with 51 projects in Australia, the United States, the United Kingdom, France and Greece. In Australia, ENE employs about 250 staff with many jobs in rural and regional Australia. (see www.energydevelopments.com.au)

Envirogen was an early entrant into carbon abatement in Australia, having started it's WCMG generation business in January 2001. It now owns four power stations in NSW and Queensland with a total capacity of 41 MW utilising WCMG. The company has made a

major contribution to reducing Australia's greenhouse gas emissions over the years and is now achieving total abatement in excess of one million tonnes CO_2-e per annum. Envirogen is equally owned by the "Utilities Trust of Australia" and "The Infrastructure Fund", the unit holders of these funds comprise Australia industry and employer representative super funds who are the general populous of Australia. These funds have made a major investment in Envirogen to achieve significant carbon abatement through the WCMG generation business. (see www.envirogen.net.au)

Clarke Energy with an annual turnover of approximately $100 million (based on Thebarton, South Australia) is a major supplier of technology to the WCMG industry. Clarke also has the exclusive distribution rights to distribute GE-Jenbacher gas engines in China and India and is widely recognised as the global leader in service provision to the WCMG abatement sector. In Australia, Clarke employs about 70 staff (see www.clarke-energy.co.uk)

2. INTRODUCTION

Existing WCMG power generation transition into RET – RET 2009

On 20 August 2009 the Senate passed amendments to the *Renewable Energy (Electricity) Amendment Bill 2009* (**RET 2009**) providing assistance for the WCMG power generation sector by adding eligible existing WCMG power generation projects to the RET from 1 July 2011 to 31 December 2020.

Of the existing 215 MW of WCMG power generation in Australia, approximately 118 MW were added to RET 2009, delivering 32.8 million t/CO_2-e by 2020 – or 67 million t/CO_2-e by 2030 if eligibility were extended to 2030.

This legislative amendment provided commercial certainty necessary for these projects to continue large scale abatement of greenhouse gases and generation of clean energy until 2020 in the absence of a clear price signal on greenhouse gas emissions.

Policy reversal – existing WCMG power generation transition delayed - RET 2010

Despite the need for certainty in transitional arrangements, on 12 May 2010 the Australian Government introduced new legislation (**RET 2010**) into the House of Representatives to delay the eligibility of existing WCMG power projects until the NSW Greenhouse Gas Abatement Scheme (GGAS) ceases.

There has been no consultation with the sector on this surprise policy reversal.

3 *FLAWED CLAIMS OF 'DOUBLE DIPPING' BEHIND POLICY REVERSAL*

No 'double dipping'

The Explanatory Memoranda to this policy reversal claims it has been proposed to avoid an alleged potential for 'double dipping' of NGACs and RECs.

This is simply incorrect - WCMG power projects eligible to create RECs **cannot be eligible to create any NGACs**. This is confirmed by the attached advice from Middletons Lawyers (Attachment A - original legislative advisors to the GGAS scheme).

In fact, there has never been 'double dipping' for any technologies eligible under both RET and GGAS as the latter has always provided an explicit mechanism where the number of NGACs created per MWh are reduced one for one by the number of RECs created.

4 *CERTAINTY IS NEEDED*

Early transition from the GGAS to RET scheme is essential to give certainty to this sector. There is no logical reason to delay transition from GGAS to the RET.

The NSW Government has commenced the wind up of GGAS in readiness for a CPRS, including the cessation of any new accreditations under the scheme from 1 January 2010. In effect, the GGAS scheme is in limbo.

CPRS is now likely to be delayed for many years – until at least 2013.

The impending cessation of GGAS remains. No new GGAS accreditations and uncertainty over CPRS has resulted in a barely functioning NGAC market.

Prior to the announcement of an emissions trading scheme the price of NGACs was approximately $11 per NGAC – subsequent uncertainty over the GGAS end date has seen the price collapse to about $4 per NGAC. RET 2010 will only add further uncertainty to an already compromised market.

The question we need to ask is: why damage a sector that delivers large scale clean energy and abatement to Australia by adding uncertainty over its transition?

Consideration must also be given to the impact of the expanded RET on GGAS.

Ironically, there is currently a form of 'double dipping' inherent in the GGAS scheme – but it is only available to liable parties, including electricity retailers. This is because the regulations to GGAS allow these liable parties to count their RET obligations towards GGAS compliance – this concession to electricity retailers allows the same RECs surrendered under the RET to be used to meet obligations under the GGAS scheme.

This is truly a form of 'double dipping' that in 2011 will see an estimated 28% of GGAS compliance being met by surrendered RECs instead of NGACs (based on RET target for 2011). There is no additional abatement when surrendered RECs are used for GGAS compliance.

As the RET expands more of this 'double dipping' will occur and the GGAS scheme will be further compromised.

This is explained in attached advice from Mr David Hemmings, former Manager of Sustainability, NSW Department of Water and Energy, (Attachment B).

5 WHY WCMG POWER GENERATION PLAYS A VITAL ROLE IN CUTTING GREENHOUSE GAS EMISSIONS

Governments around the world are responding to the challenges of climate change and energy security – including the challenge of the transition to reliable clean energy in a carbon constrained world.

To meet that challenge, it has become more important than ever to maximise the use of proven carbon abatement technologies as well as develop available sources of reliable, clean energy.

WCMG produces reliable, clean energy and makes a major contribution to greenhouse gas abatement.

WCMG is methane that is extracted in the process of metallurgical (steel) coal mining to ensure mine safety. To dispose of this waste product coal mines vent the WCMG into the atmosphere, flare it or can use it beneficially to generate electricity. Unlike wind and solar, waste methane fuelled power stations are not subject to the vagaries of weather. Instead they complement intermittent renewables by providing a clean source of base load generation. However, there needs to be an economic incentive for electricity generation, otherwise it is cheaper to waste this energy source through venting or flaring.

WCMG power generation produces large scale abatement

Methane has at least 21 times the global warming impact of CO_2. WCMG power generation destroys this methane and displaces mostly coal fired electricity generation with an effectively base load clean energy source. The WCMG power generation sector contributes approximately 80% of all fugitive emissions abatement in Australia. The sector could expand to abate over 200 million t/CO_2-e between 2011 and 2030 with existing and new WCMG power generation added to the RET. ***In fact, abatement from existing and new WCMG power stations can meet 10% of Australia's 2020 emissions reduction target with incentive from the RET.***

RET2010 puts these achievements and opportunities at risk.

There is broad international precedent for incentivising WCMG power generation.

Recognising the environmental, economic and energy security benefits of WCMG power generation, Germany, China, the UN - Kyoto Clean Development Mechanism, the US Clean Energy & Security Act and the American Power Act include WCMG power generation in renewable / clean energy incentive schemes. It is international best practice to productively use waste methane from coal mining.

In light of this international precedent, why is Australia, as the world's largest coking coal exporter, not promoting clean energy from WCMG?

WCMG power generation added to the RET has support from State Governments.

Attached is a letter of support from the Queensland Government (Attachment C). In our meetings with the South Australian, New South Wales and Victorian Governments similar support has been expressed.

WCMG power generation added to the RET has minimal impact on electricity prices.

Over 200 million t/CO_2-e could be abated between 2011 and 2030 with existing and new WCMG power generation added to the RET - at minimal cost to the consumer.

Independent modelling by ACIL Tasman (Attachment D) demonstrates that adding existing and new WCMG power generation to the RET would actually reduce retail power prices over

the next three years and then cause an increase of only 0.2% thereafter – an increase of less than $4 per year after 2014 for an average household.

WCMG added to the RET is low cost abatement and clean "zero emission" energy.

Our internal calculations of project costs suggest that for every $1million of capital spent:

- WCMG abates approx. 1 million t/CO2-e pa (methane abated+displaced mostly coal fired generation)
  By comparison, wind and solar contribute far less benefit:
- Wind abates approx 1,800 t/CO2-e pa (displaced mostly coal fired generation)
- Solar abates approx 600 t/CO2-e pa (displaced mostly coal fired generation)

WCMG power generation produces jobs and investment in clean energy in regional Australia.

The opportunity for 350 new jobs and up to $500 million of new investment in clean energy in Australia will be lost if existing and new WCMG power generation is not added to the RET.

6 HOW TO DELIVER REGULATORY CERTAINTY FOR THE WCMG POWER GENERATION SECTOR

- Transition of existing WCMG projects as early as possible from GGAS into RET – maintain the existing 1 July 2011 start date as delay only leads to greater uncertainty and threatens power generation projects and ongoing abatement from existing power projects;

- Staged inclusion of 300 MW of new WCMG projects into the RET; (see Attachment E for project list)

- Portability of WCMG REC eligibility between power projects – ensuring delivery of the maximum abatement possible over the life of projects;

- Extension of existing WCMG generation in the RET to 2030 – consistent with life of mine assumptions and other eligible fuels in RET.

7 WHAT ABATEMENT WILL BE DELIVERED

- Existing 120 MW WCMG power generation projects would deliver 67 million t/CO_2-e between 2011 and 2030 with support under RET;

- New 300 MW WCMG power generation projects would deliver 154 million t/CO_2-e between 2011 and 2030;

- Average cost of abatement would be $11 per t/$CO_2$-e assuming an average REC price of $45.

8 WHAT WILL OCCUR IF RET 2010 IS PASSED WITHOUT THE INCLUSION OF WCMG

- Clean energy, abatement and jobs from existing WCMG power projects threatened;
- Lost opportunity for 300 MW of base load clean energy, about 350 jobs, $500 million of investment and 154 million t/CO2-e of abatement from new WCMG power projects;
- Loss of clean energy skills overseas where clean energy from WCMG is promoted.

9 CONCLUSION

The Second Reading speech accompanying the Renewable Energy (Electricity) Amendment Bill 2010 states:

"***This Bill is at the core of the Government's clean energy agenda….From the power plant to the power point, this Government is supporting action, large and small, to reduce our carbon pollution***"

12 May 2010

This is quite evidently not the case.

As we have shown the Government is in error to claim RET2010 is needed to avoid 'double dipping' – there cannot be 'double dipping' under RET and GGAS.

We therefore ask the Australian Parliament to reconsider its position on RET2010 and now create the framework for existing and new WCMG power generation to play its role in abatement of greenhouse gases and providing clean energy.

Australia cannot have an internationally credible policy to combat carbon pollution and tackle dangerous climate change without acknowledging the significant opportunity managing waste methane presents.

Any credible carbon policy must surely allow clean energy generation from waste methane gas to immediately play its role as one of the "lowest cost – highest abating technologies" currently available.

middletons

Melbourne | Perth | Sydney

13 May 2010

Our reference
RVIN.JMEE.10030093

By Email: tim.sprey@edl.com.au

Mr Tim Sprey
Manager – Commercial Services
Energy Developments Limited

Dear Tim

Renewable Energy (Electricity) Amendment Bill 2010

Thank you for your instructions to advise on the *Renewable Energy (Electricity) Amendment Bill 2010* (**Bill**), introduced into Parliament yesterday, insofar as it impacts upon electricity generated from waste coal mine gas (**WCMG**).

In particular, you seek our advice on the accuracy or otherwise of the statement in paragraph 194 of the Explanatory Memorandum that:

> "... the inclusion of waste coal mine gas in the scheme has the potential to result in 'double-dipping' if waste coal mine gas projects were to receive assistance from GGAS and under the Act ...".

In summary, we advise that the existing NSW Greenhouse Gas Reduction Scheme (**GGAS**):

(a) separately recognises and rewards the different types of abatement caused by WCMG and similar technologies, being:

  (i) displacing coal fired electricity with lower emission intensity gas fired electricity; and

  (ii) avoiding fugitive methane emissions;

(b) in the case of landfill gas and other similar technologies which are currently eligible to create RECs, specifically allows the creation of both RECs and NGACs insofar as they pertain to these different types of abatement, and does not regard this as "double-dipping";

(c) but otherwise contains mechanisms to ensure that there is no double-dipping, by subtracting out from eligible generation under GGAS the amount used for RECs.

Accordingly, the concern regarding "double-dipping" expressed in the Explanatory Memorandum would appear to be misconceived.

We set out our reasons in the Annexure to this letter.

Locked Bag 1
Royal Exchange NSW 1225
DX 170 Sydney
www.middletons.com

Level 26
52 Martin Place
Sydney NSW 2000
Australia
telephone: +61 2 9513 2300
facsimile: +61 2 9513 2399

Partner
Jenny Mee
telephone: +61 2 9513 2555
jenny.mee@middletons.com

Contact
Rex Vines
telephone: +61 2 9513 2472
rex.vines@middletons.com

Please do not hesitate to contact me if you have any queries.

Yours sincerely

Jenny Mee
Partner

Annexure: Explanation and analysis

1. Background

1.1. Waste coal mine gas

We understand that power stations fuelled by WCMG provide significant abatement of greenhouse gases.

These power stations are situated in the vicinity of coal mines. Waste gas from the degasification of the coal mine is captured and piped to the power station for use in electricity generation. Greenhouse gas abatement is achieved in the following ways:

(a) **Avoids fugitive methane emissions:** It avoids the waste coal mine gas being vented to the atmosphere. This gas must be removed from coal mines before coal mining can proceed. The gas (which is essentially methane) has a very high global warming potential which is 21 times higher than CO_2. Therefore capturing and combusting it avoids these emissions.

(b) **Displaces coal-fired power:** It displaces traditional coal-fired power generation. Although both forms of generation produce CO_2 in the combustion process, fewer emissions arise from burning methane due to the greater efficiency of the process.

(c) **Network losses:** As the power stations connect directly to the distribution network rather than the transmission network, there is also the benefit of avoiding network losses and associated emissions.

1.2. GGAS, RET and CPRS

The greenhouse benefits of WCMG have always been recognised by GGAS.

GGAS, which commenced in New South Wales in 1 January 2003, is one of the world's first mandatory greenhouse gas emissions trading schemes (although it is more closely based on a "baseline and credit" model than the "cap and trade" model which has formed the basis of the proposed Carbon Pollution Reduction Scheme).

While the Commonwealth Renewable Energy Target scheme (**RET**) under the *Renewable Energy (Electricity) Act 2000* (**RE Act**), also a tradeable credits scheme, pre-existed GGAS, the schemes have had different aims and have always been complementary.

The RET has historically been aimed at encouraging renewable energy generation (with reducing greenhouse gas emissions as only one of its objects). GGAS, on the other hand, is aimed primarily at reducing greenhouse gas emissions. Consequently, recognises the eligibility of a wider range of activities to create certificates (**NGACs**), including generation from fossil fuels, carbon sequestration, industrial process emissions and energy efficiency.

To the extent that there is overlap in the activities covered by the two schemes, GGAS is designed to "net out" that overlap to ensure that there is no "double dipping". (See paragraph 3 below.)

The CPRS, if passed, was intended to supersede GGAS but be complementary to the RET. Accordingly, when CPRS was mooted, a sunset mechanism was inserted into the GGAS legislation. Under section 97KB of the *Electricity Supply Act 1995 (NSW)*, the Governor may, by proclamation, prescribe a termination date for the Scheme. Such a proclamation may only be made if the Minister has certified to the Governor that there has been or will be established a national or interstate greenhouse gas emissions reduction scheme. Until recently, it was proposed that CPRS would commence, and GGAS would cease, on and from 1 July 2011.

However, we understand that there was no certainty that WCMG projects would be recognised under CPRS in a similar manner to their recognition under GGAS, or indeed at all. It was therefore possible that WCMG, despite its significant emissions reductions and contribution to employment,[1] would not continue to receive any support at all, either from GGAS (due to its termination), from RET (as it was not originally recognised as an eligible fuel source under that scheme) or under CPRS.

2. Amendment of RET to include WCMG

2.1. Renewable Energy (Electricity) Amendment Act 2009

In order to provide certainty, recognition and support for existing WCMG projects, the *Renewable Energy (Electricity) Amendment Act 2009 (Cth)* (among other things) amended the RET to recognise existing WCMG projects under the RET.

Among other things, it inserted a definition of "eligible WCMG" (section 17A). Essentially, WCMG projects in existence as at May 2009 would be eligible to create renewable energy certificates (**RECs**) for the period:

(a) starting on 1 July 2011 (or another date prescribed by the regulations); and

(b) ending on 31 December 2020.

This amendment received bipartisan support.

The annual targets were accordingly increased at the time to ensure that RECs created by existing WCMG generators would not "crowd out" renewable energy generation.

2.2. COAG review

We understand that the issue of whether WCMG should be included in the RET on a more permanent basis (in addition to the above recognition of existing WCMG projects)

---

[1] We note that the significant abatement produced, and jobs created, by these projects were referred to in the Second Reading Speeches.

was to be subsequently examined further by the Council of Australian Governments (**COAG**).

As we understand it (from documents publicly available), the scope of that review was largely confined to consideration of whether new WCMG projects should also be included in the scheme.[2] It had not been apparent until the Bill was presented to Parliament yesterday that the Government may have been considering the broader agenda of deferring the eligibility of *existing* WCMG power stations to create RECs. As such, it would appear that this is not something on which industry has been given an opportunity to comment.

2.3. Renewable Energy (Electricity) Amendment Bill 2010

The Bill will, if passed in its current form, introduce the following key changes to the way in which the RET applies to electricity generation activities using WCMG as a fuel source:

(a) it will repeal 1 July 2011 as the day on and from which accredited WCMG power stations can commence generating RECs (the **start date**), in the absence of regulations providing for an alternative date (item 111 of the Bill);

(b) it will provide that the start date will now be prescribed by the regulations, and that in the absence of such regulations, no WCMG will be eligible (item 111 of the Bill);

(c) it removes the timelines for the receipt of (and decisions in relation to) applications for accreditation as a power station using WCMG from the RE Act and allows those times to be set by regulations instead (items 109 and 110 of the Bill).

The changes are significant as they affect existing WCMG projects.

Previously, in relation to the start date of 1 July 2011, while the *Renewable Energy (Electricity) Amendment Act 2009 (Cth)* provided the flexibility for another date to be specified in the regulations, the date of 1 July 2011 would apply in the absence of such a firm alternative date. There was no provision for the date to be delayed indefinitely, or postponed while an alternative date was considered.

The amendments proposed by the Bill, on the other hand, may indefinitely defer the eligibility of power stations using WCMG to create RECs. There does not appear to be any obligation for regulations to be made prescribing a start date, in any particular circumstance or indeed at all (although we note the intention expressed in the

---

[2] COAG communiqué dated 19/20 April 2010, extracted in the Explanatory Memorandum to the *Renewable Energy (Electricity) Amendment Bill 2010* (p5) and Department of Climate Change: Discussion Paper 4 "Treatment of new waste coal mine gas generation in the RET" issued as part of the Department's conduct of the broader COAG Review of the eligibility provisions of the RET.

Explanatory Memorandum that the eligibility of WCMG to create certificates would be postponed until such time as GGAS ceases[3]).

3. GGAS, RET and "double dipping"

3.1. Explanatory Memorandum to the Bill

We note that paragraph 194 of the Explanatory Memorandum accompanying the Bill states that:

> "... the inclusion of waste coal mine gas in the scheme has the potential to result in 'double-dipping' if waste coal mine gas projects were to receive assistance from GGAS and under the Act ...".

No explanation is otherwise given in the Explanatory Memorandum as to how concerns of "double-dipping" under GGAS arise, nor has the Government appeared to have given any indication at an earlier time that it had concerns of this kind.

In our view the "double-dipping" concern would appear to be misconceived. There would appear to be no reason in principle why eligibility of WCMG under RET cannot co-exist with eligibility under GGAS. Indeed, this has been the case for some time in the case of landfill gas.

3.2. GGAS and RET: no double counting

As indicated in paragraph 1.2 above, GGAS and RET have different, although complementary aims, and there is some overlap in the activities which they cover. To the extent that they cover the same activities, GGAS contains mechanisms to ensure that there is no double counting. This generally means that NGACs cannot be created if RECs are created.

However, in some situations both NGACs and RECs can be created, in respect of the same electricity generation activities but in recognition of the different types of abatement flowing from those activities.

We explain this below.

3.3. Accreditation conditions and undertakings under GGAS regarding benefits under other schemes

GGAS contains a number of other safeguards against the possibility of double counting occurring including:

(a) Clause 73HA of the *Electricity Supply (General) Regulations* (**Regulations**) which allows the GGAS administrator to require a person to give an undertaking not to claim any benefit under another greenhouse gas scheme if such an action would

---

[3] See paragraphs 230 and 231.

result in a benefit being obtained under both that scheme and GGAS in respect of the same output or abatement;

(b) a mandatory condition of accreditation that requires an accredited generator to comply with an undertaking of the kind given to the GGAS administrator under clause 73HA of the Regulations (clause 73I of the Regulations); and

(c) a condition of accreditation that the *Electricity Supply Act 1995 (NSW)* contemplates may be imposed by the GGAS scheme administrator, to the effect that the accredited generator will not create NGACs if a REC has already been created in respect of that abatement, or vice versa (section 97DD(3) of that Act).

Significantly, the emphasis in each of these cases is on RECs and NGACs being created in respect of the same *abatement*. The scheme however does recognise that both RECs and NGACs can be created from the same electricity generation activities, but in recognition of different types of abatement.

3.4. Calculation of NGACs under the Generation Rule where RECs created

The *Greenhouse Gas Benchmark Rule (Generation) No. 2 of 2003* (**Generation Rule**), which contains methodologies for calculating the number of NGACs that can be created in respect of electricity generation activities, also refers specifically to RECs in its calculations.

We will illustrate the point by reference to landfill gas generation (which is currently eligible to create RECs). For the purposes of the example below, we will assume that a landfill gas generator commenced commercial operation after 1 July 1997, and is classed as "category D" under the Generation Rule (and hence has no baseline).

3.5. Starting point: calculation of difference in emissions intensity

The starting point for the calculation of the number of NGACs that can be created is "Equation 1", which provides as follows:

> *Number of NGACs that may be created = Eligible Generation x (NSW Pool Coefficient x Emissions Intensity Adjustment Factor[4] – Emissions Intensity)*

The concept here is that NGACs are calculated by reference to the difference in emissions intensity between:

(a) the "NSW Pool Coefficient" (ie the average emissions per unit of the main existing NSW generators); and

(b) the generating system.

---

[4] The Emissions Intensity Adjustment Factor adjusts the NSW Pool Coefficient, by reference to whether the generator is connected to a distribution system or to a transmission system. If the generator is connected to a distribution system, this factor is 1.0.

For a new renewable energy generator with zero emissions (and connected to a distribution network), the number of NGACs which may be created for each MWh of electricity generated would be the same as the NSW Pool Coefficient (ie 0.973 in 2010).

For landfill gas generators, on the other hand, the emissions intensity of the generating system is calculated not only by reference to emissions (CH_4 and N_2O) at the point of combustion, but also fugitive CH_4 emissions directly avoided through the use of the fuel (see Equations 14 to 16). The calculations for fugitive emissions avoided takes into account the fact that methane has a global warming potential which is 21 times higher than CO_2. Consequently, the emissions intensity ends up being a negative number. Due to the resulting double negative when this figure is applied in Equation 1, it results in a significantly higher number of NGACs per MWh than standard renewable energy generation with zero emissions.

3.6. Eligible generation – RECs are subtracted out

The next step is to calculate "Eligible Generation". It is at this point that the no double counting principle becomes apparent, because the number of RECs created is effectively subtracted out of Eligible Generation.

Eligible Generation is calculated under "Equation 2", which provides as follows:

> *If Net Sent Out Generation – NSW Production Baseline[5] – RECs Created/MLF[6] is ≤ 0, then:*
>
> > *Eligible Generation = 0*
>
> *If Net Sent Out Generation – NSW Production Baseline – RECs Created/MLF is > 0, then:*
>
> > *Eligible Generation = Net Sent Out Generation – NSW Production Baseline – RECs Created/MLF*

The key point here is that essentially, if all of the generation is used to create RECs, then NGACs cannot also be created under Equation 1. In this regard, the generator would have the choice of whether to create NGACs or RECs (but not both).

3.7. Additional NGACs by reference to number of RECs created

If the generator chooses not to create RECs, but to create NGACs only, then all of the relevant abatement will be taken into account in the calculations using Equation 1. In

---

[5] For a new "category D" generator, this will be zero.

[6] "MLF" stands for marginal loss factor, as defined in the *Renewable Energy (Electricity) Regulations 2001 (Cth)*. Clause 14(2) of that regulation provides that "If all the electricity generated by the accredited power station is used in the power station, or in the local distribution network, or in both the power station and the local distribution network, the marginal loss factor ... is taken to be 1."

this circumstance, Equation 2 would not apply to reduce (or entirely cancel out) the amount of Eligible Generation.

If, on the other hand, the generator chooses to create RECs, an additional number of NGACs may still be created, in recognition of the greenhouse benefits of avoiding the emission of methane to the atmosphere (in addition to the greenhouse benefit of electricity generation from fuel sources with lower emissions). Those additional NGACs are calculated by reference to Equation 6, which provides as follows:

> *Number of additional NGACs that may be created = Number of RECs Created arising from Net Sent Out Generation/MLF x (NSW Pool Coefficient x Emissions Intensity Adjustment Factor – NSW Pool Coefficient – Emissions Intensity)*

This is still consistent with the no double counting principle, because these additional NGACs represent abatement that is different from, and not specifically recognised through, the RET. Although both RECs and NGACs may be created in this case, they are created in respect of different abatement, and therefore this is consistent with any accreditation conditions or undertakings that disallow the creation of RECs or NGACs in respect of the same greenhouse gas abatement.

3.8. Calculation of NGACs under the Generation Rule for WCMG

The treatment of WCMG under the Generation Rule is very similar. However, it has not historically qualified for RECs under the RET, therefore all of the abatement is calculated under Equation 1 (assuming for present purposes that a number of alternative methodologies referred to in the Rule are not applied).

WCMG and landfill gas both produce similar greenhouse benefits of avoiding the venting of methane (with a high global warming potential) to the atmosphere, in addition to the greenhouse benefits during the combustion process (due to the greater efficiency of burning methane).

Because no RECs would be created, all of the Net Sent Out Generation would be Eligible Generation under Equation 2, and Equation 6 would not apply. The abatement benefits would instead all be captured under Equation 1 – as would be the case for landfill gas generation if the generator chose not to create RECs.

If, on the other hand, WCMG becomes eligible to create RECs, Equation 2 would then apply (as it currently does for landfill gas) to subtract out the number of RECs created from Eligible Generation. For this purpose, the definition of "RECs Created" does not discriminate between technologies or fuel sources, but captures all RECs created under the RE Act.

However, a minor amendment would be required to the Generation Rule in order to allow WCMG generators the benefit of the entitlement to create additional NGACs under Equation 6 (after subtracting out RECs using Equation 2), and to put it on the same footing with landfill gas. Clause 9.5 (being the clause which confers on generators the entitlement to use Equation 6) currently reads as follows:

In respect of electricity generated by a Generating System that is entitled to create RECs:

(a) using landfill gas, sewage gas;

(b) using methane manufactured from Qualifying Putrescible Waste;

(c) using oxidation of Qualifying Putrescible Waste; or

*(d) that is a Cogeneration Plant for which the appropriate fuel identified in Step (2) of **Method 4** is a Fossil Fuel,*

*the Generator that is accredited in respect of the Generating System may create the number of NGACs calculated using **Equation 6** in addition to any NGACs that it is entitled to create according to clauses 9.1 to 9.4 ..."*

It is clearly the policy intention to allow all generators who are entitled to create RECs, and who also produce additional greenhouse gas abatement that is not recognised through RECs (such as fugitive emissions avoided), to create additional NGACs under this clause. This clause has not historically referred to WCMG because it has not historically been eligible for RECs. Once it becomes eligible, an amendment should accordingly be made to refer specifically to WCMG in clause 9.5(a).

Should the amendment not be made, it would have the perverse and clearly unintended consequence of requiring WCMG generators to subtract out the number of RECs created from its calculations of Eligible Generation (through Equation 2), without allowing the additional abatement benefit of fugitive methane avoided to be recognised through Equation 6.

As the small amendment referred to above would appear to reflect the clear policy intention, we would imagine that the Minister would have no difficulty in making it.

4. Concluding comments

4.1. No double dipping

It would therefore appear that the concerns expressed in the Explanatory Memorandum regarding "double-dipping" are unfounded. GGAS already has detailed mechanisms for dealing with the calculation and creation of NGACs where RECs are created, in order to ensure that there is no double counting, while still giving appropriate recognition of different types of abatement.

Fundamentally, any ability of a WCMG generator to create both NGACs and RECs should be recognised by relevant NSW and Commonwealth agencies not as a matter of double counting, but as reward for the double benefit achieved by both avoiding emissions of methane to the atmosphere and generating electricity from gas.

Allowing existing WCMG generators to create RECs under the RET would simply put them on an equal footing with landfill gas generators, who historically have always been able to create both NGACs and RECs in recognition of different types of abatement

(while at the same time ensuring that there is no double counting of the same type of abatement).

If it is the agreed policy position that existing WCMG generators should be included under the RET, then there would appear to be no legal reason why the start date of 1 July 2011 contemplated by the current version of the RE Act cannot be adhered to, whether or not GGAS remains on foot at that time.

4.2. Policy matters

While not strictly legal in nature, we also note the existence of a number of policy arguments in favour of giving such recognition to WCMG:

(a) WCMG power generation utilises a valuable resource (methane) that would otherwise be wasted (until such time as something like the CPRS is introduced there will be no incentive for existing coal mines to prevent any fugitive emissions of methane – other than those required for the safe operation of the mine).

(b) WCMG power generation achieves significant greenhouse gas emission abatement by:

(i) converting methane, with a global warming potential of 21, to carbon dioxide with a global warming potential of 1; and

(ii) displacing coal fired electricity with lower emission intensity gas fired electricity.

(c) The conversion of WCMG to electricity rather than release as a fugitive emission (or, at best, flaring with no energy recovery) should be viewed as significant positive contribution and climate change driven legislation should be supportive of it.

(d) WCMG is equivalent in concept to landfill gas and sewage gas, which are already listed as fully eligible renewable energy sources.

(e) There is some precedent internationally for the inclusion of WCMG in renewable energy schemes. For example, WCMG is also already included as an eligible fuel source in Germany's legislation for Renewable Energy (EEG).

(f) WCMG projects (particularly new projects) have the potential to be long term investments with 15-20 year lives. They are therefore deserving of an incentive (eligibility to create RECs) to extend to 2030, consistent with the treatment of other eligible renewable energy sources.

(g) There is the potential to develop significant WCMG generating capacity which will, in all likelihood, be lost if no incentive (eligibility) is given to develop the resource.

DAVID HEMMING & ASSOCIATES

BRIEFING NOTE TO EDL ON THE SURRENDER OF RECS TOWARDS GGAS COMPLIANCE

Background:

When the Greenhouse Gas Reduction Scheme (GGAS) commenced on 1 January 2003, the Commonwealth's Mandatory Renewable Energy Target (RET) was already in place. While the two schemes have similarities in their structure, the RET scheme was specifically aimed at encouraging renewable energy generation whereas the GGAS objectives were "to reduce greenhouse gas emissions associated with the production and use of electricity, and to encourage participation in activities to offset the production of greenhouse gas emissions" [NSW *Electricity Supply Act 1995*, Section 97A].

One important area where GGAS and RET interact, is the ability for liable parties under GGAS to use a REC to be counted towards GGAS compliance in any year if it has been surrendered by the participant under the RET scheme in relation to electricity consumed in NSW in that year.

Counting RECs towards GGAS Compliance

Renewable Energy Certificates (RECs) are created under the Commonwealth's Renewable Energy (Electricity) Act 2000 (REEA). Section 97CD1(a) and (b) of the NSW *Electricity Supply Act 1995* (ESA) provides for regulations to be made to allow RECs to be counted towards GGAS compliance, and Clauses 73DA and DB of the *Energy Supply (General) Regulation 2001* specify the circumstances and number of RECs that may be counted towards GGAS compliance.

In summary these provisions allow a REC to be counted towards GGAS compliance in any year if it has been surrendered by the participant under the REEA in relation to electricity consumed in NSW in that year. The number of eligible RECs is then multiplied by the NSW Pool Coefficient for that year to

determine the abatement represented by the RECs. This reduces the requirement of the liable party to surrender NGACs or LUACs.

The concession in the ESA to allow counting of RECs towards GGAS compliance was to reduce the impact of GGAS on retailers and to reduce the impact on customers in the early years of GGAS. It was argued that the abatement associated with the renewable energy represented by the RECs surrendered for NSW electricity consumption had already been paid for by NSW consumers through their electricity bills.

In 2007, retailers (and large users which are elective participants in GGAS) counted the surrender of 1,878,514 RECs (equivalent to 1,767,682 NGACs] towards their compliance for that year. These represented some 9.4% of compliance in that year. In 2008, 2,205,601 RECs were counted towards GGAS compliance, equivalent to 2,104,195 NGACs (or some 8.9% of compliance) [IPART Annual Compliance Report for 2008].

At the time that the concession was implemented, the Commonwealth Mandatory Renewable Energy Target (MRET) scheme was designed to reach its maximum target of 9,500 GWh in 2010 and remain at that level until 2020. At those target levels, the REC concession would have represented up to around 15% of the GGAS compliance burden.

However, the expanded MRET will see targets increase from 9,500 GWh of renewable energy in the years 2010 to 2020 to 45,000 GWh in 2020. With GGAS benchmarks remaining at 7.27 tonnes carbon dioxide per capita until the end of the scheme, the increasing MRET targets will have the effect of increasing the impact of REC surrender on GGAS compliance. For example, by 2011 the national MRET target will have increased to 14,825 GWh of which the around one-third or around 5,000 GWh will be surrendered for NSW electricity consumption.

In addition to the increasing RET targets, the change to the GGAS scheme in 2009 that removed the end-use energy efficiency component (referred to as Demand Side Abatement) from GGAS to form the NSW Energy Saving Scheme, results in the GGAS targets from 2011 being somewhat reduced.

According to our calculations, the 5,000 RECs surrendered for NSW electricity used in 2011 would represent around 28% of GGAS compliance requirements in that year, equivalent to almost 5 million NGACs. Similar calculations indicate that RECs would contribute around 30% and 32% of GGAS compliance in years 2012 and 2013 respectively.

While addressing this issue is a matter for the NSW Government (for instance by amending the GGAS Regulation to remove this provision), if amendments are not made there will be a significant reduction in demand for NGACs with around a third of compliance met by RECs in years 2011 and beyond.

D Hemming
12 May 2010

Hon Stephen Robertson MP
Member for Stretton

Queensland Government

Minister for Natural Resources, Mines and Energy and Minister for Trade

MC5385
MO/10/517

10 MAR 2010

Mr Greg Pritchard
Managing Director
Energy Developments Limited
PO Box 4046
EIGHT MILE PLAINS QLD 4113

Dear Mr Pritchard

Thank you for your letter dated 9 February 2010, regarding the treatment of new waste coal mine gas (WCMG) power generation in the national Renewable Energy Target (RET).

The Queensland Government is a strong proponent of the WCMG industry and is keenly aware of the financial barriers impeding industry growth through ongoing consultation with Energy Developments Limited (EDL) and Envirogen.

The Queensland Government acknowledges the carbon abatement potential of WCMG and is committed to facilitating opportunities to reduce emissions that would otherwise result from equivalent generation from coal-fired power stations. In addition, the Queensland Government is also keen to capture the network benefits derived from this form of embedded generation. The government also acknowledges the significant funding gap faced by new generation projects.

You may be aware that the Queensland Government has written to the Commonwealth Government on a number of occasions bringing these matters to the attention of Senator the Honourable Penny Wong, Minister for Climate Change and Water, and the Honourable Greg Combet AM MP, Minister Assisting the Minister for Climate Change.

Subsequently, existing WCMG generators were included in the RET in amendments passed on 19 August 2009, ensuring the ongoing viability of projects such as the EDL/Anglo Coal joint venture at Moranbah North, which I officially opened on 29 September 2009.

The ongoing uncertainty regarding the introduction of the Carbon Pollution Reduction Scheme and its impact on assistance funding for coal mining abatement projects under the Coal Sector Adjustment Fund has prompted investigation of the inclusion of new WCMG generation projects in the RET. Through this process, the Queensland Government is working with our colleagues in other jurisdictions to develop a workable outcome for this important industry.

Level 17
61 Mary Street Brisbane Qld 4000
PO Box 15216 City East
Queensland 4002 Australia
Telephone +61 7 3225 1861
Facsimile +61 7 3225 1828
Email nrmet@ministerial.qld.gov.au

In these discussions, the Queensland Government continues to advocate for assistance for the WCMG industry and is generally supportive of the inclusion of new WCMG generation in the RET. However, it must be recognised that this review is a negotiated process with representatives from all Australian jurisdictions, and therefore the Queensland Government cannot guarantee that its position relating to the inclusion of new WCMG generation will ultimately be included in the RET.

Should you have any queries regarding my advice to you, Mr Greg Nielsen, Assistant Director-General, Office of Clean Energy of the Department of Employment, Economic Development and Innovation, will be pleased to assist you and can be contacted on telephone 3405 3828.

Yours sincerely

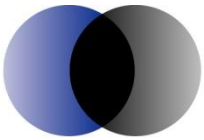
STEPHEN ROBERTSON MP

Increasing the Waste Coal Mine Gas RET Target

An analysis of direct cost impacts on small end user customer retail electricity prices

Prepared for Energy Developments

May 2010



ACIL Tasman

Economics Policy Strategy

Reliance and Disclaimer

The professional analysis and advice in this report has been prepared by ACIL Tasman for the exclusive use of the party or parties to whom it is addressed (the addressee) and for the purposes specified in it. This report is supplied in good faith and reflects the knowledge, expertise and experience of the consultants involved. The report must not be published, quoted or disseminated to any other party without ACIL Tasman's prior written consent. ACIL Tasman accepts no responsibility whatsoever for any loss occasioned by any person acting or refraining from action as a result of reliance on the report, other than the addressee.

In conducting the analysis in this report ACIL Tasman has endeavoured to use what it considers is the best information available at the date of publication, including information supplied by the addressee. Unless stated otherwise, ACIL Tasman does not warrant the accuracy of any forecast or prediction in the report. Although ACIL Tasman exercises reasonable care when making forecasts or predictions, factors in the process, such as future market behaviour, are inherently uncertain and cannot be forecast or predicted reliably.

ACIL Tasman shall not be liable in respect of any claim arising out of the failure of a client investment to perform to the advantage of the client or to the advantage of the client to the degree suggested or assumed in any advice or forecast given by ACIL Tasman.

ACIL Tasman Pty Ltd

ABN 68 102 652 148
Internet www.aciltasman.com.au

Melbourne (Head Office)
Level 6, 224-236 Queen Street
Melbourne VIC 3000

Telephone (+61 3) 9604 4400
Facsimile (+61 3) 9600 3155
Email melbourne@aciltasman.com.au

Brisbane
Level 15, 127 Creek Street
Brisbane QLD 4000
GPO Box 32
Brisbane QLD 4001

Telephone (+61 7) 3009 8700
Facsimile (+61 7) 3009 8799
Email brisbane@aciltasman.com.au

Canberra
Level 1, 33 Ainslie Place
Canberra City ACT 2600
GPO Box 1322
Canberra ACT 2601

Telephone (+61 2) 6103 8200
Facsimile (+61 2) 6103 8233
Email canberra@aciltasman.com.au

Darwin
Suite G1, Paspalis Centrepoint
48-50 Smith Street
Darwin NT 0800
GPO Box 908
Darwin NT 0801

Telephone (+61 8) 8943 0643
Facsimile (+61 8) 8941 0848
Email darwin@aciltasman.com.au

Perth
Centa Building C2, 118 Railway Street
West Perth WA 6005

Telephone (+61 8) 9449 9600
Facsimile (+61 8) 9322 3955
Email perth@aciltasman.com.au

Sydney
PO Box 1554
Double Bay NSW 1360

Telephone (+61 2) 9389 7842
Facsimile (+61 2) 8080 8142
Email sydney@aciltasman.com.au

Contents

1 Introduction 1

2 Methodology and limitations of analysis 2
2.1 Methodology 2
2.2 Limitations of the analysis 2

3 Impact on wholesale electricity prices 3
3.1 Model characteristics and assumptions 3
3.2 Impact on wholesale tariffs 3

4 Impact upon REC market 5

5 Residential retail tariff analysis 8
5.1 Residential retail tariffs 8
5.2 Impact of additional WCMG on retail tariffs 8

List of figures

Figure 1 **Impact upon projected RPP** 7
Figure 2 **Projected increase to end user RET costs** 7

List of tables

Table 1 **Impact of WCMG on wholesale prices in NSW and Qld (real $2010/MWh)** 4
Table 2 **Impact of WCMG on retail tariffs in NSW (real $2010)** 9
Table 3 **Impact of WCMG on retail tariffs in Qld (real $2010/MWh) and %** 10

1 Introduction

Energy Developments have requested ACIL Tasman to assess the direct cost impact on small end user retail electricity prices of increasing the waste coal mine gas (WCMG) renewable energy target under the expanded RET scheme from 850GWh to 3050 GWh per annum (an increase of 2200 GWh).

This report provides ACIL Tasman's analysis, assessment of the direct costs and the limitations of the analysis and assessment.

The report is set out as follows:

- Section 2 sets out our methodology and the limitations of the analysis
- Section 3 provides analysis and an assessment of the impacts in the renewable energy market and in particular on the price of renewable energy certificates or RECs.
- Section 3 provides analysis and an assessment of the impacts in the wholesale energy market known as the national electricity market (NEM)
- Section 5 sets out the consolidated impact on residential retail tariffs in New South Wales and Queensland.

2 Methodology and limitations of analysis

2.1 Methodology

ACIL Tasman's methodology for assessing the direct cost impact on small end user retail electricity prices of increasing the WCMG renewable energy target involved three steps:

1. The first step was to assess the impact of increasing the volume of WCMG on wholesale electricity prices in NSW and Queensland.
2. The second step was to assess the impact of increasing the volume of WCMG on the expanded RET market
3. Finally the impacts were consolidated and the net impact on small end user retail electricity prices for NSW and Queensland were calculated.

The wholesale electricity price impacts were assessed using ACIL Tasman's national electricity market simulator, *PowerMark*. ACIL Tasman regularly undertakes market projections using *PowerMark*. The impacts were assessed by starting with ACIL Tasman's current *PowerMark* base case projection and running a sensitivity by adding the proposed 2200 GWh of WCMG over the period July 2011 to July 2013. The base case is described in Section 3.

The expanded RET market impacts were assessed in two parts:

- Determining any REC price impacts
- Calculating the increased cost to end users from the increased volume of RECs required to be surrendered.

2.2 Limitations of the analysis

The analysis in this report only considers the direct cost impacts of increasing the WCMG RET target by 2200 GWh. There are a number of potential broader economic impacts from such a change in policy which have not been evaluated. These include:

- any environmental benefits from converting WCMG to lower intensity greenhouse gases
- impact on costs in regions other than New South Wales and Queensland
- the cost of additional capital used in funding power plant for WCMG compared with alternative plant
- dead weight gains and losses caused by reduced electricity charges and the additional REC charges on end users which can affect economy wide welfare.

3 Impact on wholesale electricity prices

3.1 Model characteristics and assumptions

As noted in Section 2, the projected changes in wholesale electricity prices were assessed using ACIL Tasman's electricity market simulator, *PowerMark*. *PowerMark* is a proprietary model of the national electricity market (NEM) which is used to project future market outcomes. It includes a detailed database of all major generating plant in the NEM. The projected changes are based on ACIL Tasman's current electricity market base case. Some salient features of the current base case include:

- Annual demand projections based on the current Australian Energy Market Operator (AEMO) statement of opportunities (2009)
- Near term new entrants based on committed new entrant plant as per the AEMO statement of opportunities
- Longer term new entrants based on economic investment of known technologies
- Renewable energy commitments based on ACIL Tasman's internal renewable energy market projection
- Carbon emissions trading from July 2013 based on the federal government's CPRS-5 price scenario

In order to assess the additional WCMG target a *PowerMark* sensitivity was developed that contains the additional WCMG generation with two thirds in New South Wales and one third in Queensland. Strictly speaking the plant was modelled as a reduction in demand in New South Wales and Queensland which in effect is the same from the modelling perspective as the plant in question is considered to be must run plant. The 2200 GWh was phased in over three years from July 2011 to July 2013.

3.2 Impact on wholesale tariffs

The impact on wholesale prices does not continue indefinitely as future new entrants would be expected to adjust the timing of their entry to take account of the additional 2200 GWh of WCMG. ACIL Tasman has assumed that the impact on wholesale prices is limited to three years which is consistent with the time period over which new entrants are currently committed – new entrants currently being planned but not yet committed are able to adjust their entry schedules.

ACIL Tasman has estimated a high and low case impact on wholesale electricity prices. These are set out in Table 1 below.

Table 1 **Impact of WCMG on wholesale prices in NSW and Qld (real $2010/MWh)**

	Change in NSW wholesale price (real $2010/MWh)		Change in Qld wholesale price (real $2010/MWh)	
	High case	Low case	High case	Low case
2011	-$0.72	-$0.36	-$0.53	-$0.26
2012	-$1.59	-$0.79	-$2.58	-$1.29
2013	-$3.47	-$1.73	-$9.96	-$4.98

Data source: ACIL Tasman modelling

4 Impact upon REC market

The RET scheme (as currently legislated) makes allowance for up to 850 GWh of existing Waste Coal Mine Gas (WCMG) production to generate RECs. The REC target has been increased by 425 GWh in 2011 and 850 GWh for years 2012-20 to take account of this allowance.

Only existing WCMG projects will be eligible to create RECs for the period 1 July 2011 through to 31 December 2020.

While WCMG is not a renewable source, its inclusion into the RET is a means of compensation for the removal of the NSW Greenhouse Gas Abatement Scheme under which a number of WCMG projects were receiving NGAC revenues and also future costs under CPRS.

While the value of a REC is expected to be much higher than NGAC values over the period, EDL notes on its website that its projects were receiving approximately 4 NGACs per MWh of output from its WCMG projects.[1]

There are currently seven major WCMG projects operating in Australia. These are:

- EDL Appin (54 MW) & Tower (40 MW), NSW: completed in 1996
- Envirogen Tahmoor, NSW (7 MW): initial 5 MW completed in 2000, further 2 MW expansion completed in 2002.
- Envirogen Teralba, NSW (4 MW): completed July 2004 with an initial capacity of 8 MW, with 4 units moved to Oaky Creek
- Envirogen Oaky Creek (14 MW, with plans to expand to 20 MW), completed July 2006
- EDL German Creek, QLD (32 MW): completed in November 2006 and generates approximately 240 GWh annually
- Envirogen Glennies Creek, NSW (10 MW): completed November 2007
- EDL Moranbah North, QLD (45 MW): completed mid 2009, anticipated to generate up to 350 GWh of energy annually

ACIL Tasman understands that all of these projects, with the exception of the Appin/Tower collieries[2], would be eligible to create RECs. Therefore the allocations between projects are assumed to be as follows: EDL German Creek: 240 GWh; EDL Moranbah North: 350 GWh; Envirogen: a total 260 GWh across its four projects, giving a total of 850 GWh.

---

[1] Note that in carbon dioxide equivalent (CO2-e) terms, methane emissions have a global warming potential 21 times that of CO_2.

[2] Development of these WCMG projects preceded the NSW GGAS

Existing WCMG production can only obtain RECs for the 850 GWh they have been allocated. Its inclusion therefore has no impact upon the REC market and price of RECs provided the existing projects continue to generate at least 850 GWh annually. In the event that the total WCMG production falls below this level, other renewable technologies would be called upon to supply this shortfall and this would have the effect of increasing the 45,000 GWh target by this amount. This may result in a slight increase to the REC price, however even if a shortfall was to emerge, its size would be relatively small and hence the impact upon price would be negligible, particularly as banking and borrowing provisions would be expected to smooth any annual shortfall over many years

While there may be no impact upon REC prices, the increased target does result in a larger obligation for liable parties to source additional RECs. This increases the Renewable Power Percentage (RPP) and hence, direct costs to end users.

Increasing the WCMG allowance by 2,200 GWh

The introduction of a further 2,200 GWh of WCMG into the RET would have similar impacts to the 850 GWh tranche. ACIL Tasman would expect little or no impact upon REC prices as the increased target would be expected to be matched by a similar volume of WCMG projects.

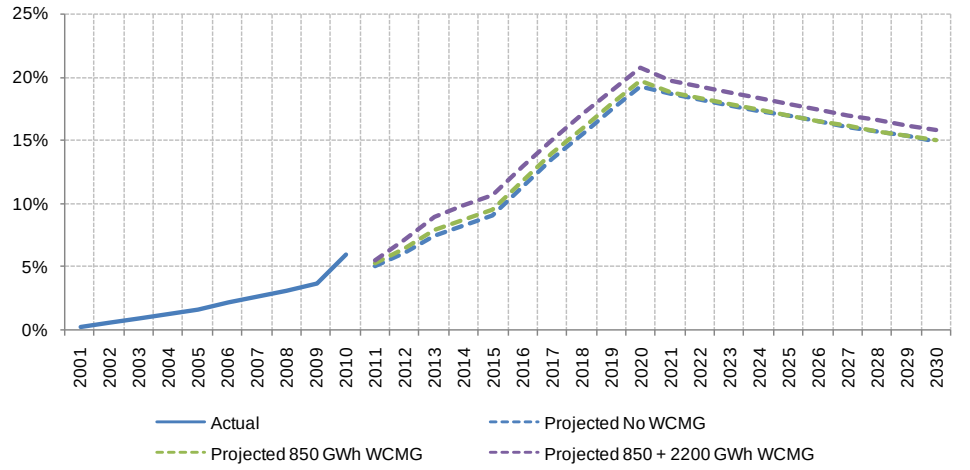
However, the additional volumes added to the RET, will further increase the RPP for end users.

Magnitude of additional costs under the RET

ACIL Tasman has estimated the direct costs of increasing the target to include additional WCMG to end users. This is achieved by projecting the RPP with and without WCMG volumes and examining the increase in costs based on projected REC prices.

Figure 1 shows actual and projected RPPs under various levels of WCMG. The impact upon the RPP is highest in 2014, increasing the RPP from 8.24% with no WCMG allowance up to 9.8% (an increase of 1.56 percentage points). In subsequent years the increase is less due to the increase in the target and also underlying growth in liable energy.

Figure 1 **Impact upon projected RPP**



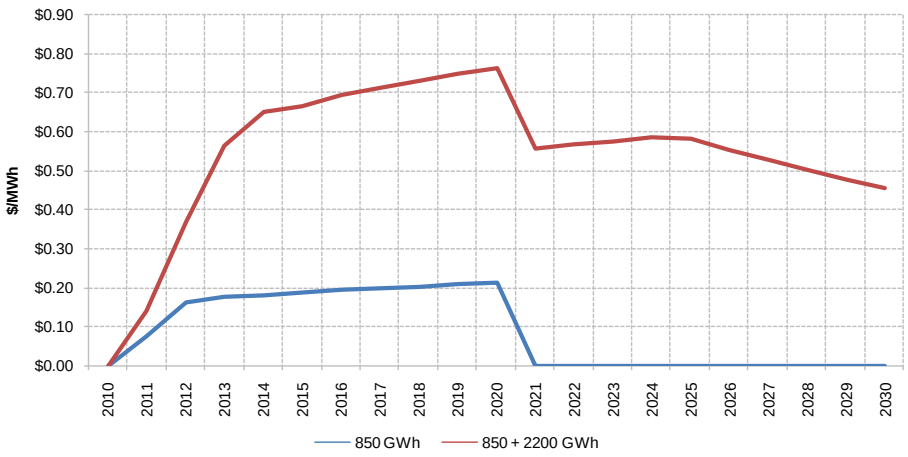
Note: RPP for 2011 affected by the removal of 4,000 GWh from the target as a result of the schemes split into large and small components and also the impact of EITE partial exemptions.

Data source: RET Regulations for actual RPPs, ACIL Tasman projections.

The additional cost which results from the higher RPP will depend upon the prevailing REC prices over the period. Through the use of its internal model of the RET, ACIL Tasman currently projects REC prices of around $35/REC, rising to around $64/REC by 2025 (in real 2010 dollars).

Based upon this price projection, the impact of the increased RPP is shown in Figure 2. The inclusion of the original 850 GWh results in a projected end user cost increase of around $0.20/MWh, while the inclusion of a further 2,200 GWh would increase end user prices by around a further $0.50/MWh in real terms over the period to 2030.

Figure 2 **Projected increase to end user RET costs**



Note: Based upon projected REC prices and increases to RPP. Real 2010 dollars.

Data source: ACIL Tasman

5 Residential retail tariff analysis

5.1 Residential retail tariffs

Using the cost of RECs to end users and the modelled wholesale prices, ACIL Tasman modelled a standardised retail tariff for residential customers in New South Wales and Queensland to assess the potential cost per MWh and in percentage terms for the average residential customer.

The tariff model incorporates network use of system (NUOS) charges using latest published pricing schedules from Energex and Integral. The wholesale energy prices were adjusted for transmission loss factors and adjusted for a load profile typical of residential customers. Cost of ancillary services, NEM fees, cost to serve, a retail margin, and the cost of RECs to end users, were also incorporated into the retail tariff.

5.2 Impact of additional WCMG on retail tariffs

The impact of WCMG on retail electricity tariffs for the average residential customer in New South Wales and Queensland are shown in Table 2 and Table 3, respectively.

The impact of additional WCMG on wholesale electricity prices was measured by subtracting the base case wholesale prices from the wholesale prices from the high and low case sensitivity runs (as described in Section 3 above).

The high and low case price differentials were then processed through the tariff model to get a high and low case impact on retail tariffs.

The results of the retail tariff modelling for New South Wales is set out in Table 2 below.

Table 2 **Impact of WCMG on retail tariffs in NSW (real $2010)**

	Change in MWh wholesale price (real $2010)		Change in MWh cost of RECs for end users (real $2010)	Change in MWh retail tariff (real $2010		% change in retail tariff	
	HIGH case	LOW case		HIGH case	LOW case	HIGH case	LOW case
2010	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%	0.00%
2011	-$0.72	-$0.36	$0.07	-$1.17	-$0.55	-0.58%	-0.27%
2012	-$1.59	-$0.79	$0.21	-$2.53	-$1.16	-1.24%	-0.57%
2013	-$3.47	-$1.73	$0.38	-$5.60	-$2.61	-2.30%	-1.07%
2014	$0.00	$0.00	$0.47	$0.47	$0.47	0.19%	0.19%
2015	$0.00	$0.00	$0.48	$0.48	$0.48	0.18%	0.18%
2016	$0.00	$0.00	$0.50	$0.50	$0.50	0.18%	0.18%
2017	$0.00	$0.00	$0.51	$0.51	$0.51	0.19%	0.19%
2018	$0.00	$0.00	$0.53	$0.53	$0.53	0.20%	0.20%
2019	$0.00	$0.00	$0.54	$0.54	$0.54	0.21%	0.21%
2020	$0.00	$0.00	$0.55	$0.55	$0.55	0.20%	0.20%
2021	$0.00	$0.00	$0.56	$0.56	$0.56	0.20%	0.20%
2022	$0.00	$0.00	$0.57	$0.57	$0.57	0.20%	0.20%
2023	$0.00	$0.00	$0.58	$0.58	$0.58	0.20%	0.20%
2024	$0.00	$0.00	$0.59	$0.59	$0.59	0.20%	0.20%
2025	$0.00	$0.00	$0.58	$0.58	$0.58	0.20%	0.20%
2026	$0.00	$0.00	$0.55	$0.55	$0.55	0.19%	0.19%
2027	$0.00	$0.00	$0.53	$0.53	$0.53	0.17%	0.17%
2028	$0.00	$0.00	$0.50	$0.50	$0.50	0.16%	0.16%
2029	$0.00	$0.00	$0.48	$0.48	$0.48	0.15%	0.15%
2030	$0.00	$0.00	$0.45	$0.45	$0.45	0.14%	0.14%

Data source: ACIL Tasman modelling

The impact in New South Wales in the period 2011 to 2013 is projected to be a benefit because wholesale prices are expected to be suppressed by the additional WCMG plant.

In the longer term, the impact on the New South Wales standardised tariff is an increase of around $0.50/MWh or 0.2%, due to the increase in the cost of RECs from the additional WCMG. This means that for typical end users using between 6 and 8 MWh each year this equates to between $3 and $4 per year in $2010.

Similarly The results of the retail tariff modelling for Queensland is set out in Table 3 below.

Table 3 **Impact of WCMG on retail tariffs in Qld (real $2010/MWh) and %**

	Change in MWh wholesale price (real $2010)		Change in MWh cost of RECs for end users (real $2010)	Change in MWh retail tariff (real $2010		% change in retail tariff	
	HIGH case	LOW case		HIGH case	LOW case	HIGH case	LOW case
2010	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%	0.00%
2011	-$0.53	-$0.26	$0.07	-$0.85	-$0.39	-0.48%	-0.22%
2012	-$2.58	-$1.29	$0.21	-$4.25	-$2.02	-2.29%	-1.09%
2013	-$9.96	-$4.98	$0.38	-$16.83	-$8.22	-7.39%	-3.61%
2014	$0.00	$0.00	$0.47	$0.47	$0.47	0.20%	0.20%
2015	$0.00	$0.00	$0.48	$0.48	$0.48	0.19%	0.19%
2016	$0.00	$0.00	$0.50	$0.50	$0.50	0.20%	0.20%
2017	$0.00	$0.00	$0.51	$0.51	$0.51	0.21%	0.21%
2018	$0.00	$0.00	$0.53	$0.53	$0.53	0.21%	0.21%
2019	$0.00	$0.00	$0.54	$0.54	$0.54	0.22%	0.22%
2020	$0.00	$0.00	$0.55	$0.55	$0.55	0.21%	0.21%
2021	$0.00	$0.00	$0.56	$0.56	$0.56	0.22%	0.22%
2022	$0.00	$0.00	$0.57	$0.57	$0.57	0.22%	0.22%
2023	$0.00	$0.00	$0.58	$0.58	$0.58	0.22%	0.22%
2024	$0.00	$0.00	$0.59	$0.59	$0.59	0.22%	0.22%
2025	$0.00	$0.00	$0.58	$0.58	$0.58	0.22%	0.22%
2026	$0.00	$0.00	$0.55	$0.55	$0.55	0.21%	0.21%
2027	$0.00	$0.00	$0.53	$0.53	$0.53	0.20%	0.20%
2028	$0.00	$0.00	$0.50	$0.50	$0.50	0.19%	0.19%
2029	$0.00	$0.00	$0.48	$0.48	$0.48	0.18%	0.18%
2030	$0.00	$0.00	$0.45	$0.45	$0.45	0.17%	0.17%

Data source: ACIL Tasman modelling

The impact in Queensland in the period 2011 to 2013 is also projected to be a benefit because wholesale prices are expected to be suppressed by the additional WCMG plant.

In the longer term, the impact on the Queensland standardised tariff is an increase of around $0.50/MWh or 0.2%, due to the increase in the cost of RECs from the additional WCMG. As for New South Wales for typical end users using between 6 and 8 MWh each year this equates to between $3 and $4 per year in $2010.