



A discussion of the

“Emissions Calculation Methodology for the Revised NSW Greenhouse Gas Emissions Benchmark Scheme: Options Paper”

as prepared for the NSW Ministry of Energy and Utilities (MEU)
by George Wilkenfeld & Associates, September 2002

Hugh Outhred, Iain MacGill and Karel Nolles
University of New South Wales
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Introduction

Greenhouse gas emissions targets for the NSW Electricity Industry were introduced as part of the Electricity Retailer Licence Conditions under the NSW Electricity Supply Act (1995). Over the legislated life of these conditions (1997-2001) the regime failed to achieve its specified targets.¹

In December 2001 the NSW government released a Position Paper proposing reform of the licence condition – proposed changes included introducing penalties for non-compliance as well as removing discounting of out-of-state generation. The stated policy intent of the scheme remains to reduce “greenhouse gas emissions created through NSW electricity consumption.”² However the original 2000-01 target of 7.27 tonnes per capita has been pushed back to 2006-07.

In a response to this reform proposal the UNSW Electricity Restructuring Group suggested that achieving the per-capita emissions target for 2006-07 as outlined in the Position paper could significantly contribute towards placing the NSW electricity supply industry on an emissions reduction path compatible with Kyoto Protocol compliance for the sector. (Nolles et al, 2002). However we also noted that implementation of the scheme as proposed might not actually lead to any significant emissions abatement at all because of the potential to ‘free ride’ off existing Federal renewables policy measures and other “Business As Usual” changes in generation. Other concerns include the proposed Sequestration and Electricity Sales Foregone measures in the scheme (Outhred et al, 2002).

¹ Documented initially in the Annual Reports of the NSW Licence Compliance Advisory Board (LCAB) and later by the Independent Pricing and Regulatory Tribunal (IPART, 2001) and the NSW Environmental Protection Authority (EPA, 2002).

² NSW Government, 2001, p i

Since the NSW Government's Position Paper of December 2001, there has been a brief summary document in June (MEU, 2002) and, most recently, the September 2002 release of an emissions calculations methodology options paper (George Wilkenfeld and Associates, 2002). Taken together these documents still provide only a piecemeal view of the overall scheme. Although legislation to enable the scheme is now imminent, it is still impossible to assess the overall scheme since many key features remain undisclosed.

In this paper, we first address the key issues raised by the reform proposal with regard to its policy intent and the process of policy development and review to date. We then discuss the emissions methodology options paper with regard to its stated objectives. Further background to this paper can be found in a separate commented version of the Wilkenfeld paper (Outhred et al, 2002b).

Key issues raised by the reform proposal

Policy intent

The policy intent of the proposal is a valuable response to the problem of climate change, and the major contribution of the electricity supply industry to Australian emissions. However, given the multi-state coverage of the National Electricity Grid (Queensland, New South Wales, Australian Capital Territory, Victoria, South Australia and possibly Tasmania), it is difficult to implement an effective policy of this kind at a State jurisdictional level.

As indicated in the NSW Governments December reform proposal, a consistent multi-state or national policy of this type would be preferable to a NSW scheme alone. In the absence of a multi-state scheme, it is questionable to allow a range of activities throughout the five states and territories of the NEM to be counted as contributing to reducing per-capita emissions in NSW alone. There are two reasons for this – firstly such a claim could not be sustained if one or more of the other states introduced a similar scheme at a later date and secondly, there seems no reason why NSW consumers should subsidise low emission projects in other states.

A key question in policy formulation is how a proposed policy is likely to interact with existing policies and underlying trends. There are a range of Federal and State policies and measures that impact on GHG emissions from the Australian electricity supply industry. One risk is that policies may effectively dilute or even negate each other's effectiveness due to different objectives and implementation mechanisms. Another danger is that existing policy measures, and perhaps underlying industry or societal trends, may already be sufficient in themselves to deliver the stated aim of a proposed new policy measure. The new measure may in effect 'free ride' on 'business as usual' developments under existing policies without actually driving additional change.

As will be discussed later, Business As Usual (BAU) may go a long way to meeting the revised NSW benchmarks scheme target under the proposed methodology.

A final question with regard to policy review and revision is determining the reasons why an existing policy has failed. In this context, the question of why the existing NSW retailers benchmarks scheme has failed so markedly to deliver per-capita emissions reductions needs to be considered. The NSW Government position paper argues that the most significant reason was a lack of incentives to achieve targets. Other reasons, however, might include confusion on eligible activities, complexity of the accounting methodologies and large differences in technical 'rigour' between some of the abatement categories (Nolles et al, 2002).

Process of policy development and review

The complexity of the electricity industry challenges the successful development and implementation of public policy, and the long term effects of decisions and the large sums of money involved both imply that the highest standard of public policy development and implementation processes should be followed. It is generally accepted that best practice policy development requires the separation of policy proposals from a formal process of policy review.

Whilst not all elements of development and implementation of the National Electricity Code realistically met this standard, it was noteworthy that whilst COAG set the initial reform agenda, development of specific proposals was left to the National Grid Management Council, and other bodies, such as the ACCC, the Productivity Commission, and (post their formation) NECA and NEMMCO all played independent review roles. The overall performance of the Code is now subject to a further COAG level review that is providing an independent forum for the discussion of further reform.

In a similar vein, an independent review process was built into the MRET legislation.

A separation of functions does not, however, appear to have been respected in this case. A consortium of NSW Government Departments has developed the current proposal with cooperation from two focus groups. There would appear to be no scope for formal review of either the design, implementation or ongoing performance of the scheme from any organization that is not part of the design and implementation group.

Other process issues include transparency and accountability. This involves timely and thorough information for interested parties to assess the proposed scheme and mechanisms for them to provide feedback. It also needs to be demonstrated that stakeholder concerns are actually being addressed. There are also risks with ‘membership by invitation only’ groups contributing to policy development.

Also, it is most important to provide an opportunity for the policy as a whole to be reviewed prior to implementation, rather than only individual policy components. The December reform proposal included three key components: low emission generation, electricity sales forgone (ESF) and sequestration, with all three of these to be fungible via a single tradeable instrument (the NSW Greenhouse Gas Abatement Certificate, or NGAC).

Given a proposed single ‘currency’ for this range of very different actions, the scheme can be entirely compromised by failings in the methodologies for any one of the components. To date, however, only the methodology for low emission generation has been published in any detail. As discussed in (Nolles et al, 2002), it is likely that a “race to the bottom” effect will lead to activity being skewed towards the categories perceived to have the least stringent requirements.

With this proviso, the following section provides a summary of our response to this emissions calculation methodology (George Wilkenfeld and Associates, 2002). In our view, the failings of this present proposal already put the effectiveness of the entire scheme at risk. We do, however, also plan to assess the ESF and sequestration methodologies when they are released.

Summary response to emissions calculations methodology options paper

Objectives of the methodology

The objectives of the methodology are set out on page 5 of the options paper:

- Accuracy: the methodology should provide an accurate indication of the emissions attributable to electricity use in NSW, and to each party's electricity purchases;
- Integrity: the methodology should avoid double-counting of benefits (eg with regard to RECs);
- Consistency with the National Greenhouse Gas Inventory methodology;
- Simplicity, clarity and lack of ambiguity;
- Environmental effectiveness: the methodology should reward measures that actually reduce emissions compared with Business-as-Usual;
- Fairness and equity: parties should not be disadvantaged compared with the present methodology (set out in *Greenhouse Gas Emissions from Electricity Supplied in NSW: Emissions Workbook, October 2000*) and any special concessions should be limited and publicly disclosed;
- Continuity: where possible, procedures and calculations should be the same as in the present methodology.

Comments on the ability of the methodology to meet these objectives

As is frequently the case in policy development, there are tensions between these objectives (eg accuracy versus simplicity and continuity), so that they must be consistently prioritised to develop a coherent and effective methodology. No clear priorities are set out in the document and it is not clear that a consistent priority order has been followed.

With regard to the individual objectives, our concerns include:

Accuracy

The methodology uses an imputed measure of "attributable emissions", rather than climate change emissions per se, and there are serious questions as to whether these "attributable emissions" will provide an accurate measure of the physical emissions associated with electricity production:

- The calculation relies on a "NSW pool coefficient" that would in our opinion be more accurately described as a historical benchmark as the pool is specified to contain a particular group of power stations (see our detailed comments on Section 2.2 for more details). Moreover, these power stations are able to claim any additional greenhouse benefits that they make under the relevant baseline arrangements, and thus there will not be any improvement in the NSW pool coefficient over time. The options paper actually suggests that the pool coefficient will increase (p. 26).
- The baseline provisions allow all generators within the NEM with emission coefficients less than the NSW pool coefficient to claim NGACs. Only power stations operating prior to July 1997 will have non-zero baselines. This means that a very large volume of NGACs can be produced by power stations that were installed in the last five years, and which clearly had nothing to do with this policy measure ("free-riders"). Moreover, assuming demand continues to grow, the amount of free-rider energy eligible to earn NGACs will also continue to grow. This is a general feature of a baseline and credit scheme implemented in the context of increasing demand. In principle this could be addressed by projecting BAU baselines but this is unlikely to be practical.

- A special provision for large users allows them to create Large User Abatement Certificates (LUACs) in a manner that would be “negotiated individually with each electricity user” and may involve non-energy GHG emissions associated with their industrial processes.

Integrity

A key measure of the integrity of the scheme is, as the options paper outlines, avoiding double counting of benefits (p. 7) – noted elsewhere as “avoiding windfall returns for actions that were taken or committed to prior to the incentive regime and so could not have been influenced by it.” (p. 17). The proposal appears to fail this on several fronts.

The options paper states: “the methodology should avoid double-counting of benefits (eg with regard to RECs)” yet declares that the “NSW government has decided that [liable parties] will be able to count some of the RECS which they surrender to comply with the Commonwealth [MRET legislation] towards compliance with their NSW benchmark” (p. 10). The proposed limit is around 35% of all RECS (p. 11). It is unclear how double-counting of NSW RECs is materially different from double-counting RECs from beyond the State border.

Further it would seem to exceed the powers of any single state government to successfully audit for the creation of multiple instruments under a variety of state schemes by generators located outside those state boundaries. Consider for example if a South Australian based generator from a single MWh of generation produces a NGAC for sale in NSW, an instrument under a possible future Victorian Government scheme, and a REC for sale under the Federal MRET scheme. It is difficult to see how the NSW Government could robustly audit against such activity, without some form of legislation by reference being provided by the SA Government. Certainly even with legislative backing the actual audit process would be complex, since a robust audit would require reconciliation of all environmental instruments acquitted under all schemes against actual electrical output for that generator. This would require considerable data sharing between all the various market schemes.

Apart from stating an intention not to allow “double counting” no detail has yet been provided about the audit mechanisms by which this could be achieved.

In previous work we estimated that the NSW scheme per-capita targets might be equivalent to some 17,300 kTonnes of CO₂ emissions abatement over 2003-7, the first five years of the revised benchmarks scheme (Nolles et al, 2002). This is reasonably close to the expected abatement due to MRET over that same time period. By way of comparison, the NSW Government’s December options paper included modelling projecting some 7000 kTonnes of annual abatement by 2011-12 from the scheme (NSW Government, 2001 p. 60). The NSW government’s chosen position would therefore seem to allow perhaps a third of the NSW scheme’s abatement over 2003-7 to be achieved through existing MRET arrangements and without any additional activity.

The baseline provisions for generators within the NEM that have emission coefficients less than the NSW pool coefficient is possibly even more concerning. It is proposed that any such plant commissioned after mid-1997 can claim NGACs over their entire output.

Consider the 1000MW of Combined Cycle Gas Turbine (CCGT) plant that has been installed in the NEM since June 1997. We estimate that if these units continued to operate at their 2001 output for the five years 2003-7, then they could conceivably generate more than 12,000,000 NGACs over that

period. This represents around 75% of the required NGACs for the NSW scheme over that time³ with no additional change in behaviour or investment required. Further, NEM installed CCGT capacity is due to increase some 38% with the near completion of a new 380MW plant in Queensland.

This is before any other growth in output due to load growth since 2001 or in other classes of low emission generation installed in the last five years is considered.

Accordingly we believe it is likely that with the proposed baselines existing generation (mostly natural gas fired) can provide the large majority of NGAC's required by the scheme. This prediction will be readily checkable assuming that the proposed registry (about which details remain currently unreleased) allows the origin and quantity of NGAC's produced to be tracked.

Consistency with the National Greenhouse Gas Inventory methodology

The use of an imputed measure of emissions, as discussed under *Accuracy* above, in our view prevents the scheme from being consistent with the National Greenhouse Gas Inventory methodology

Simplicity, clarity and lack of ambiguity

The scheme as proposed does not seem simple, clear or unambiguous. Unfortunately, it appears a monument to complexity, which is always the enemy of good policy.

Environmental effectiveness

The use of an imputed measure of emissions, as discussed under *Accuracy* and our free-rider concerns covered in *Integrity* above seek likely, in our view, to substantially reduce the environmental effectiveness of the scheme. For example, we suspect that the baseline provisions may allow apparently significant environmental "improvements" to be claimed even under "business as usual" – refer to the comment above about the NGAC production capacity of existing gas generation.

Policies attempting to drive relatively small changes in behaviour have to take a great deal of care in estimating 'business as usual' outcomes that will, in the end, define the effectiveness of the policy in driving change. While projecting future scenarios is certainly difficult, note that the proposed scheme doesn't appropriately account for changes that have already happened.

For example, it is proposed that the cut-off for 'new' generation in the baselining arrangements be set at mid 1997. The considerable new plant installed within the NEM in the last five years has clearly not been driven by the NSW benchmarks scheme but would be counted as additional activity under the proposed scheme.

Fairness and equity

Note the possible confusion between general policy principles of fairness and equity with the idea that it is unreasonable to change the rules as they apply to particular parties. The present methodology has been proved to be entirely ineffective in delivering the policy intent as documented by the LCAB, IPART and the EPA. For example, in the final period 2000/01 "*only two retailers achieved their benchmark emissions level. The remaining 20 exceeded the benchmark by an average 15.5 per cent.*" (IPART, 2001).

³ NEM generation from CCGT plants installed since mid 1997 was 5530 GWh for 2000-1 (ESAA, 2002). Given an emissions coefficient of 0.4 tCO₂-e/MWh (NSW Government, 2001) and using the 1999-2000 pool coefficient of 0.866 gives around 12,900 kT of abatement over the five years 2003-7 at unchanged generation levels.

How will it be possible to deliver improved environmental outcomes if “parties should not be disadvantaged compared to the present methodology”?

Continuity

The present methodology has been proved to be ineffective in delivering the policy intent as documented by the LCAB, IPART and the EPA. How will it be possible to deliver improved environmental outcomes if continuity with the present methodology is an objective? Beyond enforcement measures, it has been proposed that some other very important elements of the original scheme be changed. For example, the original target was 7.27 tonnes per capita by 2000-01. This has now been pushed back to 2006-07. The proposed removal or pro-rata arrangements for interstate generation will also markedly change the scheme’s outcomes.

Conclusions

We have a number of broad concerns with the proposed revisions to the NSW greenhouse licence condition for electricity retailers:

- The process that has been followed in developing revisions to the scheme fails to carefully separate responsibility for development of the revised policy from evaluation and review. Nor has it provided an opportunity for review of the revised scheme in its totality. This is unsatisfactory given the complexity of the electricity industry and of the scheme itself.
- The Emissions Calculation Methodology Options Paper fails to demonstrate that the methodology will meet its objectives as set out in the paper. In particular, we have serious concerns about the proposed baseline methodology as well as the practical difficulty of avoiding “double-counting” with the MRET scheme on the basis of the proposal set out in the paper.

A commented version of the Options Paper (Outhred, 200b) provides a detailed critique of its particular points and proposed options. Note that the outlined options and request for input on these generally address what are relatively minor details of the scheme’s implementation given its far more significant areas of concern.

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