

# **Compliance and Operation of the NSW Greenhouse Gas Reduction Scheme during 2006**

## **Report to Minister**



Greenhouse Gas  
Reduction Scheme



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July 2007

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## 1 Executive summary

The Greenhouse Gas Reduction Scheme<sup>1</sup> (the Scheme) commenced on 1 January 2003 and at the time was one of the first, if not the first, mandatory emissions trading schemes in the world. This is the fourth annual report on the Scheme and covers the 2006 calendar year.

The last year has seen a significantly increasing level of interest in climate change generally and emissions trading in an Australian context in particular. The development of proposals for a national emissions trading scheme has resulted in increased focus on the operation of this Scheme. This is expected to continue with the further refinement of proposals for a more broadly based emissions trading mechanism for Australia.

Under the Scheme, the Independent Pricing and Regulatory Tribunal (IPART) has two key roles – it accredits abatement projects and administers the Scheme (Scheme Administrator) for NSW and the ACT. It also ensures that NSW benchmark participants comply with the Scheme (compliance regulator). The functions of compliance regulator for the ACT are exercised by the Independent Competition and Regulatory Commission (ICRC).

The Scheme continues to grow, with 35 benchmark participants in 2006, 24 of which were compulsory participants. The total number of all abatement and renewable energy certificates surrendered to meet 2006 obligations is equivalent to 13.8 million tonnes of carbon dioxide equivalent abated.

For the 2006 compliance year, all electricity retailers operating in NSW and all other benchmark participants demonstrated a reduction or offset of their emissions through the surrender of abatement certificates to meet their individual benchmark target, or carried forward a small shortfall, within the permitted 10 per cent buffer. This is a high level of compliance given that the benchmark target has continued to tighten in accordance with the Scheme design from 2003, through 2004, 2005, and 2006.

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<sup>1</sup> Formerly known as the Greenhouse Gas Abatement Scheme (see Section 2).

The number of companies undertaking accredited projects to reduce greenhouse gas emissions also increased during the reporting year. At the end of 2006, there were 167 accreditations held by 90 companies eligible to create abatement certificates. This was an increase from the 146 accreditations current at the end of 2005.<sup>2</sup>

During 2006 there was a significant increase in the number of abatement certificates created through energy efficiency projects, predominantly through use of the Default Abatement Factor (DAF) method. These types of projects involve giving away, selling or installing items, such as compact fluorescent lamps and efficient showerheads, that reduce energy consumption. The growth of activity in this area led to a review and fine tuning of the Scheme Rules to ensure ongoing integrity of abatement. This is discussed in more detail in Appendix C of this report.

Despite the growth in the number of certificates created through energy efficiency projects, accreditations under the Generation Rule continued to dominate certificate creation. This includes projects such as electricity generation from waste gas and efficiency upgrades at coal fired power stations. Following a change to the Generation Rule in late 2005 the Tribunal undertook, during 2006, the development of a revised framework for the assessment of emissions reductions from accredited efficiency improvement projects in coal fired power stations. This was a significant project and benefited from consultation with affected parties and stakeholders. More detail on the development of the Performance Improvement Testing Regime and its requirements is outlined in Section 4.2.2.

The growth in the number of accreditations has resulted in more abatement certificates being created in 2006 than were required to meet the obligations of benchmark participants for the year. The excess certificates are bankable and can be used to meet compliance obligations in future years.

The growth and evolution of the Scheme has required a high level of diligence on the part of the Tribunal as Scheme Administrator to maintain integrity of abatement, ensure compliance with the Scheme Rules and to work with the Scheme's policy agency to fine tune the Rules where required. The overall level of compliance with Scheme Rules and conditions of accreditation by Abatement Certificate Providers has been very high.

In 2006 the NSW Parliament considered and passed amendments to the relevant provisions of the *Electricity Supply Act 1995* in order to extend the life of the Scheme. It was extended to 2021, or until a national emissions trading scheme is established (which may be prior to 2021). For more detail about the amendments made to the Act see Appendix C.

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<sup>2</sup> An accreditation may cover several 'accredited projects' with similar activity taking place. For example, activities in the commercial and residential sectors may be counted as separate projects but one accreditation.



The states and territories based taskforce working to develop a proposal for a national emissions trading scheme has drawn on the expertise and experience gained by the Tribunal and its staff in the operation of the Scheme to date. The project to develop a national scheme has acknowledged the need to harmonise with and/or allow transition from existing schemes such as this Scheme.

Under the relevant provisions of the *Electricity Supply Act 1995*, the Tribunal may, with the approval of the Minister, delegate the exercise of its functions as Scheme Administrator to another person or body. The Tribunal has delegated these functions to a Committee. For all of the 2006 calendar year the Committee comprised Mr James Cox and Mr Peter Egger.

## 2 Overview of the Scheme

The Scheme is one of the first mandatory greenhouse gas emissions trading schemes established in the world. Its objectives are to reduce greenhouse gas emissions associated with the production and use of electricity; and to develop and encourage activities to offset the production of greenhouse gas emissions.

The Scheme commenced on 1 January 2003 in NSW and operates on a calendar year cycle. Following passage of complementary legislation in the Australian Capital Territory Legislative Assembly, the Scheme commenced in the ACT on 1 January 2005. Originally called the *Greenhouse Gas Abatement Scheme*, the Scheme was renamed in early 2007 by the then Minister for Energy as the *Greenhouse Gas Reduction Scheme*. The Scheme continues to be known as “GGAS”.

In 2006, the NSW Government extended the Scheme to 2021 or until the establishment of a national emissions trading scheme. Subsequently, the Premiers and Chief Ministers of State and Territory Governments stated that if no agreement is reached with the Commonwealth, they intend to introduce a state based national scheme by the end of 2010.<sup>3</sup> The Commonwealth Government subsequently signalled an intention to establish a national emissions trading scheme.

The current Scheme requires NSW and ACT electricity retailers and certain other parties, collectively referred to as benchmark participants, to meet mandatory targets for reducing or offsetting the emission of greenhouse gases from the production of the electricity they supply or use. Benchmark participants must reduce the emissions of the electricity they supply or use to the level of their greenhouse gas benchmark each year.

Benchmark participants meet their targets by surrendering Scheme certificates that are created through activities that reduce or offset emissions. Benchmark participants can also claim credit for a limited number of Renewable Energy Certificates (RECs) surrendered under the Commonwealth’s Mandatory Renewable Energy Target (MRET) in relation to electricity purchases associated with NSW.<sup>4</sup>

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<sup>3</sup> National Emissions Trading Taskforce, 9 February 2007; Council for the Australian Federation – Communiqué.

<sup>4</sup> A renewable energy certificate may be counted towards meeting the greenhouse gas benchmark, or to abate a greenhouse gas shortfall, if certain criteria are satisfied pursuant to clauses 73DA and 73DB of the Regulations.

As Scheme Administrator, IPART accredits organisations undertaking abatement of greenhouse gas emissions as abatement certificate providers (ACPs) under one of the Scheme Rules. IPART has established an audit panel which assists in ensuring the integrity and validity of the certificates registered within the Scheme. The Scheme Registry manages the creation, transfer of ownership and ultimate surrender of the abatement certificates. Once surrendered, the certificates cannot be reused. The Registry does not provide a trading function.

The Scheme can be characterised as a “baseline and credit” form of emissions trading where ACPs create certificates or credits for actions that reduce or “abate” emissions compared to prior practice, business as usual or, in some cases, current industry practice. Each certificate represents a tonne of emissions reduction. The proposals for a national scheme are for a “cap and trade” form of emissions trading where total sector emissions are capped and a permit needs to be surrendered for each tonne emitted by a sector participant. Under these proposals there will, however, be provision for offsets, similar in effect to credit certificates, to be created for specified emissions reduction projects and for these to be surrendered in lieu of permits.

## 2.1 Legislative framework

The NSW Scheme is created by a legal and technical framework through Part 8A of the *Electricity Supply Act 1995* (the Act), the *Electricity Supply (General) Regulation 2001* (the Regulation), and five Greenhouse Gas Benchmark Rules<sup>5</sup> (the Rules) made by the Minister for Energy.

The ACT Government introduced a Greenhouse Gas Abatement Scheme by passing the *Electricity (Greenhouse Gas Emissions) Act 2004* (ACT). This legislation mirrors the equivalent NSW legislative provisions and facilitates the operation of what is, in many respects, a single Scheme across both jurisdictions.

IPART undertakes the functions of Scheme Administrator for both NSW and the ACT. This means that a single Registry operated by IPART as Scheme Administrator tracks creation, ownership and surrender of certificates. All applications for accreditation as an abatement certificate provider are considered by IPART as Scheme Administrator and are assessed against the relevant rules made under the Act.

The relevant ACT and NSW legislation specifies the functions of the compliance regulator for the Schemes (the ICRC in the ACT and IPART in NSW). These include ensuring that electricity retailers in the ACT and NSW meet legislated targets by surrendering certificates to offset emissions and reporting on compliance outcomes to the relevant jurisdictional Ministers.

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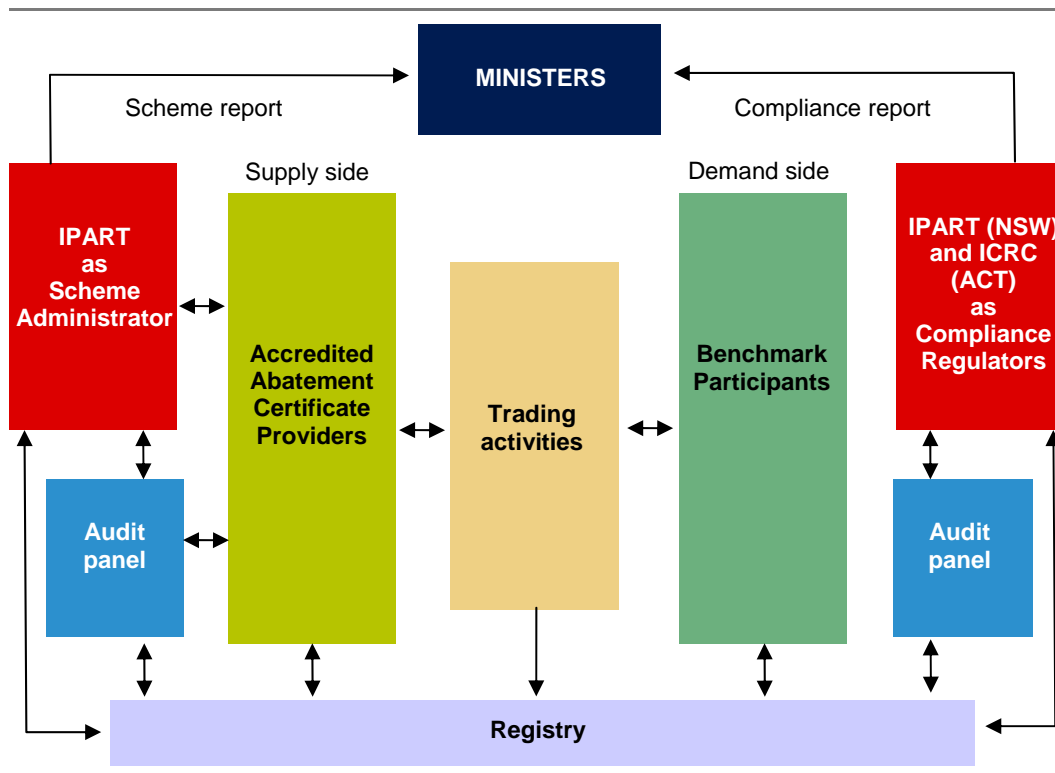
<sup>5</sup> The five Rules are: No. 1 – Compliance, No. 2 – Generation, No. 3 – Demand Side Abatement, No. 4 – Large User Abatement Certificates, No. 5 – Carbon Sequestration.

In NSW the Department of Water and Energy has responsibility for developing the policy framework for the Scheme and consulting on proposed changes to the Rules. IPART then applies those Rules in its roles as Scheme Administrator and compliance regulator.

## 2.2 Structure of the Scheme

The figure below illustrates the structure of the Scheme and its key participants.

**Figure 2.1 Structure of the Scheme and key participants**



## 2.3 Greenhouse gas benchmarks

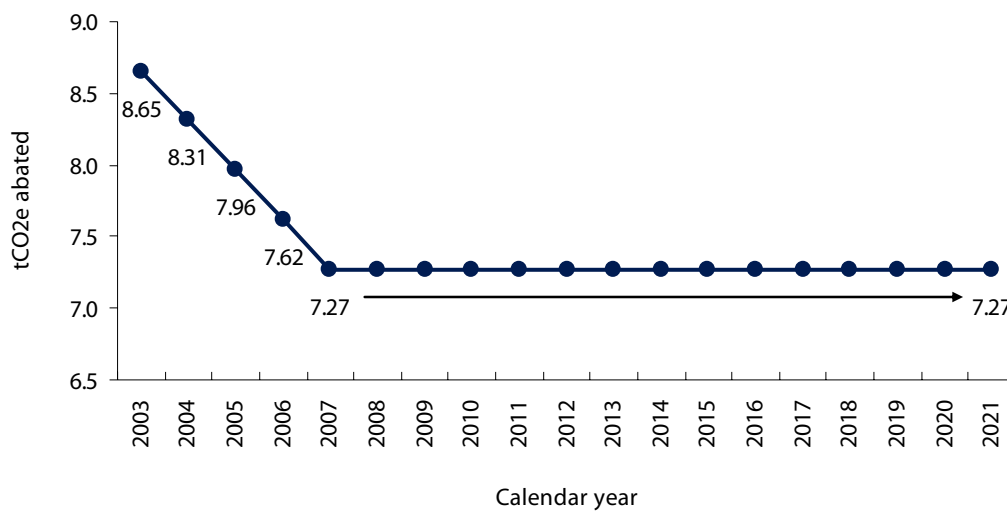
The Scheme has set annual per capita benchmarks for greenhouse gas emission reductions by the NSW electricity sector as a whole (the Electricity Sector Benchmarks). The Scheme's Compliance Rule<sup>6</sup> also establishes a framework for converting these electricity sector benchmarks into annual benchmarks for each benchmark participant.

For the 2006 compliance year, the Scheme imposed a benchmark of 7.62 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>-e) of greenhouse gas emissions per capita in NSW.

<sup>6</sup> Greenhouse Gas Benchmark Rule (Compliance) No. 1 of 2003.

The benchmark progressively drops to 7.27 tCO<sub>2</sub>-e per capita in 2007 and will remain at that level until 2021 unless the legislation is amended to reduce the benchmark.

**Figure 2.2 NSW Benchmark Targets (2003-2021)**



## 2.4 NSW benchmark participants

The Act imposes benchmark targets on all NSW electricity retail suppliers, certain generators and all market customers that take electricity supply in NSW directly from the National Electricity Market. These companies are known as benchmark participants. In addition, organisations carrying out State significant developments<sup>7</sup> and large customers<sup>8</sup> can elect to manage their own greenhouse gas benchmarks. These are called elective benchmark participants.

Electricity retailers pass on to their customers the costs of meeting abatement obligations imposed by Scheme legislation. Large electricity customers that elect into the Scheme may be able to minimise the abatement costs incurred by finding other more competitive sources for meeting their obligations. Large customers who have elected into the Scheme can become accredited for reductions of on-site emissions from industrial processes at their sites and by so doing offset abatement and other operating costs. See Section 4.4 for further details.

<sup>7</sup> State significant development has the same meaning as it has in the *Environmental Planning and Assessment Act 1979*. At this stage, no State significant developments have elected under the Scheme.

<sup>8</sup> A large customer is defined as a customer other than a retail supplier, that on its own or together with certain related entities has an electricity load within NSW of over 100GWh per annum at one site or multiple sites owned or occupied by the customers, as long as one of the sites uses over 50GWh per annum.

Each benchmark participant is responsible for its contribution to reducing the NSW electricity sector benchmark. For example, if an electricity retailer sells 5 per cent of total electricity sales in NSW, it is responsible for meeting 5 per cent of the required reduction applied to the NSW electricity sector benchmark. Elective participants, having nominated which company sites are part of the Scheme, must meet the benchmark reduction targets associated with electricity consumption at those sites.

## 2.5 Abatement Certificate Providers

Benchmark participants primarily reduce their per capita emissions by purchasing NSW Greenhouse Abatement Certificates (known as abatement certificates or NGACs) and surrendering these to IPART or the ICRC when they lodge their compliance reports.

Abatement certificates are created by parties carrying out greenhouse gas abatement projects that are accredited under the Scheme's Rules. Parties are eligible to seek accreditation for demand side abatement activities, reduced or low emission generation or for carbon sequestration through forestry. Parties carrying out these activities are referred to as Abatement Certificate Providers (ACPs). Further detail about the activities of ACPs is provided in Section 4.

The Scheme also allows some large electricity customers to claim credit for reducing on-site emissions of greenhouse gases from (non-electricity related) industrial processes at sites which they own and control. These large users can create Large User Abatement Certificates (LUACs) for these activities. These certificates are not tradeable. In accordance with the *Greenhouse Gas Benchmark (Large User Abatement Certificate) Rule No.4 of 2003*, creation of LUACs is not directly related to electricity use.

Eligible demand side abatement projects (energy efficiency) must be undertaken in NSW or the ACT. At this stage carbon sequestration activities can only be undertaken in NSW. As NSW and the ACT are part of the National Electricity Market, interstate generators also provide electricity to NSW and ACT customers. Therefore, interstate generation projects using various fuel sources connected to the National Electricity Market may apply for accreditation.

The Rules set out the eligibility criteria and greenhouse gas accounting methods which participants must use to determine the value of abatement, and hence the number of abatement certificates each project can create.

### 3 Benchmark participants

There were 35 benchmark participants for the 2006 compliance year in NSW; all 21 licensed electricity retailers, one market customer, two generators and 11 large users of electricity who have voluntarily elected into the Scheme. Currently, no State significant developments have elected into the Scheme (refer to Table 3.1 for the full list of all mandatory and elective benchmark participants).

During 2006, IPART approved applications from two large electricity customers seeking to manage their own greenhouse gas abatement in 2007. These applications were from companies that were already elective participants and sought to extend their participation beyond the 2006 compliance year. No new applications to become elective participants were received.

All benchmark participants are required to lodge an Annual Greenhouse Gas Benchmark Statement (benchmark statement) with IPART by no later than 18 March.<sup>9</sup> The benchmark statement sets out the greenhouse gas benchmark, shortfall and liability (if any) for a greenhouse penalty for each benchmark participant.

In the majority of cases, IPART requires benchmark statements to be accompanied by an independent audit report. Benchmark participants submitting nil returns complete a simplified benchmark statement which does not require an audit. Additionally, an audit exemption might be granted in the instance where a benchmark participant has a very low electricity load for the year.

An excess of emissions remaining after the surrender of abatement certificates is called a greenhouse shortfall. With the exception of the 2007 compliance year<sup>10</sup>, benchmark participants can choose to carry forward to the following year a greenhouse shortfall of up to 10 per cent of their benchmark without having to pay a penalty. Any shortfall carried forward must be abated the following year.<sup>11</sup>

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<sup>9</sup> IPART has determined this deadline for submission of benchmark statements pursuant to section 97CB(1) of the Act.

<sup>10</sup> In 2007, no shortfall is allowed to be carried forward to ensure that NSW meets the target in line with the Kyoto Protocol (this represents a reduction of 5 per cent below the equivalent NSW levels from 1989-90).

<sup>11</sup> Pursuant to section 97BE(1) of the Act, a greenhouse shortfall can be carried forward to the next year (for any year other than the year commencing 1 January 2007).

Benchmark participants incur a financial penalty of \$11.50 per tCO<sub>2</sub>-e for 2006 if they choose not to carry forward any shortfall or for any amount of shortfall in excess of the 10 per cent allowable limit.<sup>12</sup>

It should be noted that if the amount carried forward is not abated in the following year, the benchmark participant will be subject to a penalty at the end of that year.

From 2010, the greenhouse penalty will be increased by one dollar each year, for four years. In addition, the greenhouse penalty will continue to be subject to adjustments in accordance with the movements of the Consumer Price Index (CPI).<sup>13</sup>

### 3.1 Overall compliance

IPART conducted a review and assessment of the benchmark statements in accordance with the *Greenhouse Gas Benchmark Rule (Compliance) No.1 of 2003*.

In the 2006 compliance year, the majority of NSW benchmark participants fully met their greenhouse gas benchmark and none were required to pay a penalty.

- ▼ Twenty-three benchmark participants surrendered sufficient abatement certificates to fully meet their greenhouse gas benchmark for 2006.
- ▼ Five benchmark participants did not directly purchase or sell electricity in NSW and did not need to surrender any abatement certificates.
- ▼ Seven benchmark participants (one electricity generator and six large users) chose to carry forward an allowable shortfall to 2007 of up to 10 per cent of their greenhouse gas benchmark.
- ▼ The greenhouse shortfall being carried forward to 2007 represents less than 1 per cent of the total abatement obligation.
- ▼ The total number of all abatement and renewable energy certificates surrendered to meet 2006 obligations is equivalent to 13.8 million tCO<sub>2</sub>-e abated.<sup>14</sup>
- ▼ There was a 51 per cent increase in the total abatement and renewable energy certificates surrendered compared to the 2005 compliance year.

Table 3.1 shows benchmark participants' performance against compliance requirements in 2006. The table separately shows mandatory and elective participants involved in the Scheme and how each met its individual benchmark.

<sup>12</sup> The penalty may be adjusted annually in line with CPI movements. However, during periods of low inflation the penalty is not adjusted due to a rounding mechanism in the formula.

<sup>13</sup> Pursuant to section 97CA of the Act and section 73C of the Regulation the calculation of the penalty and CPI adjustment is made.

<sup>14</sup> This represents the total number of certificates required to meet 2006 greenhouse obligations (NGACs, LUACs and RECs taken into account as equivalent abatement certificates and balanced out by the shortfall amounts).



Table 3.1 NSW Benchmark participants compliance

MANDATORY PARTICIPANTS		
Surrendered sufficient certificates to meet 2006 benchmark	Chose to carry forward an allowable shortfall up to 10% of benchmark to 2007	Did not directly purchase or sell enough electricity in NSW to require the surrender of certificates for 2006
ActewAGL	Macquarie Generation <sup>d</sup>	Australian Inland <sup>c</sup>
AGL Electricity		Australian Power & Gas (NSW) <sup>c</sup>
AGL Sales		Citipower <sup>b</sup>
AGL Sales (Queensland)		Eraring Electricity <sup>c</sup>
Aurora Energy		Powercor <sup>b</sup>
Country Energy		
Delta Electricity <sup>d</sup>		
EnergyAustralia		
Energy One		
Independent Electricity Retail Solutions		
Integral Energy		
Jackgreen (International)		
Origin Energy		
Powerdirect		
Sun Retail		
Tomago Aluminium <sup>e</sup>		
TRUenergy		
TRUenergy Yallourn Energy		
ELECTIVE PARTICIPANTS <sup>a</sup>		
Amcor Packaging	Carter Holt Harvey Australia	N/A
Bluescope Steel	Hydro Aluminium Kurri Kurri	
Boral Limited	Norske Skog Paper Mills	
Orica Australia	OneSteel NSW	
Visy Industries Holdings	OneSteel Trading	
	Xstrata Coal Australia	
<b>TOTAL: 23</b>	<b>TOTAL: 7</b>	<b>TOTAL: 5</b>

**a** There are currently no Class 5 Benchmark Participants (State significant developments).

**b** These participants did not purchase electricity directly from the NEM. Their electricity purchases were included in the returns of benchmark participants who purchased electricity from the NEM on their behalf.

**c** These participants did not purchase or supply electricity (directly under their licenses) in NSW during the compliance year.

**d** Both Macquarie Generation and Delta Electricity are prescribed as generators under s73(B) of the *Electricity Supply (General) Regulation 2001*. However, Delta Electricity is also a licensed NSW electricity retailer.

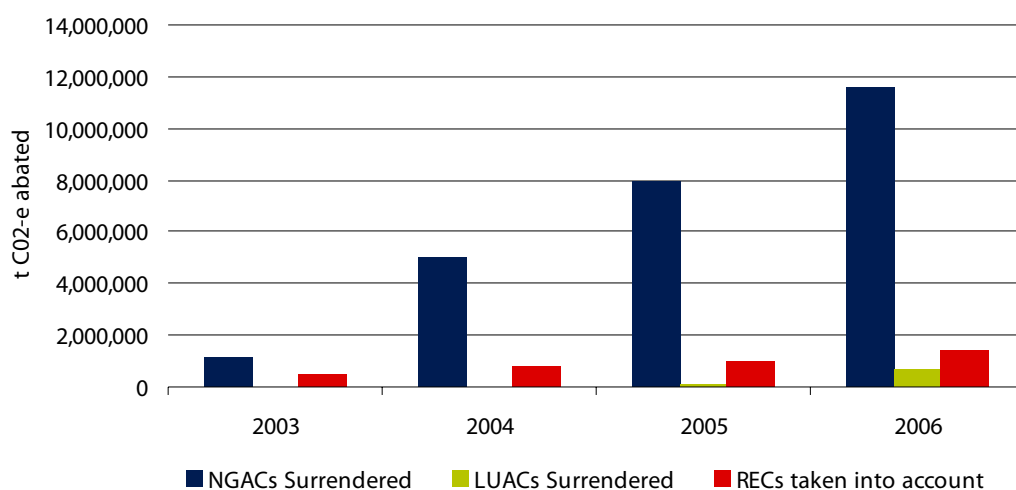
**e** Registered with NEMMCO as a market customer, that is an electricity customer taking supply directly from the National Electricity Market.

### 3.2 Abatement and Renewable Energy Certificates surrendered since the Scheme began

The number of NGACs surrendered to reduce or offset greenhouse gas emissions has increased significantly since the Scheme began in 2003. For the 2006 compliance year, NGACs offered for surrender increased by 45 per cent compared to the 2005 compliance year and represent approximately 11.6 million tCO<sub>2</sub>-e abated.<sup>15</sup>

It should be noted that since the Scheme began in 2003, almost 26 million tCO<sub>2</sub>-e have been abated in the form of NGACs surrendered. This figure increases to approximately 30.5 million tCO<sub>2</sub>-e abated overall when LUACs and equivalent RECs are also taken into account.

**Figure 3.1 Abatement and Renewable Energy Certificates surrendered<sup>a</sup>**



<sup>a</sup> This represents the number of certificates required to totally meet the greenhouse abatement obligations in each year. Please note that the allowed carried forward shortfall (see section 3.2.1) has been included in the years that the obligation has been incurred rather than when the certificates were actually surrendered. For example, the 2005 shortfall has been added to the 2005 total obligation rather than included in the 2006 return when they were actually surrendered.

As depicted in Figure 3.1, NGACs continue to make up the largest percentage of abatement certificates surrendered to meet required compliance obligations.

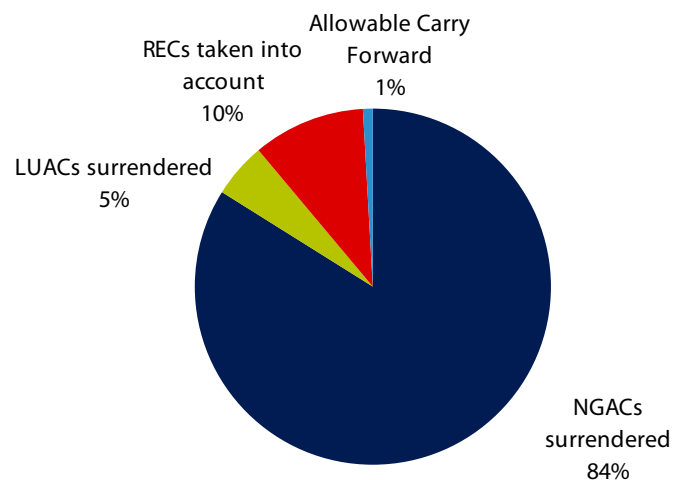
<sup>15</sup> This represents the number of NSW abatement certificates (NGACs) required to meet greenhouse obligations and includes the 2005 carry forward amount being accounted for.

**Table 3.2 Percentage of abatement/equivalent Renewable Energy Certificates surrendered**

	2003	2004	2005	2006
NGACs surrendered	68.6%	85.4%	87.2%	84.0%
LUACs surrendered	0.0%	0.0%	0.7%	5.0%
RECs taken into account	28.7%	12.9%	11.2%	10.2%
Greenhouse shortfall <sup>a</sup>	2.6%	1.6%	0.9%	0.9%
<b>Total abatement</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

<sup>a</sup> All greenhouse shortfalls carried forward have been accounted for in the following year

While the total number of tradable NGACs surrendered has increased substantially, the percentage of total abatement from NGACs has reduced slightly in 2006, down from 87 per cent to 84 per cent. This is due to the increased use of non-transferable LUACs, as shown in Table 3.2, which now represent approximately 5 per cent of total abatement (and 686,560 tCO<sub>2</sub>-e abated).<sup>16</sup>

**Figure 3.2 Abatement/equivalent Renewable Energy Certificates in 2006**

Two elective participants (Boral Limited and Amcor Packaging) created and surrendered the first LUACs in 2005 following a series of fuel efficiency improvements and this represented 64,401 tCO<sub>2</sub>-e abated.

In the 2006 compliance year, six elective benchmark participants (see Table 3.3) surrendered LUACs that were created by them as accredited large users.

<sup>16</sup> Each LUAC is equal to the reduction of one tonne of carbon dioxide equivalent by the large user as a result of their abatement activity.

Due to the creation of LUACs, Boral Limited again did not have to surrender any NGACs to meet its 2006 greenhouse gas benchmark and have a zero shortfall. Hydro Aluminium Kurri Kurri also used only LUACs to meet its obligation, but chose to carry forward an allowable shortfall to 2007.

The rest of the elective participants used a combination of either LUACs and/or NGACs to meet their respective obligations.

**Table 3.3 Percentage of Large User Abatement Certificates surrendered in 2005 and 2006**

	LUACs surrendered (as a % of total abatement)	
	2005	2006
Amcor Packaging	35.7%	26.1%
Boral Limited	100.0%	100.0%
BlueScope Steel	NA	42.6%
Hydro Aluminium Kurri Kurri <sup>a</sup>	NA	87.1%
Norske Skog	NA	22.3%
Xstrata Coal	NA	40.9%
<b>LUACs as a percentage of NSW total abatement</b>	<b>0.7%</b>	<b>5.0%</b>

<sup>a</sup> Hydro Aluminium Kurri Kurri needed to account for its greenhouse shortfall for 2005, as well as choosing to claim an additional shortfall to carry forward to 2007 and therefore did not meet 100% of its liability.

In addition to abatement certificates, the Scheme allows benchmark participants to count RECs to help meet their benchmarks. RECs are surrendered under the *Renewable Energy (Electricity) Act 2000 (Cth)*. There are specific limits set out in the legislation on the maximum number of RECs that can be counted based on their electricity purchases in NSW.<sup>17</sup>

While the number of RECs counted has steadily increased (by approximately 35 per cent for 2006), the percentage of RECs in relation to the total number of certificates surrendered has decreased. This now represents just 10 per cent of the total abatement obligation in 2006, down from 29 per cent when the Scheme first began.

Table 3.4 provides a detailed breakdown of abatement certificates offered for surrender and accepted for each year of Scheme operation.

<sup>17</sup> 73DB of the *Electricity Supply (General) Regulation 2001*.

**Table 3.4 Type of abatement certificates offered for surrender and accepted**

Compliance year	2003 (tCO <sub>2</sub> -e)	2004 (tCO <sub>2</sub> -e)	2005 (tCO <sub>2</sub> -e)	2006 tCO <sub>2</sub> -e)
Total shortfalls carried forward to next compliance year	44,643	141,908	225,201	343,586
Total NGACs surrendered for the compliance year	1,166,866	5,037,847	7,982,204	11,592,583
Total LUACs surrendered for the compliance year	0	0	64,401	686,560
RECs counted towards compliance (converted to an equivalent number of NGACs as tCO <sub>2</sub> -e/MWh) <sup>a</sup>	544,518 (488,432)	841,194 (762,122)	1,117,907 (1,020,649)	1,512,006 (1,404,653)
Total Certificates surrendered to meet compliance obligations for the year <sup>b</sup>	<b>1,699,941</b>	<b>5,897,236</b>	<b>9,150,547</b>	<b>13,802,181</b>

**a** RECs are not directly equivalent to NGACs. To calculate the equivalent number of NGACs the RECs counted figure is multiplied by the pool coefficient for that year (for 2006 that number is 0.929 (tCO<sub>2</sub>-e/MWh)).

**b** Total Abatement/Equivalent Renewable Energy Certificates required for compliance is a total of NGACs/LUACs required to meet obligations and RECs counted toward compliance expressed as an equivalent number of NGACs and then balanced out by the shortfall carry forward amounts.

### 3.2.1 Allowable carry forward of greenhouse shortfalls

With the exception of the 2007 compliance year, the legislation allows for benchmark participants to carry forward to the next year a greenhouse shortfall of up 10 per cent of their benchmark without having to pay a penalty.<sup>18</sup> Any shortfall carried forward must be abated the following year.

In 2007, no shortfall is allowed to be carried forward to ensure that NSW fully meets the target of 5 per cent below the levels in 1989-90, in line with the Kyoto Protocol. This would meet the emissions target of 7.27 tCO<sub>2</sub>-e per capita as set out in the Act. The target will continue at this level until 2021, unless the current legislation is amended. Table 3.5 provides details of benchmark participants carrying forward a shortfall to 2007.

<sup>18</sup> s97BE of the Act states that a greenhouse shortfall in any year (other than the year commencing 1 January 2007) may, subject to the greenhouse gas benchmark rules, be carried forward to the next year.

**Table 3.5 Benchmark participants carrying forward a greenhouse shortfall to 2007**

Benchmark participant	Greenhouse shortfall (as % of benchmark)
Macquarie Generation, Hydro Aluminium Kurri Kurri and Norske Skog	0 < 5%
OneSteel NSW, OneSteel Trading, Carter Holt Harvey Australia and Xstrata Coal Australia	5 ≤ 10%

The total amount of allowable greenhouse shortfalls being carried forward to 2007 is 343,586 tCO<sub>2</sub>-e and represents less than 1 per cent of the total greenhouse certificates required to meet greenhouse obligations (see Table 3.2 for further information).

### 3.3 Type of abatement certificates surrendered (NGACs/LUACs) since the Scheme began

Accredited abatement certificate providers carrying out abatement activities under the Rules create NGACs and/or LUACs. Providers can either sell NGACs to the benchmark participants each year, or use them to help meet their own benchmark.<sup>19</sup> The Scheme allows the creation of abatement certificates for the following abatement activities:

- ▼ low-emission generation of electricity (Generation)
- ▼ activities that result in reduced consumption of electricity (Demand Side Abatement)
- ▼ the capture of carbon from the atmosphere in forests (Carbon Sequestration)
- ▼ activities carried out by elective participants that reduce on-site emissions not directly related to electricity consumption (Large User Abatement).<sup>20</sup>

Generation activities continue to be the main source of abatement certificates surrendered, representing approximately 76 per cent of all abatement certificates offered for surrender. Generation abatement certificates surrendered have increased by approximately 22 per cent compared to the 2005 compliance year. Demand side abatement represents slightly more than 18 per cent of the total abatement certificates surrendered this compliance year and has increased significantly from previous years. The first Carbon Sequestration certificates were surrendered this compliance year, and comprised 0.4 per cent of certificates surrendered. Table 3.6 provides a detailed breakdown of type of certificates offered for surrender and accepted for each year of Scheme operation.

<sup>19</sup> Some accredited abatement certificate providers are also benchmark participants.

<sup>20</sup> LUACs are not directly related to electricity use in accordance with the *Greenhouse Gas Benchmark (Large User Abatement Certificate) Rule No. 4 of 2003*.

**Table 3.6 Type of certificates (NGACs/LUACs) offered for surrender and accepted<sup>a</sup>**

NGACs/LUACs	2003	2004	2005	2006
Demand Side Abatement	52,692 4.5%	605,734 12.0%	382,354 4.8%	2,251,272 18.3%
Generation	1,114,174 95.5%	4,432,113 88.0%	7,599,850 94.4%	9,291,261 75.7%
Carbon Sequestration	0 0.0%	0 0.0%	0 0.0%	50,050 0.4%
Large User Abatement	0 0.0%	0 0.0%	64,401 0.8%	686,560 5.6%
<b>Total</b>	<b>1,166,866</b> <b>100.0%</b>	<b>5,037,847</b> <b>100.0%</b>	<b>8,046,605</b> <b>100.0%</b>	<b>12,279,143</b> <b>100.0%</b>

<sup>a</sup> The figures include any NGACs offered for surrender in excess of a benchmark participant's requirements.

## 4 Abatement certificate providers

Parties who bring forward eligible abatement projects are called Abatement Certificate Providers (ACPs). ACPs are accredited by the Scheme Administrator to create certificates (NGACs and LUACs) each of which represents the abatement of one tonne of carbon dioxide equivalent emissions.

At the end of 2006, there were 167 ACPs eligible to create certificates for abatement activity, an increase from 146 providers accredited at the end of 2005. The Scheme Administrator approved a total of 29 accreditations in 2006. Between 27 August 2003, the date of the first accreditation under the Scheme, and the end of 2006, a total of 235 applications have been accredited, and 68 accreditations cancelled for reasons outlined below.

The Scheme Administrator is responsible for assessing applications for accreditation by potential ACPs. An applicant must demonstrate that it meets the criteria for accreditation according to the Act, Regulation and Rules in order to be accredited. Following accreditation, the Scheme Administrator monitors the ongoing compliance of ACPs with the Scheme Rules and specific conditions of accreditation.

The growth in participation by organisations undertaking abatement and the increase in breadth of abatement activity type in 2006 reflects the increase in understanding of the Scheme by the market. New ACPs were accredited under each of the Scheme rules which cover low or reduced emissions generation, electricity demand side abatement, non electricity abatement by large users and carbon sequestration through forestry.

Two key developments occurred during 2006; the growth in companies participating in the scheme using the Default Abatement Factors Method of the DSA Rule, and the development of the Performance Improvement Testing Regimes requirement for companies using Method 2 of the Generation Rule. Both these developments required considerable involvement by the Scheme Administrator in developing measurement frameworks, managing compliance issues and in assisting ACPs to understand their responsibilities under the Scheme. These are discussed in more detail in sections 4.3.2 and 4.2.2.

During 2006 there was a generally strong compliance performance by participants in the Scheme. This is at least in part an outcome of the Scheme's compliance monitoring procedures and improved communication channels between participants and the Scheme Administrator. The approaches used by the Scheme Administrator to



conduct audits has continued to develop, accommodating changing types of ACP activity. This is discussed further in Section 6.7.

As detailed further in Section 4.6, there were some relatively minor instances of non compliance which came to the Scheme Administrator's attention. In establishing the framework for accreditation and ongoing monitoring of ACPs, IPART as the Scheme Administrator has continued to be guided by the need to ensure Scheme integrity through robust assessment and quantification of abatement and the ongoing monitoring of ACPs' compliance with obligations arising from accreditation.

While these requirements may create participation costs that could act as a barrier to entry or ongoing participation in the Scheme, maintaining a high standard of compliance remains a priority. The Scheme Administrator continually reviews its requirements for participation, and monitors the appropriateness of its compliance monitoring strategy which is founded on a risk-based approach. This is further outlined in Section 6.

#### 4.1 Accreditations and cancellations of accreditations

Table 4.1 sets out the number of accreditations granted and cancelled for each year the Scheme has been operating, categorised by Scheme Rule. Sections 4.2, 4.3, 4.4 and 4.5 set out an overview of the types of activities that have been accredited under each of the Scheme Rules and provide more detail about accreditation activity during 2006.

**Table 4.1 Number of Scheme accreditations granted by year and by Rule**

	Generation	Demand Side Abatement	Large Users – non-electricity	Carbon Sequestration	Total
Accredited in 2003 <sup>a</sup>	14	3	1	0	18
Cancelled in 2003 <sup>b</sup>	0	0	0	0	0
Accredited in 2004 <sup>a</sup>	67	48	0	1	116
Cancelled in 2004 <sup>b</sup>	7	34	0	0	41
Accredited in 2005 <sup>a</sup>	25	43	1	3	72
Cancelled in 2005 <sup>b</sup>	7	12	0	0	19
<b>Accredited in 2006<sup>a</sup></b>	<b>9</b>	<b>17</b>	<b>2</b>	<b>1</b>	<b>29</b>
<b>Cancelled in 2006<sup>b</sup></b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>8</b>
<b>Current total<sup>c</sup></b>	<b>97</b>	<b>61</b>	<b>4</b>	<b>5</b>	<b>167</b>

<sup>a</sup> This represents the number of accreditations approved by IPART in the calendar year.

<sup>b</sup> Accreditations may be cancelled due to a number of reasons including corporate restructure, completion of the project or a change in circumstances for the project.

<sup>c</sup> This represents accreditations still entitled to create certificates as at 31 December 2006.

**Note:** An accreditation may cover several 'accredited projects' with similar activity taking place. For example, activities in the commercial and residential sectors may be counted as separate projects but one DSA accreditation.

Table 4.1 also shows accreditations that were cancelled each year. Accreditations are cancelled for a variety of reasons. Most commonly, cancellation follows a corporate restructure or sale, often resulting a fresh accreditation for the same project but with a different project owner. In other cases, the project is completed and for a small number of projects cancellation occurs because a project ceases to be eligible. The cancellation of some generation projects, outlined in Section 4.2.3, are examples of this.

## 4.2 Generation Rule

The *Greenhouse Gas Benchmark (Generation) Rule No. 2 of 2003* (“the Generation Rule”) enables electricity generators to create certificates for:

- ▼ producing electricity that has a lower emission intensity than the NSW Pool Coefficient (the Relative Intensity Approach)
- ▼ improving the efficiency of electricity production by a generating system that is generally operating at an emissions intensity above the NSW pool coefficient (the Efficiency Improvement Approach).

The extent to which abatement certificates are created under either, or both, of these approaches is determined by the generating system’s assigned Category (A, B, C or D) and its assigned NSW Production Baseline. For an explanation of these categories see Appendix B.

The Generation Rule allows abatement certificates to be created from activities outside NSW and the ACT provided that the generating system’s output is exported to a registered distribution or transmission system of the National Electricity Market (NEM). As a result, generators in Victoria, Tasmania, South Australia and Queensland have been accredited under the Scheme. In each case, generators must have adequate metering and record-keeping procedures to support the calculation of certificates under the Generation Rule and can only create abatement certificates for that portion of electricity that is exported into the NEM.

In addition to generation activities satisfying the requirements listed above, other areas of eligible generation activity include the use of landfill gas, sewage gas, manufactured methane gas (biogas), and other eligible waste methane as fuel for generation. These types of generation also attract an added benefit in terms of abatement certificate creation because the Scheme recognises the avoidance of methane emissions via combustion of these fuels (methane having a global warming potential 21 times that of carbon dioxide).

The use of waste heat from cogeneration is also recognised within the Scheme. The total greenhouse gas emissions of a generating system (which impacts its emissions intensity) may be adjusted downwards in recognition of the notional greenhouse gas emissions avoided through the beneficial capture and use of the waste heat.

### 4.2.1 Applications and accreditations

There were 97 generation abatement projects accredited to create certificates under the Generation Rule at the end of 2006. A diverse range of projects have been accredited under the Generation Rule. Examples include:

- ▼ power station efficiency improvements (such as turbine upgrades) that reduce emissions intensity compared to a benchmark or prior measured performance
- ▼ gas fired generation, using natural gas and coal seam methane
- ▼ electricity generation using waste methane from landfill sites and underground coal mines
- ▼ cogeneration projects displacing the use of higher emission intensity fuels
- ▼ fuel switch projects where high emission intensity fuels are replaced with lower intensity fuels
- ▼ biodigester type plant using qualifying putrescible waste as fuel.

Of the nine new Generation Rule accreditations in 2006, five were for future projects. These projects include generating systems that will involve a diverse range of eligible generation activities, including cogeneration, fuel switch efficiency gains, use of landfill gas, coal seam methane, natural gas and waste coal mine gas. Refer to Section 4.6 for further information on future projects.

In addition to assessing new Generation Rule applications during 2006, the Scheme Administrator also assessed more than 20 amendments to accreditations, including those pertaining to commissioning future projects, adjustments to audit regimes, changes arising from additional plant capacity, changes reflecting generating system performance, and amendments to the nominated number of NGACs a generating system may create.

### 4.2.2 Method 2 of the Generation Rule

Under the revised version of the Generation Rule (23 December 2005), generators seeking to create certificates for abatement in 2006 and subsequent years using the Efficiency Improvement Approach of Method 2 are now required to develop and implement a Performance Improvement Testing Regime (PITR), acceptable to the Scheme Administrator, prior to creating NGACs.

The primary purpose of the PITR is to establish a methodology by which the reference performance of the generating system (prior to undertaking performance improvements) can be compared to the post-improvement performance of the generating system (for the purposes of calculating abatement activity for ongoing measurement periods).

To assist Method 2 generators with their PITR submissions, the Scheme Administrator released its PITR Guidance Document in June 2006. This guide was

developed in consultation with policy makers, generators and technical experts and includes guidance on material changes to the Method 2 methodology (from the previous Rule), provisions for the development of PITRs, and the incorporation of uncertainty calculations in the Pitr framework.

During 2006, seven generators (both accredited and applicant) signalled their intention to submit Pitr documents by the year's end. Six of these parties subsequently submitted their Pitr documents in early 2007 and, following a process of independent technical review by industry experts, were accepted by the Scheme Administrator as suitable for the purposes of 2006 NGAC creation (and beyond, unless further design changes result in a requirement that the generator's Pitr be amended).

Table 4.2 provides a breakdown of Generation Rule accreditations for each year of Scheme operation.

#### 4.2.3 Cancellations of Generation Rule accreditations

During 2006, four Generation Rule accreditations (all Category A Generating Systems) were cancelled.

Category A Generating Systems are those generators that satisfied the criteria for 'Category A' under the previous NSW voluntary benchmark scheme's Emission Workbook. Category A generators have a Power Purchase Agreement (PPA) with an electricity retailer whereby this retailer (known as the 'Deemed Retailer') takes supply from the generator.

Under the Generation Rule, ongoing eligibility for Category A generation is based upon the original PPA for the generating system (that was entered into prior to 1 January 2003) not having terminated.

In early 2006 three Category A generating systems, whose respective PPAs had terminated in mid-2005, had their accreditations cancelled (with eligibility to create NGACs from all three generating systems ceasing on 30 June 2005). Subsequently, the Deemed Retailer for these generating systems advised the Scheme Administrator that the PPA termination date for another of its Category A accreditations might conflict with information provided in its application for accreditation (due to confusion surrounding the original PPA contract provisions). Following an investigation, the Scheme Administrator established that the generating system's original PPA had in fact terminated (for the purposes of the Scheme) and therefore its status as Category A generation was also no longer valid. This accreditation was therefore also cancelled.

In order to confirm the ongoing eligibility of all other Category A accreditations (and confirm the date at which they will cease to be eligible) the Scheme Administrator (with assistance from accredited parties) conducted a legal review of all Category A related PPAs. No further ineligible Category A generation was identified.

**Table 4.2 Generation Rule – Accreditation applications approved by year, fuel type and jurisdiction**

Category	Fuel Type	2003	2004	2005	2006
<b>NEW SOUTH WALES</b>					
Category A	Biomass		3		
	Hydro		6		
	Landfill gas		3		
	Natural gas		1		
	Waste coal mine gas		2		
Category B	Coal		6	1	
Category C	Landfill gas	1			
Category D	Biomass		2		
	Landfill gas	2	2		1
	Natural gas			1	
	Sewage gas			1	
	Waste coal mine gas		2		1
<b>New South Wales Total</b>		<b>3</b>	<b>27</b>	<b>3</b>	<b>2</b>
<b>AUSTRALIAN CAPITAL TERRITORY</b>					
Category D	Landfill gas	2			
<b>Australian Capital Territory Total</b>		<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>QUEENSLAND</b>					
Category A	Landfill gas		1		
Category C	Coal		1		
	Natural gas			2	
Category D	Coal		1	1	1
	Biomass				1
	Landfill gas		8		
	Natural gas		1	1	1
	Waste coal mine gas		2		1
<b>Queensland Total</b>		<b>0</b>	<b>14</b>	<b>4</b>	<b>4</b>
<b>SOUTH AUSTRALIA</b>					
Category A	Landfill gas	4	2		
Category C	Natural gas		1	3	
Category D	Natural gas		2		
<b>South Australia Total</b>		<b>4</b>	<b>5</b>	<b>3</b>	<b>0</b>
<b>VICTORIA</b>					
Category A	Hydro		7	6	
	Landfill gas	5	6	1	
	Natural gas		1	3	
Category C	Coal		1		2
	Natural gas		1	1	
	Sewage gas		1		
Category D	Biomass			2	
	Landfill gas		4	1	
	Natural gas			1	1
<b>Victoria Total</b>		<b>5</b>	<b>21</b>	<b>15</b>	<b>3</b>
<b>ALL JURISDICTIONS</b>					
<b>Total accreditations accredited each year</b>		<b>14</b>	<b>67</b>	<b>25</b>	<b>9</b>
<b>Total accreditations cancelled each year</b>		<b>0</b>	<b>7</b>	<b>7</b>	<b>4</b>
<b>Net accreditations at the end of each year</b>		<b>14</b>	<b>74</b>	<b>92</b>	<b>97</b>

**Note:** Refer to Appendix B for further information on Categories of the Generation Rule.

#### 4.2.4 Managing applications for accreditation

Developing and assessing applications for accreditation under the Generation Rule provides some significant challenges for both applicants and the Scheme Administrator. These arise mainly from the scale and complexity of the projects, and the volume of data required to substantiate emissions and emissions abatement and therefore NGAC calculations.

The highly technical nature of the projects proposed for accreditation also poses challenges to assessing applications and undertaking ongoing monitoring of projects. Where projects are particularly complex, the Scheme Administrator has the ability to appoint expert consultants from the audit and technical services panel (see Section 6) to provide an assessment of the technical aspects of the project. The results of the assessment can then be incorporated into the Scheme Administrator's consideration of the application.

Examples of technical reviews commissioned by the Scheme Administrator in 2006 include reviews of:

- ▼ turbine testing procedures
- ▼ Performance Improvement Testing Regime (PITR) submissions
- ▼ coal property data
- ▼ methane metering from landfill gas sites.

### 4.3 Demand Side Abatement Rule

The *Greenhouse Gas Benchmark (Demand Side Abatement) Rule No. 3 of 2003* ("the DSA Rule") covers activities that reduce the consumption of electricity from the grid and hence result in fewer greenhouse gas emissions being produced. These actions are taken by the customer, rather than the supplier of electricity, and are therefore referred to as 'demand side abatement' activities.

The DSA Rule defines five main types of eligible projects:

- ▼ energy efficiency projects that modify existing energy consuming equipment, processes or systems (called "Installations" in the DSA Rule), or which modify the usage of Installations
- ▼ energy efficiency projects that replace existing Installations, with other Installations that consume less electricity
- ▼ energy efficiency projects that install new Installations that consume less electricity than other Installations of the same type
- ▼ fuel switching projects that substitute one source of energy for another
- ▼ on-site electricity generation that replaces supply from the National Electricity Market.

The Scheme allows an organisation to create certificates from eligible DSA projects, or to nominate a third party to create certificates on their behalf. For example, a business that installs energy efficient lighting in residential households may apply to the Scheme to become accredited to create certificates, as long as the individual householders nominate that business to create certificates for abatement at their household. The form and content of the nomination is critical to the eligibility of these types of projects.

#### 4.3.1 Applications and accreditations

There were 17 new accreditations approved to create certificates under the DSA Rule in 2006. These projects involved activities in both the residential and commercial sectors and 14 of the 17 accredited projects used the Default Abatement Factors (DAF) Method to calculate their abatement, as outlined below. The accreditations covered a range of energy efficiency improvements, including:

- ▼ the distribution of energy efficient light globes and water efficient showerheads (DAF Method)
- ▼ the replacement of electric hot water systems with gas or gas-boosted solar systems (DAF Method)
- ▼ the sale of more energy (and water) efficient washing machines (DAF Method)
- ▼ lighting upgrades in buildings
- ▼ an energy performance contract covering various activities at a commercial facility
- ▼ the removal of old, inefficient refrigerators (DAF Method).

In addition to assessing new DSA Rule applications during 2006, the Scheme Administrator also assessed more than 30 amendments to accreditations. Most of these amendments were for projects accredited for the distribution of CFLs and water-efficient showerheads under the DAF Method. The amendments were generally as a result of:

- ▼ companies expanding or modifying the size and scope of their businesses, such as ACPs directly installing products rather than giving away products at public locations
- ▼ amendments to the Scheme Rules, such as the change in Installation Discount Factor (IDF) for the sale and giveaway of products.

At the end of 2006 there remained 61 accreditations able to create certificates under the DSA Rule. Table 4.2 provides a complete breakdown of DSA Rule accreditations for each year of Scheme operation.

**Table 4.3 DSA Rule – Accreditation applications approved by year**

Type	2003	2004	2005	2006
Energy Efficiency: Residential		8	7	8
Energy Efficiency: Commercial	2	23	21	6
Energy Efficiency: Industrial	1	12	14	
Energy Source Substitution: Commercial		1		
Energy Source Substitution: Residential				3
On-site Generation		4	1	
<b>Total accreditations accredited each year</b>	<b>3</b>	<b>48</b>	<b>43</b>	<b>17</b>
Total accreditations cancelled each year	0	34	12	4
<b>Net accreditations at the end of each year</b>	<b>3</b>	<b>17</b>	<b>48</b>	<b>61</b>

### 4.3.2 Default Abatement Factors Method

During 2006 there was significant expansion in the use of the Default Abatement Factors (DAF) Method under the DSA Rule. This expansion has seen over 8.9 million certificates created under the DSA Rule for 2006, representing a significant increase from 2005. Of this total, 8.3 million certificates were created from residential energy efficiency projects, with more than 99 per cent of these from projects involving the distribution of CFLs and/or showerheads.

The DAF Method prescribes default emissions abatement factors (DAFs) for common Installations (such as compact fluorescent lamps (CFLs) and the replacement of electric hot water systems with gas systems). All the DAFs for various Installations are listed in Schedule A, Table 1 of the DSA Rule. For CFLs, the DAFs vary depending on the rated life of the CFL. Under the DAF Method, the lifetime abatement for the Installation is accounted for or 'deemed' to have occurred at the time of installation.

Prior to being accredited, an applicant must specify the Installations they intend to use from those listed in the Schedule to the Rule. Another important feature of projects using the DAF Method is that, in general, the abatement is assigned to a third party who takes on the liability and responsibility for reporting and compliance associated with the Scheme.

In calculating abatement under the DAF Method, an Installation Discount Factor (IDF) is applied to account for the possibility that some products sold or given away are not actually installed. The default IDF for products sold or given away is now 0.4. Where a product is directly installed by a representative of the ACP, no discount is applied and an IDF of 1.0 is applicable. The DSA Rule also gives the Scheme Administrator discretion to approve a different IDF value. Some ACPs are approved for different IDFs for different activities under the same accreditation. Changes were made to IDFs in the amendment to the DSA Rule in August 2006, as outlined in Appendix C.



In addition to the DAF Method, there are two other types of calculation methods that can be used under the DSA Rule – the Project Impact Assessment Method and the Metered Baseline Methods. Both of these methods require an engineering assessment of energy savings. The Project Impact Assessment Method is most appropriate where the energy saving of the project is small in comparison to the energy consumption of the total site, while the Metered Baseline Method are most appropriate when the project results in a substantial reduction to the energy consumption of the total site.

### 4.3.3 Cancellations of DSA accreditations

There were four DSA accreditations cancelled in 2006 at the request of the accredited parties. In three cases, the activities for which these projects were accredited are continuing, but under different accreditations. Accreditations are not transferable between different entities. Hence, an accreditation must be cancelled and an application submitted for a new accreditation if there is a change in corporate identity.

### 4.3.4 Bundling small scale DSA projects into one accreditation

The Scheme Administrator recognises that on-going reporting and compliance requirements mean that it may not be cost effective for small individual DSA projects to become accredited. During 2006, the Scheme Administrator worked with organisations to increase the level of understanding of the requirements for participating in the Scheme. In addition, the Scheme Administrator had discussions with organisations seeking to act as “aggregators”, enabling the bundling of similar small scale DSA projects into one accreditation.

### 4.3.5 Changes to the DSA Rule in 2006

The DSA Rule was amended on 25 August 2006. The most significant amendment was the change in IDF values to be used in the DAF Method. Prior to this Rule change, the prescribed IDF values were:

- ▼ 1.0, where the Installations are directly installed
- ▼ 0.9, where the Installations are sold
- ▼ 0.8, where the Installations are given away
- ▼ another value determined using a methodology approved by the Scheme Administrator.

Following the Rule change, the prescribed IDF values are:

- ▼ 1.0, where the products are directly installed
- ▼ 0.4, where the Scheme Administrator is not satisfied that the products have been installed (eg, sales or giveaways)
- ▼ another value approved by the Scheme Administrator.

This change became effective from 1 October, 2006. Besides reducing the number of NGACs that could be claimed for the sale or giveaway of products, it also provided the Scheme Administrator with greater flexibility to approve alternative IDF values.

The Rule change followed a rapid increase in the volume of CFLs and showerheads distributed by ACPs in the first half of 2006, and concerns about the proportion of these free products being installed. Prior to 2006, ACPs usually sold these products to customers or directly installed them at the customers' premises. By giving away these products, ACPs were able to distribute products at a faster rate.

The decision by the Minister, on advice of the Department of Water and Energy, to change the IDF values of the DSA Rule followed months of monitoring, analysis and consultation with stakeholders by the Scheme Administrator. This included:

- ▼ monitoring the number of products planned and proposed to be distributed in comparison to the estimated size of the "market" for them
- ▼ commissioning an independent survey of households to estimate the installation rates of products received from giveaway programs.

Following the change in IDF values on 1 October 2006, there was a substantial reduction in the number of CFLs and showerheads given away. Most ACPs continued to distribute CFLs and showerheads, but many altered their business model to one based on direct installation. The Scheme Administrator believes that this will help maintain the integrity of abatement under the DSA Rule.

As mentioned above, the Rule change to the IDF allowed the Scheme Administrator greater flexibility to approve alternative IDF values. Subsequently, the Scheme Administrator approved one ACP to use higher IDF values for its sales programs. This approval was based on an independent survey commissioned by the ACP, under conditions acceptable to the Scheme Administrator, to determine actual installation rates for its customers.

#### 4.3.6 Management of DSA project accreditations in 2006

To manage the growth of CFL and/or showerhead projects, the Scheme Administrator developed several new requirements during 2006.

These included:

- ▼ a requirement for all ACPs accredited for CFL and/or showerhead distribution to submit a “Quarterly Activity Statement” listing the number of products distributed each quarter (formalising the monitoring conducted prior to the Rule change discussed above)
- ▼ separate registration of NGACs associated with activities in the residential sector from those in the commercial sector
- ▼ a requirement for ACPs nominated by a commercial sector customer to obtain a copy of the customer’s electricity bill, as evidence that the signatory is responsible for the electricity bill, as per the requirements of the DSA Rule.

#### 4.4 Large User Abatement Certificates Rule

The *Greenhouse Gas Benchmark (Large User Abatement Certificates) Rule No. 4 of 2003* (“the LUAC Rule”) provides for the creation and calculation of non-tradable abatement certificates (LUACs) through the abatement of on-site industrial process-related greenhouse gas emissions not directly related to the consumption of electricity.

Under the LUAC Rule, the person entitled to create abatement certificates is called a ‘large user’. Persons who qualify as large users are:

- ▼ large electricity customers, who use more than 100GWh per year at one or more sites that they own or occupy in NSW with at least one using more than 50GWh per year, who have elected to manage a greenhouse gas benchmark (Elective Benchmark Participant)
- ▼ persons carrying out State Significant Development (now referred to as “Major Projects” – State Environmental Planning Policy (Major Projects) 2005) as determined by the Minister for Planning in accordance with *Environmental Planning and Assessment Act 1979* who have elected to manage a greenhouse gas benchmark
- ▼ market customers whose electricity usage levels pass the threshold applied to large customers (ie, 100GWh per year at one or more sites that they own or occupy in NSW with at least one using more than 50GWh per year).

By electing to become a benchmark participant, a large electricity customer takes on the obligation of managing the greenhouse gas emissions associated with its electricity purchases. This would otherwise be managed on its behalf by an electricity retailer who passes through the costs to the large electricity customer (see Section 3 for further information).

Eligibility to become an elective benchmark participant is assessed by the compliance regulator (market customers are mandatory benchmark participants). Once eligibility and usage levels have been accepted, activities that can be carried out by a large user to create LUACs include:

- ▼ increasing the efficiency of on-site fuel use
- ▼ switching to lower emission intensity fuels
- ▼ abating on-site greenhouse gas emissions from industrial processes
- ▼ abating on-site fugitive greenhouse gas emissions.

These activities must occur in NSW at a site covered by the large electricity customer's election to manage its own greenhouse gas benchmark. Emissions reductions accounted for by the activity must be within a category reported in the National Greenhouse Gas Inventory (NGGI) and must not be as a result of compliance with statutory requirements (although emissions reductions beyond the statutory requirements may be claimed).

A LUAC accreditation may be a single activity or a mixture of activities implemented either as a one-off action or as part of an ongoing program. To accommodate this variability, a large electricity customer can choose between three different methods for calculating how many LUACs may be created from its project:

- ▼ Project Impact Assessment Method
- ▼ Baseline Method for an Existing Plant
- ▼ Baseline Method for Plant Extensions or New Plant.

The Project Impact Assessment Method is generally more appropriate where a single activity is undertaken as a one-off project while the Baseline Method is applicable where a mixture of multiple activities are undertaken as part of an ongoing program to reduce the greenhouse intensity of the industrial output of the plant.

#### 4.4.1 Applications and accreditations

There are currently 12 benchmark participants who are eligible to apply for accreditation as an ACP and create certificates under the LUAC Rule (11 large electricity customers and one market customer). By the end of 2006, the Scheme Administrator had accredited four of these eligible benchmark participants as ACPs:

- ▼ Hydro Aluminium Kurri Kurri Pty Ltd - upgrade of its Kurri Kurri aluminium smelter (abating on-site greenhouse gas emissions from industrial processes).
- ▼ Amcor Packaging Australia Pty Ltd - improvements in the efficiency of on-site fuel use at its Botany paper mill.
- ▼ Boral Ltd - improvements in the efficiency of on-site fuel use at the Blue Circle Southern Cement Berrima cement works.

- ▼ Norske Skog Paper Mills Pty Ltd – improvements in the efficiency of on-site fuel use at its Albury paper mill.

During 2006, the Scheme Administrator received three further applications for accreditation as an ACP from eligible large user benchmark participants for abatement activities occurring in 2006. These applications were subsequently accredited in early 2007 with LUACs created from the following projects:

- ▼ Carter Holt Harvey Pty Ltd – upgrade of its Tumut particleboard plant (replacing high emission fuels with lower emission fuels).
- ▼ BlueScope Steel (AIS) Pty Ltd – improvements in the efficiency of on-site fuel use and replacing high emission fuels with lower emission fuels at its Port Kembla steelworks.
- ▼ Xstrata Coal NSW Pty Ltd – capture and combustion of coal mine gas otherwise vented (abatement of on-site fugitive emissions).

Table 4.4 provides a complete breakdown of LUAC Rule accreditations for each year of Scheme operation.

**Table 4.4 LUAC Rule - Accreditation applications approved by year**

Industry Grouping	Abatement Activity	2003	2004	2005	2006
Aluminium	Industrial Process	1	0	0	0
Cement	Increased Fuel Efficiency	0	0	0	1
Paper & Pulp	Increased Fuel Efficiency	0	0	1	1
<b>Total accreditations accredited each year</b>		<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>
Total accreditations cancelled each year		0	0	0	0
<b>Net accreditations at the end of each year</b>		<b>1</b>	<b>1</b>	<b>2</b>	<b>4</b>

## 4.5 Carbon Sequestration Rule

The Scheme's *Greenhouse Gas Benchmark (Carbon Sequestration) Rule No. 5 of 2003* ("the CS Rule") makes provision for organisations to create certificates for carbon sequestered in eligible forests in NSW. Carbon sequestration is the result of photosynthesis, a chemical reaction that naturally occurs in plant life. Photosynthesis removes carbon dioxide from the atmosphere. The CS Rule is consistent with Article 3.3 of the Kyoto Protocol, and recognises carbon sequestration through "afforestation" and "reforestation" activities.

Under the CS Rule, there are three key eligibility criteria/requirements which the Scheme Administrator assesses in applications:

- ▼ capability of the organisation to account for carbon sequestered through forestry activities, and to maintain the long-term commitments involved
- ▼ eligibility of the actual forest, including the land's status as at 31 December 1990, and the forest's physical characteristics including height and crown cover (key criteria for consistency with the Kyoto Protocol)
- ▼ demonstration that the applicant has the ownership/control of registered carbon sequestration rights on the title of the eligible land.

Creation of certificates is only permitted for sequestration once it has been determined for a given period. The Carbon Sequestration Rule does not allow certificates to be created for future sequestration.

#### 4.5.1 New accreditations and NGAC creation

In 2006 one new organisation was accredited as a sequestration pool manager, bringing the total accreditations under the CS Rule to five. The forestry activities accredited range from permanent, conservation-style forestry to commercial, rotational harvest forestry. Table 4.5 provides a breakdown of Carbon Sequestration Rule accreditations for each year of Scheme operation.

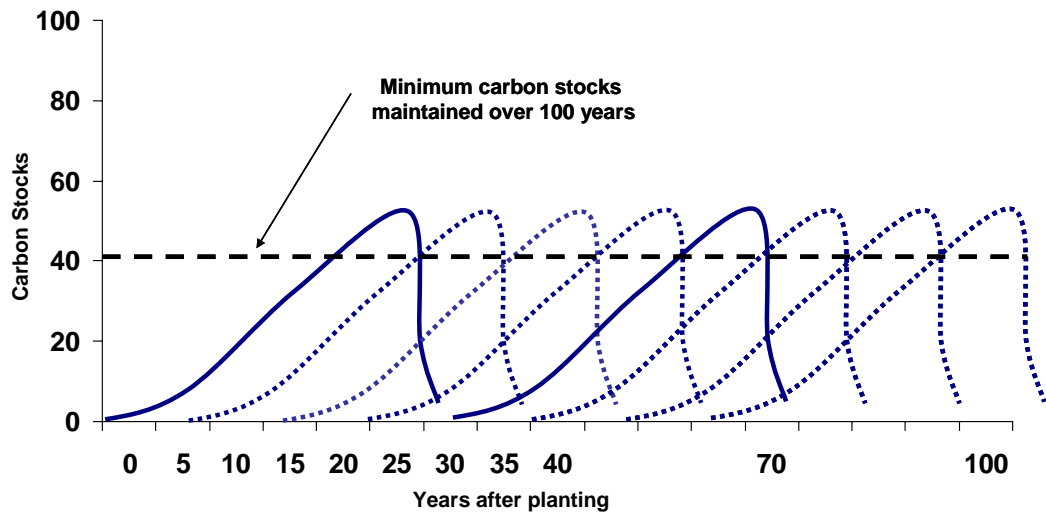
**Table 4.5 Carbon Sequestration Rule – Accreditation applications approved by year**

Grouping	2003	2004	2005	2006
<b>Total accreditations accredited each year</b>	0	1	3	1
Total accreditations cancelled each year	0	0	0	0
<b>Net accreditations at the end of each year</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>5</b>

The total number of 2006 vintage NGACs from carbon sequestration was 595,731 and is the largest vintage of NGACs created to date under the CS Rule. Certificates were created from permanent forestry activities and commercial plantations.

The sophistication of the carbon accounting methodology required to calculate eligible certificate creation is dependent on the sequestration pool manager's business model. Commercial forestry that will be harvested on a rotational basis requires a significant portfolio of forests and an accounting system that is adequate to ensure that carbon sequestration stocks never decrease below the threshold of certificates created. Figure 4.1 depicts the stocks of carbon that can be achieved through a series of forest plantings and harvests on a rotational basis.

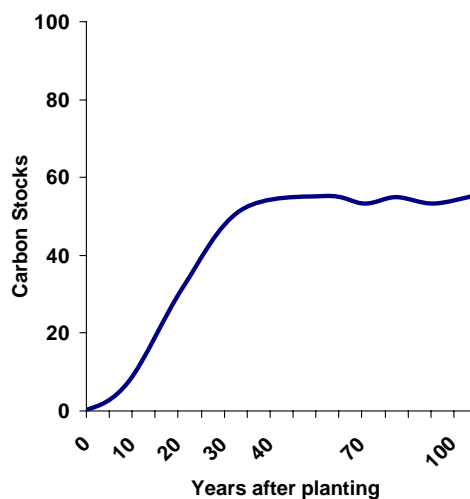
Figure 4.1 Plant-grow-harvest carbon storage



Each line on the graph represents the growth of a forest that is included in the Sequestration Pool. By staggering the planting and harvest times of the forests, it is possible to maintain a permanent volume of carbon storage, depicted by the horizontal dashed line in Figure 4.1.

Forestry that is planted for permanency or conservation purposes is likely to attract a simpler carbon accounting methodology. As shown in Figure 4.2, carbon stocks in permanent forests can be more easily accounted.

Figure 4.2 Permanent forest carbon storage



The single line on the graph could represent one forest or numerous forests in the Sequestration Pool. Accumulation of stocks would continue on a trajectory until flattening at maturity, assuming there are no depletion events such as fire.

#### 4.5.2 Expansion of an accreditation

Once an organisation is accredited as a sequestration pool manager, it can bring additional forest(s) into its pool by submitting updated details regarding approved carbon accounting practices, and information addressing the eligibility of the additional forest(s). In 2006, two of the five accredited parties' accreditations were amended to bring additional forests into their sequestration pool. In both these cases, the additions more than doubled the existing hectares of eligible forest in each of the sequestration pool managers' accreditations.

#### 4.5.3 Australian Standard for Afforestation and Reforestation

In 2006 redrafting of the Interim Standard AS4978.1-2003 was completed and the finalised Australian Standard, *Quantification, monitoring and reporting of greenhouse gases in forest projects, Part 1: Afforestation and reforestation* (AS4978.1-2006) was published. Secretariat staff were members of the drafting committee for this document, providing input from the experience of administration of carbon sequestration accreditations in the Scheme. Whereas the Interim Standard defined a number of eligibility criteria, the finalised Standard remains neutral to most eligibility requirements allowing project proponents to utilise its provisions, regardless of the abatement or emissions trading Scheme they are seeking to participate in.

The finalised Standard, combined with a growing experience in the development of carbon sequestration suggest that participation under the Scheme's CS Rule is likely to grow considerably in the coming years.

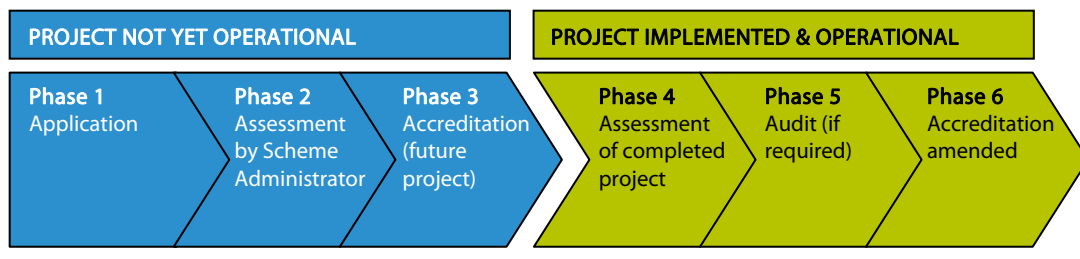
### 4.6 Accreditation of future projects

Amendments to Scheme legislation in October 2004 provided for projects in the planning and development phase (future projects) to be considered for accreditation by the Scheme Administrator prior to completion.

#### 4.6.1 Future project application process

The application process for accreditation of a future project is similar to applying for accreditation of an existing project under any of the Scheme Rules. The key difference is that the project's accreditation is reconsidered once the project is implemented. Figure 4.3 depicts the two stage process, whereby a project first obtains future project accreditation, and then, once implemented, has its accreditation amended to reflect its operational status.



**Figure 4.3 Phases of the accreditation process - future project to existing project**

In 2006 there were 6 projects accredited as future projects, all projects under the Generation Rule. One of these future project accreditations has been subsequently cancelled by request of the accredited party. The remaining five have not yet progressed into Phase 4 as illustrated in Figure 4.3. Each future project is accredited with an approved business plan with agreed milestones and reporting arrangements. The Scheme Administrator must be informed if there are any changes to these arrangements, such as delays to the timing of completion of the project.

With regard to future projects accredited in previous years, two were commissioned and subsequently re-assessed and re-accredited (as implemented or “built” projects) during 2006 by the Scheme Administrator.

#### 4.6.2 Creating certificates following accreditation

Once a future project is implemented and operational, the Scheme Administrator is formally notified by the participant. This notification is the opportunity to present any differences between the project as described in the original application form and the project as implemented.

The Scheme Administrator subsequently determines if the project is still eligible under the Scheme Rules based on the details provided on the implemented project. The Scheme Administrator may require that aspects of the project should be audited.

### 4.7 Compliance outcomes

Overall compliance by ACPs with the Scheme, Act, Rules and accreditation conditions was very high. Of the 167 project accreditations (as of 31 December 2006), there were only 10 instances of contraventions of conditions of accreditation (compared with 27 in the previous year). These events were discovered either through voluntary declaration by the accredited party (1 of 10), discovery by the Scheme Administrator (2 of 10) or through the compliance audit process (7 of 10).

Contraventions are described in the *Electricity Supply Act 1995* and relate to four key areas:

- ▼ contravening the conditions of accreditation (s97DD)
- ▼ improper creation of certificates (s97J)

- ▼ obstructing the Scheme Administrator (s97JA)
- ▼ supplying false or misleading information (s97JB).

In 2006, the majority of contraventions related to the improper creation of certificates, with the remainder relating to specified conditions of accreditation.

#### 4.7.1 Improper creation of certificates

During audits in 2006, seven accreditations were found to have over-created certificates. The reasons and number of instances for over-creation were:

- ▼ use of ineligible nomination forms (4)
- ▼ incorrect application of test result figures (1)
- ▼ use of incorrect fuel property data, and (1)
- ▼ invalid jurisdiction (NSW certificates created instead of ACT certificates) (1).

#### 4.7.2 Over-creation of certificates

During 2006, the seven instances outlined above resulted in a total of 124,381 certificates (of both 2005 and 2006 certificate vintage) being over-created with the companies involved agreeing to forfeit the incorrectly created certificates, thereby ensuring that the number of certificates in the Scheme represents valid abatement.

Another type of improper creation occurs when an ACP attempts to register more than 110 per cent of the nominated number of certificates without previously notifying the Scheme Administrator. In 2005 there were three examples of this, but in 2006 there were none.

#### 4.7.3 Contravening the conditions of accreditation

There were several instances of contraventions of accreditation conditions by ACPs during 2006. In each case, the Scheme Administrator resolved the issue after a thorough investigation process. The outcome of each investigation was clearly communicated to the ACPs concerned.

Conditions of accreditation were contravened by one ACP when it was ascertained, following voluntary declaration and subsequent investigation by the Scheme Administrator, that the ACP was no longer eligible for accreditation, due to expiry of contractual arrangements that formed the basis of its original eligibility. As such, the accreditation was then cancelled by the Scheme Administrator.

Another ACP contravened its conditions of accreditation by failing to inform the Scheme Administrator of material changes to its accredited Generating System due to deficiencies in its record-keeping arrangements. Specifically, that generating units

had been added to the generating system (thus affecting the accreditation's nominated NGAC number). Following Scheme Administrator investigation of the matter, the ACP was required to undertake an audit across its entire accreditation portfolio in order to establish that no further generating system changes had been unreported.

While no further material changes to generating systems were identified, the audit did determine that the ACP's record-keeping arrangements were not sufficiently adequate to capture all information necessary to prevent re-occurrence of the contravention. As a result, a further audit was undertaken to ensure that recommended improvements to record keeping arrangements had been implemented, and this later audit subsequently provided the necessary assurances to the Scheme Administrator.

Similarly, another ACP also failed to notify the Scheme Administrator that it had made changes to the approved turbine testing procedure (specified in its conditions of accreditation) and that it had completed all generating unit testing. Following an independent technical review of the revised test procedures, the Scheme Administrator was able to ascertain that the effect of the changes was immaterial and did not affect unit test results.

Another ACP declared a calculation error in its gas consumption figures, resulting in an over-creation of NGACs for calendar year 2005. Following agreement not to trade the over-created NGACs and to undertake improvements to its record-keeping systems and procedures, an audit was then commenced to determine the correct figure for 2005 calendar year NGAC creation and whether the improvements made were sufficient to support ongoing NGAC creation. The audit provided positive assurance on the latter, with the number of NGACs over created confirmed and subsequently forfeited by the ACP.

In the final case, an ACP accredited under the DSA Rule was discovered to have contravened its conditions of accreditation following an audit conducted as part of its ongoing compliance requirements. The ACP was accredited for the distribution of compact fluorescent lamps (CFLs) and water efficient showerheads and had maintained compliance with the Scheme prior to this time.

The scale of the ACP's project grew substantially in 2005/06 and the audit revealed that the ACP's business processes had not evolved to match the rapid expansion of the project. The ACP's record keeping arrangements were discovered to be unsatisfactory to support the creation of NGACs and the ACP was required to forfeit a substantial number of NGACs. The Scheme Administrator worked with the ACP to improve its record keeping arrangements and the ACP has subsequently continued to be an active, compliant participant of the Scheme.

## 5 | Registry

The Scheme Administrator maintains an online Registry to support the Scheme. In accordance with legislative requirements, the Scheme Administrator maintains the registers of:

- ▼ Accredited Abatement Certificate Providers
- ▼ abatement certificates.

The content of the registers is prescribed by the *Electricity Supply Act 1995* (Sections 97GA and 97GB of the Act).

Following a competitive tender process, LogicaCMG was appointed under a contract to IPART to operate the Registry for an initial period of three years, until September 2006. This contract was extended in September 2006 for a further two years, until September 2008. The Registry is functioning effectively and efficiently under this arrangement. The internet address of the Registry is: [www.ggas-registry.nsw.gov.au](http://www.ggas-registry.nsw.gov.au).

Abatement certificate providers, benchmark participants and members of the public may access the Registry. Members of the public may either log in as a 'guest' or may register, either as an organisation or as an individual, to own certificates.

The Registry is not a trading platform. It tracks the ownership and status of a certificate at any point in time. When a trade in certificates has occurred – whether bilaterally, through brokers or through other trading platforms – the Registry records only the change in ownership details for those certificates.

There is currently no charge for the transfer of certificates on the Registry. There is, however, a \$0.15 charge imposed on the registration of each abatement certificate at the time of creation, payable prior to the certificate being released for transfer or surrender. Funds received from this charge totalled approximately \$2.9 million for 2006 vintage certificate creation and are paid to the Consolidated Revenue. This charge is intended to cover the cost of establishing, operating and maintaining the Registry over the life of the Scheme, as well as to partially and indirectly fund some of the activities of the Scheme Administrator.

## 5.1 Register of abatement certificates

The Registry provides a valuable source of information for market participants. During 2006 the *Electricity Supply Act 1995* which governs the Scheme was amended. The changes have made it possible for the Scheme Administrator to make available aggregated certificate information.

Outlined below are some key statistics showing some trends in NGAC creation since the Scheme commenced. See Appendix E for a detailed breakdown of certificate creation by each project.

Data in this chapter is current as at 30 June 2007 and includes all vintages of NGACs, up to and including the 2006 vintage. It should be noted that totals for certificate creation in prior years may be less than previously reported because some certificates created have subsequently been forfeited.

## 5.2 Certificate creation trends

Table 5.1 shows the total number of 2003-06 vintage certificates registered (which reflect abatement activity undertaken in these years).

**Table 5.1 Certificates created to date**

	2003	2004	2005	2006	Totals
DSA	345,141	742,233	1,509,199	8,967,466	<b>11,564,039</b>
Generation	6,317,835	6,740,077	7,879,171	9,552,360	<b>30,489,443</b>
Carbon Sequestration	0	166,005	538,471	595,731	<b>1,300,207</b>
Large User	0	0	94,277	791,446	<b>885,723</b>
<b>Totals</b>	<b>6,662,976</b>	<b>7,648,315</b>	<b>10,021,118</b>	<b>19,907,003</b>	<b>44,239,412</b>

Table 5.1 and Figure 5.1 shows the total number of certificates (44,239,412) registered in the Scheme for 2003-06 vintages, separated by rule. This figure clearly shows that the Generation Rule dominates certificates registered over the life of the Scheme. However, creation under the Demand Side Abatement Rule has increased significantly since 2003 and is only slightly less than the Generation Rule total for 2006.

**Figure 5.1 Certificates created to date**

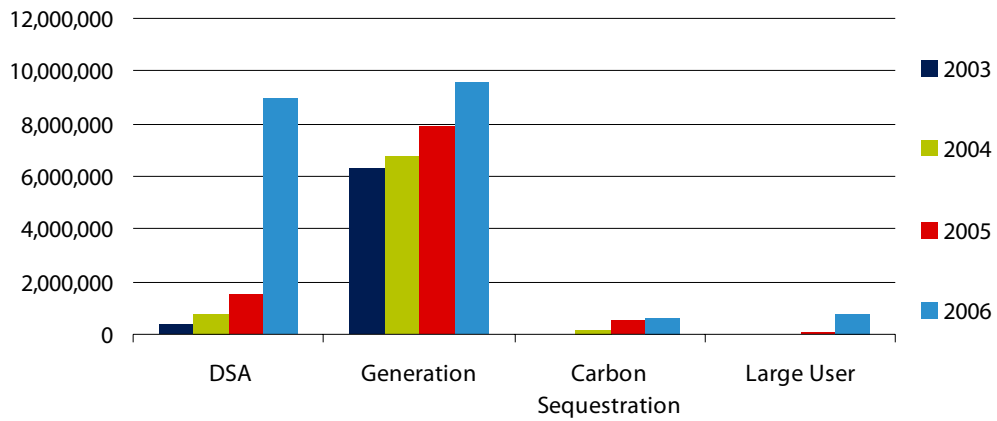


Figure 5.2 depicts the source of 2006 certificates on a jurisdictional basis. Certificates can only be created outside of NSW and the ACT from electricity generation activities where the generating system is connected to the National Electricity Market (NEM).

**Figure 5.2 Source of 2006 certificates created**

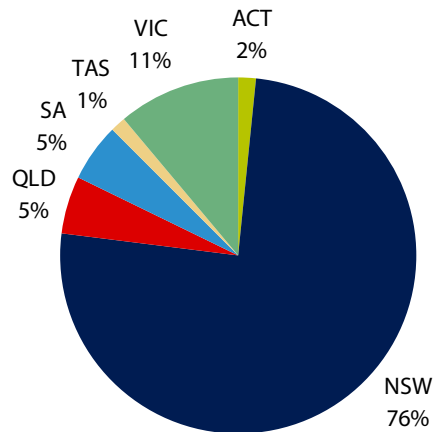


Table 5.2 provides a greater level of detail on the types of activities that led to certificate creation in each jurisdiction.

Table 5.2 Source of certificates by jurisdiction

Rule, Grouping & Sector	2003	2004	2005	2006	Totals
<b>AUSTRALIAN CAPITAL TERRITORY</b>					
DSA	0	0	0	196,626	196,626
Generation: Category D	94,198	99,268	110,062	126,431	429,959
<b>ACT Subtotal</b>	<b>94,198</b>	<b>99,268</b>	<b>110,062</b>	<b>323,057</b>	<b>626,585</b>
<b>NEW SOUTH WALES</b>					
Carbon Sequestration	0	166,005	538,471	595,731	1,300,207
DSA	345,141	742,233	1,509,199	8,770,840	11,367,413
Generation: Category A	3,272,785	3,129,352	2,911,523	2,992,008	12,305,668
Generation: Category B	286,985	418,581	498,952	835,603	2,040,121
Generation: Category C	31,571	0	0	0	31,571
Generation: Category D	517,184	772,524	1,060,731	1,003,349	3,353,788
Large User	0	0	94,277	791,446	885,723
<b>New South Wales Subtotal</b>	<b>4,453,666</b>	<b>5,228,695</b>	<b>6,613,153</b>	<b>14,988,977</b>	<b>31,284,491</b>
<b>QUEENSLAND</b>					
Generation: Category A	36,569	41,765	47,291	46,857	172,482
Generation: Category B	0	0	0	0	0
Generation: Category C	0	48,351	86,290	198,094	332,735
Generation: Category D	297,748	612,340	509,741	824,476	2,244,305
<b>Queensland Subtotal</b>	<b>334,317</b>	<b>702,456</b>	<b>643,322</b>	<b>1,069,427</b>	<b>2,749,522</b>
<b>SOUTH AUSTRALIA</b>					
Generation: Category A	334,162	372,471	409,969	392,389	1,508,991
Generation: Category B	0	0	0	0	0
Generation: Category C	284,984	70,642	198,116	607,911	1,161,653
Generation: Category D	12,135	17,524	18,351	32,480	80,490
<b>South Australia Subtotal</b>	<b>631,281</b>	<b>460,637</b>	<b>626,436</b>	<b>1,032,780</b>	<b>2,751,134</b>
<b>TASMANIA</b>					
Generation: Category A	0	0	0	0	0
Generation: Category B	0	0	0	0	0
Generation: Category C	0	0	0	220,271	220,271
Generation: Category D	0	0	0	45,121	45,121
<b>Tasmania Subtotal</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>265,392</b>	<b>265,392</b>
<b>VICTORIA</b>					
Generation: Category A	775,132	844,612	864,075	819,445	3,303,264
Generation: Category B	0	0	0	0	0
Generation: Category C	311,873	229,332	1,047,722	1,228,772	2,817,699
Generation: Category D	62,509	83,315	116,348	179,153	441,325
<b>Victoria Subtotal</b>	<b>1,149,514</b>	<b>1,157,259</b>	<b>2,028,145</b>	<b>2,227,370</b>	<b>6,562,288</b>
<b>TOTALS</b>	<b>6,662,976</b>	<b>7,648,315</b>	<b>10,021,118</b>	<b>19,907,003</b>	<b>44,239,412</b>

Table 5.3 shows detail of the sources of certificates for each year under each rule. It provides an insight into the main areas of growth in the Scheme. Certificates created from residential energy efficiency projects and large user projects have increased significantly during 2006.

**Table 5.3 Source of certificates by category**

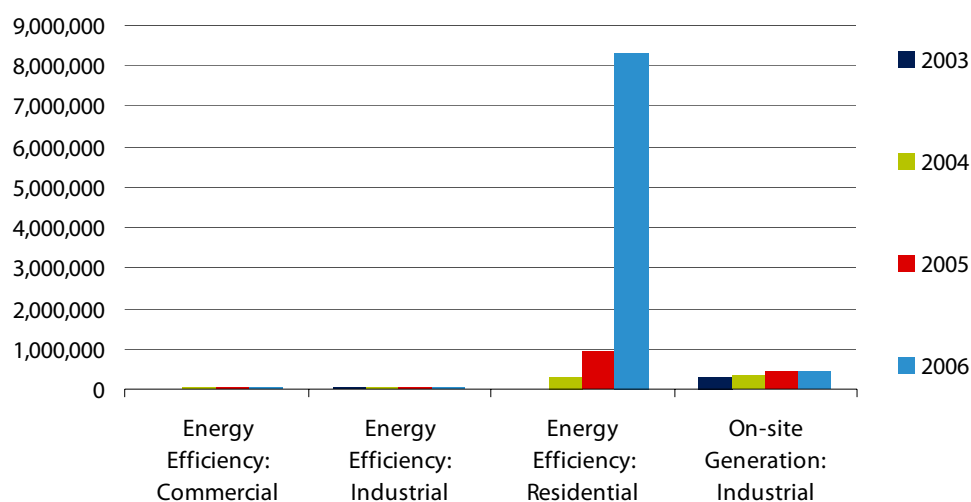
Rule, Grouping & Sector	2003	2004	2005	2006	Totals
<b>CARBON SEQUESTRATION</b>	0	166,005	538,471	595,731	<b>1,300,207</b>
<b>DSA</b>					
Energy Efficiency: Commercial	22,720	40,249	47,924	70,082	<b>180,975</b>
Energy Efficiency: Industrial	35,572	32,867	36,814	67,097	<b>172,350</b>
Energy Efficiency: Residential	8,387	315,425	953,879	8,325,861	<b>9,603,552</b>
Energy Source Subs: Commercial	65	65	0	0	<b>130</b>
Energy Source Subs: Residential	0	21,406	35,366	49,900	<b>106,672</b>
On-site Generation: Industrial	278,397	332,221	435,216	454,526	<b>1,500,360</b>
<b>Subtotal</b>	<b>345,141</b>	<b>742,233</b>	<b>1,509,199</b>	<b>8,967,466</b>	<b>11,564,039</b>
<b>GENERATION</b>					
Category A: Biomass	10,895	14,901	0	0	<b>25,796</b>
Category A: Hydro	132,869	123,615	148,267	160,941	<b>565,692</b>
Category A: Landfill Gas	1,216,141	1,327,515	1,379,033	1,319,360	<b>5,242,049</b>
Category A: Natural Gas	590,324	621,065	675,775	673,645	<b>2,560,809</b>
Category A: Waste Coal Mine Gas	2,468,419	2,301,104	2,029,783	2,096,753	<b>8,896,059</b>
Category B: Coal	286,985	418,581	498,952	835,603	<b>2,040,121</b>
Category C: Coal	251,199	167,243	1,025,219	1,268,198	<b>2,711,859</b>
Category C: Hydro	0	0	0	80,000	<b>80,000</b>
Category C: Landfill Gas	31,571	0	0	0	<b>31,571</b>
Category C: Natural Gas	286,277	122,154	206,331	721,861	<b>1,336,623</b>
Category C: Sewage Gas	59,381	58,928	100,578	184,989	<b>403,876</b>
Category D: Biomass	542	10,973	30,521	35,194	<b>77,230</b>
Category D: Coal	0	130,665	159,493	191,641	<b>481,799</b>
Category D: Landfill Gas	732,187	885,722	1,241,413	1,329,685	<b>4,189,007</b>
Category D: Natural Gas	240,853	388,725	102,374	117,268	<b>849,220</b>
Category D: Waste Coal Mine Gas	10,192	168,886	281,432	537,222	<b>997,732</b>
<b>Subtotal</b>	<b>6,317,835</b>	<b>6,740,077</b>	<b>7,879,171</b>	<b>9,552,360</b>	<b>30,489,443</b>
<b>LUAC</b>	0	0	94,277	791,446	<b>885,723</b>
<b>Totals</b>	<b>6,662,976</b>	<b>7,648,315</b>	<b>10,021,118</b>	<b>19,907,003</b>	<b>44,239,412</b>

Certificate creation under the DSA Rule for 2006 has dramatically increased compared to 2005 and accounted for 45 per cent of 2006 certificates created. Of these the majority are sourced from projects using the DAF Method of the DSA Rule.



Generation Rule certificates accounted for 48 per cent of 2006 certificates (down from 78.6 per cent in 2005), Carbon Sequestration fell from 5.4 per cent in 2005 to 3 per cent in 2006 and Large User certificates increased from 0.9 per cent in 2005 to 4.0 per cent in 2006. However, the Generation Rule remains the primary source of the total number of certificates created since 2003, accounting for 68.9 per cent of total certificates created.

**Figure 5.3 Source of DSA Rule certificates by category**



As indicated in Figure 5.3, residential energy efficiency was the key area of growth in 2006. As discussed previously, most of these residential certificates were created using the DAF Method of the DSA Rule. Outside of the residential sector, there was also an increase in energy efficiency activity in the industrial and commercial sectors.

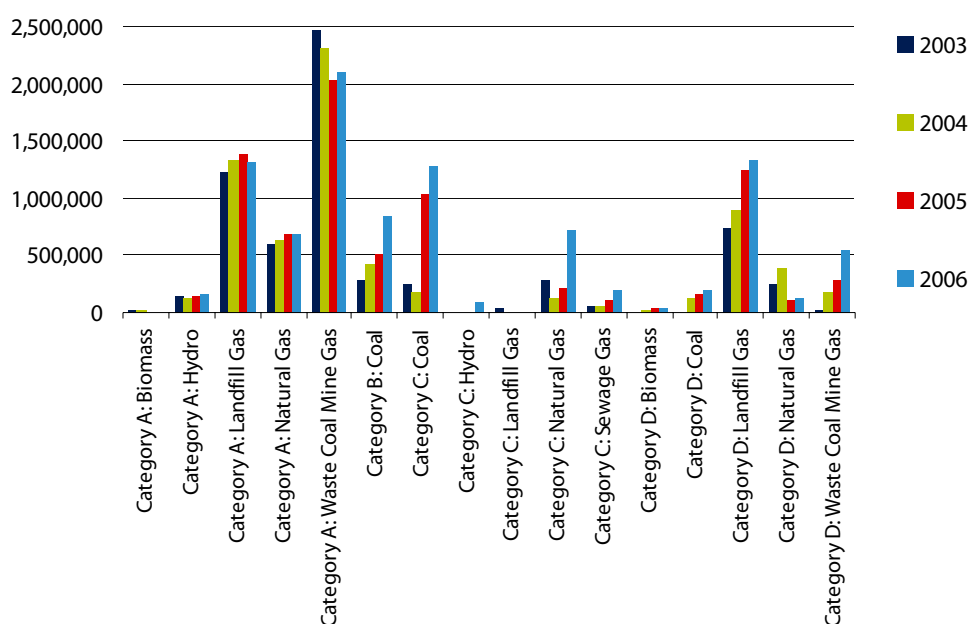
**Figure 5.4 Source of Generation Rule certificates by category**

Figure 5.4 graphically depicts the certificate creation under the Generation Rule by category of generator and fuel type. Overall there has been an increase in certificates created under the Generation Rule; however, within each category and fuel type, some variations have occurred. Notably, certificate creation from natural gas in Category C, coal in Category B, sewage gas in Category C and waste coal mine gas in Category D has increased significantly whereas certificate creation from landfill gas in Category A has slightly declined.

### 5.3 Voluntary surrenders

As knowledge of global warming becomes more widespread, individuals and companies are becoming interested in offsetting their emissions through the purchase and surrender of certificates.

The Registry allows any member of the public to own abatement certificates which can be surrendered to offset emissions – this process is regarded as voluntary surrender. For 2006 a total of 2,660 certificates were voluntarily surrendered by 13 organisations.

**Table 5.4 Total certificates voluntarily surrendered**

Year	Total certificates surrendered
2005	5,100
2006	2,660
<b>Total</b>	<b>7,760</b>

## 5.4 Certificate transfer trends

The Registry also tracks the ownership of each certificate over time. It provides a summary of transfer activity undertaken in any month to the public, reporting the total number of transfers and the total number of certificates transferred. It should be noted that the Registry records a transfer as the change in ownership of certificates between any two owners, irrespective of any other relationship that may exist between the parties, such as a subsidiary company transferring certificates to its parent entity.

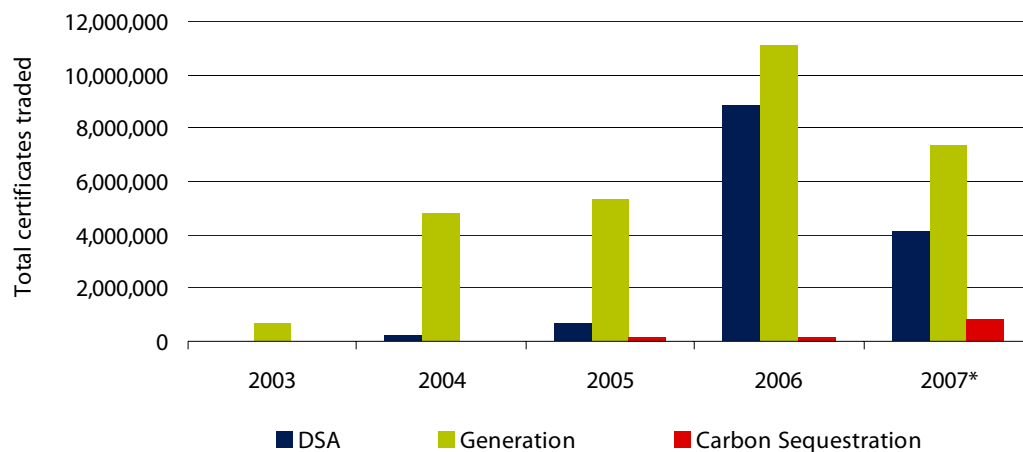
Since the Scheme commenced in 2003, there have been 2,168 transfers of certificates between parties, involving more than 44.3 million certificates. Of these transfers, 29.3 million generation certificates were transferred, compared to 13.9 million demand side abatement certificates and over 1.1 million carbon sequestration certificates. Table 5.5 and Figure 5.5 provide information about the number of certificates traded per year and illustrate the dominance of generation certificates traded under the Scheme. This table also highlights the increase in carbon sequestration certificates traded. Figure 5.6 shows the numbers of certificates traded during each year and highlights the variable nature of trading activity, with the most activity occurring just prior to the compliance deadline. It is noted that a certificate may be traded a number of times and each trade is reported separately here.

**Table 5.5 Number of certificates traded by rule**

	2003	2004	2005	2006	2007 <sup>a</sup>
DSA	18,001	220,506	667,992	8,877,153	4,126,556
Generation	707,774	4,795,183	5,296,564	11,106,265	7,382,998
Carbon Sequestration	0	0	142,320	178,045	798,325
<b>Totals</b>	<b>725,775</b>	<b>5,015,689</b>	<b>6,106,876</b>	<b>20,161,463</b>	<b>12,307,879</b>

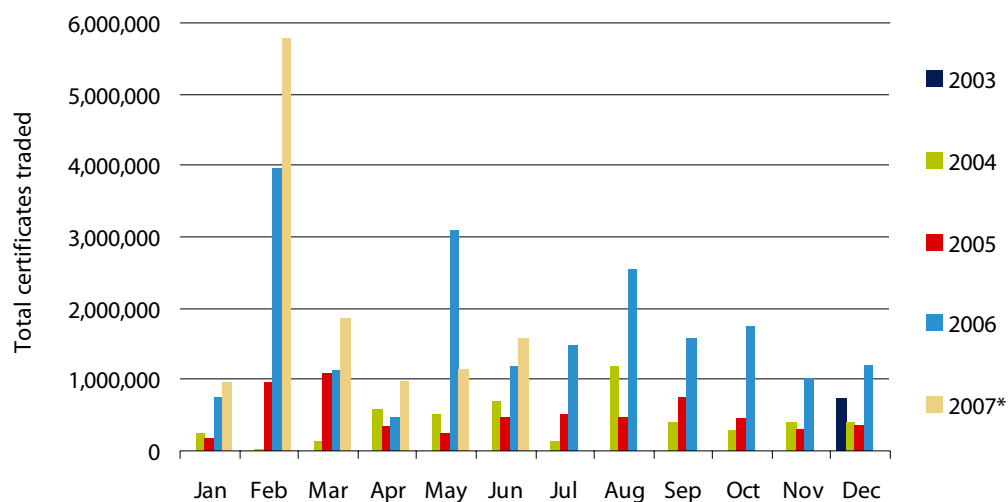
<sup>a</sup> From 1 January to 30 June 2007.

**Figure 5.5 Certificates traded by rule**



\* From 1 January to 30 June 2007.

**Figure 5.6 Certificates traded by month**



\* From 1 January to 30 June 2007.

## 6 Audit and compliance framework

The Act provides the Tribunal with wide auditing powers to assist it in exercising its functions of Scheme Administrator and compliance regulator. To guide it in exercising this auditing power, the Tribunal has established an audit and compliance framework which includes use of independent third party audits to confirm specific elements of Scheme participants' compliance (Benchmark Participants and Abatement Certificate Providers) with the Scheme. The audit and compliance framework is aimed at assisting in providing assurance that the Scheme is operating in accordance with the relevant legislation and that information provided by Scheme participants is reliable, complete and fairly represented.

In general, the Scheme Administrator applies a risk-based approach to deciding an audit regime for a particular accredited party. Factors taken into account include the size of the company involved, the complexity of the project, the calculation methodology used, the number of certificates to be created from the project and prior compliance history.

For audits of benchmark participants, there are fewer variables within the risk assessment, and the compliance regulator has adopted a stringent approach of requiring audits of all benchmark statements, with exemptions given on a case-by-case basis. These exemptions have generally been granted only where the risk to the Scheme is extremely low.

All audits are undertaken by members of the audit and technical services panel (the panel), which has 24 members. A list of all members of the panel is available from the Scheme website.<sup>21</sup>

The key objectives of the audit framework are to:

- ▼ support the policy objectives of the legislative framework and Scheme Rules
- ▼ minimise the risk of:
  - inappropriate accreditation of abatement certificate providers
  - invalid creation of abatement certificates
  - incorrect calculation of liabilities by benchmark participants
- ▼ assist the compliance regulator and the Scheme Administrator in monitoring Scheme participants' compliance with relevant legislation and the Rules

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<sup>21</sup> [www.greenhousegas.nsw.gov.au/audit/members.asp](http://www.greenhousegas.nsw.gov.au/audit/members.asp)

- ▼ ensure that information provided by Scheme participants is reliable, complete and fairly represented
- ▼ support the general transparency and integrity of the Scheme.

The Regulation states that the Scheme participants bear the cost of audits, even in the circumstance where the Scheme Administrator selects and engages the auditor.

## 6.1 Audit and technical services panel

The Tribunal has established the panel to undertake audit activities for scheme participants, compliance regulator and the Scheme Administrator and to provide technical services to the Tribunal as required. Firms may apply to become a member of the panel at any time and their applications will be assessed against specific selection criteria.<sup>22</sup> Once appointed to the panel all services are undertaken in accordance with an audit and technical services panel agreement (“the panel agreement”).

## 6.2 Selection and management of auditors

Audits associated with the accreditation of Abatement Certificate Providers are undertaken by a member of the panel selected and engaged by the Scheme Administrator. In most cases, the auditor is selected through a competitive process, in consultation with the project proponent.

For audits of the creation of abatement certificates and the annual greenhouse gas benchmark statements, the auditor is selected and engaged by the Scheme participant. However, such appointments and the ensuing detailed scope of works for the audit are subject to approval by the Scheme Administrator or the compliance regulator, as appropriate.

The panel agreement establishes a unique arrangement for the conduct of audits. Regardless of whether an auditor is selected and engaged by the Scheme Administrator or a Scheme participant, the auditor’s primary duty of care is always to conduct the audit on behalf of the Scheme Administrator. While this is significantly different from usual contractual arrangements where duty of care is owed to the engaging party, all audits are undertaken to assure the Scheme Administrator and compliance regulator that the Scheme is operating in accordance with the relevant legislation and that information provided by Scheme participants is reliable, complete and fairly represented. Experience to date has shown that this contractual arrangement has been a highly effective mechanism for ensuring the integrity of the audit framework and abatement in the Scheme.

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<sup>22</sup> A Panel Application Form and a Guide to Applying are available from the Scheme website at [www.greenhousegas.nsw.gov.au/audit/joining.asp](http://www.greenhousegas.nsw.gov.au/audit/joining.asp)

### 6.3 Growth of the panel

During 2006, three firms were added to the panel; Deloitte Touche Tohmatsu was added as both an audit and technical service provider while Hyder Consulting Pty Ltd and Worley Parsons Pty Ltd were added as technical service providers. A full list of panel members is available from the Scheme website.

It is a requirement of the Scheme that all personnel performing audits must attend an auditor training induction session conducted by Scheme Administrator and compliance regulator staff. The sessions are held on demand and cover fundamental aspects of the Scheme and the audit framework including:

- ▼ scope and conduct of audits
- ▼ engagement of auditors
- ▼ case studies of the audit framework at work
- ▼ expectations of the Scheme Administrator and compliance regulator.

Two sessions were held during 2006 which trained an additional 46 auditors to undertake audits in the Scheme. By the end of 2006, the number of auditors trained to perform audits in the Scheme exceeded 150 personnel from 14 audit firms. Total membership of the panel (including technical services firms) exceeded 180 personnel from 24 firms.

### 6.4 Audit activity in 2006

Table 6.1 provides summary data on audit activity across the three audit types in 2006.

**Table 6.1 Audit activity in 2006**

Type of audit	Number of audits	Number of benchmark statements/accreditations covered
Benchmark statement audits <sup>a</sup>	29	35
Audits initiated by the Scheme Administrator	16	23
ACP audits	61	107
<b>Totals</b>	<b>106</b>	<b>165</b>

<sup>a</sup> Conducted in the first quarter of 2007 covering the 2006 compliance year for Benchmark Participants.

## 6.5 Benchmark participant audits

The audits of benchmark statements covered compliance for the 2006 year, but were conducted in March 2007 to meet the reporting timeframe for benchmark participants. These audits need to be carried out in 2007 in order to capture all electricity sales or purchases by benchmark participants for the 2006 calendar year. All benchmark statements were audited with the exception of benchmark statements with a nil return or very low electricity sales.

## 6.6 Audits initiated by the Scheme Administrator

The Scheme Administrator commissions audits for one of the following purposes:

- ▼ to assess the eligibility for accreditation of an applicant (“validation audits”)
- ▼ to determine whether ACPs are complying with the requirements of the Act, Regulation and Rules governing creation of abatement certificates
- ▼ confirming the level of compliance with any conditions of accreditation (“verification audits”).

While in previous years the focus of Scheme Administrator audits has been on validating projects through an audit undertaken as part of the accreditation process, during 2006 spot audits or investigation audits took on an increasing significance as a tool for the Scheme Administrator to monitor ACP compliance.

For audits commissioned by the Scheme Administrator, auditees are advised of the audit costs prior to the conduct of audit activity and must lodge the fees with the Scheme Administrator before the audit commences. Auditees are offered the choice to either proceed with the audit at that time, ask for another auditor to be selected, withdraw their application or request the cancellation of their accreditation without penalty. Due to their investigatory nature, compliance investigation audits are conducted entirely at the discretion of the Scheme Administrator.

Of the 29 new accreditations in 2006 (refer to Table 4.1), 15 were subject to a pre-accreditation audit initiated by the Scheme Administrator. In addition, three accreditations were subjected to a spot audit and five accreditations were investigated through audits for non-compliance issues. The total cost of audits initiated by the Scheme Administrator in 2006 was \$180,052, an average of approximately \$7,828 for each of the accreditations audited.

## 6.7 Abatement Certificate Provider audits

As the Scheme matured and the number of accreditations increased, an increasing proportion of the Scheme Administrator’s focus has been on monitoring compliance with existing accreditations. During 2006, the Scheme Administrator managed 61 certificate creation audits covering a total of 107 projects to verify abatement activities. Where possible the Scheme Administrator allows ACPs with multiple



projects accredited to conduct a single audit covering the entire portfolio of accreditations to help reduce transaction costs.

### 6.7.1 DAF audits

During 2006 there was significant growth in projects carrying out abatement activity through the use of the Default Abatement Factors (“DAF”) methodology of the DSA Rule. Typically, these projects involved the giveaway of home energy efficiency packs containing a number of compact fluorescent lamps and AAA-rated showerheads.

As the Scheme ascribes primary abatement to the person responsible for the electricity bill (ie, the householder), generally the amount of abatement achieved at each household is too small to bring to account in its own right. Project operators who are distributing energy efficient packs or installing products are nominated by each householder to claim the abatement from the products. Being able to claim the abatement enabled the project operator (“Nominated Abator”) to distribute the products free of charge.

While the calculation methodology for each energy efficient appliance is relatively simple, voluminous documentation and record keeping databases required to support the methodology increased the risk associated with these projects. The fixed-term periodic audits developed for other projects were not suited to the sudden growth of these projects.

To deal with the unique risks associated with DAF projects, the Scheme Administrator developed a quantity based audit regime. This regime requires an ACP to conduct an audit after a threshold level of NGACs has been created to verify the abatement activity supporting that creation. Of the 61 certificate creation audits in 2006, 33 were audits of DAF projects with many proponents audited on multiple occasions as successive quantitative thresholds were reached.

## 6.8 Compliance and performance monitoring strategy

Once accredited, ACPs are subject to an ongoing auditing regime as a means of ensuring compliance under the Scheme. The Scheme Administrator has developed the *Compliance and Performance Monitoring Strategy for Abatement Certificate Providers* which aims to:

- ▼ provide transparency in the administration of the Scheme
- ▼ assist participants to understand their obligations under the Scheme
- ▼ minimise the incidence of invalid creation of abatement certificates
- ▼ provide cost effective compliance options
- ▼ encourage a culture of compliance among participants

- ▼ provide for credible enforcement options in the event of non-compliance.

The strategy sets out how the Scheme Administrator monitors the performance of ACPs through a combination of annual reports and audit requirements tailored to the individual ACP's circumstances. The strategy is designed to be flexible so that over time the Scheme Administrator can recognise good compliance performance and, if appropriate, relax an ACP's compliance monitoring regime.

The requirement to submit annual reports is consistent across the Scheme, regardless of the type of project involved. Templates have been developed to assist ACPs in their reporting requirements. Reports are signed by a person authorised to sign on behalf of the company, with provision of false and misleading information subject to penalty.

The audit requirements vary across accredited ACPs and these are detailed in the conditions of accreditation. When an applicant is accredited, they are informed of any special conditions of accreditation, including the requirement for on-going audits of information and certificate creation.

Auditing under the Scheme includes:

- ▼ pre-registration audits where prior to any NGAC creation an ACP must have received positive assurance
- ▼ annual audits generally conducted after registration of certificates
- ▼ periodic and spot audits.

Where an ACP is creating very large volumes of certificates, a modified approach to conducting audits has been employed whereby an audit is triggered by a threshold quantum of certificate creation. This has meant more frequent auditing for these types of projects, although this is warranted because the risk to the Scheme is high if there is invalid certificate creation. This type of periodic audit is seen as the best method to manage compliance of these types of projects.

In general, the Scheme Administrator adopts a risk-based approach to determining the appropriate audit regime for an ACP. The Scheme Administrator takes into account factors including the nature of the abatement project, its scale, past performance of the ACP and the extent to which the ACP is already participating in the Scheme.

To help reduce transaction costs for ACPs, the Scheme Administrator generally allows a single audit to cover the portfolio of accreditations where an ACP has multiple accreditations. Audit requirements are embedded in accreditation conditions by the Scheme Administrator which align the timing of audits and report submission wherever possible.

## 7 Demand and supply of abatement certificates

As part of the Scheme Administrator's role in operating the Scheme, the supply and demand of certificates is monitored. The main purpose for performing this work is to assist in providing reports of a "current status" nature. The Scheme Administrator does not undertake forecast modelling, but projects supply of certificates based upon knowledge of existing participants, future project accreditations, applications for accreditation, and where necessary, some conservative assumptions.

It must be highlighted that following legislative amendments made by the *Electricity Supply Amendment (Greenhouse Gas Abatement Scheme) Act 2006*, the historical creation of certificates by all accredited ACPs will, when database code changes are finalised, be made publicly accessible on the Scheme Registry. The availability of this data will assist market participants greatly in undertaking their own projections of supply and demand.

### 7.1 Developments in 2006

In the 2005 Annual Report, it was projected that NGAC supply for 2006 was likely to exceed the annual demand (as it did in 2003, 2004 and 2005) and, this surplus of supply for the first four years of the Scheme would assist in meeting projected demand in 2007 and 2008.

Twelve months on, there have been a number of developments that have impacted the 2006 certificate creation, and will likely affect future years' creation also. The following is a non-exhaustive list of events and developments that impacted 2006 creation and future year projections of both supply of and demand for certificates.

- ▼ A further 29 projects were accredited in 2006.
- ▼ Numerous accreditations were amended resulting in both increases and decreases in potential certificate creation.
- ▼ The TransGrid Annual Planning Report 2006 revised downwards future electricity demand,<sup>23</sup> which in turn has decreased projected demand.
- ▼ Amendments to the DSA Rule have changed the business model and corresponding certificate creation of numerous ACPs.

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<sup>23</sup> See Table A3.1 of the TransGrid 2006 Annual Planning Report, available at [www.transgrid.com.au/Annual\\_Planning\\_Reports.htm](http://www.transgrid.com.au/Annual_Planning_Reports.htm)

- ▼ Development and implementation of some future projects has been delayed, accelerated or in some cases abandoned. This has impacted the timing of certificate creation in 2006 and in some cases influences the projections of certificate supply in future years.
- ▼ The NSW Pool Coefficient is projected to continue to increase for a period, largely relating to the continuing drought conditions in NSW.

## 7.2 Assumptions in projection

The projection of the demand and supply of certificates is based on a number of conservative assumptions as follows.

- ▼ Mid range estimates of electricity demand, NSW and ACT population growth, and the NSW/ACT pool coefficient.
- ▼ Projection of distribution loss factors is based on the actual weighted average from the returns of 2006 benchmark statement.
- ▼ The number of RECs<sup>24</sup> counted is anticipated to rise incrementally based on expected increases in electricity demand and the renewable power percentage.<sup>25</sup>
- ▼ Queensland Generators eligible to create Gas Electricity Certificates (GECs) under the Queensland 13 per cent Gas Scheme will prioritise GEC creation over NGACs. This assumption is based on the price differential between GECs and NGACs. Historically GECs are believed to have consistently traded at a higher value than NGACs.
- ▼ A number of projects newly accredited to create NGACs in 2006 are also accredited to create RECs. Similar to projects accredited in the Queensland 13 per cent Gas Scheme, these Generators must choose between creating an NGAC or REC, for each eligible MWh of generation. In the case of these generators, it was assumed that future NGAC creation behaviour is reflective of the maximum entitlement each generator has nominated in their application for accreditation.
- ▼ The volume of certificates created from a number of similar energy efficiency projects will peak in 2007 and then marginally decline until in 2008 and 2009. It has been assumed that from 2010 onwards, owing to announced changes with regard to the use of incandescent light bulbs<sup>26</sup>, accredited energy efficiency projects will no longer achieve the abatement of previous years.

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<sup>24</sup> In addition to surrendering NGACs or LUACs, benchmark participants are permitted to account for RECs surrendered under the *Commonwealth Scheme (Renewable Energy (Electricity) Act 2000 (Cth))*. Only RECs associated with electricity purchases in NSW and the ACT can be counted.

<sup>25</sup> This is the process for determining the actual number of RECs which must be surrendered each year to discharge a liability, as specified in the *Renewable Energy (Electricity) Regulations 2001 (Cth)*.

<sup>26</sup> The Federal Government announced in February 2007 a plan to phase-out the use of incandescent light bulbs.

The projection is sensitive to small movements in some of the key factors used in determining the State and Territory greenhouse gas benchmarks. The Scheme Administrator cautions persons against making decisions based upon the demand/supply projections depicted.

### 7.3 Projection results

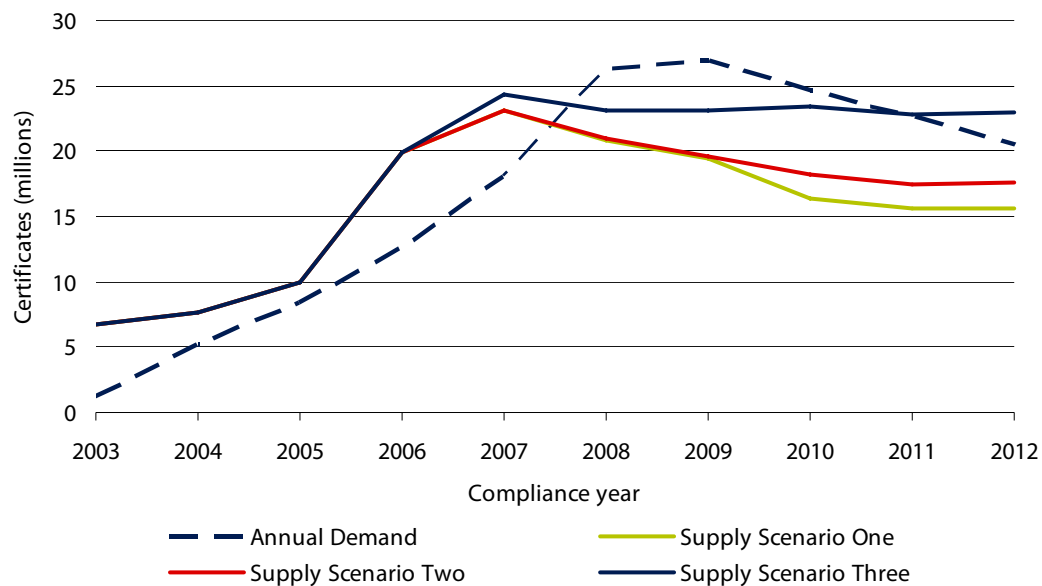
In depicting the Scheme Administrator's projection for compliance years 2007 to 2012 the format of the previously published charts has been modified to depict three different scenarios on the supply side, while retaining a single demand projection. These scenarios are presented in Figure 7.1.

The annual supply scenarios have been prepared based upon the Scheme Administrator's knowledge of the potentially variable sources of supply for certificates. The following is a detailed description of each.

- ▼ **Scenario One:** The projected supply of certificates in this scenario is based on the abatement expected to be achieved by existing accreditations only, and excludes all future projects. This scenario is the low-range projection.
- ▼ **Scenario Two:** The projected supply of certificates in this scenario is based upon the abatement expected to be achieved by existing accreditations, including all accredited future projects. It is assumed that the accredited future project will commence abatement activities as anticipated by the project proponent. This scenario is the mid-range projection.
- ▼ **Scenario Three:** The projected supply of certificates in this scenario includes all accredited ACPs, accredited future projects (including the assumption that commencement of operation will be achieved as scheduled by the project proponent) and all current applications for accreditation. This scenario is the upper-range projection.

The projected demand is depicted by a single scenario. While the demand projection is affected by projections in certificate supply under the DSA Rule, the three supply scenarios do not feature any DSA Rule related applications or future projects, that is, they all include forecasts from currently accredited projects only .

While the legislative amendments to the Act in 2006 allow the Scheme to continue operation beyond 2012, given the likelihood of implementation of a national emissions trading scheme between the years of 2010 and 2012, the Scheme Administrator has chosen a projection timeframe that extends to and is inclusive of the 2012 compliance year only.

Figure 7.1 Projected annual demand and supply of certificates<sup>a</sup>

<sup>a</sup> As at 30 June 2007.

All projections depict a peak in supply in 2007 owing to the likely continuing abatement occurring under the DSA Rule from energy efficiency projects. After the 2007 peak, supply trails downwards as projects in energy efficiency are assumed to decline significantly after 2009. Furthermore, in Scenario One from 2010 onwards, a number of generation projects come to a completion due to expiry of power purchase agreements (PPA), causing a further decline in annual supply. Scenario Two has the same downwards projection to 2009; however, the implementation of currently accredited future projects commences at approximately the same time. Assuming these future projects commence as scheduled, they will offset any reduction in supply resulting from the expiry of PPAs.

Scenario Three, which includes all applications for accreditation (including future project applications), suggests that reduced supply from energy efficiency and from PPA expiry will be largely negated. However, this supply curve assumes that all existing accreditations (aside from energy efficiency) will continue largely unchanged until at least 2010, all current applications will be accredited, and all future projects, whether accredited or in application stage, will commence as scheduled.

The demand for abatement certificates is expected to continue to rise in the compliance period to 2009. This rise can primarily be attributed to:

- ▼ the reduction in the State Greenhouse Gas Benchmark for 2007 to 7.27t CO<sub>2</sub>-e abated per capita
- ▼ the 2007 benchmark must be fully met by all benchmark participants without any allowable shortfall in 2007 (see Section 3.2.1)

- ▼ a steady increase in the NSW Pool Coefficient is expected (average intensity of emissions in CO<sub>2</sub>-e gases per MWh of electricity, see Section 7.5)
- ▼ growth in certificate creation under the DSA Rule is expected to continue in 2007, and taper off from 2008 onwards. This peak in DSA Rule certificates in 2007 yields the peak in demand in 2009, owing to the process in the Compliance Rule for adding energy savings back into state demand with a two-year lag.<sup>27</sup>

Demand is projected to decline after 2009 due to the reduced creation of NGACs under the DSA Rule. While the underlying factors that affect NGAC demand, such as population and electricity demand, continue to place upward pressure on demand, their influence in earlier years (2007-2009) is not as pronounced as the effect of NGAC creation under the DSA Rule.

All projections indicate that certificate supply for 2007 will exceed the annual demand, while in 2008, 2009 and 2010 demand will exceed the supply. As certificates are bankable, the surplus of supply experienced in the first five years will assist in meeting the projected demand in these three years.

Beyond 2010, demand is projected to exceed annual supply in all scenarios except Scenario Three. In these years, the surplus of previous years will continue to be relied upon to meet the annual demand for compliance.

#### 7.4 New sources of certificates

The Scheme Administrator anticipates that the supply of certificates may continue to grow, as the market increases its understanding of the Scheme and identifies new opportunities to participate. Climate change and market-based solutions to abating greenhouse gases continue to gain increasing traction in the business community and the Scheme Administrator welcomes the growth being experienced in this sector.

There are a number of future projects either accredited or being assessed as applications under the Generation Rule. While it is expected such projects will be a strong source of new supply, future project accreditations have experienced delay and in some circumstances been withdrawn some time after accreditation.

The Generation Rule is projected to be the main source of certificates; however, growth in the Carbon Sequestration Rule is expected in 2007 and onwards, as industry makes progressive steps to harmonising carbon sequestration with other forest-based products.

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<sup>27</sup> For further information on this process, please refer to the *Greenhouse Gas Benchmark Rule (Compliance) No.1 of 2003*.

## 7.5 Increase in the NSW Pool Coefficient

The “NSW Pool Coefficient” is an indicator of the average emissions intensity of electricity sourced from the National Electricity Market in NSW. It represents the emissions of greenhouse gases (in tonnes of carbon dioxide equivalent) per MWh of electricity supplied from the “pool” of major power stations serving the NSW electricity grid.

The Scheme uses the NSW Pool Coefficient when calculating benchmark participants’ responsibilities or “attributable emissions” under the Scheme. Greenhouse gas emissions for which a benchmark participant is responsible under the Scheme are calculated by multiplying the benchmark participant’s electricity purchases by the NSW Pool Coefficient.

The NSW Pool Coefficient is also used in the calculation of the number of certificates that an accredited ACP can create.

The NSW Pool Coefficient for each compliance year is announced by IPART in November of the previous year.<sup>28</sup> The NSW Pool Coefficient for a year is the simple average of the five ‘Annual Pool Values’ from previous years, lagged by two years.

For example, the NSW Pool Coefficient for 2007 is the average of the annual Pool Values for the years 2001 to 2005. The averaging smooths the impact of any one-off highs or lows in the Annual Pool Value in a particular year and thus makes it more stable and predictable. The two year time lag reflects the practicalities of obtaining data and calculating and publishing the NSW Pool Coefficient in advance of the year to which it applies.

An adjustment is also made to the calculation of the NSW Pool Coefficient to add back emissions for which abatement certificates have been created. This is necessary to avoid double counting this abatement benefit.

There are a number of factors that are taken into account when determining the NSW Pool Value/Pool Coefficient. The following positive and negative factors impacted the calculation of 2005 NSW Pool Value.

- ▼ The energy sent out from hydro power stations increased substantially in 2005, as the energy generated from the Snowy Mountains Hydro-electricity Scheme reverted to the long term average.<sup>29</sup> This increased the hydro share of electricity sent out.
- ▼ The combustion CO<sub>2</sub>-intensity of coal used in NSW power stations fell slightly, as a consequence of normal variation in the chemical composition of coal mined.

<sup>28</sup> The NSW Pool Coefficient is determined pursuant to clause 9.1 of the Compliance Rule.

<sup>29</sup> The Snowy Hydro Scheme supplies peak, renewable electricity to the NEM as well as water related hedge products to irrigators and farmers. Each year it produces on average 4500 GWh or around 74 per cent of all renewable, hydro-electricity energy available in the NEM.

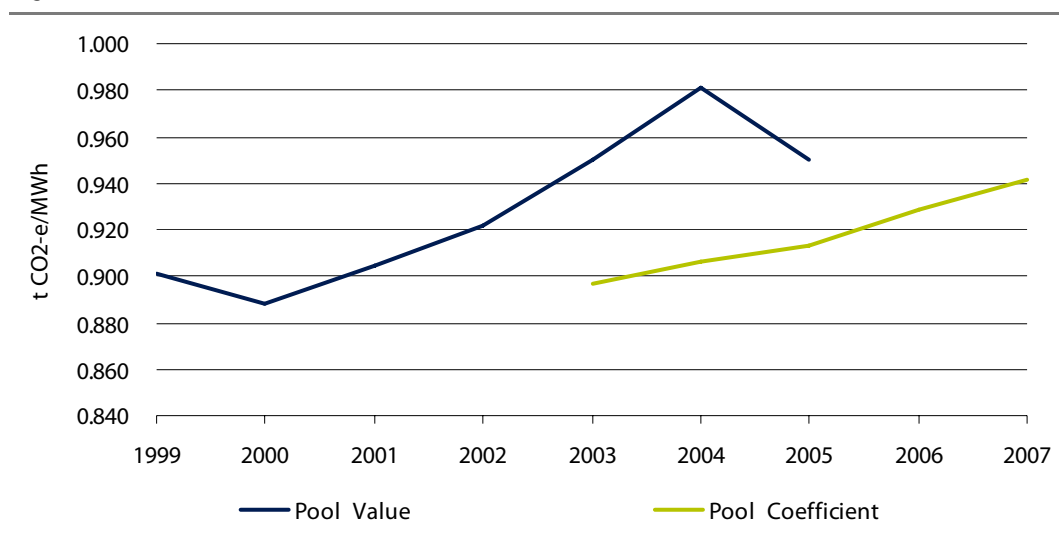


- ▼ The fugitive CH<sub>4</sub>-intensity of coal used also fell. This was mainly due to a change in the reported fugitive emissions intensity of coal used at two power stations.
- ▼ The average emissions intensity of electricity imported from outside NSW increased, which would have driven up the Pool Value. However, this was offset by an increase in the Queensland share of imports resulting in a lower average emissions intensity of imports in 2005 (although still higher than locally-generated electricity).
- ▼ The creation of NGACs by Category B generators increased, which would have increased the Pool Value slightly.

The 2005 Pool Value was 3.2 per cent lower than the 2004 value, and coincidentally the same value as for 2003. On balance, there were more factors driving the Pool Value down than up.

Despite the slight reduction in the 2005 Pool Value, the 2007 NSW Pool Coefficient increased slightly by 1.3 per cent to 0.941 (tCO<sub>2</sub>-e/MWh). This is due to the rolling average mechanism; the 2005 value added to the series (0.950) is higher than the 2000 value that was removed from the series (0.889).

**Figure 7.2 Historical NSW Pool Value and Pool Coefficient 1999-2007**



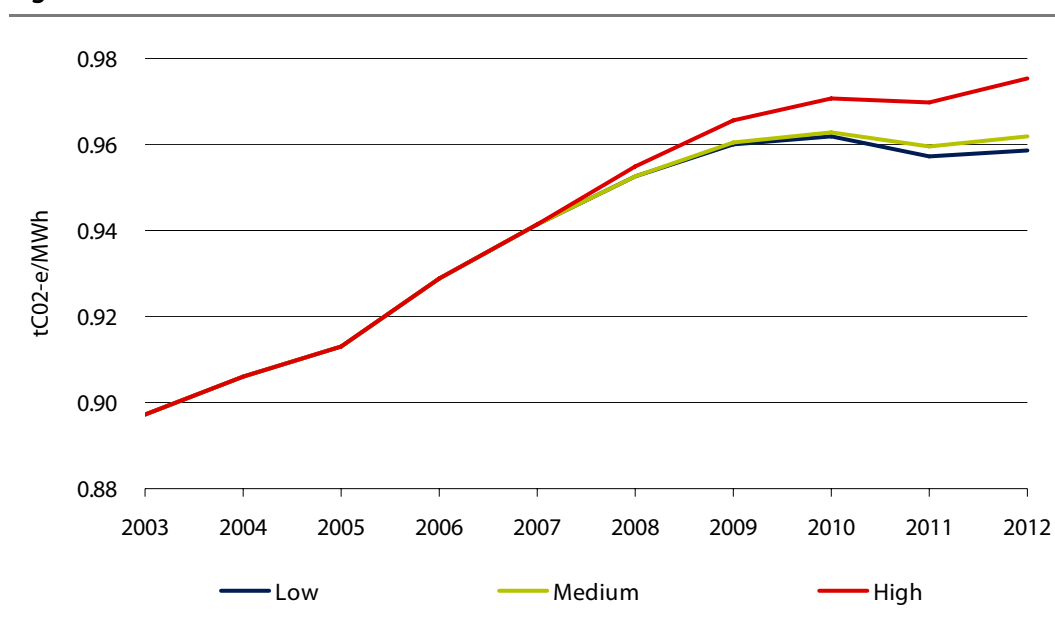
### 7.5.1 NSW Pool Coefficient forecast to 2012

The following projections are based on the assumption that energy sent out continues to be supplied by the existing Category B power stations. Under the current Generation Rule, if a major new baseload power station is built (whether in NSW or elsewhere), it would be a Category D generator, and would only impact on the Pool Value if it reduced the energy sent out from Category B thermal generators. The actual effect would depend on the timing and size of any new power station constructed.

The projections are most sensitive to assumptions about Snowy Hydro output and the source of imports, less sensitive to assumptions about rates of growth in energy sent out and to assumptions about the trend in Category B power station intensity.

However, there will most likely be pressure to revise the basis for calculating the NSW Pool Coefficient once the energy contribution from current Category B power stations to total energy sent out falls significantly. This is likely to occur after 2012.

**Figure 7.3 Forecast of the NSW Pool Coefficient until 2012**



An upward trend in the NSW Pool Coefficient is already locked in for the next two years because of the historical rising trend in the NSW Pool Values from 2001 to 2005, with each new NSW Pool Value added to the series being higher than the value removed.

Figure 7.3 illustrates a number of scenarios, incorporating various combinations of assumptions about energy growth, Snowy output and trends in the average greenhouse intensity of Category B thermal power stations.

In general:

- ▼ the most probable trend is constant to rising
- ▼ all projections indicate a steady increase in the Pool Coefficient up to 2009 before any levelling out
- ▼ in 2012, the range is from about 0.983 to 0.946 tCO<sub>2</sub>-e/MWh, with the most likely values clustered around 0.96 to 0.97 tCO<sub>2</sub>-e/MWh
- ▼ the upward trend in the NSW Pool coefficient will lead to increased demand for abatement certificates.

## 8 Policy development and links with other schemes

When the Scheme was launched it was one of the first mandatory greenhouse gas trading schemes in the world to become operational. Subsequently, the European Union Emissions Trading Scheme became operational in 2005 and overtook the Scheme as the world's largest mandatory scheme, leaving GGAS the world's second largest mandatory emissions trading scheme.<sup>30</sup> The Clean Development Mechanism under the Kyoto Protocol, essentially an offset scheme similar in some respects to GGAS, has now also become firmly established and is growing.

During 2006 the Scheme was extended by the NSW Government to 2021 or until a national emissions trading scheme is in place. As noted below, there have been significant moves on several fronts over the past year towards the development of a national emissions trading scheme.

### 8.1 Australian developments and schemes

A range of national and state-based schemes in Australia, both operational and proposed, have among their objectives reducing emissions and enhancing removal of greenhouse gases. This Scheme has been designed, and will continue to be developed, to ensure that there is a clear and transparent interaction with these other schemes as they develop and emerge.

Commonwealth and state governments are continuing to respond to the issue of climate change with a variety of regulatory, voluntary and incentive-based programs. However, foremost amongst these are proposals for national emissions trading schemes.

During 2006 there was significant further development work undertaken on design of a National Emissions Trading Scheme (NETS) by a taskforce comprised of representatives from all states and territories. A detailed discussion paper was released in August 2006 which further detailed a possible scheme design. This was followed in February 2007 by an announcement by all Premiers and Chief Ministers that, in the absence of a Commonwealth commitment to implement a national emissions trading scheme, the state and territory governments would implement a national scheme by the end of 2010<sup>31</sup>.

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<sup>30</sup> Measured on both a value and volume basis from "State and Trends of the Carbon Market 2007" World Bank, Washington DC, May 2007, page 3.

<sup>31</sup> Council for the Australian Federation, Communiqué, 9 February 2007.

In early June 2007 the Commonwealth Government responded to the report of the Prime Minister's Emissions Trading Task Group by announcing that it would work towards the commencement of a national cap and trade emissions trading scheme by 2012 at the latest.

From these announcements it appears likely that Australia will, one way or the other, have a national cap and trade emissions trading scheme within the next five years. As acknowledged in the reports from both groups, the continued operation of GGAS would be incompatible with such a scheme and therefore transition arrangements would be necessary. IPART, as Scheme Administrator, will continue to work with relevant policy agencies as required in assisting with the development of appropriate transition proposals.

What follows is a brief description of each of the other schemes currently in place or proposed and any interaction with the GGAS.

#### **8.1.1 Mandatory Renewable Energy Target (MRET)**

This is a national scheme that places a legal liability on wholesale purchasers of electricity to proportionately contribute towards the generation of an additional 9,500GWh of renewable energy per year by 2010, with that same target continuing to 2020. MRET uses Renewable Energy Certificates (RECs) to provide incentives for the development of renewable energy sources. RECs are denominated in electricity output (rather than emissions of CO<sub>2</sub>-e) and, despite significant price fluctuation during 2006, continue to be worth significantly more than NGACs in the market.

A REC and an NGAC cannot be created for the same activity (i.e. if a REC is created for a MWh of output, an NGAC cannot be created with respect to that output); however, where a renewable energy project is also reducing methane emissions, it is possible to create NGACs for the methane emissions that are being avoided.

Benchmark participants can use RECs to assist in their annual compliance obligations under the Scheme (see Section 3 for further information on accounting for RECs for compliance purposes).

#### **8.1.2 Victorian Renewable Energy Target (VRET)**

The Victorian Government has passed legislation establishing the Victorian Renewable Energy Target. This Scheme, which is closely modelled on but extends the requirements of the MRET Scheme, requires that by 2016 ten per cent of the electricity consumed in Victoria is from renewable sources. VRET will continue until 2030.

### 8.1.3 New South Wales Renewable Energy Target (NRET)

In November 2006, the New South Wales Government proposed the introduction of a Scheme, similar to and modelled on Victoria's VRET for New South Wales. The Government proposes introduction of a requirement that electricity retailers source additional renewable electricity. The proposed targets are set so that by 2010 10 per cent of electricity consumed in NSW will be from renewable sources, rising to 15 per cent by 2020.

As with the MRET Scheme, GGAS certificates will not be able to be created for the same electrical generation activity where certificates are created under VRET or NRET.

### 8.1.4 Queensland 13% Gas Scheme

This scheme commenced on 1 January 2005 and requires Queensland electricity retailers and other liable parties to source at least 13 per cent of their electricity from gas-fired generation (it was recently announced that this would be increased to 18 per cent). It uses Gas Electricity Certificates (GECs) to mandate a proportion of Queensland's electricity consumption to be gas-fired and thereby reduce greenhouse gas emissions in the State.

GECs are denominated in electricity output (MWh, rather than emissions of CO<sub>2</sub>-e for NGACs). A generation project located in Queensland may seek accreditation under both the GEC Scheme and GGAS, although certificates cannot be created under both Schemes for the same unit of generation. This may mean that a low emission Queensland gas generator creates GECs in relation to 50 per cent of its output and NGACs in relation to the other 50 per cent.

### 8.1.5 Generator Efficiency Standards (GES)

The GES is a long-standing Scheme developed by the Australian Greenhouse Office. The objectives are to provide an approach for power generators to voluntarily work towards achieving best practice in terms of efficiency and greenhouse gas emissions intensity. The calculation methodologies and testing procedures prescribed in the GES are used within the GGAS Generation Rule.

During 2006 the Australian Greenhouse Office finalised a review of the 2001 GES Technical Guidelines. The revised Guidelines include:

- ▼ benchmark efficiencies for new generating plants for different fuel classes
- ▼ review of plant degradation causes and effects
- ▼ a spreadsheet tool for calculation of a power plant's reference curve and best practice performance range
- ▼ a requirement for new plants to provide operational stability reports

- ▼ what constitutes a plant refurbishment that triggers recalculation of reference performance
- ▼ expanded Costing of Options and information on the greenhouse gas abatement calculator
- ▼ direction on measurement uncertainty.

In releasing the revised GES Technical Guidelines, the AGO indicated that it would also review other aspects of the GES in the near future, following a separate stakeholder consultation process.

#### **8.1.6 Australian Building Greenhouse Rating Scheme (ABGR)**

The ABGR provides a consistent and robust approach to evaluating the greenhouse performance of commercial office buildings, and employs a “star rating” to allow differentiation within the industry.

The DSA Rule refers to the ABGR in one of its methodologies. Through the integration of the required NGAC calculations for this demand side abatement methodology into the templates that are used by ABGR assessors, it is possible to provide valid NGAC calculations without the need for further analysis. There are currently 25 buildings included in accredited projects and there has been increasing interest in this methodology from property developers, building managers and tenants.

#### **8.1.7 GreenPower**

This scheme is a national accreditation program that sets stringent environmental and reporting standards for renewable energy products offered by electricity retailers to households and businesses across Australia.

The GreenPower scheme provides a certification mechanism for the provision of zero emissions electricity from prescribed renewable energy sources to consumers across Australia. Organisations which purchase GreenPower (usually as a given percentage of their total electricity consumption) cannot claim that initiative as an emissions reduction under the Scheme. GreenPower is administered by the Department of Water and Energy.

## 8.2 International consistency

The Scheme seeks to maintain broad consistency with existing and developing international frameworks such as the European Union Emissions Trading Scheme, the UN's Kyoto Protocol, the Regional Greenhouse Gas Initiative (RGGI) being developed by a number of North Eastern States in the USA and the proposed Californian emissions trading scheme. Through various working groups and international conferences, the Scheme Administrator communicates with governments, associations, and multinational organisations.









## A | IPART's functions under the Scheme

The Tribunal has two main functions under the Scheme. The first of these, compliance regulator, relates to IPART's current role as Licence Regulator for energy licence holders in NSW. The second, Scheme Administrator, relates to IPART's role administering the Scheme as a whole. These functions are set out in Sections 97H to 97I of the Act.

### Compliance regulator functions

The Tribunal conducts certain core functions of the Scheme, such as:

- ▼ determining the NSW pool coefficient, which is the average emissions intensity of all electricity supplied to NSW customers in a particular year
- ▼ monitoring and reporting to the Minister on benchmark participants' compliance
- ▼ imposing penalties on benchmark participants if they fail to meet their benchmarks.

### Scheme Administrator functions

The Scheme Administrator is appointed by the Minister for Energy and Utilities to oversee the:

- ▼ accreditation of ACPs
- ▼ administration of the Registry
- ▼ auditing of greenhouse gas abatement activities which ACPs wish to have (or have already) reflected in abatement certificates
- ▼ monitoring and reporting to the Minister on ACP's compliance with the Scheme Rules and their conditions of accreditation.

The Tribunal is currently the Scheme Administrator, but the Minister may appoint an alternate organisation to perform some or all of the Scheme Administrator's functions.

## B Categories of the Generation Rule

Under the Scheme, generating systems are assigned to certain Categories, which dictate the approach to NGAC creation and the accordant NSW Production Baseline.

### Category A

Category A generating systems are those which pro-actively entered into power purchase agreements (PPAs) with electricity retailers under the previous NSW voluntary benchmarks scheme, and have a respective NSW Production Baseline as determined by the Generation Rule. In the case of Category A generating systems, the Deemed Retailer to the PPA is eligible for abatement for generation below the resultant baseline figure, while the generator (counter-signatory to the PPA) is eligible for abatement associated with generation above this baseline figure.

### Category B

A Category B generating system is essentially an existing and prescribed NSW 'base-load' generating system, which in the case of a coal fired power station, effectively operates at an emissions intensity equal to, or greater than, the NSW Pool Coefficient. As such, it is unable to use the Relative Intensity Approach to create certificates, but may instead undertake efficiency improvements such as turbine upgrades or fuel switching, to improve the emissions intensity at which it operates. The extent to which the efficiency improvement is demonstrated (confirmed via testing) determines the eventual numbers of abatement certificates created.

### Category C

A Category C generating system on the other hand, is generally one that commenced operations prior to the announcement of the Scheme and in the case of fossil fuel fired generating systems, has a NSW Production Baseline equal to its average annual output during the years 1997-2001. Under the Relative Intensity Approach, this category of generation creates abatement certificates on the basis of each MWh (of lower emissions intensity generation) above its respective NSW Production Baseline Figure.

## Category D

Category D generating systems (broadly, those commissioned after the Scheme was first announced by the NSW Government in January 2002) are generally representative of newer and 'cleaner' technologies and have a designated NSW Production Baseline of zero MWh. This effectively means that using the Relative Intensity Approach, a generator for this category of power station may create abatement certificates for each MWh (of lower emissions intensity generation) above its 0 MWh baseline, reflecting the difference in emission intensity between the generation and the NSW Pool Coefficient.

### Category and fuel source

Figure A2.1 breaks down the accreditation of generating systems by category and fuel source. Fuels used in generating systems range from biomass (including bagasse), hydropower, natural gas, coal and methane derived from coal mines.

**Table B.1 Generating systems by fuel and source**

Category	Fuel source
Category A: Biomass	This type of plant burns biomass, including bagasse (sugar cane waste) and sawmill waste
Category A: Hydro	Hydropower
Category A: Landfill Gas	Gas derived from degradation of waste in landfills
Category A: Natural Gas	Natural gas (fossil fuel)
Category A: Waste Coal Mine Gas	Coal seam gas drained from mines for the purpose of coal mining operations (regardless of the period of time between draining the gas from the coal mine and use of the mine for coal mining operations) and includes coal seam gas drained from closed coal mines (fossil fuel)
Category B: Coal	Coal (fossil fuel)
Category C: Coal	Coal (fossil fuel)
Category C: Landfill Gas	Gas derived from degradation of waste in landfills
Category C: Natural Gas	Natural gas (fossil fuel)
Category C: Sewage Gas	Generation based on gas derived from sewage
Category D: Biomass	This type of plant burns biomass, including bagasse (sugar cane waste) and sawmill waste
Category D: Coal	Coal (fossil fuel)
Category D: Coal Seam Methane	Methane drained from (unmined) coal seams for the purposes of power generation (fossil fuel)
Category D: Landfill Gas	Gas derived from degradation of waste in landfills
Category D: Natural Gas	Natural gas (fossil fuel)
Category D: Waste Coal Mine Gas	Methane drained from mines as a result of coal mining operations (regardless of the period of time between draining the gas from the coal mine and use of the mine for coal mining operations) and includes coal seam gas drained from closed coal mines (fossil fuel)

## C Changes to the legislative framework

In 2006, the Parliament passed the *Electricity Supply Amendment (Greenhouse Gas Abatement Scheme) Act 2006* that made a number of changes to the legislative framework of the Scheme.

### Extension of the Scheme

Section 97B was amended to set a State greenhouse gas benchmarks of 7.27 tonnes of carbon dioxide equivalent (“tCO<sub>2</sub>-e”) to 31 December 2021 with a rolling State greenhouse gas benchmarks thereafter.

### Termination of Scheme

A new section 97KB was inserted to enable the Scheme to be terminated only after the Minister has certified that New South Wales is, or will be, a participant in a scheme with comparable objectives; which has been established on a national basis where New South Wales and at least one other State or Territory are parties.

### Greenhouse penalties

Section 97CA was amended to increase the Greenhouse Shortfall penalty in incremental steps. The current amount is \$11.50 per tCO<sub>2</sub>-e of greenhouse shortfall, and this will rise to \$15.50 by 1 January 2013.

### Information on the Scheme

A new section 97GBA was inserted to enable the Scheme Administrator to compile and publish consolidated information from the registers of abatement certificate providers and abatement certificates.

### Conditions of accreditation

Section 97DD was amended to expand the scope of potential limitations on claiming abatement that may have been used for purposes of compliance with voluntary and non-government schemes or in accordance with any agreement, arrangement or undertaking of any kind.

### Amendments to accreditation

A new section 97DDA was inserted to enable an ACP to apply to the Scheme Administrator for the variation or revocation of any condition imposed on their accreditation. It also enables the Scheme Administrator to charge fees on a cost recovery basis for the investigation and determination of such applications.

### Annual report to the Minister

Section 97HF was amended to extend the latest date for the Tribunal to report to the Minister, on benchmark participants who have complied, or failed to comply, with greenhouse gas benchmarks, to 31 July (this was previously required on or before 30 June in each year).

### DSA rule

In addition, in 2006 the Minister for Energy issued a revised Greenhouse Gas Benchmark Rule (Demand Side Abatement) No. 3 of 2003 (the “DSA Rule”). The revisions of the DSA Rule primarily address changes to the Installation Discount Factor (the “IDF”) for projects using the Default Abatement Factors method for calculating abatement from an abatement activity. Typically, these projects involved the giveaway of home energy efficiency packs containing a number of compact fluorescent lamps and AAA-rated showerheads.

The revised DSA Rule removed the IDFs for sales and giveaways from 0.9 and 0.8 respectively to 0.4. The IDF takes into account the likelihood of installation of these products and the Minister adopted the more conservative position of presuming a low installation rate with the option for the project proponent to put a case to the Scheme Administrator for a higher IDF where the evidence supports a higher installation rate for their project.

## D Glossary

This glossary provides a general guide to the terminology used in the Scheme. It is designed to be read in conjunction with the Act, Regulation and Greenhouse Gas Benchmark Rules. This glossary should not be relied upon as a substitute for legal advice, and does not override the true definitions of these terms in the Act, Regulations or Greenhouse Gas Benchmark Rules.

**Table D.1 Glossary**

<b>Term</b>	<b>Meaning</b>
Abatement Certificate	A certificate represents one tonne of carbon dioxide equivalent (tCO <sub>2</sub> -e) of greenhouse gas emissions, the release of which into the atmosphere was avoided, or which was removed from the atmosphere by the activity in respect of which it was created.
Abator	The person contractually liable for the energy consumed in the installation or site that is the subject of a greenhouse abatement activity, or the person nominated to be the abator in respect of greenhouse abatement activity by written agreement. This particularly applies for demand side abatement activities.
Abatement Certificate Provider	A person accredited by the Scheme Administrator under one of the Greenhouse Gas Abatement Rules in respect of an abatement activity.
Accreditation	Authorisation given by the Scheme Administrator to an abatement certificate provider to create abatement certificates in respect of a specified activity, once eligibility against the Greenhouse Gas Benchmark Rules is satisfied.
Attributable Emissions	Determined for each benchmark participant each year by multiplying the total electricity purchased (at the transmission node ie from NEMMCO plus any other purchases adjusted to the transmission node) by the NSW pool coefficient, less any abatement certificates (ie NGACs and, if appropriate, LUACs) surrendered and RECs taken into account.
Australian Building Greenhouse Rating Scheme	The Australian Building Greenhouse Rating (ABGR) Scheme is one acceptable methodology to use to normalise baselines for new or existing office buildings, after adjusting for any Green Power purchases. Generally a new office building must exceed a minimum 4 star rating before any NGACs may be created.
Baselines	The required level of activity undertaken, or the degree of greenhouse intensity which must be bettered, by an accredited abatement certificate provider before it is permitted to create abatement certificates.
Benchmark Participant	A person who is required or has elected to comply with a greenhouse gas benchmark.



<b>Term</b>	<b>Meaning</b>
Carbon Dioxide Equivalent (CO <sub>2</sub> -e)	Carbon dioxide equivalent of greenhouse gas emissions means the mass of carbon dioxide measured in tonnes that has the same global warming potential as the unit mass of the gas emissions. Each abatement certificate represents one tonne of carbon dioxide equivalent abated.
Carbon Sequestration	The process of removing carbon from the atmosphere and storing it within an eligible planted forest in NSW.
Carbon Sequestration Rule	<i>Greenhouse Gas Benchmark (Carbon Sequestration) Rule No. 5 of 2003</i>
Compliance Rule	<i>Greenhouse Gas Benchmark (Compliance) Rule No. 1 of 2003</i>
Compliance Year	The period 1 January to 31 December of each year, for which benchmark participants must report compliance by 18 March in the following year.
Confidence Factor	Under the DSA Rule and the Large User Rule, the type of engineering assessment of reduced energy consumption undertaken determines the level of accuracy for the calculation of abatement certificates and hence the confidence factor. The more accurate the calculation, the higher the confidence factor, and the more NGACs that can be created for a given level of estimated abatement.
Consumer Price Index (CPI)	Under the Scheme, the greenhouse penalty is adjusted each year by the consumer price index (CPI – All Groups Index), on and from 1 July in each year.
Deemed End User Purchases	The total of the <i>exempt sales</i> of a Mandatory Benchmark Participant to an Elective Benchmark Participant multiplied by the DLF listed in Table 7 of the Compliance Rule.
Deemed Retailer	An accredited abatement certificate provider that is an electricity retailer to which the electrical output of a Category A generating system is allocated pursuant to a Power Purchase Agreement to which the retailer is a party (see definition for Emissions Workbook).
Default Abatement Factor	Used to calculate the number of abatement certificates that may be created from the installation of common equipment such as compact fluorescent lamps, AAA rated showerheads, refrigerators and certain electric motors.
Demand Side Abatement	Activities that reduce emissions by reducing electricity consumption through increased efficiency of electricity consumption, eligible on-site electricity generation, and substitution of sources of energy for electricity or substitution of electricity for other sources of energy.
Distribution Loss Factor (DLF)	The distribution loss factor is the value of the electrical losses calculated for various points in the electricity distribution network.
DSA Rule	<i>Greenhouse Gas Benchmark (Demand Side Abatement) Rule No. 3 of 2003.</i>
Efficiency Improvement Approach	A method used under the Generation Rule to measure greenhouse gas emission reductions. Can be used by certain types of generators that make improvements in the efficiency of electricity production (and thereby reduce their emission intensity).
Elective Benchmark Participant	An eligible large customer or a person engaged in carrying out a State significant project, who has chosen to manage its own greenhouse gas benchmark, and whose election is in force.

<b>Term</b>	<b>Meaning</b>
Electricity Sector Benchmark	Total allowable greenhouse gas emissions from the electricity sector in NSW calculated by multiplying the Total State Population by the State Greenhouse Gas Benchmark per head of population for that compliance year. The Electricity Sector Benchmark is announced by the Tribunal prior to each compliance year (by 30 November each year).
Embedded Generator	An embedded generator or an embedded generating system means a generating system that is connected to the distribution network as defined in the National Electricity Code.
Emissions Workbook	The document entitled <i>Greenhouse Gas Emissions from Electricity Supplied in NSW: Emissions Workbook</i> published by the Ministry of Energy & Utilities in October 2000.
Exempt Sales	The total electricity sold to an elective benchmark participant by another mandatory benchmark participant during the Compliance Year.
Fugitive Emissions	Greenhouse gases that are discharged into the air as a result of the extraction, transport or production of fossil fuels. Fugitive emissions also include greenhouse gas emissions from landfill sites, sewage treatment works and some industrial processes.
Generation Rule	<i>Greenhouse Gas Benchmark (Generation) Rule No. 2 of 2003</i>
Greenhouse Gas	A generic term for gases such as carbon dioxide, methane, nitrous oxide, perfluorocarbon or sulphur hexafluoride, as defined in the Act and the Regulation.
Greenhouse Gas Abatement Program (GGAP)	An environmental initiative administered by the Commonwealth Government's Australian Greenhouse Office to reduce Australia's net greenhouse gas emissions by supporting activities that are likely to result in substantial emission reductions or substantial sink enhancement.
Greenhouse Gas Benchmark	This is the individual target which must be met by benchmark participants each compliance year and represents their individual share of the overall emissions target for NSW (the Electricity Sector Benchmark).
Greenhouse Gas Benchmark Rules	These set out how benchmark participants will measure their compliance and how accredited abatement certificate providers are to calculate the number of certificates that they are entitled to create. The Rules are amended from time to time by the Minister for Energy. The most current version of the Rule should be used when calculating entitlements or for compliance.
Greenhouse Penalty	The amount a benchmark participant is liable to pay (subject to CPI adjustments) per tonne of carbon dioxide equivalent in respect of excess emissions if they fail to comply with their greenhouse gas benchmark.
Greenhouse Shortfall	The difference between a benchmark participant's attributable emissions and its individual greenhouse gas benchmark; if the greenhouse shortfall does not exceed ten per cent of a benchmark participant's greenhouse gas benchmark for that year, it may be carried forward to the following year (except in 2007) and a penalty will not apply.

<b>Term</b>	<b>Meaning</b>
Large Customer	A customer under an electricity supply contract, other than a retail supplier, who uses 100 GWh or more of electricity at a single site or uses 100 GWh or more of electricity at more than one site, at least one of which uses 50 GWh or more of electricity in NSW.
Large User Rule	<i>Greenhouse Gas Abatement (Large User Abatement Certificate) Rule No. 4 of 2003</i>
Loss Factor	The value of electrical energy losses incurred in the conveyance of electricity over a distribution or transmission system.
LUAC	A Large User Abatement Certificate; a non-tradeable certificate in the NSW Greenhouse Gas Abatement Scheme.
MRET	The Mandatory Renewable Energy Target (MRET) Scheme. Introduced by the Commonwealth government through the <i>Renewable Energy (Electricity) Act 2000</i> , the MRET places a legal liability on wholesale purchasers of electricity to proportionately contribute towards the generation of an additional 9,500GWh of renewable energy per year by 2010.
National Electricity Market Management Company (NEMMCO)	The body corporate responsible for the administration and operation of the wholesale national electricity market in accordance with the National Electricity Code.
National Greenhouse Gas Inventory (NGGI)	As part of commitments under the United Nations Framework Convention on Climate Change (UNFCCC), Australia, through the Australian Greenhouse Office, has produced an annual listing of national greenhouse gas emissions since 1990 known as the National Greenhouse Gas Inventory.
NGAC	A Greenhouse Abatement Certificate; a tradeable certificate in the Greenhouse Gas Abatement Scheme.
Office of the Renewable Energy Regulator (ORER)	The Commonwealth Regulator of the Mandatory Renewable Energy Target Scheme.
Penalty Unit	Each unit is currently \$110; it is defined in Section 17 of the <i>Crimes (Sentencing Procedure) Act 1999</i> .
Pool Coefficient	The average emissions per unit of electricity delivered at transmission nodes for all generating systems supplying the notional NSW pool, as determined in accordance with the Compliance Rule; this factor is announced by the Tribunal by 30 November each year.
Relative Intensity Approach	A method used under the Generation Rule to measure greenhouse gas emission reductions. Can be used by generators that produce electricity of lower emission intensity than the pool coefficient.
Renewable Energy Certificate (REC)	A Commonwealth certificate surrendered under the Mandatory Renewable Energy Target (MRET) Scheme that may be brought to account against a benchmark participant's benchmark in the NSW Greenhouse Gas Abatement Scheme, based on NSW sales.
Renewable Power Percentage (RPP)	The percentage of electricity sold which NSW retailers must surrender equivalent RECS to ORER each year, under the MRET scheme.
Retail Supplier	A mandatory benchmark participant under the Greenhouse Gas Abatement Scheme. Includes all holders of an electricity retail licence in NSW.
Scheme Administrator	The body administering functions such as accrediting abatement certificate providers, verifying abatement activity and maintaining a registry of certificates; this is IPART, in the first instance.

<b>Term</b>	<b>Meaning</b>
Scheme Registry	An online registry of Abatement Certificate Providers and Abatement Certificates.
Sequestration Pool	One or more Eligible Forests which are planted on Eligible Land on which Carbon Sequestration Rights are registered, and which are managed to provide carbon sequestration pursuant to those Carbon Sequestration Rights. The Eligible Forests, the Eligible Lands, and the Carbon Sequestration Rights over the Eligible Lands, may be owned or controlled by more than one entity.
Sequestration Pool Manager	A person who manages a Sequestration Pool, and exercises sufficient control over it to be able to enforce the Carbon Sequestration Rights registered on the Eligible Land on which the Eligible Forests in that pool are planted.
Specific Abatement Project (SAP)	A specific project in which a change to an industrial process results in an identifiable and measurable reduction in greenhouse gas emissions, as defined under the Large User Rule.
State Significant Development	A development that the Minister for Planning has determined is of State or regional significance.
Total Electricity Purchased	This is the total amount of electricity purchased from NEMMCO, measured at transmission nodes, and embedded generators, measured at the point of generation, by all benchmark participants for use in NSW through the compliance year. For a detailed description of the calculations, see Clause 7 of the Compliance Rule.
Total State Electricity Demand	The projected electricity consumption in NSW, as determined in accordance with the Compliance Rule; this factor is announced by IPART by 30 November each year.
Total State Population	The projected total number of persons in NSW, as determined in accordance with the Compliance Rule, this factor is announced by IPART by 30 November each year.

## E | Registry data

During 2006 the *Electricity Supply Act 1995* which governs the Scheme was amended. The changes have made it possible for the Scheme Administrator to make aggregated certificate information available.

This section includes information on projects of all current and cancelled accreditations, including future projects that have not yet been implemented. Certificates are created for projects rather than accreditations and an accreditation may include multiple projects. An asterisk (\*) beside the project name indicates that the accreditation has been cancelled.

Data in this chapter is current as at 30 June 2007.

## Generation Rule certificate creations by project type

### Category A: Biomass

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Country Energy	Broadwater Cogeneration Plant*	NSW	10,895	13,178	0	0	<b>24,073</b>
Country Energy	Condong Cogeneration Plant*	NSW	0	628	0	0	<b>628</b>
Country Energy	Harwood Cogeneration Plant*	NSW	0	1,095	0	0	<b>1,095</b>
<b>Total</b>			<b>10,895</b>	<b>14,901</b>	<b>0</b>	<b>0</b>	<b>25,796</b>

### Category A: Hydro

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Country Energy	Burrendong Hydro Power Station	NSW	8,731	6,488	13,448	22,779	<b>51,446</b>
Country Energy	Copeton Hydro Power Station	NSW	20,206	1,538	12,054	18,971	<b>52,769</b>
Country Energy	Nymboida Hydro Power Station	NSW	6,255	9,020	8,887	10,224	<b>34,386</b>
Country Energy	Oaky Hydro Power Station	NSW	2,700	2,346	2,366	6,778	<b>14,190</b>
Country Energy	Wyangala Hydro Power Station*	NSW	3,934	0	448	0	<b>4,382</b>
Energy Australia	Glenbawn Hydro Power Station	NSW	10,735	10,614	10,926	11,114	<b>43,389</b>
Origin Energy Electricity Ltd	Yarrowonga Power Station	VIC	37,487	40,934	44,727	45,511	<b>168,659</b>
TRUenergy Pty Ltd	Blue Rock Dam Hydro Generating System	VIC	0	0	6,717	4,433	<b>11,150</b>
TRUenergy Pty Ltd	Cardinia Dam Hydro Generating System	VIC	0	0	8,563	10,276	<b>18,839</b>
TRUenergy Pty Ltd	Eildon Pondage Hydro Generating System	VIC	0	0	2,357	12,424	<b>14,781</b>
TRUenergy Pty Ltd	Lake Glenmaggie Dam Hydro Generating System	VIC	0	0	2,972	2,315	<b>5,287</b>
TRUenergy Pty Ltd	Lake William Hovell Dam Hydro Generating System	VIC	0	0	3,107	266	<b>3,373</b>
TRUenergy Pty Ltd	Thomson Dam Hydro Generating System	VIC	0	0	7,786	15,850	<b>23,636</b>
TXU Electricity Ltd	Blue Rock Dam Hydro Generating System*	VIC	2,798	7,649	3,862	0	<b>14,309</b>
TXU Electricity Ltd	Cardinia Dam Hydro Generating System*	VIC	15,012	13,345	4,444	0	<b>32,801</b>
TXU Electricity Ltd	Eildon Pondage Hydro Generating System*	VIC	5,478	11,555	7,176	0	<b>24,209</b>
TXU Electricity Ltd	Lake Glenmaggie Dam Hydro Generating System*	VIC	5,913	5,401	3,052	0	<b>14,366</b>
TXU Electricity Ltd	Lake William Hovell Generating System*	VIC	3,785	3,823	750	0	<b>8,358</b>
TXU Electricity Ltd	Thomson Dam Hydro Generating System*	VIC	9,835	10,902	4,625	0	<b>25,362</b>
<b>Total</b>			<b>132,869</b>	<b>123,615</b>	<b>148,267</b>	<b>160,941</b>	<b>565,692</b>

**Category A: Landfill gas**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
AGL Electricity Ltd	Broadmeadows Landfill Gas Power Plant*	VIC	132,165	132,380	132,559	112,453	<b>509,557</b>
AGL Sales Pty Ltd	Broadmeadows LFG Generating System	VIC	0	0	0	17,669	<b>17,669</b>
AGL Sales Pty Ltd	Clayton & Springvale Landfill Gas Generation	VIC	347,713	386,035	408,065	389,938	<b>1,531,751</b>
AGL South Australia Pty Ltd	Highbury Landfill Gas Power Plant	SA	37,020	32,340	32,188	28,032	<b>129,580</b>
AGL South Australia Pty Ltd	Pedler Creek Landfill Gas Power Plant	SA	60,630	60,731	60,810	60,991	<b>243,162</b>
AGL South Australia Pty Ltd	Tea Tree Gully Landfill Gas Power Plant	SA	31,587	28,033	21,850	18,136	<b>99,606</b>
AGL South Australia Pty Ltd	Wingfield 1 & Wingfield 2 Landfill Gas Power Plant	SA	115,162	115,355	115,505	115,848	<b>461,870</b>
EDL LFG (NSW) Pty Ltd	Lucas Heights 1 LFG Generating System	NSW	0	46,579	56,675	59,728	<b>162,982</b>
EDL LFG (Qld) Pty Ltd	Brown Plains LFG Generating System	QLD	36,569	41,765	47,291	46,857	<b>172,482</b>
EDL LFG (SA) Pty Ltd	Wingfield 1 & 2 LFG Generating System	SA	88,631	127,501	166,071	153,465	<b>535,668</b>
EDL LFG (Vic) Pty Ltd	Berwick LFG Generating System	VIC	0	31,293	28,760	19,591	<b>79,644</b>
EDL LFG (Vic) Pty Ltd	Broadmeadows LFG Generating System	VIC	0	26,961	11,527	7,294	<b>45,782</b>
EDL LFG (Vic) Pty Ltd	Corio LFG Generating System - Deemed Retailer	VIC	0	1,095	24,892	24,892	<b>50,879</b>
EDL LFG (Vic) Pty Ltd	Corio LFG Generating System	VIC	0	13,035	13,536	12,820	<b>39,391</b>
EDL Operations (Berwick) Pty Ltd	Berwick LFG Generating System*	VIC	33,893	0	0	0	<b>33,893</b>
EDL Operations (Broadmeadows) Pty Ltd	Broadmeadows LFG Generating System*	VIC	24,209	0	0	0	<b>24,209</b>
EDL Operations (Corio) Pty Ltd	Corio LFG Generating System - Deemed Retailer*	VIC	24,818	23,723	0	0	<b>48,541</b>
EDL Operations (Corio) Pty Ltd	Corio LFG Generating System*	VIC	12,324	0	0	0	<b>12,324</b>
EDL Operations (Pedler Creek) Pty Ltd	Pedler Creek LFG Generating System	SA	1,132	8,511	13,545	15,917	<b>39,105</b>
Energy Australia	Belrose Power Station	NSW	43,539	25,026	27,049	22,859	<b>118,473</b>
Energy Australia	Lucas Heights I Power Station	NSW	116,910	117,113	117,271	117,627	<b>468,921</b>
TRUenergy Pty Ltd	Berwick LFG Generating System	VIC	0	0	53,650	95,243	<b>148,893</b>
TXU Electricity Ltd	Berwick Power Plant*	VIC	109,839	110,039	47,789	0	<b>267,667</b>
<b>Total</b>			<b>1,216,141</b>	<b>1,327,515</b>	<b>1,379,033</b>	<b>1,319,360</b>	<b>5,242,049</b>

**Category A: Natural gas**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
AGL Sales Pty Ltd	Varnsdorf Cogeneration Generating System	VIC	9,863	10,650	11,046	12,029	<b>43,588</b>
Integral Energy Australia	Category A Gas Fired Cogeneration Plant	NSW	580,461	594,623	632,616	625,175	<b>2,432,875</b>
Origin Energy Electricity Ltd	Alfred Hospital Cogeneration Plant	VIC	0	3,973	8,514	9,340	<b>21,827</b>
Origin Energy Electricity Ltd	Royal Melbourne Hospital Cogeneration Plant	VIC	0	8,282	17,179	19,415	<b>44,876</b>
Origin Energy Electricity Ltd	St Vincents Hospital Cogeneration Plant	VIC	0	3,537	6,420	7,686	<b>17,643</b>
<b>Total</b>			<b>590,324</b>	<b>621,065</b>	<b>675,775</b>	<b>673,645</b>	<b>2,560,809</b>

**Category A: Waste coal mine gas**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Integral Energy Australia	WCMG Power Plant - A - Category A	NSW	1,731,215	1,462,384	1,473,011	1,553,810	<b>6,220,420</b>
Integral Energy Australia	WCMG Power Plant - T - Category A	NSW	737,204	838,720	556,772	542,943	<b>2,675,639</b>
<b>Total</b>			<b>2,468,419</b>	<b>2,301,104</b>	<b>2,029,783</b>	<b>2,096,753</b>	<b>8,896,059</b>

**Category B: Coal**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Delta Electricity	Mt Piper Power Station	NSW	11,050	19,777	52,097	187,838	<b>270,762</b>
Delta Electricity	Munmorah Power Station	NSW	0	3,500	1,016	0	<b>4,516</b>
Delta Electricity	Vales Point Power Station	NSW	66,894	65,431	46,329	102,252	<b>280,906</b>
Delta Electricity	Wallerawang Power Station	NSW	16,593	15,458	52,308	23,773	<b>108,132</b>
Eraring Energy	Eraring Power Station	NSW	129,086	115,291	72,120	70,711	<b>387,208</b>
Macquarie Generation	Liddell Power Station	NSW	63,362	199,124	275,082	451,029	<b>988,597</b>
Redbank Project Pty Ltd	Redbank Power Greenhouse Gas Abatement Program	NSW	0	0	0	0	<b>0</b>
<b>Total</b>			<b>286,985</b>	<b>418,581</b>	<b>498,952</b>	<b>835,603</b>	<b>2,040,121</b>



**Category C: Coal**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Flinders Operating Services Pty Ltd	Northern Power Station - Unit 1 Turbine Upgrade	SA	0	0	0	31,899	<b>31,899</b>
Hazelwood Power	Hazelwood Power Station	VIC	251,199	130,906	675,881	780,462	<b>1,838,448</b>
IPM Australia Ltd	Loy Yang B Power Station	VIC	0	0	0	6,775	<b>6,775</b>
Loy Yang Marketing Management Company	Loy Yang A Power Station	VIC	0	0	254,015	86,545	<b>340,560</b>
Stanwell Corporation Limited	Stanwell Power Station - HIP Turbine Upgrades Units 1, 2, 3, 4	QLD	0	36,337	86,290	198,094	<b>320,721</b>
TRUenergy Yallourn Pty Ltd	Yallourn W Power Station Stage 1 & 2 - Units 1-4 Improvemet	VIC	0	0	9,033	164,423	<b>173,456</b>
<b>Total</b>			<b>251,199</b>	<b>167,243</b>	<b>1,025,219</b>	<b>1,268,198</b>	<b>2,711,859</b>

**Category C: Hydro**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Hydro Electric Corporation	Gordon Hydro Generating System	TAS	0	0	0	80,000	<b>80,000</b>
Hydro Electric Corporation	Poatina Hyrdro Generating System	TAS	0	0	0	0	<b>0</b>
<b>Total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>80,000</b>	<b>80,000</b>

**Category C: Landfill gas**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
EDL Operations (Lucas Heights) Pty Ltd	Lucas Heights 1 LFG Generating System*	NSW	31,571	0	0	0	<b>31,571</b>
<b>Total</b>			<b>31,571</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31,571</b>

**Category C: Natural gas**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Alinta DEBO Pty Ltd	Bairnsdale Power Station	VIC	1,293	14,603	8,215	5,578	<b>29,689</b>
Bell Bay Power Pty Ltd	Bell Bay Power Station Units 1 and 2	TAS	0	0	0	140,271	<b>140,271</b>
Enertrade	Oakey Power Station	QLD	0	3,563	0	0	<b>3,563</b>
Enertrade	Townsville Power Station	QLD	0	8,451	0	0	<b>8,451</b>
OneSteel Manufacturing Pty Ltd	OneSteel Whyalla Steelworks	SA	0	0	0	0	<b>0</b>
Origin Energy Electricity Ltd	Ladbroke Grove Power Station	SA	0	0	3,182	30,015	<b>33,197</b>
Pelican Point Power Ltd	Pelican Point Power Station	SA	284,984	0	194,934	545,997	<b>1,025,915</b>
TRUenergy Pty Ltd	Newport Power Station	VIC	0	24,895	0	0	<b>24,895</b>
TRUenergy Pty Ltd	Torrens Island A Power Station	SA	0	0	0	0	<b>0</b>
TRUenergy Pty Ltd	Torrens Island B Power Station	SA	0	70,642	0	0	<b>70,642</b>
<b>Total</b>			<b>286,277</b>	<b>122,154</b>	<b>206,331</b>	<b>721,861</b>	<b>1,336,623</b>

**Category C: Sewage gas**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
AGL Energy Sales & Marketing Ltd	Werribee Sewage Gas Generating System	VIC	59,381	58,928	100,578	184,989	<b>403,876</b>
<b>Total</b>			<b>59,381</b>	<b>58,928</b>	<b>100,578</b>	<b>184,989</b>	<b>403,876</b>

**Category D: Biomass**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Diamond Energy Pty Ltd	Shepparton Biogas Generating System	VIC	0	0	0	0	<b>0</b>
Diamond Energy Pty Ltd	Tatura Biogas Generating System	VIC	0	0	0	0	<b>0</b>
EarthPower Technologies Sydney Pty Ltd	Camellia Biodigester Generating System	NSW	0	10,623	24,619	34,543	<b>69,785</b>
Green Pacific Energy Stapylton No.1 Pty Ltd	Stapylton No.1 Generating System	QLD	0	0	5,370	0	<b>5,370</b>
Integrated Forest Products Pty Ltd	Hume ACT Cogeneration Plant (Future Project)	ACT	0	0	0	0	<b>0</b>
Visy Pulp & Paper Pty Ltd	Tumut Cogeneration Generating System	NSW	542	350	532	651	<b>2,075</b>
<b>Total</b>			<b>542</b>	<b>10,973</b>	<b>30,521</b>	<b>35,194</b>	<b>77,230</b>

**Category D: Coal**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Millmerran Energy Trader Pty Ltd	Millmerran Power Station	QLD	0	92,553	78,624	74,368	<b>245,545</b>
Queensland Alumina Limited	Additional Steam from Cogeneration	QLD	0	0	0	0	<b>0</b>
Tarong Energy Corporation Ltd	Tarong North Power Station	QLD	0	38,112	80,869	117,273	<b>236,254</b>
<b>Total</b>			<b>0</b>	<b>130,665</b>	<b>159,493</b>	<b>191,641</b>	<b>481,799</b>

**Category D: Natural gas**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
AGL Energy Services Pty Ltd	Symex Cogeneration System	VIC	0	0	0	2,907	<b>2,907</b>
AGL South Australia Pty Ltd	Coopers Brewery Cogeneration Generating System	SA	6,593	6,106	6,992	6,711	<b>26,402</b>
Bell Bay Power Pty Ltd	Bell Bay Three	TAS	0	0	0	3,365	<b>3,365</b>
CS Energy Ltd	Swanbank E - Combined Cycle Gas Turbine	QLD	228,718	359,674	68,262	73,598	<b>730,252</b>
Ergon Energy Utility Services Pty Ltd	Moranbah Generation Project	QLD	0	970	0	0	<b>970</b>
Narrabri Power Pty Ltd	Wilga Park Power Station	NSW	0	10,557	15,761	4,817	<b>31,135</b>
Origin Energy Electricity Ltd	Mortlake Power Station	VIC	0	0	0	0	<b>0</b>
Origin Energy Electricity Ltd	Quarantine Power Station	SA	5,542	11,418	11,359	25,769	<b>54,088</b>
Origin Energy Electricity Ltd	Spring Gully Power Station	QLD	0	0	0	0	<b>0</b>
Snowy Hydro Ltd	Laverton North Gas Generating	VIC	0	0	0	101	<b>101</b>
Snowy Hydro Ltd	Valley Power Gas Generating System	VIC	0	0	0	0	<b>0</b>
<b>Total</b>			<b>240,853</b>	<b>388,725</b>	<b>102,374</b>	<b>117,268</b>	<b>849,220</b>

**Category D: Sewage gas**

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Energy Australia	QAF Power Project - Generating System*	NSW	0	0	0	0	<b>0</b>
<b>Total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Category D: Landfill gas

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
AGL Energy Services Pty Ltd	Glenorchy LFG Generating System	TAS	0	0	0	18,333	<b>18,333</b>
AGL Energy Services Pty Ltd	Hobart LFG Generating System	TAS	0	0	0	23,423	<b>23,423</b>
AGL Energy Services Pty Ltd	West Nowra Landfill Gas Power Generation	NSW	16,595	23,896	23,892	27,414	<b>91,797</b>
Boral Recycling Pty Ltd	Landfill Gas to Energy Facility, Deer Park	VIC	0	0	0	25,243	<b>25,243</b>
EDL LFG (ACT) Pty Ltd	Belconnen LFG Generating System	ACT	33,656	30,541	29,973	27,870	<b>122,040</b>
EDL LFG (ACT) Pty Ltd	Mugga Lane LFG Generating System	ACT	60,542	68,727	80,089	98,561	<b>307,919</b>
EDL LFG (NSW) Pty Ltd	Grange Avenue LFG Generating System	NSW	0	0	0	1,953	<b>1,953</b>
EDL LFG (NSW) Pty Ltd	Lucas Heights 2 LFG Generating System	NSW	382,599	395,918	535,048	506,381	<b>1,819,946</b>
EDL LFG (Qld) Pty Ltd	Roghan Road LFG Generating System	QLD	0	12,001	27,315	22,196	<b>61,512</b>
EDL LFG (Vic) Pty Ltd	Brooklyn LFG Generating System	VIC	0	28,100	78,294	75,166	<b>181,560</b>
EDL Operations (Brooklyn) Pty Ltd	Brooklyn LFG Generating System*	VIC	37,733	23,529	0	0	<b>61,262</b>
EDL Operations (Eastern Creek) Pty Ltd	Eastern Creek LFG Generating System	NSW	73,215	130,164	142,918	147,433	<b>493,730</b>
EDL Operations (Eastern Creek) Pty Ltd	Jacks Gully LFG Generating System	NSW	34,041	32,130	36,529	41,971	<b>144,671</b>
Energy Impact Pty Ltd	Molendinar LFG Generator	QLD	15,203	11,577	10,955	8,707	<b>46,442</b>
Energy Impact Pty Ltd	Mornington LFG Generator	VIC	10,157	8,873	18,109	16,929	<b>54,068</b>
Energy Impact Pty Ltd	Reedy Creek LFG Generator*	QLD	6,446	833	0	0	<b>7,279</b>
Energy Impact Pty Ltd	LFG Cogeneration Generating System	QLD	0	0	0	0	<b>0</b>
Energy Impact Pty Ltd	Stapylton LFG Generator	QLD	20,361	23,261	26,701	21,297	<b>91,620</b>
Energy Impact Pty Ltd	Suntown LFG Generator	QLD	27,020	45,321	50,551	36,089	<b>158,981</b>
Energy Impact Pty Ltd	Wyndham LFG Generator	VIC	14,619	22,813	19,945	27,247	<b>84,624</b>
LMS Generation Pty Ltd	Awaba Renewable Energy Facility	NSW	0	0	0	0	<b>0</b>
LMS Generation Pty Ltd	Hallam Road Renewable Energy Facility	NSW	0	0	0	0	<b>0</b>
LMS Generation Pty Ltd	Remount Renewable Energy Facility	TAS	0	0	0	0	<b>0</b>
LMS Generation Pty Ltd	Rochedale Renewable Energy Facility	QLD	0	14,311	121,602	123,592	<b>259,505</b>
LMS Generation Pty Ltd	Tweed Renewable Energy Facility	NSW	0	0	0	7,861	<b>7,861</b>
LMS Generation Pty Ltd	Whitwood Road Renewable Energy Facility	QLD	0	13,727	39,492	40,459	<b>93,678</b>
LMS Generation Pty Ltd	Wollert Renewable Energy Facility	VIC	0	0	0	31,560	<b>31,560</b>
Woodlawn Bioreactor Energy Pty Ltd	Woodlawn Bioreactor	NSW	0	0	0	0	<b>0</b>
<b>Total</b>			<b>732,187</b>	<b>885,722</b>	<b>1,241,413</b>	<b>1,329,685</b>	<b>4,189,007</b>

**Category D: Waste coal mine gas**

<b>Name</b>	<b>Project name</b>	<b>Jurisdiction</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>Total</b>
Country Energy	Tahmoor Generating System	NSW	10,192	10,552	22,728	7,368	<b>50,840</b>
Country Energy	Teralba Power Station	NSW	0	158,334	258,704	222,957	<b>639,995</b>
EDL CSM (Qld) Pty Ltd	German Creek CMM Generating System	QLD	0	0	0	125,535	<b>125,535</b>
Enertrade	Moranbah Power Generation Facility*	QLD	0	0	0	0	<b>0</b>
Envirogen (Oak) Pty Ltd	Glennies Creek WCMG Generating System	NSW	0	0	0	0	<b>0</b>
Envirogen Pty Ltd	Oaky Creek CSM Generating System	QLD	0	0	0	181,362	<b>181,362</b>
<b>Total</b>			<b>10,192</b>	<b>168,886</b>	<b>281,432</b>	<b>537,222</b>	<b>997,732</b>

## Demand Side Abatement Rule certificate creations by project type

### Energy Efficiency: Commercial

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Alliance Network International	Commercial installations in ACT	ACT	0	0	0	0	0
Alliance Network International	Commercial installations in NSW	NSW	0	0	0	0	0
Australian Heating Solutions Pty Ltd	Installation of CFLs & flow restrictors - ACT Comm	ACT	0	0	0	0	0
Australian Heating Solutions Pty Ltd	Installation of CFLs & flow restrictors - NSW Comm	NSW	0	0	0	0	0
Carbon Reduction Institute Pty Ltd	Installation of CFLs - ACT Commercial	ACT	0	0	0	0	0
Carbon Reduction Institute Pty Ltd	Installation of CFLs - NSW Commercial	NSW	0	0	0	0	0
Commonwealth Bank of Australia	Branch network BMS upgrade	NSW	0	263	511	510	1,284
Commonwealth Bank of Australia	Lighting controls	NSW	0	252	510	518	1,280
Commonwealth Bank of Australia	Voltage reduction in branch network lighting	NSW	0	315	624	633	1,572
Commonwealth Bank of Australia	VSD upgrade on cooling fans & condenser pump	NSW	0	53	106	108	267
Demand Manager Pty Ltd	Lighting Aggregation Project	NSW	0	0	0	8,287	8,287
Easy Being Green Pty Ltd	Lighten Your Load NSW - ACT Commercial	ACT	0	0	0	0	0
Easy Being Green Pty Ltd	Lighten Your Load NSW - NSW Commercial	NSW	0	0	0	0	0
Energy Australia	Energy Efficiency Refit - Commercial Premises in ACT	ACT	0	0	0	0	0
Energy Australia	Energy Efficiency Refit - Commercial Premises in NSW	NSW	0	0	0	0	0
Energy Australia	Power Factor Correction	NSW	2,140	2,898	0	0	5,038
Fieldforce Services Pty Ltd	Retrofit Program - Commercial ACT	ACT	0	0	0	0	0
Fieldforce Services Pty Ltd	Retrofit Program - Commercial NSW	NSW	0	0	0	0	0
Illum-a-Lite Pty Ltd	Light Eco Energy Efficient Project	NSW	0	713	1,991	2,064	4,768
Investa Properties Ltd	Office Buildings assessed using the ABGR - ACT	ACT	0	0	0	133	133
Investa Properties Ltd	Office Buildings assessed using the ABGR - NSW	NSW	0	10,337	8,011	7,914	26,262
Koala Lamps Pty Ltd	Compact Lamp Supply to end users	NSW	0	0	13,747	21,423	35,170
Low Energy Supplies and Services Pty Ltd	Direct Sales and Giveaways - ACT Commercial	ACT	0	0	0	0	0
Low Energy Supplies and Services Pty Ltd	Direct Sales and Giveaways - NSW Commercial	NSW	0	0	0	0	0
Macquarie Asset Services Ltd	Building Energy Consumption Reduction	NSW	0	0	190	4,544	4,734
Neco Hardware Pty Ltd	Showerheads & CFL Globe Sales - ACT Commercial	ACT	0	0	0	0	0
Neco Hardware Pty Ltd	Showerheads & CFL Globe Sales - NSW Commercial	NSW	0	0	0	0	0
Panthers Rugby League Club Ltd	Lighting upgrade at Panthers*	NSW	0	1,048	0	0	1,048
Rheem Australia Pty Ltd	Air compressor PLC control	NSW	0	671	0	0	671

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
South Tweed Bowls Club Pty Ltd	Upgrade of lighting at South Tweed Bowls Club	NSW	0	348	0	348	<b>696</b>
Stamford Hotels and Resorts Pty Ltd	Airport Lamp Replacement*	NSW	0	254	0	0	<b>254</b>
Stamford Hotels and Resorts Pty Ltd	Carbon Monoxide Monitor*	NSW	0	220	0	0	<b>220</b>
Stamford Hotels and Resorts Pty Ltd	Circular Quay lighting upgrade*	NSW	0	169	0	0	<b>169</b>
Stamford Hotels and Resorts Pty Ltd	Double Bay lamp replacement*	NSW	0	147	0	0	<b>147</b>
Stamford Hotels and Resorts Pty Ltd	Lighting voltage reduction (Airport)*	NSW	0	99	0	0	<b>99</b>
Stamford Hotels and Resorts Pty Ltd	North Ryde lighting upgrade*	NSW	0	108	0	0	<b>108</b>
State Records of New South Wales	Stage 2 lighting upgrade*	NSW	0	41	0	0	<b>41</b>
Stockland Property Management Pty Ltd	ABGR Energy Monitoring and Modification - ACT	ACT	0	0	0	4	<b>4</b>
Stockland Property Management Pty Ltd	ABGR Energy Monitoring and Modification - NSW	NSW	0	0	0	165	<b>165</b>
Sutherland Shire Council	Sutherland Leisure Centre Energy Performance Contr	NSW	0	0	393	0	<b>393</b>
Sydney Harbour Marriott Hotel	Dimming control at Sydney Harbour Marriott Hotel*	NSW	0	31	0	0	<b>31</b>
Sydney West Area Health Service	Energy Performance Contract and GEEIP	NSW	0	1,615	3,794	5,910	<b>11,319</b>
The Sustainable Energy Dev Auth	CFS Prop CBA-VSD Units Cooling Tower Fans & Water Pump*	NSW	92	46	0	0	<b>138</b>
The Sustainable Energy Dev Auth	CFS Property CBA - Lighting Controls George St, Parramatta*	NSW	147	147	0	0	<b>294</b>
The Sustainable Energy Dev Auth	CFS Property CBA - Instal LightEco Dimmer Units Stg 1 Set 3*	NSW	177	89	0	0	<b>266</b>
The Sustainable Energy Dev Auth	CFS Property CBA - Instal LightEco Dimmer Units Stg 1 Set 2*	NSW	256	128	0	0	<b>384</b>
The Sustainable Energy Dev Auth	CFS Property CBA - Building Mgmt System Upgrade Set 2*	NSW	191	96	0	0	<b>287</b>
The Sustainable Energy Dev Auth	CFS Property CBA - Building Mgmt System Upgrade Set 1*	NSW	328	164	0	0	<b>492</b>
The Sustainable Energy Dev Auth	CFS Property CBA - Lighting Controls 52 Martin Place*	NSW	43	86	0	0	<b>129</b>
The Sustainable Energy Dev Auth	Marriott Hotel - Stage 1 Lighting Upgrade*	NSW	207	125	0	0	<b>332</b>
The Sustainable Energy Dev Auth	Marriott Hotel - Stage 2 Lighting Upgrade*	NSW	319	274	0	0	<b>593</b>
The Sustainable Energy Dev Auth	Marriott Hotel - Installing a Computerised Dimming System*	NSW	35	35	0	0	<b>70</b>
The Sustainable Energy Dev Auth	Merck Sharp & Dohme - Installing LightEco Dimmer Units*	NSW	281	192	0	0	<b>473</b>
The Sustainable Energy Dev Auth	Mercure Hotel - Replacement of 50W Lights with 35W*	NSW	41	42	0	0	<b>83</b>
The Sustainable Energy Dev Auth	Mercure Hotel - Replacement of Exhaust Fan with VSD Unit*	NSW	112	56	0	0	<b>168</b>
The Sustainable Energy Dev Auth	Mercure Hotel - Decommissioning of 50W Lights*	NSW	99	50	0	0	<b>149</b>
The Sustainable Energy Dev Auth	Mercure Hotel - Replacement of Supply Fan with VSD Unit*	NSW	74	37	0	0	<b>111</b>
The Sustainable Energy Dev Auth	Phoenix Sports Club – Lighting Upgrade Stage 1*	NSW	322	161	0	0	<b>483</b>
The Sustainable Energy Dev Auth	Phoenix Sports Club – Lighting Upgrade Stage 2*	NSW	207	178	0	0	<b>385</b>
The Sustainable Energy Dev Auth	Big W lighting project*	NSW	1,298	249	0	0	<b>1,547</b>
The Sustainable Energy Dev Auth	Telstra outside air economy cycle project*	NSW	0	0	0	0	<b>0</b>

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
The Sustainable Energy Dev Auth	State Records Authority of NSW – Lighting Upgrade*	NSW	92	46	0	0	<b>138</b>
The Sustainable Energy Dev Auth	West's Leagues Club – Replacing Electric Heating*	NSW	154	132	0	0	<b>286</b>
The Sustainable Energy Dev Auth	West's Leagues Club – Lighting Upgrade*	NSW	588	294	0	0	<b>882</b>
University of Technology Sydney	Building 2 Lighting Upgrade	NSW	0	0	0	543	<b>543</b>
University of Wollongong	Occupancy sensors for lighting controls	NSW	0	771	777	0	<b>1,548</b>
University of Wollongong	Voltage reduction for lighting control	NSW	0	149	150	0	<b>299</b>
Woolworths Ltd	Supermarket After Hours Lighting Controls	NSW	15,517	17,120	17,120	16,978	<b>66,735</b>
<b>Total</b>			<b>22,720</b>	<b>40,249</b>	<b>47,924</b>	<b>70,082</b>	<b>180,975</b>

### Energy Efficiency: Industrial

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Amcor Ltd	Air conditioning timers (Regents Park)	NSW	0	125	753	0	<b>878</b>
Amcor Ltd	Botany Mill Efficiency Initiatives	NSW	0	0	0	709	<b>709</b>
Amcor Ltd	Lighting voltage reduction (Botany & Smithfield)	NSW	0	104	627	0	<b>731</b>
Amcor Ltd	Skylight upgrade (Revesby)*	NSW	0	54	0	0	<b>54</b>
Amcor Ltd	Upgrade of blowers with conveyors (Revesby)	NSW	0	207	1,251	0	<b>1,458</b>
Amcor Ltd	Upgrade of blowers with VSD conveyors (Revesby)	NSW	0	58	390	0	<b>448</b>
Amcor Ltd	Upgrade of pumps with VSD units (Matraville)	NSW	0	289	1,749	0	<b>2,038</b>
BOC Ltd	Port Kembla LMPC	NSW	0	0	3,288	1,358	<b>4,646</b>
Boral Ltd	Berrima Kiln 6 Upgrade	NSW	0	0	0	6,589	<b>6,589</b>
Carter Holt Harvey Australia Pty Ltd	Refiner Control	NSW	0	0	0	8,065	<b>8,065</b>
Continental Carbon Australia Pty Ltd	Installation of VSD on boiler fan	NSW	0	123	0	252	<b>375</b>
Hydro Aluminium Kurri Kurri Pty Ltd	Smelter upgrade and retrofit	NSW	0	0	0	22,623	<b>22,623</b>
Manildra Starches Pty Ltd	Spray dryer exhaust fan replacement at Manildra	NSW	0	284	286	570	<b>1,140</b>
Merck Sharp & Dohme (Australia) Pty Ltd	Lighting voltage reduction	NSW	0	193	1,170	0	<b>1,363</b>
NSW Roads and Traffic Authority	Upgrade of Traffic Lights	NSW	0	0	193	1,753	<b>1,946</b>
Orica Australia Pty Ltd	Botany Chlorine Plant	NSW	23,668	20,667	19,322	20,637	<b>84,294</b>
Rema Industries and Services Pty Ltd	New air compressor installation	NSW	0	356	789	0	<b>1,145</b>
Riverina Wool Combing Pty Ltd	Air conditioning timers*	NSW	0	222	0	0	<b>222</b>
The Sustainable Energy Dev Auth	AMCOR Botany - Installing LightEco Dimmer Units*	NSW	108	54	0	0	<b>162</b>
The Sustainable Energy Dev Auth	AMCOR Matraville - Replacing Water Pumps with VSD Unit*	NSW	277	139	0	0	<b>416</b>
The Sustainable Energy Dev Auth	AMCOR Matraville - Replacing Effluent Pump with VSD Unit*	NSW	135	116	0	0	<b>251</b>



Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
The Sustainable Energy Dev Auth	AMCOR Regents Park - Installation of Air Conditioner Timer*	NSW	235	124	0	0	<b>359</b>
The Sustainable Energy Dev Auth	AMCOR Revesby - Skylight Upgrade*	NSW	107	54	0	0	<b>161</b>
The Sustainable Energy Dev Auth	AMCOR Revesby - Replacing Pneumatic Blowers-VSD Conv.*	NSW	67	57	0	0	<b>124</b>
The Sustainable Energy Dev Auth	AMCOR Revesby - Replacing Blower with Conveyor*	NSW	410	205	0	0	<b>615</b>
The Sustainable Energy Dev Auth	AMCOR Smithfield - Installing LightEco Dimmer Units*	NSW	53	38	0	0	<b>91</b>
The Sustainable Energy Dev Auth	BOC - Port Kembla LMPC*	NSW	3,375	2,095	0	0	<b>5,470</b>
The Sustainable Energy Dev Auth	Continental Carbon - Installation of VSD on Boiler*	NSW	183	122	0	0	<b>305</b>
The Sustainable Energy Dev Auth	Rema Industries-Replacing Air Compressors with VSD Units*	NSW	568	434	0	0	<b>1,002</b>
Tomago Aluminium Company Pty Ltd	Fume Treatment Centre VSD Project	NSW	6,386	6,747	6,996	4,016	<b>24,145</b>
Visy Pulp & Paper Pty Ltd	Cooling Water Pumps Efficiency Project	NSW	0	0	0	525	<b>525</b>
<b>Total</b>			<b>35,572</b>	<b>32,867</b>	<b>36,814</b>	<b>67,097</b>	<b>172,350</b>

## Energy Efficiency: Residential

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Alliance Network International	DRIP - ACT	ACT	0	0	0	0	0
Alliance Network International	DRIP - NSW	NSW	0	0	0	0	0
Australian Heating Solutions Pty Ltd	Installation of CFLs & flow restrictors - ACT Res	ACT	0	0	0	0	0
Australian Heating Solutions Pty Ltd	Installation of CFLs & flow restrictors - NSW Res	NSW	0	0	0	9,728	9,728
Carbon Reduction Institute Pty Ltd	Giveaway/Sale of CFLs and Showerheads - ACT	ACT	0	0	0	0	0
Carbon Reduction Institute Pty Ltd	Giveaway/Sale of CFLs and Showerheads - NSW	NSW	0	0	0	0	0
Carbon Reduction Institute Pty Ltd	Installation of CFLs - ACT Residential	ACT	0	0	0	0	0
Carbon Reduction Institute Pty Ltd	Installation of CFLs - NSW Residential	NSW	0	0	0	0	0
Country Energy	Countrygreen Town Energy Efficiency Program*	NSW	0	0	0	0	0
Easy Being Green Holdings Pty Ltd	Lighten Your Load	NSW	0	0	38,400	278,699	317,099
Easy Being Green Pty Ltd	Lighten Your Load NSW - ACT Residential	ACT	0	0	0	57,000	57,000
Easy Being Green Pty Ltd	Lighten Your Load NSW - NSW Residential	NSW	0	0	0	2,692,462	2,692,462
EcoSmart Programs Pty Ltd	EcoSmart Living Program Pilot - Western Sydney	NSW	0	0	0	2,348	2,348
Energy Australia	Compact Fluorescent Lamp Promotion - ACT	ACT	0	0	0	29,755	29,755
Energy Australia	Compact Fluorescent Lamp Promotion - NSW	NSW	0	182,295	3,016	1,256,576	1,441,887
Energy Australia	Energy Efficiency Refit - Residential Households in ACT	ACT	0	0	0	0	0
Energy Australia	Energy Efficiency Refit - Residential Households in NSW	NSW	0	34,010	28,928	12,718	75,656
Energy Australia	EnergySave On Line Shop - ACT	ACT	0	0	0	0	0
Energy Australia	EnergySave On Line Shop - NSW	NSW	0	0	0	3,798	3,798
Energy Australia	Residential Energy Efficiency Refit Pilot Program	NSW	646	2,269	0	0	2,915
Energy Australia	Spare Fridge Retirement Program*	NSW	0	0	0	8,016	8,016
Fieldforce Services Pty Ltd	Retrofit Program - Residential ACT	ACT	0	0	0	0	0
Fieldforce Services Pty Ltd	Retrofit Program - Residential NSW	NSW	0	0	0	0	0
Fieldforce Services Pty Ltd	Give Away to Reduce Demand Program – ACT	ACT	0	0	0	76,434	76,434
Fieldforce Services Pty Ltd	Give Away to Reduce Demand Program – NSW	NSW	0	0	0	1,334,818	1,334,818
Integral Energy Australia	Home Lighting Efficiency Program*	NSW	0	0	0	113,297	113,297
Low Energy Supplies and Services Pty Ltd	Direct Sales and Giveaways - ACT Residential	ACT	0	0	0	3,506	3,506
Low Energy Supplies and Services Pty Ltd	Direct Sales and Giveaways - NSW Residential	NSW	0	0	23,748	1,329,144	1,352,892
Low Energy Supplies and Services Pty Ltd	Project #1/2003*	NSW	7,741	5,747	10,545	6,422	30,455
Macquarie Generation	Staff CFL Issue Scheme*	NSW	0	0	0	1,310	1,310

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Neco Hardware Pty Ltd	Showerheads & CFL Globe Sales - ACT Residential	ACT	0	0	0	22,788	<b>22,788</b>
Neco Hardware Pty Ltd	Showerheads & CFL Globe Sales - NSW Residential	NSW	0	0	311,200	310,416	<b>621,616</b>
Neco Lifestyles	Showerheads & CFL Globes web sales*	NSW	0	2	53,638	0	<b>53,640</b>
Next Energy Pty Ltd	Fridge Buyback Program	NSW	0	0	0	11,743	<b>11,743</b>
Origin Energy Electricity Ltd	CFL Giveaway*	NSW	0	0	287,101	403,914	<b>691,015</b>
Philips Electronics Australia Limited	Light Globe Replacement - ACT	ACT	0	0	0	26	<b>26</b>
Philips Electronics Australia Limited	Light Globe Replacement - NSW	NSW	0	0	0	63,550	<b>63,550</b>
Sydney Water Corporation	DIY Water Saving Kit Program	NSW	0	0	0	58,628	<b>58,628</b>
Sydney Water Corporation	Residential Shower Retrofit Programme	NSW	0	91,102	197,303	191,532	<b>479,937</b>
Sydney Water Corporation	Washing Machine Rebate Program	NSW	0	0	0	47,233	<b>47,233</b>
<b>Total</b>			<b>8,387</b>	<b>315,425</b>	<b>953,879</b>	<b>8,325,861</b>	<b>9,603,552</b>

### Energy Source Substitution: Commercial

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Carbon Reduction Institute Pty Ltd	Installation of Gas Boosted Solar HWS - NSW Com	NSW	0	0	0	0	<b>0</b>
Carbon Reduction Institute Pty Ltd	Installation of Gas Boosted Solar HWS - ACT Com	ACT	0	0	0	0	<b>0</b>
Carbon Reduction Institute Pty Ltd	Installation of Gas Hot Water Systems - ACT Com	ACT	0	0	0	0	<b>0</b>
Carbon Reduction Institute Pty Ltd	Installation of Gas Hot Water Systems - NSW Com	NSW	0	0	0	0	<b>0</b>
Energy Australia	Electric to Gas Hot Water Conversion - ACT Com	ACT	0	0	0	0	<b>0</b>
Energy Australia	Electric to Gas Hot Water Conversion - NSW Com	NSW	0	0	0	0	<b>0</b>
The Sustainable Energy Dev Auth	West's Leagues Club-Air Cond. Chiller Compressor Upgrade*	NSW	65	65	0	0	<b>130</b>
<b>Total</b>			<b>65</b>	<b>65</b>	<b>0</b>	<b>0</b>	<b>130</b>

### Energy Source Substitution: Residential

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
AGL Electricity Ltd	Gas Hot Water Systems – ACT*	ACT	0	0	0	1,460	<b>1,460</b>
AGL Electricity Ltd	Gas Hot Water Systems – NSW*	NSW	0	17,146	28,926	5,560	<b>51,632</b>
AGL Hydro Partnership	Gas Hot Water Systems - ACT	ACT	0	0	0	5,400	<b>5,400</b>
AGL Hydro Partnership	Gas Hot Water Systems - NSW	NSW	0	0	0	24,340	<b>24,340</b>
Australian Heating Solutions Pty Ltd	NSW Electric to Gas Hotwater Upgrade Scheme	NSW	0	0	0	4,480	<b>4,480</b>
Biogy Pty Ltd	Electricity to Gas Hot Water Initiative	NSW	0	4,260	6,380	6,260	<b>16,900</b>
BTU Holdings Australia Pty Ltd	Replacing electric with gas hot water systems	NSW	0	0	60	0	<b>60</b>
Carbon Reduction Institute Pty Ltd	Installation of Gas Boosted Solar HWS - NSW Res	NSW	0	0	0	0	<b>0</b>
Carbon Reduction Institute Pty Ltd	Installation of Gas Boosted Solar HWS - ACT Res	ACT	0	0	0	0	<b>0</b>
Carbon Reduction Institute Pty Ltd	Installation of Gas Hot Water Systems - ACT Res	ACT	0	0	0	0	<b>0</b>
Carbon Reduction Institute Pty Ltd	Installation of Gas Hot Water Systems - NSW Res	NSW	0	0	0	0	<b>0</b>
Country Energy	Countrygreen Gas Hot Water Replacement	NSW	0	0	0	0	<b>0</b>
Energy Australia	Electric to Gas Hot Water Conversion - ACT Res	ACT	0	0	0	0	<b>0</b>
Energy Australia	Electric to Gas Hot Water Conversion - NSW Res	NSW	0	0	0	160	<b>160</b>
Origin Energy Electricity Ltd	LPG Boosted Hot Water Systems - ACT	ACT	0	0	0	0	<b>0</b>
Origin Energy Electricity Ltd	LPG Boosted Hot Water Systems - NSW	NSW	0	0	0	0	<b>0</b>
Rheem Australia Pty Ltd	Rheem Gas Hot Water - ACT	ACT	0	0	0	120	<b>120</b>
Rheem Australia Pty Ltd	Rheem Gas Hot Water - NSW	NSW	0	0	0	2,120	<b>2,120</b>
<b>Total</b>			<b>0</b>	<b>21,406</b>	<b>35,366</b>	<b>49,900</b>	<b>106,672</b>

### On-site Generation: Industrial

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Country Energy	Tahmoor Power Station	NSW	110,751	151,468	209,648	130,991	<b>602,858</b>
Energy Australia	QAF Power Project*	NSW	0	0	0	0	<b>0</b>
Sydney Water Corporation	Cronulla STP - Cogeneration Plant	NSW	3,542	937	4,044	5,882	<b>14,405</b>
Sydney Water Corporation	Malabar STP - Cogeneration Plant	NSW	51,157	55,834	49,654	55,121	<b>211,766</b>
Visy Pulp & Paper Pty Ltd	Tumut On-site Cogeneration Plant	NSW	112,947	123,982	171,870	262,532	<b>671,331</b>
<b>Total</b>			<b>278,397</b>	<b>332,221</b>	<b>435,216</b>	<b>454,526</b>	<b>1,500,360</b>

## Carbon Sequestration Rule certificate creations by project type

Name	Project name	Jurisdiction	2003	2004	2005	2006	Total
Australian Forest Corporation Pty Ltd	The Rainforest Carbon Sink	NSW	0	0	0	0	0
CO2 Australia Limited	CO2 Australia Carbon Sequestration Pool	NSW	0	0	0	198	198
Forestry Commission of NSW	Forests NSW Carbon Pool	NSW	0	166,005	538,471	595,109	1,299,585
Go-Gen Australia Pty Ltd	Go-Gen Australia Pty Ltd	NSW	0	0	0	0	0
Mallee Carbon Limited	Project 2005	NSW	0	0	0	424	424
<b>Total</b>			<b>0</b>	<b>166,005</b>	<b>538,471</b>	<b>595,731</b>	<b>1,300,207</b>

## Large User Abatement Certificate Rule certificate creations by project type

Name	Project name	Project type	Jurisdiction	2003	2004	2005	2006	Total
Amcor Packaging (Australia) Pty Ltd	Botany Mill Whole of Site Emissions Reduction	Increased Fuel Efficiency Paper & Wood	NSW	0	0	3,631	13,175	16,806
BlueScope Steel (AIS) Pty Ltd	Modifications to #25 Boiler	Fuel Switching Steel	NSW	0	0	0	78,560	78,560
Boral Ltd	Berrima Works Clinker Production Upgrade Kiln 6	Increased Fuel Efficiency Cement	NSW	0	0	78,690	157,082	235,772
Carter Holt Harvey Australia Pty Ltd	Fossil Fuel Replacement Project	Fuel Switching Paper & Wood	NSW	0	0	0	3,432	3,432
Hydro Aluminium Kurri Kurri Pty Ltd	Kurri Kurri Primary Aluminium Smelter	Industrial Process Aluminium	NSW	0	0	0	516,146	516,146
Norske Skog Paper Mills (Aust) Ltd	TMP Heat Recovery	Increased Fuel Efficiency Paper & Wood	NSW	0	0	11,956	6,551	18,507
Xstrata Coal NSW Pty Ltd	Flaring Project	Reduced Fugitive Emissions Mining	NSW	0	0	0	16,500	16,500
<b>Total</b>				<b>0</b>	<b>0</b>	<b>94,277</b>	<b>791,446</b>	<b>885,723</b>

