Greenhouse Gas Benchmark Rule (Compliance) No. 1 of 2003

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Minister for Energy and Utilities

1 Name and commencement

This rule is the *Greenhouse Gas Benchmark Rule (Compliance) No. 1 of 2003* and commences on 3 October 2003. At its commencement, this Rule is to be taken as having amended the Greenhouse Gas Benchmark Rule (Compliance) that commenced on 1 January 2003, to the extent that this Rule differs from that Rule.

2 Objects of the Rule

The objects of this Rule are to provide specific arrangements for the calculation of Greenhouse Gas Benchmarks, Attributable Emissions, and any Greenhouse Shortfall for Benchmark Participants.

3 Application of the Rule

Without limiting the persons to whom this Rule applies, this Rule applies to Benchmark Participants listed in section 97BB of the Act.

4 Status and Operation of the Rule

This Rule is a Greenhouse Gas Benchmark Rule made under Part 8A of the Act.

5 Compliance with Greenhouse Gas Benchmarks

> Note: Clause 5 is used to calculate any Greenhouse Shortfall for which a Benchmark Participant is responsible, on which any penalty will be paid subject to the shortfall allowance provisions under the Act.

5.1 A Benchmark Participant has complied with its greenhouse gas benchmark for a Compliance Year if its Greenhouse Shortfall, calculated in accordance with **Equation 1**, is zero.

5.2 A Benchmark Participant has failed to comply with its greenhouse gas benchmark for a Compliance Year if its Greenhouse Shortfall, calculated in accordance with **Equation 1**, is greater than zero.

Equation 1

If Attributable Emissions - Greenhouse Gas Benchmark > 0, then:

$$\text{Greenhouse Shortfall} = \text{Attributable Emissions} - \text{Greenhouse Gas Benchmark}$$

If Attributable Emissions - Greenhouse Gas Benchmark ≤ 0, then:

$$\text{Greenhouse Shortfall} = 0$$

Where:
- *Greenhouse Shortfall* is in t CO_2-e
- *Attributable Emissions* (in t CO_2-e) is calculated using Equation 2
- *Greenhouse Gas Benchmark* (in t CO_2-e) is calculated using Equation 3

Equation 2

Attributable Emissions = (Total Electricity Purchased x NSW Pool Coefficient) - NGACs Surrendered - (RECs Counted x NSW Pool Coefficient) - LUACs Surrendered

Where:
- *Attributable Emissions* is in t CO_2-e
- *Total Electricity Purchased* (in MWh) is calculated in clause 7.
- *NSW Pool Coefficient* (in t CO_2-e/MWh) is determined for each Compliance Year by the Tribunal using clause 9.1.
- *NGACs Surrendered* (in t CO_2-e abated) means the total number of NGACs registered to the Benchmark Participant that have been surrendered under the Act, not including any surrendered due to an order under section 97EF of the Act.
- *RECs Counted* (in MWh) means the total number of RECs the Benchmark Participant may count under the Regulations.
- *LUACs Surrendered* (in t CO_2-e abated) means the total number of LUACs registered to the Benchmark Participant that have been surrendered under the Act, not including any surrendered due to an order under section 97EF of the Act .

6 Calculation of a Greenhouse Gas Benchmark for each Benchmark Participant

Note: Under this clause, the Greenhouse Gas Benchmark of a Benchmark Participant is calculated by reference to its share of Total State Electricity Demand in a year, the State Greenhouse Gas Benchmark, and the population of New South Wales.

A Greenhouse Gas Benchmark in tonnes of carbon dioxide equivalent is to be calculated for each Benchmark Participant using Equation 3.

Equation 3

Greenhouse Gas Benchmark = (Total Electricity Sold / Total State Electricity Demand) x
Electricity Sector Benchmark

Where:
- *Greenhouse Gas Benchmark* is in t CO_2-e
- *Electricity Sector Benchmark* (in t CO_2-e) is calculated using Equation 4
- *Total State Electricity Demand* is determined by the Tribunal under clause 9.2
- *Total Electricity Sold* is calculated for the Benchmark Participant in clause 8

Equation 4

Electricity Sector Benchmark = Total State Population x State Greenhouse Gas Benchmark
for that year

Where:
- *Electricity Sector Benchmark* is in t CO_2-e
- *Total State Population* is determined for each Compliance Year by the Tribunal under clause 9.3
- *State Greenhouse Gas Benchmarks* (in t CO_2-e per capita) are set out in section 97B of the Act.

7 Calculation of Total Electricity Purchased

Note: To calculate the Attributable Emissions of a Benchmark Participant, this clause is used to calculate the total electricity it has purchased either actually or notionally at the transmission nodes. Where a Benchmark Participant purchases electricity at a Connection Point within a distribution network, this clause calculates its deemed purchases as if those purchases had been made at the transmission level by adjusting for distribution losses. Where a Benchmark Participant acting in a Class 4 or 5 Capacity is connected to, and receives supply directly from the transmission network, the distribution loss factor would be 1.000.

7.1   Total Electricity Purchased must be rounded to the nearest whole MWh.

7.2   For a Benchmark Participant acting in a Class 1, 2 or 3 Capacity, *Total Electricity Purchased* is the total of:

   (a)   the quantity of electricity that is purchased in that capacity from NEMMCO in a Compliance Year from any of those transmission nodes listed in Schedule B to this Rule as advised to that Benchmark Participant in the final settlement report that NEMMCO has issued with respect to the settlement periods in that Compliance Year; and

   (b)   the total of *Total Deemed Generator Purchases* in a Compliance Year in respect of electricity obtained from Category A Generating Systems or any other Embedded Generating Systems that are located in NSW that do not trade their electricity through the national electricity market operated by NEMMCO, where *Total Deemed Generator Purchases* for each such Category A Generating System or Embedded Generating System is calculated in **Equation 5**,

   less:

(c)   if a Benchmark Participant is acting in a Class 1 or 2 Capacity supplying energy to a Benchmark Participant acting in a Class 4 or 5 Capacity, the *Total Deemed End-user Purchases* calculated in Equation 6.

Equation 5

$$\text{Total Deemed Generator Purchases} = \sum_{G} \text{Purchased Generation}_G / \text{Emissions Intensity Adjustment Factor}_G$$

Where:
- *Total Deemed Generator Purchases* is in MWh
- *Purchased Generation* is the quantity of electricity purchased from that Generating System by that Benchmark Participant acting in a Class 1, 2 or 3 Capacity, and is in MWh
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- *Emissions Intensity Adjustment Factor* is the value in Table 9 of Schedule A to this Rule appropriate to whether the Generating System is connected at a user site, to the distribution system, or to the transmission system.
- *G* is each Generating System from which sent out electricity is purchased by that Benchmark Participant acting in a Class 1, 2 or 3 Capacity

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Equation 6

$$\text{Total Deemed End-User Purchases} = \sum_{P} \text{Exempt Sales}_P \times \text{DLF}_P$$

Where:
- *Total Deemed End-User Purchases* is in MWh
- *Exempt Sales* (in MWh) is the total electricity sold (either directly or indirectly) to the Benchmark Participant acting in a Class 4 or 5 Capacity by the Benchmark Participant acting in a Class 1 or 2 Capacity in the Compliance Year
- *DLF* is the distribution loss factor specific to each load being managed by a Benchmark Participant acting in a class 4or 5 Capacity or the Distribution Loss Factor in Table 7 of Schedule A to this Rule for the Benchmark Participant acting in a Class 4 or 5 Capacity
- *P* is each Class 4 or 5 Benchmark Participant that is sold electricity by the Benchmark Participant acting in a Class 1 or 2 Capacity

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7.3   For Benchmark Participant acting in a Class 4 or 5 Capacity, *Total Electricity Purchased* is equal to the *Deemed End-User Purchases* in that capacity calculated in Equation 7.

Equation 7

Deemed End-User Purchases = Exempt Sales x DLF

Where:
- *Deemed End-User Purchases* is in MWh
- *Exempt Sales* (in MWh) is the total electricity sold (either directly or indirectly) to the

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> Benchmark Participant acting in a Class 4 or 5 Capacity by the Benchmark
> Participant acting in a Class 1 or 2 Capacity in the Compliance Year
> - *DLF* is the distribution loss factor specific to that end user (which may be 1.0 in the
>   case of users connected directly to the transmission system) or the Distribution Loss
>   Factor in Table 7 of Schedule A to this Rule for the Benchmark Participant acting in a
>   Class 4 or 5 Capacity

7.4   In the event that there is any apparent discrepancy between:

   (a)   the value for the quantity of electricity that is purchased from NEMMCO in
           a Compliance Year from any of those transmission nodes listed in Schedule
           B to this Rule used to calculate *Total Electricity Purchased* under this
           clause 7; and

   (b)   any data which the Tribunal obtains directly from NEMMCO in respect of a
           Benchmark Participant,

   the Tribunal will:

   (c)   attempt to resolve the discrepancy with the Benchmark Participant; and

   (d)   if (c) is unsuccessful, make a final determination as to the *Total Electricity
           Purchased*.

8   Calculation of Total Electricity Sold

> Note: To calculate the Greenhouse Gas Benchmark of a Benchmark Participant, this clause is
> used to calculate the total electricity it has sold either actually or notionally at the distribution
> level. Where a Benchmark Participant takes electricity from a transmission network, this
> clause calculates its deemed sales as if those sales had been made at the distribution level by
> adjusting for distribution losses.

8.1   Total Electricity Sold must be rounded to the nearest whole MWh.

8.2   Total Electricity Sold is not to include electricity supplied by Generating Systems not
        connected to the NSW Electricity Network.

8.3   For a Benchmark Participant acting in a Class 1 or 2 Capacity, *Total Electricity Sold* is
        calculated using Equation 8.

Equation 8

Total Electricity Sold = (NEMMCO Purchases/ DLF) + $\sum\limits_{G}$ Purchased Generation$_G$ /LF$_G$ -

$\sum\limits_{P}$ Exempt Sales$_P$ (if any)

Where:
- *Total Electricity Sold* is in MWh
- *NEMMCO Purchases* (in MWh) is the quantity of electricity that is purchased from NEMMCO in a Compliance Year from any of those transmission nodes listed in Schedule B to these Rules
- *DLF* is:
  - the Distribution Loss Factor for that year calculated by that Benchmark Participant using NEMMCO or other data approved by the Tribunal or, if no such value is advised, the appropriate Distribution Loss Factor in Table 6 of Schedule A to this Rule, for Benchmark Participants acting in a Class 1 Capacity; or
  - 1.0, for Benchmark Participants acting in a Class 2 Capacity
- *Purchased Generation* (in MWh) is the quantity of electricity purchased from that Generating System by that Benchmark Participant acting in a Class 1, 2 or 3 Capacity
- *LF* indicates the value of the distribution losses avoided due to the location of the power plant directly at a point of demand and is:
  - 1.0 for a Category A Generating System or Embedded Generating System connected at an end-user's site; or
  - the Distribution Loss Factor in Table 7 of Schedule A to this Rule applying at that location for a Generating System connected at the distribution system level but not connected at an end-user's site.
  - Transmission Loss Factor in Table 8 x Distribution Loss Factor in Table 7 of Schedule A to this Rule for Generating Systems connected to the transmission system
- *G* is each Class 1 Benchmark Participant that is sold electricity by the Category A Generating System or Embedded Generating System
- *Exempt Sales* (in MWh) is the electricity sold (either directly or indirectly) to all Benchmark Participants acting in a Class 4 or 5 Capacity by the Benchmark Participant acting in a Class 1 or 2 Capacity in the Compliance Year.
- P is each Class 4 or 5 Benchmark Participant that is sold electricity by the Benchmark Participant acting in a Class 1 or 2 Capacity

8.4   For a Benchmark Participant acting in a Class 3 Capacity *Total Electricity Sold* is equal to:

      (a)   for those connected to the transmission network as defined in the National Electricity Code, *Total Electricity Purchased* for the use of that Benchmark Participant in that capacity in this State calculated using clause 7; and

      (b)   for those connected to the distribution network as defined in the National Electricity Code, *Total Electricity Purchased* for the use of that Benchmark Participant in that capacity in this State calculated using clause 7 divided by the Distribution Loss Factor for that year advised to that Benchmark Participant by NEMMCO or, if no such value is advised, the appropriate Distribution Loss Factor in Table 7 of Schedule A to this Rule.

8.5　　For a Benchmark Participant acting in a Class 4 or 5 Capacity Total Electricity Sold is equal to the amount of metered electricity it purchases in that capacity.

9　　Factors to be determined by the Tribunal

9.1　　NSW Pool Coefficient

Note: This method calculates the average emissions per unit of electricity delivered at transmission nodes for all Generating Systems supplying the notional New South Wales Pool. The notional New South Wales Pool includes electricity delivered to New South Wales, the Australian Capital Territory, and any net electricity exports to other States.

9.1.1　　For 2003, the NSW Pool Coefficient shall be 0.897.

9.1.2　　For 2004, the NSW Pool Coefficient shall be 0.906.

9.1.3　　For the purposes of the Act, the Tribunal will for the years 2005 to 2012 inclusive determine the pool coefficient to apply in that year as follows:

(a)　　For the year 2005, as the average of the Annual Pool Values (calculated in accordance with clause 9.1.4) for the years 1999 to 2003 inclusive;

(b)　　For the year 2006, as the average of the Annual Pool Values (calculated in accordance with clause 9.1.4) for the years 2000 to 2004 inclusive;

(c)　　For the year 2007, as the average of the Annual Pool Values (calculated in accordance with clause 9.1.4) for the years 2001 to 2005 inclusive;

(d)　　For the year 2008, as the average of the Annual Pool Values (calculated in accordance with clause 9.1.4) for the years 2002 to 2006 inclusive;

(e)　　For the year 2009, as the average of the Annual Pool Values (calculated in accordance with clause 9.1.4) for the years 2003 to 2007 inclusive;

(f)　　For the year 2010, as the average of the Annual Pool Values (calculated in accordance with clause 9.1.4) for the years 2004 to 2008 inclusive;

(g)　　For the year 2011, as the average of the Annual Pool Values (calculated in accordance with clause 9.1.4) for the years 2005 to 2009 inclusive; and

(h)　　For the year 2012, as the average of the Annual Pool Values (calculated in accordance with clause 9.1.4) for the years 2006 to 2010 inclusive.

9.1.4　　The *Annual Pool Values* are:

(a)　　for 1997, the New South Wales Pool Coefficient reported by the New South Wales Department of Energy for the 1996 / 1997 financial year multiplied by the Transmission Loss Factor for New South Wales in Table 8 of Schedule A to this Rule;

(b)　　for 1998, the New South Wales Pool Coefficient reported by the Licence Compliance Advisory Board for the 1997 / 1998 financial year multiplied by the Transmission Loss Factor for New South Wales in Table 8 of Schedule A to this Rule;

(c)   for 1999, the New South Wales Pool Coefficient reported by the Licence Compliance Advisory Board for the 1998 / 1999 financial year multiplied by the Transmission Loss Factor for New South Wales in Table 8 of Schedule A to this Rule;

(d)   for 2000, the New South Wales Pool Coefficient reported by the Tribunal for the 1999 / 2000 financial year multiplied by the Transmission Loss Factor for New South Wales in Table 8 of Schedule A to this Rule;

(e)   for 2001, the New South Wales Pool Coefficient reported by the Tribunal for the 2000 /2001 financial year multiplied by the Transmission Loss Factor for New South Wales in Table 8 of Schedule A to this Rule;

(f)   for 2002, the New South Wales Pool Coefficient calculated by the Tribunal for the 2001 / 2002 financial year including the adjustment for the Transmission Loss Factor for New South Wales; and

(g)   for 2003 onwards, the values determined by the Tribunal having regard to the factors described in Method 1.

Note: Under section 97HC of the Act, the Tribunal may require persons to provide information in order to apply Method 1, including Category B Generating Systems, as classified under the Generation Rule.

Method 1

Factor (1)

In respect of each Category B Generating System, as classified under the Generation Rule:

1) Obtain from NEMMCO the Net Sent Out Generation. In respect of those Generating Systems against which "(a)" appears in Schedule B of the Generation Rule, Net Sent Out Generation for the purpose of this Rule is 71% of that Generating System's total Net Sent Out Generation;

2) Calculate the following for the year for which the *Annual Pool Value* is being determined:

(a) *Combustion Emissions*, which is the total of:

(i) for Fossil Fuels, as defined in the Generation Rule, the sum of:

1. CO_2 emissions at the point of combustion (in tonnes), calculated using **Equation 7** in the Generation Rule; and

2. CH_4 emissions at the point of combustion (in tonnes of carbon dioxide equivalent), calculated using **Equation 8** in the Generation Rule; and

3. N_2O emissions at the point of combustion (in tonnes of carbon dioxide equivalent), calculated using **Equation 9** in the Generation Rule; and

(ii) for each Renewable Energy Source, as defined in the Generation Rule, the sum of:

1. CH_4 emissions at the point of combustion (tonnes of carbon dioxide equivalent), calculated using **Equation 14** in the Generation Rule; and

2. N_2O emissions at the point of combustion (tonnes of carbon dioxide equivalent), calculated using **Equation 15** in the Generation Rule; and

(b) *Fugitive Emissions*, which is the total of:

(i) for Fossil Fuels, as defined in the Generation Rule, the total of:

1. if the Fossil Fuel is natural gas, fugitive CO_2 emissions associated with the production of the Fossil Fuel (in tonnes of carbon dioxide equivalent) calculated using **Equation 10** in the Generation Rule; plus

2. if the Fossil Fuel is natural gas, fugitive CH_4 emissions associated with the production of the Fossil Fuel (in tonnes of carbon dioxide equivalent), calculated using **Equation 11** in the Generation Rule; plus

3. if the Fossil Fuel is black coal, the total of fugitive CH_4 emissions associated with the production of the Fossil Fuel for mines from which coal is sourced (in tonnes of carbon dioxide equivalent), where the fugitive CH_4 emissions associated with the production of the Fossil Fuel for each mine are calculated using **Equation 12** in the Generation Rule; less

4. if the Fossil Fuel is waste coal mine gas, fugitive CH_4 emissions avoided through the use of waste coal mine gas (in tonnes of carbon dioxide equivalent), using **Equation 13** in the Generation Rule; less

(ii)_ for each Renewable Energy Source, as defined in the Generation Rule, if the fuel is landfill gas or sewage gas, fugitive CH_4 emissions avoided through the use of the fuel (tonnes of carbon dioxide equivalent), calculated using **Equation 16** in the Generation Rule; and

(c) *NGACS Created,* which is the sum of NGACs (in tonnes of carbon dioxide equivalent) registered by that Category B generating system for that year in accordance with the Generation Rule

Factor (2)

Obtain from NEMMCO the Net Electricity Supplied from and to the NSW Electricity Network to and from Generating Systems located in Victoria, South Australia, and Queensland.

Factor (3)

Determine the *Annual Pool Value* (in t CO_2-e/MWh) for a given year:

1. If *Net imports from Vic/SA* and *Net imports from Qld* are both > 0:

{Total NSW Emissions + (Net imports from Vic/SA x Vic/SA Emissions Intensity) + (Net imports from Qld x Qld Emissions Intensity)}/ {(Total NSW Net Sent Out Generation x NSW Transmission Scaling Factor) + Net imports from Vic/SA + Net imports from Qld}

2. If *Net exports to Vic/SA* and *Net exports to Qld* are both > 0:

Total NSW Emissions / (Total NSW Net Sent Out Generation x NSW Transmission Scaling Factor)

3. If conditions 1 and 2 are not satisfied, and:

(a) If *Net imports from Vic/SA > Net exports to Qld*:

{Total NSW Emissions + (*Net imports from Vic/SA* - Net *exports to Qld)* x Vic/SA Emissions Intensity}/ {(Total NSW Net Sent Out Generation x NSW Transmission Scaling Factor) + [*Net imports from Vic/SA - Net exports to Qld*]}

(b) If *Net imports from Qld > Net exports to Vic/SA*:

{Total NSW Emissions + (*Net imports from Qld - Net exports to Vic/SA)* x Qld Emissions Intensity}/ {(Total NSW Net Sent Out Generation x NSW Transmission Scaling Factor) + (*Net imports from Qld - Net exports to Vic/SA*)}

(c) If *Net exports to Vic/SA > Net imports from Qld*:

Total NSW Emissions / Total NSW Net Sent Out Generation x NSW Transmission Scaling Factor

(d) If *Net exports to Qld > Net imports from Vic/SA*:

Total NSW Emissions / Total NSW Net Sent Out Generation x NSW Transmission Scaling Factor

Where:

- *Total NSW Emissions* (in t CO_2-e) is the sum of *Combustion Emissions*, *Fugitive Emissions,* and *NGACs Created as* defined in Factor (1) above, for all Category B Generating Systems classified under the Generation Rule.
- *Net imports from Vic/SA* (in MWh) is the net electricity imported from Generating Systems located in Victoria or South Australia delivered to the NSW Electricity Network less the electricity exported from the NSW Electricity Network to the Victorian and South Australian network (exclusive of losses on the interconnectors) or is zero if it is otherwise a negative value.
- *Net exports to Qld* (in MWh) is net electricity exported from the NSW Electricity Network to the Queensland Electricity Network less electricity imported from the Queensland Electricity Network to the NSW Electricity Network (exclusive of losses on the interconnectors)or is zero if it is otherwise a negative value.
- *Net imports from Qld* (in MWh) is net electricity imported from Generating Systems located in Queensland delivered to the NSW Electricity Network less the electricity exported from the NSW Electricity Network to the Queensland Electricity Network (exclusive of losses on the interconnectors) or is zero if it is otherwise a negative value.
- *Net exports to Vic/SA* (in MWh) is net electricity exported from the NSW Electricity Network to the Victorian and South Australian Electricity Networks less electricity imported from the Victoria and South Australian Electricity Network to the NSW Electricity Network (exclusive of losses on the interconnectors) or is zero if it is otherwise a negative value.
- *Total NSW Net Sent Out Generation* (in MWh) is the sum of Net Sent Out Generation for all Category B Generating Systems classified under the Generation Rule, as set out in Factor (1) above.
- *NSW Transmission Scaling Factor* is the Transmission Scaling Factor for New South Wales set out in Table 8 of Schedule A to this Rule.
- *Qld Emission Intensity* (in t CO_2-e / MWh) is 0.958 for each of the years 2003 to 2012.
- *Vic/SA Emission Intensity* (in t CO_2-e / MWh) is 1.273 for each of the years 2003 to 2012.

9.2   Total State Electricity Demand

For the purposes of the Act, the Tribunal will for any given year determine the Total State
Electricity Demand to be the value calculated in accordance with Method 2.

Method 2

Step (1)

Determine the Projected electricity consumption in NSW in a given year by:

      (i)   if an *Annual Planning Report* or an equivalent document
has been published by *TransGrid NSW* or its successors
within the year preceding the determination, taking from
that Report the average of the medium projected end-use
electricity consumption in NSW and the ACT for the two
financial years that include the year for which the Total
State Electricity Demand is being determined*;* or

      (ii)   if no such Report has been published within the year
preceding the determination, taking the actual end-use
electricity consumption in NSW and the ACT in the
previous financial year and applying the percentage
change projected for the most recent corresponding period
in the latest *Annual Planning Report* or an equivalent
document published by *TransGrid NSW* or its successors,

and subtracting from that value an allowance for sales in the
Australian Capital Territory, which allowance is 4.5% unless the
Tribunal determines otherwise.

Step (2)

Calculate the *Total State Electricity Demand* by adding to the Projected electricity
consumption in NSW:

      (i)   0 in 2003 and 2004; and

      (ii)   after 2004, the electricity sales corresponding to the total
number of NGACs created under the DSA Rule in the year
that is two years before the year for which the Total State
Electricity Demand is being determined.

> Note: Demand Side Abatement both reduces the electricity demand and creates
> NGACs. Consequently, Step (2) is required to overcome the double counting of
> benefits from NGACs created through Demand Side Abatement.

9.3   Total State Population

For the purposes of the Act, the Tribunal will for any given year determine the Total State Population to be the New South Wales Estimated Resident Population projected using the scenario that was designated as "Series II" in the Australian Bureau of Statistics publication *Population Projections, Australia,* 17 August 2000 edition or the equivalent value most recently determined by the Australian Bureau of Statistics.

9.4   Electricity Sector Benchmark

The Electricity Sector Benchmark will be calculated by multiplying the Total State Population by the State greenhouse gas benchmark per head of population for that Compliance Year specified in section 97B(1) of the Act.

10   Greenhouse Shortfall not carried forward

An Elective Participant that ceases to be an Elective Participant cannot carry forward to the next year any Greenhouse Shortfall in the Compliance Year in which it ceases to be an Elective Participant.

11   Definitions and Interpretation

11.1   In this Rule:

"Attributable Emissions" is the number of tonnes of carbon dioxide equivalent of Greenhouse Gas emissions in that year for which a Benchmark Participant is responsible, calculated in Equation 2.

"Benchmark Participant" is defined in section 97BB(1) of the Act.

"**Class**" refers to classes of Benchmark Participant and in particular:

> (a)   **"Class 1 Capacity"** means an entity acting in the capacity described in section 97BB(1)(a) of the Act;
>
> (b)   **"Class 2 Capacity"** means an entity acting in the capacity described in section 97BB(1)(b) of the Act;
>
> (c)   **"Class 3 Capacity"** means an entity acting in the capacity described in section 97BB(1)(c) of the Act;
>
> (d)   **"Class 4 Capacity"** means an entity acting in the capacity described in section 97BB(1)(d) of the Act; and
>
> (e)   **"Class 5 Capacity"** means an entity described in section 97BB(1)(e) of the Act.

"**Compliance Year**" means the calendar year with respect to which a Benchmark Participant's compliance with its benchmark is measured.

"Connection Point" means an agreed point of electricity supply to a transmission or distribution network, established between the person that operates that network and a Generating System.

"DSA Rule" means *Greenhouse Gas Benchmark Rule (Demand Side Abatement) No. 3 of 2003*

"Generation Rule" means *Greenhouse Gas Benchmark Rule (Generation) No. 2 of 2003*

"Generating System" means a system comprising one or more of the physical generators of electricity and all the related equipment essential to their functioning as single entities.

"Embedded Generating System" means a Generating System that is connected to the distribution network, as it is defined in the National Electricity Code.

"Greenhouse Gas Benchmark" is defined in section 97AB of the Act, and is calculated in Equation 3.

"**Greenhouse Shortfall**" is defined in section 97AB of the Act, and is calculated in Equation 1.

"LUAC" means an abatement certificate created in accordance with the LUAC Rule.

"LUAC Rule" means *Greenhouse Gas Benchmark Rule (Large User Abatement Certificates) No. 4 of 2003*.

"NEMMCO" is defined in section 97AB of the Act.

"Net Sent Out Generation" the amount of electricity supplied to the transmission or distribution network at the Connection Points for the Generating System in question less the electricity supplied to the Generating System from the transmission or distribution network.

"NGAC" (New South Wales Greenhouse Abatement Certificate) is a transferable abatement certificate under section 97F of the Act, which is created in accordance with the Generation Rule, DSA Rule, or Sequestration Rule.

"NSW Electricity Network" means the New South Wales electricity transmission and distribution networks, as those terms are defined in the National Electricity Code.

"NSW Pool Coefficient" is defined in section 97AB of the Act and determined by the Tribunal in accordance with clause 9.1.

"REC" means a renewable energy certificate as defined in s 97AB of the Act.

"Regulations" means regulations made pursuant to Part 8A of the Act.

"Scheme Administrator" is defined in section 97AB of the Act.

"Sequestration Rule" means *Greenhouse Gas Benchmark Rule (Carbon Sequestration) No.5 of 2003*.

"the Act" means the *Electricity Supply Act 1995*.

"Tribunal" has the meaning given to it under the Act.

11.2   Notes in this Rule do not form part of the Rule.

11.3   For the purpose of this Rule the terms and expressions used in this Rule have the same meaning as in the Act or as defined in Part 8A of the Act, except the terms that are expressly defined in this Rule.

Schedule A - Tables

Table 1: Fugitive Emissions from Coal

State	Class of mine	kg CH$_4$/t mined	kg CH$_4$/t post-mine	kg CH$_4$/t combined
NSW	Underground Class A	10.40	0.77	11.17
	Underground Class B	0.54	0	0.54
	Open Cut	2.17	0	2.17
	Weighted average	3.67	0	3.67
Qld	Underground Class B	0.54	0	0.54
	Open Cut	0.81	0	0.81
	Weighted average	0.76	0	0.76

Table 2: Fugitive Emissions from Natural Gas

State	kt CO$_2$/ PJ	kt CH$_4$/ PJ
All States	2.60	0.089

Table 3: Carbon Dioxide Emission Factors

Fuel Type	Fuel	kt CO$_2$/ PJ
Coal	Coal used in public electricity generation (ASIC 3611)	92.0
	Coals used in steel industry	93.0
	Black coal used by other industry	90.0
	Brown coal used by industry	88.3
	Coke	119.5
	Coal by-products (gaseous)	37.0
	Coal by-products (coal tar and BTX)	81.0
	Brown coal briquettes	105.0
Petroleum	Liquefied petroleum gas (LPG)	59.4
	Naphtha	66.0
	Lighting kerosene	69.7
	Power kerosene	69.7
	Aviation gasoline	68.0
	Aviation turbine fuel	69.7
	Heating oil	69.7
	Fuel oil	73.6
	Automotive diesel oil (ADO)	69.7
	Industrial diesel fuel (IDF)	69.7
	Refinery fuel	68.1
	Other petroleum products	68.6
	Solvents	66.0
	Lubricants and greases	73.7
	Bitumen	80.7
Gaseous	Natural gas - NSW	50.8
	Natural gas - Victoria	51.0
	Natural gas - SA	50.8
	Natural gas - Queensland	51.1
	Natural gas - ACT	50.8
	Town gas (tempered LPG)	59.0
Biomass	Wood and wood waste (dry)	94.0
	Bagasse	96.8

Table 4: Carbon Dioxide Combustion Factors

Fossil Fuel	Carbon Dioxide Combustion Factor
black coal	0.990
brown coal	0.990
natural gas	0.995
coal seam methane	0.995
waste coal mine gas	0.995
fuels derived from petroleum	0.990

Table 5: Methane and Nitrous Oxide Default Emission Factors

Sector	Fuel	Equipment	kt CH_4/ PJ	kt N_2O/ PJ
Electricity	Black coal	Tangentially fired	0.0009	0.0008
		Pulverised wall	0.0009	0.0008
	Brown coal	Tangentially fired	0.0009	0.0014
	Natural gas[a]	Boiler	0.0001	0.0001
		Internal combustion	0.2400	0.0001
		Turbine	0.0080	0.0001
	Fuel oil/residual oil	Boiler	0.0008	0.0006
		Internal combustion	0.0040	0.0006
	Distillate/diesel	Boiler	0.0000	0.0006
		Internal combustion	0.0040	0.0006
		Turbine	0.0040	0.0006
Industrial	Black coal	Boiler	0.0013	0.0008
	Natural gas	Boiler	0.0012	0.0001
	Fuel oil	Boiler	0.0008	0.0006
	Residual oil	Boiler	0.0028	0.0006
	Distillate	Boiler	0.0001	0.0006
	Wood	Boiler	0.0042	0.0041
	Bagasse	Boiler	0.0100	0.0041
Commercial	Black coal	Boiler	0.0013	0.0008
	Natural gas	Boiler	0.0011	0.0001
	Residual oil	Boiler	0.0013	0.0006
	Distillate oil	Boiler	0.0006	0.0006
	Wood	Boiler	0.0034	0.0041
Household	Wood	Open fireplace	2.6860	0.0041
	Wood	Closed heater	0.1480	0.0041

a   These factors may also apply to waste coal mine gas, landfill gas and sewage gas.

Table 6: Default Distribution Loss Factors for use by Retailers

	Distribution Loss Factor
ACTEWAGL	1.059
Country Energy	1.072
AGLE	1.054
Australian Inland	1.078
CitiPower	1.055
TXU	1.059
Energex	1.057
EnergyAustralia	1.053
Ergon	1.057
Ferrier Hodgson	1.053
Integral	1.055
Origin	1.053
Pulse	1.056
Auspower	1.054
For any other Retailers that are not listed here	1.053

Table 7: Default Distribution Loss Factors

	Distribution Loss Factor
Australian Inland (a)	1.087
EnergyAustralia (a)	1.053
Integral (a)	1.055
Country Energy (a)	1.078
NSW (weighted) (b)	1.058
Victoria (b)	1.060
SA (b)	1.068
Queensland (b)	1.058

Table 8: Default Transmission Loss and Scaling Factors

State	Transmission Loss Factor	Transmission Scaling Factors
New South Wales	1.026	0.975
Victoria or South Australia	1.026	0.975
Queensland	1.046	0.956

Table 9: Emissions Intensity Adjustment Factors

Connection	Emissions Intensity Adjustment Factor
At user site	the Distribution Loss Factor applying at the site **or** the default Distribution Loss Factor for that distribution system from Table 7 in this Schedule
To distribution system	1.0
To transmission system	Transmission Scaling Factor for the State where the Generating System is located from Table 8 in this Schedule

Schedule B - Transmission Nodes

TNI	Location	TNI	Location
AQB2	Queanbeyan (GSE)	NMPP	Mt Piper
NALB	Albury	NMP6	Mt Piper
NALC	Alcan	NMDG	Mudgee
NANM	ANM	NMNP	Munmorah
NAR1	Armidale	NMY1	Munyang
NBAL	Balranald	NMYG	Munyang
NBFW	Beaconsfield West	NMBM	Murrumbateman
NBER	Beryl	NMRU	Murrumburrah
NWR1	BHP (Waratah) [EA]	NMRK	Muswellbrook
NBKG	Broken Hill	NNAM	Nambucca Heads
NBKH	Broken Hill	NNB2	Narrabri
NBG1	Bunnerong	NNEW	Newcastle
NBG3	Bunnerong	NRG1	Orange
NBU2	Burrinjuck	NRGE	Orange
NCTB	Canterbury	NPMA	Panorama
NCHU	Chullora	NPKS	Parkes
NCH1	Coffs Harbour	NPK6	Parkes
NCLY	Coleambally	NPHT	Peakhurst
NCMA	Cooma	NPMQ	Pt Macquarie
NCW8	Cowra (Advance)	NPT1	Pyrmont
NCW9	Cowra (GSE)	NPT3	Pyrmont
NDT2	Dapto (GSE)	NRGV	Regentville
NDT1	Dapto (Integral)	NRZL	Rozelle
NDNT	Darlington Point	NSAD	Snowy Adit
NDN8	Deniliquin (AIE)	NSPT	St Peters
NDN7	Deniliquin (GSE)	NSRD	Stroud
NDOR	Dorrigo	NSE2	Sydney East
NDRM	Drummoyne	NSN1	Sydney North (EA)
NFNY	Finley	NSN2	Sydney North (IE)
NFB2	Forbes	NSYS	Sydney South
NGAD	Gadara	NSW1	Sydney West (EA)
NGLN	Glen Innes	NSW2	Sydney West (IE)
NGRF	Griffith	NTA2	Tamworth
NGN2	Gunnedah	NTR1	Taree (EA)
NHBB	Homebush Bay	NTR2	Taree (Npower)
NLFD	Ilford	NTTF	Tenterfield
NING	Ingleburn	NTMJ	Tomago
NNVL	Inverell	NTMG	Tomago
NKS3	Kempsey	NTGH	Tuggerah
NKS2	Kempsey	NTU2	Tumut
NKL6	Koolkhan	NVP1	Vales Pt.
NKU3	Kurri	NVP3	Vales Pt.
NKU6	Kurri	NVYD	Vineyard
NLCV	Lane Cove	NWG2	Wagga
NLD3	Liddell	NWW8	Wallerawang (Adv)
NLS1	Lismore	NWW9	Wallerawang (IE)
NLP1	Liverpool	NWL8	Wellington (Adv)
NMKV	Marrickville	NWL9	Wellington (NPwr)
NMR2	Marulan (GSE)	NYA3	Yanco
NMR1	Marulan (IE)	NYS1	Yass
NMPK	Mason Park	NYS6	Yass
NMBK	Meadowbank	QMGT	Terranora (NSW border)
NMOL	Molong	NKHN	Khancoban
NMRE	Moree	VRCA	Red Cliffs 66 (AIE&W)

The list of applicable Transmission Nodes will vary from time to time. The relevant
Transmission Nodes for the purpose of this Rule will be those reported publicly by NEMMCO.