

# The case for regulating carbon dioxide emissions using the load-based licensing scheme



Discussion Paper  
July 2010



**The case for regulating carbon dioxide emissions from coal-fired electricity generators using the load-based licensing scheme under the *Protection of the Environment Operations Act 1997 (NSW)***

**Environmental Defender's Office of NSW<sup>1</sup>  
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It is now widely accepted that climate change is one of the greatest challenges facing humanity.<sup>2</sup> The primary source of the increased concentration of carbon dioxide in the atmosphere since the pre-industrial period is the combustion of fossil fuels.<sup>3</sup> The combustion of coal represents 42% of global emissions from fuel combustion (28,002 Mt carbon dioxide; 2006 data) and 57% of Australia's carbon dioxide emissions from fuel combustion (394 Mt carbon dioxide; 2006 data).<sup>4</sup> At present, Australia is unlikely to implement a Carbon Pollution Reduction Scheme (CPRS) that will put a price on carbon for several years, if it all. Even with CPRS legislation in place, as the Federal Government itself acknowledges, a CPRS would need to be supplemented by complementary measures.<sup>5</sup>

One measure currently available to regulate the carbon dioxide emissions of coal fired electricity generators in NSW is the load-based licensing scheme (**LBL scheme**) under the *Protection of the Environment Operations Act 1997 (NSW)* (**POEO Act**). The LBL scheme is a simple economic regulatory instrument under which licence fees for environmental protection licences under the *POEO Act* are based on the level of emissions of certain pollutants. This has the potential to ensure the real costs to the environment and the health of the community are factored into our electricity costs, which may enable renewable energy to more readily compete with coal fired generation.<sup>6</sup> It would also ensure that there is a more responsible long term strategy adopted for ceasing to build new coal fired power stations and to decommission those currently in existence.

This brief Discussion Paper sets out:

Part One: The policy reasons for regulating carbon dioxide emissions under the *POEO Act*

Part Two: The legal reasons for regulating carbon dioxide emissions under the *POEO Act*

Part Three: The Load Based Licensing Scheme

For detailed recommendations for climate law reform more broadly, please see: <http://www.edo.org.au/edonsw/site/policy.php#1>.

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<sup>1</sup> The Environmental Defender's Office of NSW is a community legal centre specializing in public interest environmental law and policy, see: [www.edo.org.au](http://www.edo.org.au). This Discussion Paper is based on research undertaken by BJ Kim, Solicitor, EDO.

<sup>2</sup> Barrack Obama described climate change as the "planet's greatest threat" (Remarks of Senator Barack Obama: Real Leadership for a Clean Energy Future, Portsmouth, NH, on 8 October 2007 available at [http://www.barackobama.com/2007/10/08/remarks\\_of\\_senator\\_barack\\_obam\\_28.php](http://www.barackobama.com/2007/10/08/remarks_of_senator_barack_obam_28.php)). Angela Merkel, Chancellor of the F.R.G., said that climate protection and energy were the "two greatest challenges facing humanity" (Opening Address at the World Economic Forum on 24 January 2007, available at [http://www.weforum.org/en/News/Speeches\\_Interviews/January/0124BKinDavos.html](http://www.weforum.org/en/News/Speeches_Interviews/January/0124BKinDavos.html)).

<sup>3</sup> IPCC, *Climate Change 2007: The Physical Science Basis. Contribution of Working Group 1 to the IPCC Fourth Assessment Report* (Cambridge University Press, 2007), Ch 7 p 512.

<sup>4</sup> International Energy Agency, *CO<sub>2</sub> Emissions from fuel combustion* (2008).

<sup>5</sup> Commonwealth of Australia, *Carbon Pollution Reduction Scheme: Australia's Low Pollution Future – White Paper December 2008*, n 3, 19.1.

<sup>6</sup> A Report by the Australian Academy of Technological Sciences and Engineering, *The Hidden Costs of Electricity: Externalities of Power Generation in Australia* (2009), p ii found the costs \$A59/MWh for natural gas, \$A82/MWh for black coal, and \$A92/MWh for brown coal, compared to \$A5/MWh for solar photovoltaic electricity and \$A1.50/MWh for wind power.

## **Part One: The policy reasons for regulating carbon dioxide emissions under the *POEO Act***

As far as reducing the emissions of heavy emitters such as coal fired electricity generators are concerned, there is a gaping hole in Australian climate change policy. In particular:

1. there were fundamental flaws in the CPRS presented to the Australian public by the Rudd Government as it applied to coal fired electricity generators in terms of concessions and compensation for the largest emitters<sup>7</sup>; and
2. it appears the complementary measures proposed to date do nothing to reduce the emissions levels of those electricity generators.<sup>8</sup>

The EDO therefore believes that an integral complementary measure to other climate change policy measures such as a CPRS is a load-based licensing scheme. The LBL scheme under the *POEO Act* is an economic instrument which involves charging licence holders based on the amount of pollution emitted each year. The licence fee increases or decreases depending on the amount of pollution emitted.

A LBL scheme applied to coal fired electricity generators is an appropriate complementary measure for a number of reasons. The use of an LBL scheme is consistent with the principles adopted by the Federal Government for identifying complementary measures<sup>9</sup> in the following ways:

- The LBL scheme targets a market failure not expected to be adequately addressed by the CPRS, namely the carbon dioxide emissions levels of coal fired electricity generators. Proponents of the CPRS and the coal fired electricity generators will of course contest this point, however, with the introduction of the CPRS delayed it is not likely to change the practices of emissions intensive generators for many years. In any event, if the CPRS is introduced any price on Carbon Dioxide imposed under the LBL scheme can be adjusted accordingly.
- The LBL scheme adheres to the principles of efficiency, effectiveness, equity and administrative simplicity.
- The LBL scheme can be directed at specific pollutants and particular industries and therefore satisfies the requirement that complementary measures be “tightly targeted” to certain industries which represent market failures.
- Further, the LBL scheme can be delivered by the State Government which works with State electricity generators.

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<sup>7</sup> Commonwealth of Australia, *Carbon Pollution Reduction Scheme: Australia's Low Pollution Future – White Paper Summary Report December 2008*, pp 24 – 25. See also the *Draft Carbon Pollution Reduction Scheme Bill 2009*, s 176(2).

<sup>8</sup> Complementary measures include: energy efficiency measures, the Renewable Energy Target, and consideration of options such as carbon capture and storage.

<sup>9</sup> *White Paper*, n 3, p. 19-2. Note in assessing the NSW Government's greenhouse gas reduction programs, IPART considered that a program was complementary to the CPRS if the program: 1. addresses a market failure or barrier that is either not adequately addressed by the CPRS or reduces the effectiveness of the CPRS, and is significant and amenable to government intervention; 2. addresses a market failure or barrier that is in a sector not covered by the CPRS, and is significant and amenable to government intervention; 3. addresses a sector of the economy where price signals do not play a major role in decision-making, or; 4. has one or more non-abatement objectives that do not adversely affect the operation of the CPRS. In IPART's 2008 review, the eight best regulatory practice principles required that a program be effective, efficient, transparent, administratively simple, equitable, subject to regular review, best done at a state level and be the best option available.

In addition, the LBL scheme implements the Polluter Pays Principle, a key element of the principles of ecologically sustainable development, and specifically included in the objects of the *POEO Act*.<sup>10</sup> section 6(2)(d)(i)

## **Part Two: The legal reasons for regulating carbon dioxide emissions under the *POEO Act***

In addition to the policy reasons set out above, there are sound legal grounds for arguing that the Department of Environment Climate Change and Water (**DECCW**) should regulate carbon dioxide emissions from coal fired electricity generators under the LBL scheme.

The *POEO Act* lays down the laws which DECCW and other regulatory authorities are to apply in regulating pollution in NSW. The *POEO Act* contains laws for the regulation of water, air and noise pollution through pollution licences, pollution notices, pollution offences and giving regulatory authorities *or* members of the public the power to take legal action to enforce these laws.

Activities such as heavy industrial undertakings and mining activities invariably involve some form of pollution. If such an activity falls within the list of activities under Schedule 1 of the *POEO Act* and is over a certain size, an “environmental protection licence” will be required to carry out that activity.<sup>11</sup> It is an offence under the *POEO Act* to carry out a “scheduled activity” without an environmental protection licence. Coal mines, coal works and electricity generating works are scheduled activities and listed in Schedule 1 of the *POEO Act*.

DECCW has broad objectives under the *Protection of the Environment Administration Act 1991* (**POEA Act**) including to reduce the risks to human health and prevent the degradation of the environment by adopting the principle of reducing to harmless levels the discharge into the air of substances likely to harm the environment, to regulate the disposal of waste and promote pollution prevention.

Under section 45 of the *POEO Act* the EPA is required to take certain matters into consideration when deciding whether a licence should be granted, including:

- “....
- (b) *the objectives of the EPA as referred to in section 6 of the Protection of the Environment Administration Act 1991,*
  - (c) *the pollution caused or likely to be caused by the carrying out of the activity or work concerned and the likely impact of that pollution on the environment,*
  - (d) *the practical measures that could be taken:*
    - (i) *to prevent, control, abate or mitigate that pollution, and*
    - (ii) *to protect the environment from harm as a result of that pollution,*
  - (e) *any relevant green offset scheme, green offset works or tradeable emission scheme or other scheme involving economic measures, as referred to in Part 9.3,*

Further, the EPA has broad powers to impose conditions on a licence under section 63 of the *POEO Act*.

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<sup>10</sup> *POEO Act* - section 6(2)(d)(i).

<sup>11</sup> *POEO Act* - section 43.

It can be argued that carbon dioxide emitted from coal fired electricity generators satisfies the definition of “waste” and “pollution” under the POEO Act<sup>12</sup> and harms or is likely to harm the environment. Scientists have identified that climate change has resulted in material environmental harm, including temperature increases and damage to marine and terrestrial biological systems.<sup>13</sup> In the future, climate change is also expected to lead to, among other things, coastal erosion, increased flooding and stresses on urban and rural water supply.<sup>14</sup> Given these propositions and in light of the matters set out in section 45 of the POEO Act, it is arguable that the carbon dioxide emitted from coal fired electricity generators is a pollutant which the EPA should regulate under the POEO Act.

**EDO therefore submits that DECCW should regulate coal fired electricity generators because the carbon dioxide emitted by those generators:**

- falls within the definition of “waste” under the *POEO Act*;
- harms or is likely to harm the environment within the meaning of “harm” under the *POEO Act*; and
- is a form of “pollution” under the *POEO Act*.

The EPA’s current practice in relation to carbon dioxide emissions from coal fired electricity generators is to require the operators to simply monitor their carbon dioxide emissions. The operators are not licenced to emit carbon dioxide and as a result, it is arguable the emission of carbon dioxide from coal fired power stations amounts to a breach of section 115 of the *POEO Act*.<sup>15</sup> This is the very issue being tested in the case *Gray v Macquarie Generation* that is currently before the Land and Environment Court.

### **Part Three: The Load Based Licensing Scheme** <sup>16</sup>

The load based licensing scheme under the *POEO Act* is an economic instrument which involves charging licence holders based on the amount of pollution emitted each year. The annual licence fee is calculated based on amount of particular pollutants emitted and therefore on the likely environmental impact of that pollution and not on concentration levels.<sup>17</sup> The LBL scheme is an innovative regulatory measure and is founded on the polluter pays principle. There is a direct correlation between the amount of licence fee and the potential environmental impact of an activity: the higher the impact, the higher the fee, and vice versa.

<sup>12</sup> See POEO Act – Dictionary. Air impurity is defined<sup>12</sup> as including smoke, dust (including fly ash), cinders, solid particles of any kind, gases, fumes, mists, odours and radioactive substances. Air pollution is defined as emission into the air of any air impurity.

<sup>13</sup> CSIRO Consultancy Report for the NSW Greenhouse Office: *Climate Change in NSW Part 1: Past Climate Variability and Projected changes in average climate*.

<sup>14</sup> CSIRO Consultancy Report for the NSW Greenhouse Office: *Climate Change in NSW Part 1: Past Climate Variability and Projected changes in average climate*.

<sup>15</sup> Under section 115 of the POEO Act, it is an offence for a person to wilfully or negligently dispose of waste in a manner that harms or is likely to harm the environment. Note in the case of *Gray & Hodgson v Macquarie Generation* LEC Proceedings No. 40500 of 2009 which is currently on foot in the Land and Environment Court, the applicants have sought a declaration that Macquarie Generation has wilfully or negligently disposed of waste by way of the emission of carbon dioxide in contravention of s 115 of the POEO Act.

<sup>16</sup> The information in this section has been largely adapted from an information booklet issued by the EPA, NSW entitled, “Load-based Licensing – A fairer system that rewards cleaner industry” available at <http://www.environment.nsw.gov.au/resources/licensing/lbl/lblbooklet.pdf>.

<sup>17</sup> See section 57 of POEO Act and Chapter 2 of the *Protection of the Environment Operations (General) Regulation 2009 (Regulations)*.

The central element of the LBL scheme is the concept of an “assessable pollutant”. An assessable pollutant is essentially an air pollutant or water pollutant in respect of which load based fees are payable. The assessable pollutants listed in respect of coal fired electricity generation under Schedule 1 of the Regulations are:

<b>Air pollutants</b>	<b>Threshold factor</b>
Arsenic	0.0037
Benzo(a)pyrene (equivalent)	0.00066
Coarse particulates	80.0
Fine particulates	54.0
Fluoride	14.0
Lead	0.019
Mercury	0.0042
Nitrogen oxides and nitrogen oxides (summer)	2,700
Sulfur oxides	5,300
<b>Water pollutants</b>	<b>Threshold factor</b>
Salt	3.6
Selenium	0.025
Suspended solids	0.18

It is clear from the information above that carbon dioxide has not been listed as an assessable pollutant for ‘electricity generation’ under Schedule 1 of the Regulations.

For each assessable pollutant, the assessable pollutant fee is calculated using the following factors:

- **assessable load:** the amount of pollutant released;
- **pollutant weighting:** a factor which reflects the pollutant’s potential damage to the environment;
- **critical zone weighting:** a weighting given depending on the location of the operator as some environments are already overloaded by particular types of pollutants; and
- **pollutant fee units:** the amount of money that must be paid for each unit of pollution discharged.

Under the LBL scheme, fees are determined in the following way:<sup>18</sup>

1. **Administration fee:** All licence holders pay an administration fee. This fee is based on the type and size of the activity. The types of business which require a licence and must pay the administration fee are listed in Schedule 1 of the Regulations.
2. **Pollutant load fee:** The pollutant load fee applies to activities which result in assessable pollutants. The pollutant load fee is based on the potential for pollutants from an operation to impact on the environment. The greater the potential impact, the higher the fee. Not all licence holders pay a pollutant load fee. The types of businesses that pay a pollutant load fee are shown in Schedule 1 of the Regulations. This fee is based on the load or amount of pollution (assessable load), how harmful the pollutant is (pollutant weighting) and where it is released (critical zone weighting). Operators can reduce the fee they pay by reducing their pollutant load.

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<sup>18</sup> *Protection of the Environment Operations (General) Regulation 2009*, Chapter 2.

3. **Double the pollutant load fee:** An emission threshold for each industry type and pollutant is fixed at a level that can be reasonably achieved with modern technology. If an operator goes over this threshold, their load fee is doubled. The threshold should only be exceeded if an operator is not using modern technology, or if its management and control systems are ineffective.
4. **Prosecution if the load goes over the annual load limit:** An annual load limit is fixed for each type of pollutant emitted from a licence holder's premises. If the licence holder releases more pollution than this annual limit, the EPA can prosecute and fines can be imposed by the Courts.
5. **Other specific emission limits protect against localised and acute pollution:** These limits complement annual load limits and depend on the characteristics of the licensed activity, the pollutants it generates and the receiving environment.

Under the scheme, there are three ways in which a licence holder can reduce their load-based fees, options 1 and 3 could be applied to carbon dioxide pollution:

1. **Reduce the actual pollutant load:** If an operator can find ways to reduce the amount of pollution they release or produce less damaging types of pollution, it will be able to reduce its fees.
2. **Reduce the impact of the pollutants on the environment:** Alternatively, if an operator lowers the environmental impact of the pollution released, the EPA may reduce the fee by reducing the 'pollutant weighting' component of the load-based fee.
3. **Agree to reduce the load at some time in the future:** If an operator intends to introduce a technique that will reduce their pollution load in the future, the EPA may agree to base the fee on the future load rather than the current load. The operator can then use the money that would otherwise be paid in fees to make the changes needed to reduce the pollution.

The LBL scheme has a number of advantages. It operates to:

- provide a financial incentive for licence holders to reduce pollution;
- encourage industry to invest in innovative ways to reduce pollution; and
- shifts the costs of pollution from the community to those who pollute.

If carbon dioxide were to be made an assessable pollutant in relation to electricity generation activities under Schedule 1 of the Regulations, it is clear that there are a range of possibilities available under the LBL scheme to regulate the emissions of coal fired electricity generators and encourage investment by those generators in renewable energy.

Further, the measures under the LBL scheme can be adjusted according to the surrounding legislative environment. For example, with no current CPRS, the elements of the LBL scheme (such as the weightings and thresholds) could be set to impose strict and severe load-based licence fee structures on the relevant operators. On the other hand, if the CPRS or another regulatory scheme is likely to impact considerably on coal fired electricity generators, the elements of the LBL scheme as they apply to those generators could be relaxed.

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