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Review of the Load-Based Licensing Scheme

The Australian Energy Council (the Energy Council) welcomes the opportunity to make a submission to the New South Wales (NSW) Environment Protection Authority (EPA) on the Review of the Load-Based Licensing Scheme Issues Paper (the Issues Paper).

The Energy Council is the industry body representing 21 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia and sell gas and electricity to over 10 million homes and businesses.

The Energy Council's members include the owners and operators of five black coal-fired generators in NSW that are licensed under the current Load Based License (LBL) scheme: AGL Macquarie (Bayswater and Liddell power stations), Energy Australia (Mount Piper power station), Origin Energy (Eraring power station) and Sunset Power International t/a Delta Electricity (Vales Point power station).

The Energy Council welcomes the opportunity to engage closely with the EPA throughout the review. The Energy Council commissioned consultants Pacific Environment Limited (PEL) to advise and assist in the preparation of this submission (Pacific Environment, 2016).

Overview of the issues paper

The NSW EPA is undertaking a comprehensive review of the LBL scheme, and has released an Issues Paper that outlines potential options for change. The Issues Paper makes reference to the electricity sector at several points.

The Energy Council agrees with the need to review the LBL scheme's efficiency and effectiveness since its inception since 1999 and to assess whether changes are needed to ensure the scheme achieves its objectives. Clause 13 of the *Protection of the Environment Operations (General) Regulation 2009* (POEO Regulation) states the objectives of the scheme are

a) *to provide incentives to reduce the load of pollutants emitted based on the polluter pays principle and to do so within an equitable framework,*

b) *to reduce pollution (in particular, assessable pollutants) in a cost effective and timely manner,*

c) *to give industry incentives for ongoing improvements in environmental performance and the adoption of cleaner technologies,*

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d) *to provide incentives that are complementary to existing regulation and education programs for environment protection.*

The Issues Paper does not present one specific proposal for change but rather looks at the LBL scheme in detail identifying a range of issues and options for its improvement, which also considers feedback already received.

While the Issues Paper does not contain any specific change proposals, which it is noted would instead be the subject of a subsequent "Proposal Paper", the potential options presented suggest that LBL fees payable by the electricity sector could increase substantially. This could be in the form of changes to fee levels, coverage (i.e. which pollutants attract a fee), or a combination of these. The Issues Paper provides evidence that allegedly provides a justification for such fee increases.

The Energy Council has concerns regarding the materiality of the potential increase in LBL fees proposed. For example, Pollutant Fee Unit (PFU) Option 2 (p. 55), proposes increasing the PFU 'by a moderate amount (e.g. by a factor of two)', which would be applied to all pollutants across all industries. Such an increase would double the total LBL fees currently paid by the NSW generators from approximately $13 million to $26 million per annum, which by any definition could not be considered 'moderate'.

More importantly, any such increase would be counter to all the objectives of Clause 13 in the POEO Regulation as it would provide little (if any) additional incentive to reduce pollutant loads. The proposal would not reduce pollutant loads in a timely or cost effective manner, while the additional expense would likely syphon funds away from existing environmental improvement programs and the adoption of cleaner technologies. The proposal would not provide any additional incentives that would complement the stringent existing regulations that the NSW generators currently operate under.

Assessment of the options

Overview of assessment

The EPA has outlined the role that the LBL scheme plays, and the purpose for reviewing it, at a number of points in the Issues Paper. It notes that the LBL scheme complements other measures in the EPA's wider regulatory and policy framework (p. viii, NSW EPA, 2016a), and notes that it would like to better target the LBL scheme to provide incentives to reduce specific pollutants, in specific areas, where the evidence suggests this is warranted (p.53, NSW EPA, 2016a).

The Issues Paper provides a list of objectives for what it considers a "well-designed and effective" LBL scheme (p. viii, NSW EPA, 2016a). These include that the LBL scheme should be environmentally beneficial, reasonable, equitable, clear, easy to use and administer, responsive, flexible, cost-effective and efficient.

These are appropriate objectives for a scheme like the LBL scheme. The assessment in this review is focused on four criteria to test the appropriateness of potential changes to the LBL. These criteria are similar, if not identical, to the EPA's list of objectives and include:

- Effectiveness: Will changing LBL fees on electricity generation result in environmental improvements (i.e. further abatement). That is, is it likely to be environmentally beneficial?
- Efficiency: Will changing LBL fees on electricity generation provide a net benefit to the community?
- Flexibility: Are there opportunities to provide more flexibility to electricity generators to reduce fee liabilities?
- Equity: Whether the distribution fees results in fair and equal treatment?

The assessment of the appropriateness of increasing LBL fees for the NSW electricity generators, based on each of these criteria, is discussed in the following subsections.

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Effectiveness

Drivers for abatement and potential for further emissions reductions

The analysis of effectiveness presented in the Issues Paper could be further strengthened. The Issues Paper presents, at various points, trends in emissions. However, the question of attribution (i.e. whether any changes can be attributable to the LBL scheme) could be better explored. Many of the analyses use data that are now out of date and, therefore, arguably not representative.

The Issues Paper generally discusses the role that the LBL may have played in driving emissions reduction at a high level, and mainly from a theoretical perspective (i.e. in theory, fees provide incentives for abatement). However, a more in-depth analysis, considering the role that LBL might have played alongside other measures, would be much more instructive.

For example, there are existing mechanisms that have proved to be effective in driving emissions reduction, including licence conditions and pollution reduction programs (PRPs). The Energy Council believes the use of PRPs has proven to be more effective in driving a change in emission reduction than LBL fees, and thus current, or potential future, LBL fees would not be the primary driver to bring about further reduction in emissions nor provide any additional complementary incentive to the PRP mechanism, which under the POEO regulation is a mandatory licence requirement.

Licence conditions (such as PRPs) can and have been tailored to specific opportunities at individual sites. Many of the abatement opportunities have already been exploited, and thus there may be limited opportunities for further abatement from power generation sources.

Increasing LBL fees in circumstances where all economically feasible opportunities have been exploited would simply result in an increase in fee burden to the emitter, without an associated environmental gain. This is likely to be particularly true with respect to SO_2, where emissions are driven by sulphur content in fuel, which is already very low by world standards, and could only be further reduced by retrofitting power plants with flue gas desulphurisation (FGD) emissions control technologies, thus incurring prohibitive capital and operating costs. An increase in LBL fees on SO_2 emissions is, therefore, unlikely to result in any abatement, and the level of fees required to incentivise the high retrofit costs would threaten economic viability.

In general, before any changes to LBL fees are considered for the NSW coal-fired generators, the EPA should undertake more nuanced analysis using more recent data, to assess the historical or potential future effectiveness of the LBL as an economic tool for addressing emissions from various sources. For example, Figure 3.3 of the Issues Paper, which presents time-series data on emission intensity, does not include data beyond the year 2008. Trends in emissions after 2008 are likely to have been very different to the period leading up to 2008, given the decline in energy demand, closure of a number of power stations (e.g. Munmorah, Wallerawang and Redbank), and reductions in manufacturing activity following the global financial crisis.

In addition, the NSW Government in the NSW 'Climate Change Fund Draft Strategic Plan', released by the Office of Environment and Heritage in November 2016, acknowledges that the transition from coal-fired generation in NSW is already underway and that "*leading energy companies are signalling closure dates for existing assets"* with plants closing over the next 5 to 20 years (p. 13). This would suggest that any further increase in the generators LBL fees is unnecessary, unwarranted and would be ineffective in providing additional incentives in reducing emissions but may instead lead to the premature closing of generators.

Potential for perverse incentives and unintended consequences

There is also the potential for perverse incentives, i.e. potential for the LBL to act as an incentive for unexpected or undesired outcomes. For example, the LBL provides incentives only for the control of point sources. LBL fees expenditure could be better redirected to invest in environmental improvement programs that target other sources (e.g. fugitive emissions from ash-dams, stockpiles etc.).

Further increases in LBL fees on existing point sources that provide no additional incentives to reduce these emissions would result in further demand on scarce resources that could be used to fund environmental improvements elsewhere. The NSW generators already have incentives to further control emissions, for

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example to demonstrate corporate social responsibility. However, these incentives are muted if fewer funds are available to explore such opportunities.

Additionally, LBL fees could lead to unintended consequences, such as reductions in one pollutant causing increases in another. For example, there have been occasions where plant upgrades that have increased station efficiency and reduced Greenhouse Gas (GHG) emissions have resulted in an increase in NOx emissions. Therefore, further increases LBL fees may have the potential to unnecessarily inhibit measures that improve technical efficiency, particulate (PM) emissions, GHG emissions, and reduce other environmental impacts.

Additionally, increasing fees could also risk worsening environmental outcomes more broadly across the National Electricity Market (NEM). Given that NSW generators operate in a competitive national market, an increase in LBL fees on NSW generators results in a further competitive disadvantage relative to competitors in other states. To the extent that environmental externalities of electricity generation are not equally and fully captured across all generators in the NEM, a market distortion already exists with existing LBL fees and any increase in fees could 'amplify' this distortion and lead to poorer environmental outcomes because of this distortion.

Efficiency

Efficiency requires fee levels to be set to external costs, not abatement costs

The Energy Council believes there is a flaw in the Issues Paper's application of the principle of economic efficiency related to economic efficiency. That is, the Issues Paper is misleading when it suggests that fee levels should be set at the point of abatement costs. This is arguably not correct as it is not the optimal fee setting from an efficiency standpoint, as claimed in the Issues Paper. Economic efficiency is only achieved when fees are set to external costs, not abatement costs.

For example, the EPA suggests that it would be appropriate to set fee levels in line with abatement costs, e.g. *"…the EPA will need to determine the level that the PFU needs to be set to so it results in fees which exceed the cost of abatement for all pollutants"* (p.54, NSW EPA, 2016a). If fees are set at the level of abatement costs, and abatement costs are higher than the benefit of abatement (i.e. the external costs avoided), then the application of the fee would result in a net cost to society.

The logic in Box 4-3 of the Issues Paper is also not entirely accurate. The theoretical optimal level of load-based fees has nothing to do with abatement costs, as suggested in the Issues Paper. In theory, optimal load-based fees should be set at the level of external costs.

There may be some cases where this also happens to be the level of abatement costs, but not always. In particular, the abatement costs for some generators may be well above the external costs. In extreme cases, where there are simply no economically feasible abatement opportunities, setting fee levels to achieve abatement would require setting fee levels that result in the generator reducing output or shutting down earlier than it otherwise would have.

This outcome would clearly distort the proper functioning of the electricity market. It would risk also requiring more expensive or higher emitting 'dirtier' generators to be dispatched in the short-term, and/or more expensive new entry in the long term, which would have implications for NSW energy security and/or retail electricity prices.

Any adjustment to fee levels should be supported by robust evidence and analysis

The Issues Paper notes that correction of market failure provides a theoretical basis for load-based fees, by helping to 'internalise' otherwise 'external costs' (i.e. the costs of pollution to the community) (p. 51, NSW EPA, 2016a). To be consistent with this approach, the structure of fees should reflect the external costs of pollution.

The external costs of electricity generation emissions are acknowledged to be relatively uncertain, even though there has been some work relating to estimating these costs. For example, ATSE (2009) estimated the pollution costs of Australian power stations based on estimates produced by the European Union's (EU)

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ExternE Project. However, the ATSE report noted the limitations in its estimates and even noted that their modelling could only provide a 'rough approximation' of a complete model (p.39, ATSE, 2009).

Given these limitations, any adjustments to fee levels should be based on robust and reliable evidence and analysis. For example, the results of an Australian Nuclear Science and Technology Organisation (ANSTO) (2012) study have been used to suggest that power generation could be a significant contributor to secondary sulphate in western Sydney, and that increasing LBL fees for SO_2 could help address this issue.

However, the analysis only used samples covering the period 2001 to 2011. It should be noted that the Clyde refinery (also a potential major contributor to secondary sulphate in western Sydney) shutdown in 2012 and that Caltex commenced a project to transform the Kurnell refinery into a fuel import terminal in 2012, and shut refinery operations entirely in 2014.

ANSTO has indicated that it has undertaken further subsequent analysis relating to source contributions to secondary PM as part of a "Sydney Particle Characterisation Study". The results of this subsequent study would contain more recent time series data. These data have not been released but should be made available, prior to considering any adjustments to SO_2 fees.

In addition, the 'Clean Air for NSW' consultation paper, released on 28 October 2016, recommends actions to benchmark emissions controls for coal-fired power stations, and model impacts of coal-fired power plants on air quality (NSW EPA, 2016b). Any changes to LBL fee structures or levels prior to such studies being undertaken would be premature and arguably contrary to objective considerations of economic effectiveness and efficiency.

Risks to efficiency if LBL fees are unable to capture variability in external costs

Load based fees adopt a "polluter pays" principle. That is, the level of fees for a polluter is linked to the severity of impacts associated with that polluter's emissions. It therefore requires an understanding of the relative severity of the impact across sources. These impacts can vary significantly according to the characteristics of the receiving environment.

The health costs of particle matter (PM) emissions from generators, for example, is likely to vary by orders of magnitude. PEL has undertaken analyses of external costs in the mining context, which would share a number of similarities to the electricity generation context. That is, population exposure, one of the key determinants of external costs, is likely to vary markedly from site to site, depending on which direction, what distance, and how densely populated residential areas are from the source.

The LBL scheme accounts for this variability by having different fee levels for pollutants that are emitted from specific "critical zones" and also a higher relative fee level for NOx and VOCs emissions in summer.

This LBL fee structure is unlikely to adequately capture the variability in external costs of electricity generation emissions. This would already be an issue with existing fee levels in the LBL scheme. If fee levels do not reflect relative external costs, the incentives are not proportional to actual external impacts. This "distortion" would be exacerbated if fee levels were increased further.

Flexibility

Part 9.3B of the POEO Act provides the legislative framework for "green offsets". However, green offsets must be approved by the EPA before they can be used to reduce fee liability under the LBL scheme. It is likely that there would be a range of cost effective opportunities to reduce pollutant impacts outside of reducing on-site emissions from electricity generators. It is also likely that reducing emissions from sources much closer to receptors delivers much higher reductions in external costs, than reducing the same quantity of emissions on-site from electricity generators. The Energy Council would welcomes an opportunity to engage with the EPA to better understand and help clarify the role that green offsets, or other flexibility mechanisms, could play in reducing LBL fee liabilities.

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Equity

Electricity generators contribute to the largest share of fee revenue out of all sectors covered by the LBL scheme. Combined with the additional financial burdens from other regulatory measures, it is clear that the sector incurs a high cost related to environmental regulation.

Indeed, the Issues Paper notes that less than half of all licensees were effectively required to pay a load-based fee, and that there may be an opportunity to restructure the LBL so that LBL fees provide more direct incentives for these premises (p.67, NSW EPA, 2016a), and changes to the existing fee structure may require focusing on those sectors where the existing regulation has not been effective.

Assessment of equity should also consider broader society. In this regard, it is noted that lower income households tend to spend a higher proportion of income on electricity, than higher income households. While detailed modelling would be required to estimate the incidence of increased LBL fees (or costs of abatement triggered by increased LBL fees), some of the incidence of an increase in LBL fees would fall on low income households in NSW. This would clearly be counter to equity objectives.

Conclusion

It is possible that the review of the LBL scheme could be used to increase the LBL fee burden on Energy Council members contrary to the objectives of the LBL scheme and without any additional environmental benefits and potentially perverse outcomes. The Energy Council would welcome the opportunity to engage with the EPA to address these potential risks.

In summary the key points from Energy Council's assessment of effectiveness and efficiency found that:

- License conditions (e.g. PRPs) have been more effective at driving emissions reductions for the large NSW generators;
- Further increases in LBL fees would provide no incentive for further abatement or emissions;
- There is the potential for unintended perverse consequences for increases in LBL fees for NSW generators;
- The Issues Paper has mischaracterised the 'optimal' fee settings required for efficiency;
- Adjustment to fee levels should be based on robust evidence.
- There are risks to efficiency if fees can't capture the wide variability in external costs.
- There are risks to equity in terms of treating emitters consistently, and from a broader societal perspective if the incidence of fee increases affects lower income households.

Based on the above, the Issues Paper does not appear to have made a robust case for increasing fees on the electricity sector. Indeed, there may be a case to reduce fees on the NSW generators. Given the effectiveness of the POEO Clean Air Regulation and license conditions (e.g. PRPs) as tools to drive real environmental improvements over the last 15 years, it could be argued that the LBL is now somewhat redundant with respect to the NSW generators.

In fact, the Energy Council believes there is a strong case to 'decouple' the NSW generators from the LBL scheme, whereby the NSW generators would continue to pay the current license administration fee directly to the EPA, which would be used by the EPA to manage and seek further targeted cost effective emissions control from the NSW generators through their respective licences by way of PRPs and environmental improvement projects, which have historically proven more effective tools in reducing emissions from the NSW electricity generators.

A decoupling of the NSW generators from the LBL scheme would also be consistent with the NSW 'Climate Change Fund Draft Strategic Plan' (released by the Office of Environment and Heritage in November 2016),

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which acknowledges that the transition from coal-fired generation in NSW is already underway and that *"leading energy companies are signalling closure dates for existing assets"* with plants closing over the next 5 to 20 years. This suggests that any further increase in the generators' LBL fees would simply impose a tax on the NSW generators, while being ineffective in providing additional incentives to reduce emissions.

Additional LBL fees of the order to incentivise real additional emission abatement could lead to the premature and disorderly closure of NSW generators, as costs are unlikely to be recovered over the remaining operating life of the power stations. This could have negative implications for NSW energy security and prices.

In addition, the EPA 'Clean Air for NSW' Consultation Paper (NSW EPA, 2016b) also specifically proposes: *"an initial project to: benchmark international best practice emission controls for coal-fired power stations; model impacts of coal-fired power plants on air quality; identify and research feasible control options and analyse their economic impacts; analyse implications of potential control measures for the NSW energy sector; consult with and engage stakeholders and experts in government, business and the community; and develop recommendations for government."*

Any proposed changes to LBL fees targeting further reductions from NSW coal-fired generators, prior to the completion of the Clean Air for NSW proposed project, would be premature and/or contrary to the intent of the 'Clean Air for NSW' plan.

Any questions about our submission should be addressed to Emma Richardson, Policy Adviser by email to emma.richardson@energycouncil.com.au by telephone on (03) 9205 3103.

Yours sincerely,

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