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Megan Evans BA, BSc(Hons) *UQ*
PhD Candidate

Fenner School of Environment and Society

Canberra ACT 0200 Australia
www.anu.edu.au

Re: Australian Senate Inquiry into Environmental Offsets

To Whom It May Concern,

Thank you for this opportunity to provide a submission to the Senate Inquiry into Environmental Offsets. I am an environmental economist with expertise in biodiversity offset policy.

As part of a team of researchers (Gibbons, Maron, Evans and Possingham) from the National Environmental Research Program Environmental Decisions Hub (NERP-ED), I have assisted the Australian Government's Department of the Environment in developing the offset calculator which accompanies the EPBC Act Environmental Offsets Policy.

In 2013, I conducted a NERP-ED research placement as part of my PhD studies in the Regulatory Reform Taskforce at the Department of the Environment, focussing on environmental offset policy.

Yours sincerely,

Megan Evans

Submission to Senate Inquiry into Environmental Offsets

Megan C. Evans

I focus my submission on Terms of Reference 1c) and 2b); specifically:

- the adequacy of monitoring and evaluation of approved offsets arrangements to determine whether promised environmental outcomes are achieved over the short and long term;
- Waratah Coal's Galilee Coal Project.

Other components of the Terms of Reference are addressed in a submission jointly authored with other members of the Environmental Decisions Group (EDG).

Monitoring and evaluation of environmental offsetting

A key criticism of environmental offsetting policy is that offsets fail to meet the 'no net loss' policy objective. Experiences in countries where environmental offsetting is in place such as the USA, Canada and New Zealand indicate that offsets often fail to deliver their intended environmental outcomes, or never actually occur (National Research Council (U.S.) & Committee on Mitigating Wetland Losses 2001; Harper & Quigley 2005; Brown et al. 2013). These studies have also noted a lack of enforcement and inadequate monitoring of offsets, which reduce the ability of offsetting policies to deliver positive environmental outcomes.

There is a severe lack of information on the performance of environmental offsetting in Australia to date, and so there is currently no way to tell whether the 'no net loss' policy objective of environmental offsetting is being achieved in Australia.

A recent paper is one of few to conduct a comprehensive evaluation of the outcomes from an environmental offset. When frog habitat was destroyed during development in Sydney Olympic Park, more habitat was created as an offset (Pickett et al. 2013). The authors monitored the population size of the vulnerable green and golden bell frog (*Litoria aurea*) before and after development. They found that an area of habitat 19 times larger than the habitat area affected had to be created to ensure there was a no net loss of frogs. This is an example of an offset working. But the amount of habitat that had to be created relative to the habitat lost (known as the "offset ratio") was 19:1 – much greater than initially expected, and this was only discovered after intensive monitoring over more than a decade.

Monitoring and evaluation (M&E) of environmental offsetting is crucial to determine whether the anticipated environmental outcomes from an offset proposal are actually realised on the ground. The importance of M&E has previously been recognised by the Environment and Communications References Committee (2013), which as part of the Senate Inquiry into the Effectiveness of threatened species and ecological communities' protection in Australia, stated that:

> *7.123 The committee recommends that the Department of Sustainability, Environment, Water, Population and Communities conduct an audit and evaluation of the offsets granted under the Environment Protection and Biodiversity Conservation Act 1999 to date, and make the results of this audit publicly available*

This recommendation was partly motivated by the fact that "SEWPAC is only now reviewing offsets that have been granted in the past (pg 196)". To date, such an audit has not occurred. It is also unclear to what extent the performance of offsets has been reviewed. The EPBC Act Environmental Offsets Policy (2012) indicates that:

> *Performance of offsets will be reviewed as part of the monitoring, compliance and audit program for all proposals considered under the EPBC Act. All offsets will be registered and details, such as spatial information (for example GPS data), information on the relevant protected matters and the ongoing management actions required will be recorded. This information will be made publicly available on the department's website where it is appropriate to do so.*

Again, it is unclear to what extent such a performance review has been undertaken. It is apparent that an offsets register has not yet been developed or available for public viewing.

It is important to distinguish between M&E for *effectiveness*, and M&E for project *compliance*. A project may well be compliant in their conditions for an environmental offset, by adhering to disturbance limits and submitting the offset management plan on time. However, such conditions do not stipulate that an offset must achieve the anticipated environmental outcomes are over the short and long term.

For example, the Offset Management Plan required as approval condition 11 for Waratah Coal's Galilee Coal Project must include:

> g) a monitoring program for the offset site/s. The monitoring program must:
> i. clearly set out performance indicators;
> ii. measure the success of the management measures against stated performance criteria;
> iii. include monitoring parameters, frequencies, triggers, corrective actions, timing and scope for the duration of Project approval;

The proponent will be compliant if it submits an Offset Management Plan which includes a monitoring program detailed as above. However, compliance in this case (i.e, the existence of a monitoring plan) gives no indication as to whether the environmental offset is effective. Additional information is therefore required to evaluate whether a project's environmental offset is *effective* as well as *compliant*.

Capacity for performance evaluation of federally approved environmental offsets

It is crucial that the Department of the Environment has the resources and capacity to evaluate the *effectiveness* of environmental offsetting policy. At a minimum, a publicly available register of offsets such as has been implemented by the Western Australian Government (http://www.offsetsregister.wa.gov.au/public/home) should be developed as a matter of priority.

Based on my observations at the Department of the Environment, it is apparent to me that there is a lack of resources and capacity for a comprehensive evaluation of environmental offset performance to take place. It appears that basic data exists for individual offsets (e.g project date, location, type and amount of impacted environmental values, offset amount and type), but time and resources are required to compile this information into a database such that an analysis can be conducted.

While this existing data provides an indication of how many offsets have been granted, the corresponding impacts and proposed offset requirements, and for which matters of national environmental significance, it is my view that this information is inadequate for evaluating the *effectiveness* of federally approved environmental offsets. In order for an evaluation of the outcomes from offsetting to occur, data must be collected and stored in a manner such that link between the impact of the offset intervention is clear, and can be measured over time (Ferraro 2009).

Minimum data requirements to conduct a performance evaluation of environmental offsets

To be able to evaluate the environmental outcome from an offset, data must be compiled which describes:

i) The impacted biodiversity values

- The quantity of the original impact
  - Quantity: e.g area, number of individuals
  - Where relevant, the quality of habitat impacted
- The environmental values (MNES) impacted
- When the original impact occurred

ii) The estimated offset requirements to compensate for i)

- The environmental values (MNES) benefitting from the offset
  - This will most often coincide with the MNES affected by the original impact ("direct offset")
- The quantity of the offset
  - Quantity: e.g area, number of individuals etc
- The mechanism for offset delivery

  - E.g protection of habitat (averted loss), restoration, breeding of individuals
- When the offset is due to be initiated, and when it is expected to be completed
  - Need to be able to establish the total number of years between impact and offset delivery – i.e time delay
- Estimated monetary value of the offset

Information satisfying points i) and ii) should be available to compile into a database at the approval stage. However, in order to evaluate effectiveness of an offset post-approval, additional information is required:

iii) The realized outcomes from the offset

- At each monitoring time point, what is the:
  - Environmental outcome for each MNES? (quantity and quality)
  - Has the offset action commenced? When did it commence/is expected to commence?
  - Is the mechanism for offset delivery the same as originally envisaged (e.g covenant, protected area listing)?
  - How much money has been spent on the offset so far?
- Have the offset requirements changed as a result of changes in the above monitored variables?
  - E.g delays in offset commencement, changes in tenure could modify the offset quantity required to compensate for the original impacts
- Based on this monitoring data, is the offset on track to meeting its anticipated outcomes?

A process is required such that the outcomes from environmental offsetting can be evaluated over the short and long term. One avenue for this could be the development of a generic evaluation framework for environmental offsetting, which could assist and facilitate future evaluations (Evans In prep).

Waratah Coal's Galilee Coal Project

Here I outline some concerns I have with the implementation of environmental offsetting with respect to Waratah Coal's Galilee Coal Project. I have previously raised these issues in a letter to Minister Greg Hunt, dated 4th November 2013. The key points I raise below were also detailed in a submission to Galilee Coal Project Supplementary Environmental Impact Statement (SEIS), sent to the Queensland Coordinator General on 6th May 2013.

I focus my comments specifically on the Biodiversity Offset Proposal (Final EIS Volume 4, Appendix 14) provided by the proponent, and the approval decision and recommendation report (19th December 2013, EPBC ref 2009/4737).

1. **Compliance with the *EPBC Act Environmental Offsets Policy (2012)* has not been demonstrated**

The proponent did not provide sufficient detail in their Biodiversity Offset Proposal to outline how they would comply with the Federal *EPBC Act Environmental Offsets Policy* (EOP). The EPBC Policy (2012) requires the following information to be provided:

a) the type of environmental attribute being impacted (e.g area of habitat, number of individuals, population growth rate),
b) the quality of habitat (if applicable),
c) timeframe over which offset is to be delivered,
d) time over which ecological benefits will accumulate (time lag),
e) risk to the proposed offset site, both with and without the offset,
f) confidence in delivery of the offset outcomes,
g) discounting factor (i.e, the annual probability of extinction of the MNES).

A total of 11 Matters of National Environmental Significance (MNES) are to be impacted by the mine and rail components. The proponent detailed the number of hectares impacted for each MNES (factor (a) above) in the SEIS, but only provided an estimate of the area of each environmental value contained within seven potential offset sites ('potential offset availability (ha)', Appendix 14, Table 8, pg 35).

It was simply stated in the SEIS that a "preliminary analysis of the proposed offsets for MNES has been undertaken using the guide and once completed the results will be provided to the Australian Government during the assessment process" (Appendix 14, p 50). While estimates of 'potential offset availability (ha)' have been refined since the previous SEIS released in April 2013 (Volume 2, Appendix 35, Table 25, pg 57), no additional information was provided (b) – g) above) that could be used to ascertain whether the offset proposal can meet offset requirements for MNES under the EOP.

In both my submission to the Queensland Coordinator General on 6th May 2013 and my letter to Minister Hunt on 4th November 2013, I argued that the proponent's Biodiversity Offset Proposal was incomplete in the absence of additional information b) – g), and it could not be demonstrated that the Project complied with the EOP.

The Minister's recommendation report outlines the maximum disturbance limits for EPBC listed threatened species and communities (Table 1), and the area of offsets required for EPBC listed threatened species (Table 2). However, it is unclear how the minimum offset requirements in Table 2 have been estimated, as basic information required by the EOP (b) – g) above) is not provided in the publicly available documentation (proponent's Biodiversity Offset Proposal and Minister's recommendation report). Indeed, much of the information specified under approval condition 11 (The Offset Management Plan) was actually required at the assessment stage to ascertain the offset requirements under the EOP. For example, the "description of the condition of the offset area/s prior to any management activities", and "details of how the offset/s have been or will be legally secured" are factors which have a major influence on the calculation of offset requirements under the EOP.

In summary, based on information in publicly available documentation, it has not been demonstrated that the offset requirements stipulated as project approval conditions for this project will adequately compensate for the authorised impacts on EPBC Act listed threatened species and communities.

It is not possible to calculate offset requirements under the EOP without information listed b) to g) above; none of which have been specified in the proponent's SEIS or Minister's recommendation report, and the majority of which cannot be known in the absence of a detailed survey and description of the proposed offset site – which has only been specified as part of a condition (11) after the approval of the project.

Currently, there is a condition to update the Offset Management Plan in the event that "estimates of disturbance limits associated with mine subsidence detailed in Table 1 are exceeded" (condition 16). However, there is no condition stipulated to update the Offset Management Plan once information listed b) - g) above is gathered as part of post-approval ecological surveys: meaning that estimates of the minimum offset requirements (Table 2) may well change in light of new information, but there is no specified condition which would require the proponent to update the Offset Management Plan in this event.

Given the above, and the lack of capacity at the Department of the Environmental for ongoing monitoring and evaluation of the *effectiveness* of environmental offsetting, I am not confident that impacts to EPBC Act listed threatened species and communities as a result of this project will be adequately compensated by environmental offsets.

2. Long term security of proposed environmental offsets is not guaranteed

It is still unclear, at the post-approval stage, how the environmental offsets required as a condition of project approval will be secured. The Minister's Recommendation Report requires "details of how the offset/s have been or will be legally secured" to be outlined in the Offset Management Plan (condition 11). The proponent states that such mechanisms will be "determined through negotiation with regulators, Waratah Coal and the landholder." (SEIS, Appendix 14, p 51).

With the exception of National Park, none of the legally binding mechanisms listed in section 10.2.9 of the project's SEIS can prevent the future the approval of coal, petroleum and gas exploration permits over a "secured" biodiversity offset site. The Galilee Offset Strategy (http://www.ehp.qld.gov.au/management/environmental-offsets/galilee-basin-offset-strategy.html) suggests that offset agreements between 10 to 30 years will be pursued.

The EOP states (pg 18):

the tenure of the offset should be secured for at least the same duration as the impact on the protected matter arising from the action.

As it is likely there would be ecological impacts from the Project which would require more than 30 years to recover, the proposed tenure arrangements will likely be inadequate for ensuring security of offsets in the Galilee. Offsets should be permanently secured as National Park in order to fulfill policy requirements.

3. Offsetability of protected areas

The project proponent has stated that they will provide an offset to compensate for the loss of Bimblebox Nature Refuge at a ratio of 1:2, and proposes to "extinguish any of its mining tenements over the property [Property 1] to afford better protection to the offset." (SEIS Appendix 14, pg 29).

However, the proponent's commitment to extinguish its mining tenements over an offset site will not afford better protection to the offset. If the offset is secured as National Park (as per point 2 above), the Queensland *Nature Conservation Act (1992)* will prevent coal, petroleum or gas exploration permits to be approved over the offset site in the future – hence the proponent's commitment to extinguish its mining tenements has no additional value.

However, if the offset is secured as a Nature Refuge (as indicated in the SEIS), the Queensland *Nature Conservation Act (1992)* will not prevent coal, petroleum or gas exploration permits to be approved over the offset site in the future – hence, as above, the proponent's commitment to extinguish its mining tenements has no additional value.

The proponent has "committed to voluntary offset the BNR [Bimblebox Nature Refuge] at an impact-to-offset ratio of 1:2" (SEIS Appendix 14, pg 8). However, the proposed 1:2 offset ratio *has no scientific basis*; and will likely *not* achieve a 'no net loss' outcome.

The offset ratio should be calculated by considering the risk the offset habitat would be lost if not protected, and the risk of its loss if is protected (Evans & Maron 2013).

Conclusion

Australia is often considered a world leader in the development of environmental offsetting policy. Indeed, the EPBC Policy (2012) appears to be the only environmental offsetting policy in place internationally which provides a framework to accurately estimate the conservation benefit of an offset proposal at the assessment stage (Maron et al. 2013). Yet in the absence of ongoing monitoring, evaluation and policy improvement, Australia risks losing it reputation as a policy leader in this space.

Literature cited

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