2 April 2020

EPBC Act Review Secretariat
Department of the Environment and Energy
GPO Box 787
Canberra ACT 2601
By email: epbcreview@environment.gov.au

Dear Secretariat,

Independent Review of the EPBC Act
Submission to the Department of the Environment and Energy

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About us

The Allens Hub for Technology, Law and Innovation ('the Allens Hub') is an independent community of scholars based at UNSW Sydney. As a partnership between Allens and UNSW Law, the Allens Hub aims to add depth to research on the diverse interactions among technology, law, and society. The partnership enriches academic and policy debates and drives considered reform of law and practice through engagement with the legal profession, the judiciary, government, industry, civil society and the broader community. More information about the Allens Hub can be found at http://www.allenshub.unsw.edu.au/. For this submission, we have partnered with Andrew Ray and Bridie Adams, law students from the ANU College of Law and researchers at the National Judicial College of Australia.

Our submissions reflect our views as researchers and are not an institutional position of UNSW, the ANU, the National Judicial College of Australia or Allens.

We welcome the opportunity to submit to the review, focusing particularly on the proposal to automate decision-making under the Act (Question 15).

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Summary

In relation to Question 15, we make the following points:

1. The governing consideration when deciding whether and how to automate decisions under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) ('EPBC Act') should be accessibility and transparency of the decision-making process as these are central to the Act, crucial in the context of administrative decision-making, and requirements under relevant international Conventions.

2. System design choices are key to ensuring that automated decisions made under the EPBC Ac are predictable, consistent and transparent. Our specific recommendations are:
   a. Decision-making systems should be evaluated and tested thoroughly, particularly as to consistency with statutory requirements. The use of a regulatory sandbox can enable appropriate testing of systems.
   b. Proper measures should be taken for accountability and reduction of error, including the incorporation of human appeals processes.
   c. Care should be taken to ensure that individuals impacted by decisions (who may lack technical knowledge) are able to understand and respond to or challenge a decision (where appropriate). Depending on the kind of system used, this may require information about assumptions (including any data sets on which modelling is based) and evaluations conducted for accuracy and impact.
   d. Open source software rather than software restricted by commercial-in-confidence requirements should be used where the transparency of system logic is necessary for accountability.

   The Government also needs to be aware that it may be required to publish the algorithms/decision-making systems used, if those systems are in effect making policy in addition to any decision-making capability.

Accessibility and Transparency: The importance of public review of EPBC Act decisions

While accessibility and transparency are key goals of executive decision-making, they are even more critical in the context of environmental decision-making under the EPBC Act. Very few decisions made under the EPBC Act are challenged, and while few individuals are directly affected, poor environmental decision-making impacts all Australians. This means that it is critical that decisions made under the Act are accessible and transparent so that environmental groups and citizens more generally can review the decisions and hold decision-makers to account where needed. This also enables individuals to "have their say" and know they will be heard on environmental matters that affect them. The inclusion of public participation in environmental decision-making, both from individuals and non-government organisations, is provided for in conventions to which Australia is a party, for example the *Convention Concerning the Protection of the World Cultural and Natural Heritage* and the *Convention on Biological*

Diversity, and UN General Assembly Resolutions which Australia voted in favour of, notably the *World Charter for Nature.*[1]

Given the critical importance of accessibility and transparency in environmental decision-making, automating decisions under the EPBC Act requires very careful consideration in line with the points below.

Automated decision-making: The importance of design choice

For the purposes of this submission, technologies used for automated decision-making are separated into two categories: (1) those that follow a series of pre-programmed rules, and (2) those that follow rules inferred by patterns in historic data (also referred to as 'data-driven' systems).[2] Whilst this submission does not suggest how these categories of systems should be used in respect of each other (that is, if one type of system is preferred or if they should be used together), the design choices made by the government are significant in ensuring predictability, consistency and transparency in decision-making are achieved under the EPBC Act.

Predictability and consistency of automated decision-making

Automated decision-making may result in inconsistency between statutory requirements and their implementation. In terms of pre-programmed systems, there are challenges in aligning natural language rules, which are often complex and require interpretation, with rules programmed into systems.[3] Data-driven systems, however, follow rules inferred from patterns in historical data. Hence, if using volumes of past application data, common historical factors may be used as a basis for decision-making, the outcome of which may not accord with statutory requirements. Further, to the extent that past applications were skewed due to human preferences (for example, if any political considerations were involved in approving past applications), these preferences may be learnt by the system and projected into future decisions. The behaviour of data-driven systems also changes with time—as new data is fed into the system, new correlations may be found and different inferences made. This can undermine the predictability and consistency of the system as a whole.[4] In the context of decisions under the EPBC Act, errors may be exacerbated by the low rate of challenges brought against decisions made under the Act. The fewer the number of challenges, the fewer decisions are properly tested or evaluated for their lawfulness or compliance with the statutorily prescribed rules. This may mean that the existing data set for EPBC Act decisions would be an inadequate training set on which to model future decisions if using a data-driven system.

To ensure predictability and consistency, the decision-making process must be properly evaluated for accuracy and consistency with legal requirements, with appropriate measures as to statutory

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[1] *Convention Concerning the Protection of the World Cultural and Natural Heritage,* opened for signature 16 November 1972, 1037 UNTS 152 (entered into force 17 December 1975) arts 10, 13, 27; *Convention on Biological Diversity,* opened for signature 5 June 1992, 1760 UNTS 69 (entered into force 29 December 1993) arts 13, 14(1)(a); *World Charter for Nature,* GA Res 37/7, UN Doc A/RES/37/7 (28 October 1982) principle 23.

[2] Monika Zalnieriute, Lyria Bennett Moses and George Williams, 'The Rule of Law and Automation of Government Decision-Making' (2019) *Modern Law Review* 1, 3.

[3] Ibid. New techniques for co-drafting legislation and machine-readable rules may assist in alleviating this concern.

[4] Zalnieriute, Bennett Moses and Williams (n 2).

consistency in place to manage future errors. In addition, there should be human checking of outputs, clear explanation to applicants of potential for error and circumstances in which error can arise, and a transparent and sufficiently resourced appeal process. Predictability and consistency issues often have roots in flawed system design and lack of supervision.[5] A regulatory sandbox could be an appropriate mechanism to conduct the required testing (see below).

Where data-driven systems use data inputs or base their decisions on inputs not authorised by legislation, they may play a policymaking role. Because of this risk, departments may be required to publish information regarding the decision-making system (including potentially the underlying algorithm or data used by the system) so that individuals are not subjected to any prejudice 'because of the application … of any rule, guideline or practice in unpublished information …'.[6] While this would not prohibit the Department from automating decisions under the EPBC Act, the Department should be aware that where it automates EPBC Act decision-making, it may be required under the *Freedom of Information Act* to publish a greater degree of information surrounding that decision-making process than it would were a human to make the same decision.

Transparency of automated decision-making

While rules-based systems can be rendered transparent, barriers remain in automated decision-making that can affect the level of transparency a system can afford. Of this transparency, there are three main categories: intentional secrecy, technical illiteracy and system complexity.[7]

Intentional secrecy arises when aspects of a system are treated as a trade or state secret, or when data used for decision-making contains personal information which cannot be released under data protection or privacy laws.[8] The obstruction to transparency by trade secrets here is particularly common when system design is outsourced to external providers, as the systems and information used will likely be of a proprietary nature. Accordingly, this may mean that the government will not be able to disclose the methods or algorithms used to determine a decision's outcome due to contractual non-disclosure obligations. An example of this was the Australian Electoral Commission's refusal of an FOI request for the Senate election voting algorithms, on the basis that the information was exempt from disclosure as it was a trade secret or commercially sensitive.[9] Hence, the government should secure open-source software to avoid the use of secret systems and promote transparency where this is necessary for accountability.

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[5] Ibid, 24.

[6] *Freedom of Information Act 1982* (Cth) s 10(2), see further ss 8–10 generally. For discussion on policymaking verse decision-making capability see generally *Green v Daniels* (1977) 13 ALR 1. For discussion see Andrew Ray, 'Implications of the Future Use of Machine learning in Complex Government Decision-Making in Australia' (2020) 1(1) *Australian National University Journal of Law and Technology* 4, 13.

[7] Zalnieriute, Bennett Moses and Williams (n 2) 17; Jenna Burrell, 'How the Machine "Thinks": Understanding Opacity in Machine Learning Algorithms' (2016) 3 *Big Data & Society* 1.

[8] Burrell (n 7).

[9] The AEC also denied a Senate request for access to the algorithm. For discussion see Mahesh Sharma, 'Government rejects Senate order to disclose Electoral Commission software code', *The Sydney Morning Herald* (Web Page, 16 July 2014) <https://www.smh.com.au/technology/government-rejects-senate-order-to-disclose-electoral-commission-software-code-20140716-zti03.html>. See also Michael Cordover, 'Software by which Senate counts are conducted', *Right to Know* (Web Page, 4 October 2013) <https://www.righttoknow.org.au/request/software_by_which_senate_counts>. This decision was upheld by the AAT see *Cordover and Australian Electoral Commission (Freedom of information)* [2015] AATA 956 (11 December 2015).

Technical illiteracy as the second form of opacity effectively encourages the accessibility of expert advice to maximise transparency to those without specialist knowledge.[10] Whilst the level of technical information used to consider 'low-risk projects' under the EPBC Act is unclear, this is particularly relevant for ensuring those affected by decisions are able to extract useful knowledge from their applications and exercise their right to appeal where applicable. This point is particularly important in the context of decision-making under the EPBC Act, where parties challenging the decisions may possess particular vulnerabilities. Challenges under the EPBC Act are often brought by environmental groups or self-represented citizens[11] who may lack the technical knowledge to understand the logic of an automated system. These parties may also lack the resources to employ experts to wade through technical reports to gain that understanding.

The third form of opacity relevant to government decision-making exclusively relates to data-driven systems, where their increasing complexity and continual data-driven adjustment may render them impossible to understand.[12] In these circumstances, public transparency as to the full operation of a decision-making process can be difficult to achieve.[13] Hence, there may be circumstances where the level of transparency afforded is inadequate, depending on the context of the decision and how 'low-risk projects' are defined. As a potential solution, researchers are currently working on 'explainable AI' which aims to explain outputs of complex systems in human terms.[14] It is also possible to disclose key information about a data-driven system or illuminate aspects of a system's operation in a bid for transparency. Once more, the decision-making system should be continually evaluated and tested to ensure its alignment with statutory requirements, with decisions subject to final human approval so that they are still able to be explained to applicants by reference to the EPBC Act.[15]

Evaluation could be carried out in a 'regulatory sandbox' testing environment, similar to that recommended by the Australian Human Rights Commission in their Human Rights and Technology Discussion Paper.[16] A regulatory sandbox would allow the system to be tested for compliance with statutory requirements in a controlled environment where the impact of the decisions can be observed without the risk of damage to the environment.[17] Regulatory sandboxes have previously been used by the Government in the context of financial services and credit licensing laws as a way to enable companies to test their systems are compliant without the need to acquire a licence.[18] They are

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[10] Burrell (n 7) 18.

[11] See, eg, *The Wilderness Society (Tasmania) Inc v Minister for the Environment* [2019] FCA 1842; *Esposito v Commonwealth of Australia* [2014[FCA 1440; *Tarkine National Coalition Inc v Minister for Sustainability, Environment, Water, Population and Communities* [2013] FCA 694; *Lansen v Minister for Environment and Heritage* [2008] FCAFC 189.

[12] Burrell (n 7) 18–9.

[13] For discussion, see, eg, Ray (n 6).

[14] Burrell (n 7) 18–9.

[15] Ibid, 24.

[16] Australian Human Rights Commission, 'Human Rights and Technology' (Discussion Paper, December 2019) 107.

[17] Burrell (n 7) 118.

[18] See, eg, the enhanced scheme introduced by the Treasury Laws Amendment (2019 Measures No. 2) Bill 2019 (Cth) which amended the *Corporations Act 2001* (Cth) and the *National Consumer Credit Protection Act 2009* (Cth) to create the sandbox.

appropriate to consider in the context of automating environmental decisions given the low number of challenges brought under the EPBC Act, and the finality/impact of potentially incorrect or unlawful decisions (namely irreversible harm to the environment). An appropriately designed sandbox could also encourage researchers, universities and companies to develop and test technological solutions in collaboration with government.

Yours sincerely,

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