Fast-track

Te Kāwanatanga o Aotearoa
New Zealand Government

Your Comment on the Haldon Solar Farm project application

Please include all the contact details listed below with your comments and indicate whether you can receive further communications from us by email at substantive@fastrack.govt.nz

1. Contact Details			
Please ensure that you have authority to comment on the application on behalf of those named on this form.			
Organisation name (if relevant)	Department of Conservation		
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2. We will email you draft conditions of consent for your comment			
X	I can receive emails and my email address is correct	☐	I cannot receive emails and my postal address is correct

3. Please provide your comments on this application
Please find comments attached

Note: All comments will be made available to the public and the applicant when the Ministry for the Environment proactively releases advice provided to the Minister for the Environment.

[redacted]

Jenni Fitzgerald
Fast-Track Applications Manager

Acting pursuant to delegated authority on behalf of the Director-General of Conservation.

Date: 02/02/2026

Note: A copy of the Instrument of Delegation may be inspected at the Director-General's office at Conservation House Whare Kaupapa Atawhai, 18/32 Manners Street, Wellington 6011

Comments on a fast-track consenting application

Fast-track Approvals Act 2024 section 53

To:	The Expert Panel
From:	Director-General of Conservation
Regarding fast-track project:	Haldon Solar Farm
Fast track Reference:	FTAA-2508-1097

1. Overview

1.1. Lodestone Energy Limited ('Lodestone' or 'the Applicant') has applied for the relevant approvals that would otherwise be applied for under the Resource Management Act 1991 (RMA) to construct, maintain and decommission a utility scale photovoltaic solar farm (solar farm) and battery energy storage system (BESS) on land at Haldon Station in the Mackenzie District.

1.2. The solar farm will be developed over an approximately 320-hectare site. The proposed solar farm will comprise photovoltaic solar arrays, power station (comprising an inverter and transformer), BESS, reticulation cables and substation facilitating a connection to the National Grid. The solar farm is expected to generate approximately 370 gigawatt hours (GWh) of renewable electricity annually.

1.3. In accordance with sections 53(2)(k) and 53(2)(m)(i) of the Fast-track Approvals Act 2024, the Director-General of Conservation has been invited to comment on the substantive application. Statutory delegations are in place for the Department of Conservation (DOC / the Department) to provide commentary on behalf of the Director-General.

1.4. The proposal is not on, or near public conservation land.

1.5. The Applicant has facilitated discussions with their experts and DOC staff (including its ecology experts) and assisted the Department in developing its understanding of the Project.

1.6. The Director-General is supportive in principle of renewable energy generation proposals but considers that adverse effects on conservation values, including indigenous biodiversity, that arise as a result must be appropriately managed. This is of particular importance where the species affected are Threatened or At-Risk and where those effects may be cumulative.

2. Department of Conservation advice

2.1. The Department has provided comments on the application relating to the actual and potential ecological effects of the Project but has limited its commentary on the proposal's consistency with the wider statutory framework.

2.2. DOC has provided high level comments on the proposed conditions but has not proposed new or amended conditions at this stage given the serious information gaps in the Applicant's ecology assessment discussed below.

2.3. Notwithstanding DOC's comments on conditions, the overarching concern is the inadequacy of the ecology assessment to date which has resulted in effects on significant indigenous biodiversity not being assessed[1].

2.4. Regarding the values that have been identified on the site, DOC is concerned about the potential significant adverse impacts on Threatened and At-Risk plants, invertebrates and birds, and the cumulative effects that may arise on the sensitive values in the wider Mackenzie Basin due to the on-going development of utility scale solar farms.

2.5. The Department considers that the Panel must ensure that the above matters have been comprehensively addressed by the Applicant prior to any approval being given. At this stage the Applicant has not provided the necessary information to address these matters, nor have they provided any certain proposals to offset or compensate the likely significant residual adverse effects due to loss of vegetation, bird and invertebrate values.

2.6. The Department has relied on the advice and technical expertise of Technical Advisor, Warren Chinn, Principal Science Advisor, Dr Colin O'Donnell ONZM and consultant ecologists, Mike Harding and Dr Susan Walker.

2.7. Field surveys were undertaken by Mr Chinn, Mr Harding and Dr Walker on 20th November 2025 over a period of approximately 5-hours. The survey methods and results are recorded in Appendix [A] – [E] and summarised in the commentary below. Dr O'Donnell undertook an assessment of avifauna values and risks based on existing sightings and tracking records for key species.

2.8. Although this work was based on only desktop reviews and a few hours visit on a site of 320-ha, it showed that the Applicant's ecology assessment (AgScience report) had failed to identify the following values within the solar farm site:

a) Twenty-four (24) vascular and non-vascular indigenous plant species, including eight At-Risk species and one **Threatened (Nationally Critical)** species

b) Nine (9) indigenous invertebrate species, including a **Threatened (Nationally-Vulnerable)** invertebrate

[1] Noting the Draft Terrestrial Invertebrate Assessment by SLR Consulting New Zealand Limited on behalf Lodestone, which was provided to the Department on 23 January 2026 has significantly improved the Applicant's identification of invertebrate values. Lodestone have also commissioned a draft lizard assessment.

c) As many as eighteen (18) **Threatened** and **At-Risk** bird species that are likely to use the site for nesting/roosting, foraging or as a flyway.

2.9. A draft invertebrate assessment, provided by the Applicant to the Department on 23 January 2026, demonstrates additional threatened and At-risk terrestrial invertebrates are present within the site.

2.10. The DOC assessment also finds that the vegetation meets the criteria for 'significant indigenous vegetation and significant habitats of indigenous fauna' as set out in Policy 9.3.1 and Appendix 3 of the Canterbury Regional Policy Statement 2013 (CRPS). The AgScience report considers that vegetation does not meet these criteria, apparently on the basis that the author considers the criteria "problematic".[2]

2.11. DOC's view is that the Mackenzie District Plan (MDP) definition of indigenous vegetation and the CRPS significance criteria must apply on their stated terms and cannot be ignored or modified simply because a report author has differing views.

2.12. These omissions and errors are more than minor. They call into question the overall accuracy of the AgScience report and raise concerns as to whether the Applicant's conclusion that ecology effects will be "low to very low" can be relied on.[3]

2.13. DOC considers that a new ecological assessment based on quantitative field surveys of the site would be necessary before the Panel can adequately understand the values of the site and the effects of the proposed development, and before an appropriate mitigation and compensation package could be designed or approved.

2.14. In the absence of that information, the unavoidable conclusion is that the solar farm will have unmanaged adverse effects, culminating in a significant adverse impact. Without further work, that impact would not be addressed by any proposed conditions, or by any conditions or modifications proposed by the applicant to avoid, remedy, mitigate, offset or compensate for the impact.

2.15. DOC notes that this advice is based on the information available at the time the comments were prepared. As is outlined below, there were significant deficiencies in the application, and further work on invertebrates and lizards by the Applicant had only been provided in draft form, with field work still under way at the time comments were due. This has not allowed adequate time to review and respond to all information. DOC's preference would be to be able to review the full suite of information with its technical experts, discuss that with the Applicant, and then work with the Applicant on appropriate responses such as mitigation measures and draft conditions.

2.16. There are also important areas where further information was not available at all, particularly vegetation surveys and Proteus' work on avifauna risk.

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[2] AgScience Ltd "Haldon Solar Project – Ecological Impact Assessment" 31 July 2025, p 41 and 46.
[3] At page 47.

2.17. DOC remains open to working with the Applicant and responding to any questions or directions from the Panel.

2.18. DOC suggests that, following the receipt and publication of parties' comments, the Panel could usefully request legal submissions on cumulative effects from the parties under section 67 of the Act, and potentially advice also from the Panel's independent legal advisor.

2.19. DOC also notes that separate approvals will be required under the Wildlife Act 1953. The information DOC has received to date is that the site contains a number of species of protected wildlife (McCann's skink, southern grass skink, and robust grasshopper). Wildlife Act approvals will be required to catch, kill, hold or release individuals of these species. As Wildlife Act approval was not included in the Fast-track listing, we understand that Lodestone will seek those approvals through the standard Wildlife Act process.

3. Ecological Context

3.1. The floor of the Mackenzie Basin is dominated by moraines, outwash terraces, alluvial terraces and riverbeds. The fluvioglacial landforms form extensive sequences stretching from the main upper valleys and lakes to the lower part of the Basin at the Waitaki River. They are considered to be exceptional nationally[4] for their scale, connectedness and lack of modification. Nowhere else in the eastern South Island high country are intact fluvioglacial landforms present to this extent.

3.2. These depositional landforms are classified as 'historically rare' (aka 'naturally uncommon') ecosystems. The national importance of these landforms is recognised by their threat status: outwash gravels (critically endangered), braided riverbeds (endangered), and moraine (vulnerable).

3.3. The site of the proposed solar farm at Haldon Station lies on outwash gravels (late Otiran outwash surface) overlain in parts by more recent river gravels (Holocene alluvial plain or terrace). It is part of the extensive Tekapo outwash terrace sequence. The Tekapo outwash terrace sequence is the largest and most intact of those remaining in the Mackenzie Basin. It is unaffected by the extensive earthworks (canals and dams) of the Waitaki Power Scheme, except that its lower reaches were inundated by the creation of Lake Benmore.

3.4. The dominance of 'naturally uncommon' fluvioglacial landforms, the continued presence of indigenous vegetation – albeit reduced and degraded – on those landforms, and the ubiquitous presence of Threatened and At-Risk plant species have confirmed the ecological significance of undeveloped (that is, uncultivated) land in the Mackenzie Basin. The presence of indigenous vegetation on the degraded basin-floor landforms, the ecological significance of that vegetation, and the protection of that vegetation were recently confirmed by the

[4] Statement of evidence of Michael Harding, Terrestrial Ecology, 2 February 2026.

Environment Court in its interim decision for MDP Change 18. A High Court appeal of that decision has been recently withdrawn.[5]

4. Assessment

Flora values and assessment

4.1. The solar farm site supports vegetation typical of a degraded outwash surface at the relevant part of the Mackenzie Basin. The vegetation is dominated by indigenous lichens, notably *Xanthoparmelia semiviridis* and *Cladia* species, and naturalised (exotic) species, notably mouse-ear hawkweed (*Pilosella officinarum*), sheep's sorrel (*Rumex acetosella*) and the grass *Festuca filiformis*. These five species are common at all parts of the site except at locations close to the pivot irrigator.

4.2. The respective dominance of these species is influenced by substrate. Silty sites support a higher percentage cover of exotic species; stony sites support a higher percentage cover of indigenous species, including a higher number of species classed as Threatened and At-Risk under the New Zealand Threat Classification System (NZTCS).

4.3. However, there are significant issues with the Applicant's assessment of the ecological values of the site.

4.4. Despite the ecology assessment stating - "No rare or acutely threatened indigenous plant species were observed".[6] Mr Harding and Dr Walker identified eight At-Risk and one Threatened plant species during a 10 person-hour survey.

4.5. The following vascular species listed as Threatened or At-Risk were recorded during the site survey:[7]

- *Carex resectans*…… At-Risk (Declining)
- *Convolvulus verecundus*…….. At-Risk (Declining)
- *Lepidium solandri*…….. Threatened (Nationally Critical)
- *Luzula ulophylla*…… At-Risk (Declining)
- *Muehlenbeckia ephedroides*……. At-Risk (Declining)
- *Poa maniototo*…….. At-Risk (Declining)
- *Raoulia australis*…… At-Risk (Declining)

[5] *RF&B & EDS v MDC - PC18 Interim Decision* [2025] NZ EnvC125.
[6] AgScience Ltd, above n 2, at page 3.
[7] de Lange, P.J; Gosden, J.; Courtney, S.P; Fergus, A.J.; Barkla, J.W; Beadel, S.M.; Champion, P.D; Hindmarsh-Walls, R.; Makan, T.; Michel, P. 2024. Conservation status of vascular plants in Aotearoa New Zealand, 2023. *New Zealand Threat Classification Series 43.* Department of Conservation, Wellington, New Zealand.

- *Raoulia parkii*…… At-Risk (Declining)

4.6. The lichen *Xanthoparmelia semiviridis*, which is an important component of the vegetation at the site, is also classed as At-Risk (Declining) under the NZTCS.

4.7. During the survey by Mr Harding and Dr Walker populations of a Threatened (Nationally Critical) dry land cress (*Lepidium solandri*) were recorded at three separate locations at the site. A more comprehensive survey would likely reveal the presence of this species at other locations.

4.8. It is important to understand that the recorded locations are only those observed during a brief and incomplete search of the solar farm site. Advice from Manaaki Whenua-Landcare Research is that adequate survey of this type of dryland site would require at least 28 person-hours per 100 hectares.[8] The solar array site is approximately 320 hectares. A full survey, adequate to provide robust data to inform an assessment of effects, would require approximately 90 hours searching by ecologists with experience in the identification of dryland species.

4.9. The Applicant's ecological assessment describes Chewing's fescue (*Festuca rubra*) as common and widespread at the site, forming 5% cover and occurring in 91% of the surveyed plots. The only *Festuca* species recorded during Mr Harding's survey was *Festuca filiformis*, which was common in all surveyed plots. *Festuca filiformis* is a naturalised species, common in dry inland basins. It is an unpalatable species, not a pasture grass.

4.10. A basic misclassification of this nature lowers the Department's confidence in the ecology assessment provided with the Application documents, particularly when the assessment has clearly failed to identify Threatened and At-Risk vegetation present within the site as explained below.

4.11. DOC notes that a similar misidentification appears to have occurred for avifauna (Variable oystercatcher instead of South Island pied oystercatcher) as discussed below.

4.12. In terms of Threatened species of plants, it is of concern that the Applicant, in its response to the Panel's Minute 1, stated that:[9]

> "*Neither AgScience nor DOC detected meaningful populations of these species within the solar footprint despite targeted searches and over 100 survey/recce plots. This indicates that, if present at all, they occur at very low density, with their main populations located in the extensive surrounding outwash surfaces and conservation areas. These species have nevertheless been included in the effects assessment and in the design of follow-up fieldwork*."

[8] Dr Susan Walker, Manaaki Whenua-Landcare Research, personal communication with Mike Harding December 2025.

[9] Lodestone Energy to the Haldon Solar Expert Panel, Response to Minute 1 (12 December 2025), at page 12.

4.13. Similarly, in its response to the Panel's request for further information of 19 December 2025, the Applicant stated that:[10] "One Threatened – Nationally Critical herb species Lepidium solandri was detected in subsequent surveys, occurring at extremely low density and in a highly localised distribution."

4.14. These statements misrepresent DOC's findings. It was clearly stated in Mr Harding's report that "This survey should not be regarded as comprehensive" and "More comprehensive survey would be needed to determine the distributions of Threatened and At-Risk species across the site".[11] It is impossible from that brief site visit to conclude that there are not meaningful populations within the development footprint, or that *Lepidium solandri* is not present more widely than was recorded – the DOC survey was very limited in time and area, so it cannot be assumed that values are not present outside the few locations surveyed. The AgScience surveys cannot be relied on for conclusions given that they failed to detect a range of Threatened species that DOC's brief assessment showed are present, and misidentified other species.

4.15. We also note that the Applicant's response to the 19 December request for further information, in addressing "Existing biodiversity values – botany" only refers to the four At-Risk (Declining) plant species found in the AgScience surveys, when at the time of preparing that response it was known that the DOC site visit had found a further four At-Risk (Declining) species (*Carex resectans*, *Convolvulus verecundus*, *Luzula ulophylla* and *Muehlenbeckia ephedroides*).

4.16. DOC is concerned that these errors and omissions in the ecology report have led to incorrect or unsupported conclusions. For example, the Applicant's ecology assessment concludes that: [12] "The vegetation on the site is introduced low-fertility grassland with a low density of an introduced shrub. This association has completely replaced the former indigenous vegetation, fescue tussock grassland community, and no longer comprises indigenous vegetation."

4.17. It appears that this conclusion has been influenced by the failure to identify various Threatened and At-Risk species, and the author's personal views on the merits of proposed changes to the definition of indigenous vegetation in the MDP.[13] However, the vegetation assessment for DOC based on quantitative evaluation of nine survey plots finds that the surveyed vegetation meets both the previous MDP definition of indigenous vegetation (as used in the AgScience report) and the more recent amended definition.

4.18. This issue has also flowed through into the substantive application itself, which at Section 6.5 states that "*Overall, the construction and operation of the solar installation has been assessed*

[10] Lodestone Energy to the Haldon Solar Expert Panel, Response to the Panel's request for further information dated 19 December 2025 (23 January 2026) at page 5.
[11] Mike A.C. Harding "Haldon Station Solar Array Site – Vegetation Assessment prepared for the Department of Conservation" (December 2025) at section 2.
[12] AgScience, above n 2, at page 3.
[13] AgScience, above n 2, at page 40 - 43.

to have very low to low effect on indigenous ecological values".[14] Given the significant shortcomings in the ecological assessment that the Applicant has relied on, DOC considers that this conclusion is not able to be relied on.

Figure 1 – Lepidium solandri *at the solar array site (Dr. Susan Walker photo).*

Terrestrial invertebrate values and assessment

4.19. Mr Chinn, an expert invertebrate ecologist also attended for part of the five-hour site walkover. The walked survey produced eleven species of invertebrate. Of those, nine species were native with one Threatened (Nationally Vulnerable) representative, the grasshopper *Sigaus minutus* (Figure 2.). The grasshoppers presented in considerable numbers with an encounter rate of at least three to five insects every five metres walked.

[14] Lodestone Energy Ltd "Haldon Solar Project – Application for Approvals Under the Fast-Track Approvals Act" 29 August 2025.

Figure 2 - Nationally Vulnerable Sigaus minutus *grasshopper on the depleted surface of the proposed solar array area, Haldon Station. The adult grasshoppers are about 10-12 mm long (Warren Chinn photo).*

4.20. Mr Chinn notes *Sigaus minutus* has a restricted distribution and feeds largely on lichen and *Raoulia* mat plants. However, *Sigaus minutus* also feeds on various species of exotic vegetation, including those found on the Haldon outwash plain. The ecological requirements for this insect are optimal in the area proposed for the solar farm, particularly for oviposition (egg laying), crypsis (camouflage by lichen) and sun-basking.

4.21. The AgScience report suggests that international studies have shown that increased shading can improve outcomes for plants/soil quality.[15] On that basis, the Applicant considers increased shading from the solar array and revegetation will be ecologically beneficial.

4.22. However, additional shading and vegetation cover is the opposite environment required for *Sigaus minutus* persistence in the Mackenzie Basin. Ecological restoration will therefore require careful design to include the optimal habitat requirements of *Sigaus minutus*. Shading effects are further discussed below.

Draft invertebrate assessment, dated 20th January 2026

4.23. On 23 January 2026 DOC was provided with a draft invertebrate assessment, prepared by SLR Consulting New Zealand Limited (SLR) on behalf of Lodestone.[16] SLR liaised with Mr Chinn to understand DOC's questions and requirements for field assessments of terrestrial

[15] AgScience, above n 2, at page 44.
[16] SLR Consulting New Zealand Limited "Draft Terrestrial Invertebrate Assessment" 20 January 2026.

invertebrates on the site, including timing for survey work, it is understood this information was used in the SLR survey work along with other information referred to in section 3.1 of the SLR report.

4.24. SLR carried out a terrestrial field survey in December 2025. This used a range of techniques over multiple days. The survey determined the site provides habitat for:

a) Robust grasshopper (referred to by SLR as *Brachaspis robustus,* noting the correct label is *Sigaus robustus*; Threatened - Nationally Endangered).

b) Minute grasshopper (*Sigaus minutus*; Threatened - Nationally Vulnerable).

c) Otago short-horned grasshopper (*Phaulacridium otagoense*; At-Risk – Declining).

d) Tekapo ground wētā (*Hemiandrus* 'furoviarius'; Threatened - Nationally Endangered).

4.25. The New Zealand mantis (*Orthodera novaezealandiae*; At-Risk – Declining) was also recorded near the solar farm site and is likely to be present. The assessment also identifies two Threatened and At-Risk plants:

a) *Lepidium solandri*, which has been identified in Mr Harding's walkover assessment, and

b) Tussock bindweed (*Convolvulus verencundus f. verencundus*),

4.26. The assessment describes various effects on invertebrates and their habitat that are predicted to result from the construction and operation of the solar farm.

4.27. Direct mortality and injury due to vehicle movement and pile driving are noted as are alteration of invertebrate habitats due to earthworks, compaction of road surfaces and creation of building pads. As noted in the SLR assessment robust grasshopper is listed Schedule 7 of the Wildlife Act 1953 and is therefore absolutely protected under the Wildlife Act. A Wildlife Act Authority will be required to handle, relocate or otherwise disturb or kill this species.

4.28. It is also noted that shading during the solar farm operation will likely reduce incident solar radiation at ground level leading to changes in microclimatic conditions such as soil moisture levels, humidity, snow retention period and temperature. These changes can directly affect invertebrate activity, behaviour, metabolism, reproduction and life stage survival and indirectly affect the quality of habitat for invertebrates.

4.29. Both Mr Chinn and the SLR assessment agree that shading from the solar farm would have adverse effects on grasshoppers and other invertebrates due to their adaptation to the currently exposed and unshaded dryland habitat at the site.

4.30. The SLR assessment discusses options to avoid, minimise, remedy, offset or compensate the effects of the solar farm on invertebrates. SLR note that: [17]

> *'following avoidance, minimisation, and remediation, an offsetting or compensation approach will be required to fully offset adverse effects on invertebrates'*

[17] SLR Consulting New Zealand Limited "Terrestrial Invertebrate Assessment" 20 January 2026.

4.31. The importance of biodiversity compensation in this instance is further discussed below.

Draft lizard assessment, dated 22 January 2026

4.32. DOC received a draft, preliminary lizard assessment, prepared by Blueprint Ecology Limited, on behalf of Lodestone Energy on 23rd January 2026.[18] The draft assessment concludes that it is unlikely that regionally or locally significant lizard populations (e.g. At-Risk or Threatened) would occur on site. However, at 30 January 2026 DOC understands a lizard recapture survey has resulted in identification of one southern grass skink (At-Risk - Declining).[19] DOC agrees with the recommendation in the draft lizard assessment that in the event that lizards are present and the avoidance of their habitat is not practicable, the appropriate management of lizards should be undertaken to mitigate adverse effects, including applying for an appropriate authority under the Wildlife Act 1953 and preparation of a Lizard Management Plan.

Avifauna values and assessment

4.33. The proposed solar farm is adjacent to one of the busiest known bird flyways in the Mackenzie Basin; being located adjacent to numerous breeding sites on the Twizel, Pukaki, Tekapo and Ōhau Rivers and associated mosaic of wetlands, dryland and braided river breeding habitats. Thus, the general area is highly significant for its bird populations.

4.34. The Applicant's bird assessment was inadequate to identify the bird fauna that may be at risk from the proposed solar farm. The applicant surveyed birds at 10 points using 5-minute bird counts during the day. This technique and small sample size is inappropriate for undertaking assessments of open-country, wetland and riverine bird species, and inappropriate for identifying nesting species and species that use the area at night.

4.35. While the Applicant's survey only detected one Threatened bird species present (black-fronted tern), based on field work of Dr O'Donnell in this area over many years, examining braided river bird counts, the eBird Database, and DOC's records of tracked birds, DOC's technical advice is that at least 18 Threatened and At-Risk bird species have been recorded on or in the vicinity of the proposed Haldon solar farm and are likely to use the site. These species may be adversely affected by construction and/or ongoing operation of a solar farm. Adverse effects on avifauna are discussed further below.

4.36. The Applicant also identified presence of variable oystercatcher (*Haematopus unicolor*, At-Risk - Recovering). This appears to be another misidentification error. The variable oystercatcher is a coastal species which only rarely travels inland - its presence at this site would be highly unusual and would warrant further investigation. However, it is much more likely that this was a misidentification of a South Island pied oystercatcher, which breed inland and were observed multiple times during the DOC site visit. If the variable oyster catcher

[18] Blueprint Ecology Limited "Draft preliminary lizard assessment" 23 January 2026.
[19] Naomi Humbles, Lodestone Energy Development and Consenting Manager. Email correspondence dated 30 January 2026.

identification was correct the presence of this species at an inland site like Haldon is extremely rare, and a matter of significance in its own right.

4.37. The Threatened and At-Risk species present include three Threatened - Nationally Critical bird species, which are on the brink of extinction (kakī/black stilt, matuku-hūrepo/Australasian bittern and kōtuku/white heron). Also of concern is the proximity of the proposed solar farm site to the largest known black-fronted tern (Nationally Endangered) breeding colony in Aotearoa (>7% of national population), which has been subject to intensive conservation management by DOC over the last 15 years. If collisions between solar infrastructure and birds occur, these will likely have a significant impact on population viability and recovery of these Threatened species.

4.38. DOC's assessment that 18 species (19 if including variable oyster catcher) are at risk of collision is explained at page 2 of Appendix E. In short, overseas research demonstrates ecologically similar birds to those likely to be traversing Haldon are colliding with solar arrays.[20] "Ecologically similar" means the species have similar body shapes and adaptations, look similar, have similar habitat requirements, feed using the same techniques, have similar roosting and flight behaviours and are mobile across the landscape. This comparison is explained on page 2 of Dr O Donnell's memorandum.

4.39. Based on the overseas literature, the potential adverse effects on birdlife through construction and operation of the proposed solar farm would be:

a) Deaths and injury of birds, particularly waterbirds, Threatened and At-Risk species, and mobile species, during the construction phase (all species listed in Table 1 of Appendix E).

b) Degradation and loss of local feeding and breeding habitats for species resident during the breeding season following construction and land use change (likely banded dotterel, black-fronted tern, South Island pied oystercatcher, NZ pipit).

c) Long-term, ongoing, deaths and injury of birds, particularly waterbirds, Threatened and At-Risk species, and mobile species, through collisions with solar farm infrastructure (fences and/or cables and transmission lines and/or solar panels) (all species listed in Table 1).

d) Disturbance of, or abandonment by, resident birds through construction phase and ongoing operation of the solar farm.

4.40. Collision risk is likely to vary among different species. However, as there has been no monitoring of bird displacement or mortality associated with photovoltaic solar farms in New

[20] Karl Kosciuch, Daniel Riser-Espinoza, Michael Gerringer, and Wallace Erickson "A summary of bird mortality at photovoltaic utility scale solar facilities in the Southwestern U.S." (2020) Public Library of Science ONE 15(4); K Shawn Smallwood "Utility-scale solar impacts to volant wildlife" (2022) The Journal of Wildlife Management 86(4); Tara Conkling, Amy Fesnock, and Todd Katzner "Numbers of wildlife fatalities at renewable energy facilities in targeted development region" (2023) Public Library of Science ONE 18(12); D Riser-Espinoza, K Russell, N Bartok, J Sullivan, and K Kosciuch "Emerging trends in bird mortality at photovoltaic solar in the United Staes and Canada." (Presentation at the Proceedings of the 2nd Solar Power and Wildlife/Natural Resource Symposium, Washington, DC, 14-16 November 2023).

Zealand, it is currently impossible to estimate the scale of adverse effects that may occur at each site and the long-term impact on bird populations.

4.41. In addition, the only information available is limited reporting on adverse effects from a few published studies from overseas. These studies indicate that adverse effects are highly likely and potentially significant for Threatened and At-Risk species. Given circumstances (e.g. habitat use patterns, risk profiles) may be different in New Zealand, it is challenging to determine the level to which we can infer effects from overseas. In the absence of New Zealand data, DOC's position is that a precautionary approach to consenting solar farms in areas with high usage by Threatened and At-Risk bird species is appropriate.

Threatened and At-Risk birds – Risk Profiles

4.42. Dr O'Donnell has outlined the risk profile of birds using the Haldon site in Appendix E. Below is a brief summary:

Kakī / black stilt

4.43. Kakī only breed in the Mackenzie Basin where the wild population only numbers 141 adults with a current breeding population of 28 productive pairs as per 04/06/2025. Kakī have been individually colour banded since 1984 so that the locations and survival of birds could be monitored over time. The Figures indicate:

a) Kakī occur in the vicinity of the proposed solar farm.

b) Kakī are highly mobile throughout the Mackenzie Basin.

c) Birds occurring near the proposed solar farm include birds that breed throughout the Mackenzie Basin, so the solar farm could potentially influence the breeding birds in other parts of the Basin.

d) Although we don't know which flight paths kakī take among all these locations, it is fair to assume that birds will be flying over proposed solar farm site at some time and therefore would be at risk of collisions.

4.44. Wading birds (similar ecologically to kakī) were recording colliding with PVSFs at a rate of 0.055 bird/MW/yr in California.[21]

Black fronted tern

4.45. The national population of black-fronted terns was thought to number up to c.10,000 birds in 2010.[22] However, given colonies were generally declining at rates of 5 – 15% per annum, that figure may be lower now.

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[21] Smallwood (2022), above n 20.
[22] Colin F.J. O'Donnell and Joanne M. Hoare "Meta-analysis of status and trends in breeding populations of black-fronted terns (*Chlidonias albostriatus*) 1962" (2011) New Zealand Journal of Ecology 35(1) 30.

4.46. Tern species, which included the black tern *Chlidonias niger* (similar ecologically to black-fronted terns) were recording colliding at a rate of 0.023 birds/MW /yr in California.[23]

4.47. The proposed solar farm site is significant for black-fronted terns. It is located on the periphery of a major flyway between a breeding colony on the upper Ōhau River and the delta of the Tekapo, Ōhau and Pukaki Rivers where birds roost at night. In addition, birds generally feed regularly across this dryland landscape. The Ōhau breeding colony is by far the largest known and harbours >7% of the national population of black-fronted terns. This colony is also managed intensively by DOC using predator control.

4.48. Thirty-five of 39 black-fronted terns tracked from the Ōhau colony between 6 November 2020 and 28 February 2022 were recorded flying frequently over the solar farm site or within 1 km of it (1,104 fixes) (Appendix E, Figure 3). Even terns from much more distant breeding colonies fly over the Haldon site ((55 fixes from 16 different terns, Appendix E, Figure 4) based on a second study of terns from different colonies in the Mackenzie Basin (Tasman, Tekapo and Ahuriri Rivers) between 22 October 2022 – 29 January 2024.[24]

Matuku-hūrepo/Australasian bittern

4.49. The national population of matuku-hūrepo numbers perhaps 500 breeding birds.[25] DOC's database contains 106 records of bittern from the Mackenzie Basin, which includes many sightings around the Ōhau, Twizel, Pukaki and Tekapo Rivers (Appendix E Figure 6) and elsewhere in the Mackenze Basin (Appendix E Figure 7).[26] Matuku-hūrepo are highly mobile among networks of wetlands and most fly at dawn or dusk or at night, making their detection challenging.[27]

4.50. Bittern species (similar ecologically to matuku-hūrepo) were recording colliding at a rate of 0.017birds/MW /yr in California.[28]

5. Effects Management

5.1. The ecology assessment included with the substantive application did not recognise most of the Threatened plants, invertebrates and avifauna described above, so the application has not addressed potential effects on them.

5.2. DOC expects that the effects would be significant. There would be immediate impacts during construction, with pile driving, panel placement and vehicle movements over most of the area

[23] Smallwood (2022), above n 20.
[24] Gray KE 2024. Movements and habitat use of black-fronted terns and banded dotterels in the Mackenzie Basin. MSc thesis, University of Otago, Dunedin.
[25] Hugh A. Robertson, Karen A. Baird, Graeme P. Elliott, Rodney A. Hitchmough, Nikki J. McArthur, Troy D. Makan, Colin M. Miskelly, Colin F. J. O'Donnell, Paul M. Sagar, R. Paul Scofield, Graeme A. Taylor and Pascale Michel "Conservation status of birds in Aotearoa New Zealand" (2021) New Zealand Threat Classification Series 36; NZTCS data files.
[26] Colin F.J. O'Donnell & Hugh A. Robertson "Changes in the status and distribution of Australasian bittern (*Bolaurus poiciloptilus*) in New Zealand, 1800s - 2011" (2016) 63 Notornis at 152-166.
[27] Emma M. Williams "Conservation Management of the critically endangered matuku-hūrepo / Australasian bittern" (2024) Science for Conservation 341.
[28] Smallwood (2022), above n 20.

of the site. Some proportion of the Threatened plants would be crushed or disturbed, invertebrates would be crushed or displaced, and birds would be disturbed or displaced.

5.3. The most significant effects are likely to arise following construction. In general, the Threatened species, particularly plants and invertebrates, are present because they naturally live in extreme environments – this both meets their ecological needs and reduces competition from other species which are not adapted for those conditions.

5.4. The solar farm would significantly change the environment for those species, primarily by providing shading from sunlight, and protection from frost. This will make conditions less suitable for the Threatened species themselves and enable competition from other species. The creation of a rabbit-proof fence is also expected to increase competition from other species.

5.5. We therefore expect that most of the Threatened plants and invertebrates currently found on the site would not persist long term after solar farm construction, and the existing significant indigenous vegetation and habitat values would be lost across most of the site.

5.6. The application has not addressed how these effects will be managed with any certainty, given that it has largely not recognised the values or effects in the first place.

5.7. DOC understand the consent conditions proffered to manage ecology effects will require construction of a rabbit proof fence, undertaking pest control for the life of the project, along with some plant and avifauna monitoring. The objectives and performance standards for all of these measures are unknown as they are not specified in conditions.

5.8. In its request for further information dated 19 December 2025, the Panel has raised concerns with the proposed establishment of a 7 km rabbit proof perimeter fence, noting the decline in indigenous scab weeds (*Raoulia* spp.*)* reflects reduced grazing pressure from rabbit herbivory and an increase in competition from introduced species. The Panel states:[29]

> *'Accordingly, it would be expected that three of the four detected vascular species on site which are Raoulia spp. would be adversely impacted by the establishment of a 7km rabbit proof fence.'*

5.9. The Department agrees with this assessment and notes rabbit exclusion is also likely to exacerbate shading effects on invertebrates.

5.10. Given the Applicant's assessment that the construction and operation of the solar installation will result in 'low to very low' ecological effects the above measures appear to be offered as a voluntary ecological benefit rather than as mitigation or compensation for any acknowledged adverse effect.

[29] Haldon Solar Expert Panel to Daniel Cunningham General Manager Development, Request for information from Lodestone Energy Limited in relation to the Haldon Solar application under the Fast-track Approvals Act 2024 (19 December 2025), at page 2.

5.11. In contrast DOC has identified adverse effects on Threatened and At-Risk species attributable to the construction and operation of the solar farm. If these effects are accepted, they are entirely unmanaged under the Applicant's proposed consent conditions.

Ecological significance of the site

5.12. The Applicant's ecology assessment also concludes that:[30]

> "*The vegetation on the site is introduced low-fertility grassland with a low density of an introduced shrub. This association has completely replaced the former indigenous vegetation, fescue tussock grassland community, and no longer comprises indigenous vegetation*".

5.13. It appears that this conclusion has been influenced by the author's personal views on the merits of proposed changes to the definition of indigenous vegetation in the MDP).[31] However, the vegetation assessment for DOC based on quantitative evaluation of nine survey plots found that the surveyed vegetation meets both the previous Plan definition of indigenous vegetation (as used in the AgScience report) and the more recent amended definition (as per the Environment Court's interim decision on Plan Change 18).[32]

5.14. In the MDP definitions following the Plan Change 18 Interim Decision, 'indigenous vegetation': "*means a community of vascular plants, mosses and/or lichens that includes species native to the ecological district and many include exotic species*".[33] Vegetation at the solar array site, except possibly at areas directly adjacent to the pivot irrigator, meets the MDP definition for indigenous vegetation as it comprises a community of species native to the ecological district (regardless of the presence/dominance of exotic species).

5.15. For completeness, vegetation at the solar array site also meets the earlier MDP definition for indigenous vegetation as the number of indigenous species exceeds 30% of the total number of species present: 52% of all species; 42% of vascular species.

5.16. As identified in Appendix A – E the solar farm site therefore retains significant indigenous vegetation and habitats for Threatened and At-Risk indigenous species which must be protected as a matter of national importance under section 6(c) of the Resource Management Act 1991 (RMA) and the provisions of the Canterbury Regional Policy Statement 2013 (CRPS) and MDP.

Statutory considerations

[30] AgScience, above n 2, at page 3.
[31] At page 40.
[32] *RF&B & EDS v MDC - PC18 Interim Decision* [2025] NZ EnvC12, Annexure 3, pp 96 at [4].
[33] Mackenzie District Plan 2004 (revised November 2025), part 1, Interpretation.

5.17. The substantive application included a detailed statutory assessment. However, there are two significant updates required to that assessment.

5.18. The first update is that, since the application was lodged, the National Policy Statement for Renewable Electricity Generation 2011 (NPS-REG) was amended in December 2025. The general effect of this is to strengthen the weighting to be given to the benefits of renewable electricity generation. In this regard, DOC agrees that the proposal will have significant benefits, as recognised particularly in NPS-REG Objective and Policies A and B.

5.19. However, it is also clear that the development will have an adverse effect on RMA section 6(c) matters, given the various threatened species present, and the fact that the site meets the CRPS criteria for 'significant indigenous vegetation and significant habitats of indigenous fauna'. As a result, NPS-REG Policy F(2) is also relevant:

Where REG assets and activities are proposed to locate in or are likely to have adverse effects on environments and values provided for in section 6 of the Act, the provisions of this policy must be read alongside other relevant national direction, regional policy statements and regional and district plans.

5.20. This means that under the NPS-REG, while the benefits of the proposal must be recognised and provided for, the adverse effects on significant indigenous vegetation and habitats are still to be managed in accordance with the usual statutory framework.

5.21. The second point is that the substantive application relied on the AgScience report in concluding that effects on the RMA section 6(c) values would be less than minor. As addressed above, that ecology assessment cannot be relied on for such conclusions, and based on subsequent field work DOC's view is that there will be significant adverse effects on RMA section 6(c) values.

5.22. With that in mind DOC has identified some gaps in the Applicant's statutory assessment of the Ecosystems and Indigenous Biodiversity provisions in the CRPS and the MDP.

Canterbury Regional Policy Statement

5.23. The Applicant acknowledges the solar farm site meets the ecological significance criteria in Appendix 3 of the CRPS.[34] DOC agrees with that assessment.

5.24. Objective 9.2.3 and Policy 9.3.1.3 are therefore relevant. Objective 9.2.3 aims to protect areas that qualify as significant under the CRPS criteria.

5.25. Policy 9.3.1.3 implements Objective 9.2.3 by requiring that "Areas identified as significant will be protected to ensure no net loss of indigenous biodiversity or indigenous biodiversity values as a result of land use activities".

5.26. The Applicant has assessed the proposal as 'not entirely consistent' with this policy,[35] but considers that the divergence will be minimal based on the conclusion of the ecology

[34] Lodestone Energy Ltd, above n 13, at page 120.
[35] Id.

assessment that effects will be low to very low. As discussed above, the ecology assessment has serious deficiencies, and we consider that it cannot be relied upon for such conclusions. DOC's technical advice is that the solar farm will result in the loss of RMA section 6(c) indigenous biodiversity values.

Mackenzie District Plan

5.27. The substantive application included a discussion of the staged review of the MDP which involved several plan changes all at different stages of the RMA schedule 1 process. The application also addressed the weighting to be given to MDP provisions, some of which are currently subject to appeal.

5.28. Prior to the recent plan reviews, a new Section 19 addressing Ecosystems and Indigenous Biodiversity was incorporated into the MDP via Plan Change 18. Decisions on Plan Change 18 were notified in 2021 but then appealed. An interim decision of the Environment Court addressing those appeals was released on 14 April 2025,[36] and is directly relevant. As discussed above the Environment Court has directed deletion of the old definition of 'Improved pasture' and amendment of the definition of 'Indigenous vegetation'.[37]

5.29. Under the amended definition (and under the old one) DOC considers the site meets the definition for indigenous vegetation.

5.30. The Applicant also noted proposed MDP Plan Change 26 provided a bespoke framework to provide for the development and operation of new and existing renewable electricity generation activities. That plan change is now operative. As a result, the Renewable Electricity Generation chapter of the MDP excludes the Ecosystems and Indigenous Biodiversity provisions from applying to Renewable Electricity Generation (other than for the existing Waitaki Hydro Scheme and Opuha Scheme).

5.31. Instead, indigenous biodiversity is to be managed under the provisions of the Renewable Electricity Generation chapter itself. As discussed above, DOC's assessment is that the proposal will result in the loss of significant indigenous vegetation and habitats (as per the CRPS criteria). This means that MDP REG-P6 applies. Of note is that this requires that:[38]

> "*regard is had to any proposed offsetting measures or environmental compensation (including considering Policy 4 in Section 19 and Appendix Z), where there are significant residual adverse effects that cannot be avoided, remedied or mitigated*".

5.32. DOC therefore considers that the nature and adequacy of offsetting and compensation measures are relevant matters for the Panel to consider.

[36] *RF&B & EDS v MDC- PC18 Interim Decision* [2025] NZ EnvC125
[37] Annexure 3, pp 96 at [2] – [4].
[38] Mackenzie District Plan 2004 (revised November 2025), part 2, Renewable Energy Generation, policy 6(5).

Cumulative effects

5.33. The Panel has sought comment from parties on cumulative effects. DOC addresses this in three parts – firstly to understand the potential scale of solar farm development in the Mckenzie Basin, then to understand the cumulative ecological effects that could arise if multiple of those solar farms are developed, and then to consider the legal framework that would apply to considering those effects.

Scale of potential development

5.34. The potential cumulative impact of solar development within the Mackenzie Basin is large. At the time of preparing these comments, DOC was aware of at least eight solar proposals within the Basin (see Appendix A). If all of those proposals went ahead, they would total over 3,500 hectares in area and would have a peak generation capacity of about 2,300 MW (compared to the Waitaki HEPS total capacity of about 1,500 MW).

5.35. Apart from the current application, four other solar farms are listed or have been referred under the Act.[39] A substantive application has only been lodged for one of those – The Point Solar Farm, which is currently open for invited comments, closing 19 February 2026. The Point Solar Farm substantive application is being determined by the same Expert Panel.

5.36. None of those projects has progressed to a proposed grant.

5.37. There are also three other potential projects that DOC is aware of; Ohau A, Irishmans Creek and Twizel Solar Farm Ltd.

5.38. It is unlikely that all projects would proceed, at least in the short-medium term. DOC understands that transmission constraints mean that only a few of the proposed projects could currently be accommodated. However, neither DOC nor the Panel has any control over which projects do get funded, connected and built, nor any control over Transpower's future plans for transmission infrastructure. DOC therefore consider it must be assumed that any and all of the proposed projects could eventually be built.

Cumulative ecological effects

5.39. In terms of the ecological effects, the loss of an area of indigenous vegetation, including populations of At-Risk and Threatened plant species compounds the extensive loss of indigenous vegetation and habitat on depositional landforms in the Mackenzie Basin over recent years through land-use change, notably conversion to dairy farms. The main threat to vulnerable plant species, such as *Lepidium solandri*, is habitat loss through land-use change and the edge/off-site effects of intensive land use on adjacent land.

[39] The other listed projects in the Act, Schedule 2 are Balmoral Station Solar Array and The Point Solar Farm; and referred projects are – Grampians Solar Project and Twizel Solar Project.

5.40. The loss of extent of vegetation/habitat contributes to the ranking of the outwash terrace ecosystem as Threatened (Nationally Critically) and the very high number of At-Risk and Threatened plant species present in the Mackenzie Basin (more than 100 species).

5.41. Cumulative effects will similarly apply to invertebrates, which rely on the indigenous vegetation and ecosystems which will be lost. The on-going development of utility scale solar installations in the drier parts of the Mackenzie Basin (such as areas that have not been irrigated) represents further reduction in open, semi-arid surfaces for endemic invertebrates that are adapted to that environment. Solar farms in these areas will create surface area shading that is analogous to the spread of shading weeds, diminishing invertebrate habitat values.

5.42. With respect to avifauna, which are highly mobile, the risk of population level adverse effects becomes greater as they will fly over more solar farms as they are developed. Because many of the avifauna species of conservation concern have small populations sizes, even low collision rates can quickly accumulate to an overall significant effect. The solar farms (as shown in the map in Appendix A) are also clustered along the Ohau River / Ohau Canal through to the confluence with the Tekapo River and Haldon Arm. This is an area of high avifauna activity (see maps and tracking data in Appendix E).

Legal considerations

5.43. DOC considers that the legal considerations for cumulative effects in this context are potentially complex – the Act is new legislation, and decisions under it are subject to different tests to the RMA so existing caselaw cannot be assumed to apply. Notwithstanding that, DOC considers that there are some initial points relevant to the Panel's considerations:

a) None of the proposed solar farms are currently consented, so the existing environment is without solar development, and all effects arising from new solar farms would therefore contribute to future cumulative effects;

b) Five of the known projects have already been listed or referred under the FTAA, so the potential for cumulative impacts is not fanciful;

c) Cumulative effects need to be considered at different levels i.e. the likely projects in the short-medium term within Grid constraints, and long-term if Grid capacity increased to allow all projects.

5.44. DOC understands that solar farm applicants are taking the stance that the potential for cumulative effects should be limited to reflect the transmission constraints. We note that this consideration acts in two directions – if transmission constraints mean that only a few proposals will be built, then that does reduce the total scope of cumulative effects. However, it also means that for any particular proposal, less weighting can be applied to the benefits, as if the project was not approved it would be expected that another proposal would take its place within the available block of capacity. Put another way, if the generation benefits are to be considered in full, then so must the cumulative adverse impacts, or if the cumulative

impacts are to have a discount applied reflecting transmission constraints, that same discount must also apply to the benefits.

5.45. The Panel should also consider that the precautionary approach would be a relevant consideration, given the large number of Threatened and At-Risk species that could be affected by this proposal and others.

5.46. Unfortunately, DOC has not been able to undertake a more detailed legal assessment at this stage, due to staff illness and availability during the crucial time for preparing these comments. However, DOC considers that the issues are important and warrant further comment. This will be assisted once all of the invited parties' comments are available, as they should provide both more detailed information, and a wider scope of information and understanding of the benefits and impacts, than is currently available.

5.47. DOC therefore suggests that, following the receipt and publication of parties' comments, the Panel could usefully request legal submissions on this matter from the parties under section 67 of the Act, and potentially advice also from the Panel's independent legal advisor.

Management of residual effects

5.48. As discussed above the solar farm may result in significant adverse effects on Threatened and At-Risk species with limited apparent measures to avoid, minimise or remedy those effects proposed by the Applicant. The primary mitigation measure suggested by the Applicant, being the rabbit proof fence, may result in adverse effects on Threatened and At-Risk plants and invertebrates that are over and above the impact of constructing the solar farm.

5.49. Residual effects are those that remain after appropriate avoidance, mitigation and remediation measures have been implemented.

5.50. Notwithstanding the absence of offered mitigation to manage effects in this case, the Department considers that even if all reasonable and appropriate measures had been offered, a utility scale solar farm at this location would still result in residual adverse effects.

5.51. Residual effects resulting from the solar farm will include:

a) Loss of populations of At-Risk and Threatened plant species which rely on extreme conditions, so would not persist due to the solar panels providing shade and frost protection, and also through increased competition from ubiquitous naturalised species;

b) Loss of Threatened invertebrates which rely on extreme conditions, so would not persist due to the solar panels providing shade and frost protection; and

c) Loss of habitat and on-going collision risk for At-Risk and Threatened avifauna.

5.52. In its 19 December 2025 request for further information the Panel has requested further consideration of compensation actions both on- or off-site, that specifically target the most threatened biodiversity values in the area and are expected to deliver tangible and certain net positive outcomes for significant local biodiversity.

5.53. In this respect the principles in Appendix 4 of the National Policy Statement for Indigenous Biodiversity 2023 - Amended December 2025 (NPSIB) remain helpful.[40] As it stands the vague and limited proposals suggested by the Applicant fall well short of these principles and the other relevant statutory guidance.

5.54. The Applicant appears to be suggesting that small areas within the site, not required for solar infrastructure will be retained in their current state to act as refugia for indigenous fauna and vegetation, that a *Lepidium* nursery could be established and that unknown compensation would be provided if undefined triggers are breached.

5.55. None of these measures are reflected in conditions, nor do they give any certainty that residual effects will be managed in accordance with key principles such as providing for compensation at the appropriate scale relative to effects, ensuring additionality, avoiding leakage (i.e. harm to other biodiversity, which is likely due to rabbit proofing) or 'trading up' for biodiversity values lost.[41]

5.56. In its discussions with solar farm developers seeking to locate in the Mackenzie Basin, including with Lodestone, the Department has urged an integrated, landscape wide approach to compensation. As discussed above in reference to cumulative effects the Panel and interested parties have no control over which solar farms will proceed to construction and obtain a connection to the National Grid. It would therefore be imprudent to proceed on the basis of ad-hoc, site specific compensation proposals that are likely to be ineffective on their own.

5.57. DOC's preferred approach would be for solar farm applicants to acknowledge the cumulative effects of their proposals and pool their capital for appropriate offsite compensation. Such an approach could be to secure long-term protection and management of undeveloped outwash terraces elsewhere in the Mackenzie Basin, or to fund existing programs, for example, the kakī/black stilt recovery programme in a way that is additional to current efforts or be set up in a similar way to the Project River Recovery programme[42] with the aim of protecting and enhancing large areas of the Mackenzie Basin, equivalent to the extent and value of biodiversity that may be lost.

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[40] DOC acknowledges that due to Clause 1.3(3) the NPSIB does not apply to this project, however, the offset and compensation principles in Appendices 4 and 5 are in accordance with good practice biodiversity offsetting and compensation having been developed to reflect the Business and Biodiversity Offsets Programme standard on biodiversity offsets and DOC's own guidance. The NPSIB principles are also reflected in statutory provisions that must be had regard in determining this application such as Policy 4 in Section 19 and Appendix Z of the MDP.

[41] National Policy Statement for Indigenous Biodiversity 2023 (amended December 2025), Appendix 4, principles, 3, 4, 5, and 9.

[42] A conservation programme funded by Meridian Energy and Genesis Energy in compensation for effects from the Waitaki and Tekapo Hydroelectric Power Schemes.

5.58. DOC understands solar developers are reluctant to commit to such an approach given their competing interests. If the Applicant takes an onsite approach it will need to be supported by robust ecology advice, secured in consent conditions that give the Panel confidence it will conform to the above principles. The onus is on the Applicant to give the Panel that assurance.

6. Comments on conditions

6.1. DOC wishes to reiterate that the deficiencies in the AgScience ecology assessment have flowed through to the substantive application. Until resolved, the key ecology issues, such as the need for a comprehensive vegetation survey, cannot be managed by conditions. The Applicant's suggestion of a pre-construction vegetation survey condition is inappropriate given the significant values already missed by the Applicant but shown to be onsite by the other parties.

6.2. Should the Panel reach a point where it is satisfied that the above matters have been resolved, DOC considers new, clear and enforceable conditions will be required. Those conditions will need to address the following non-exhaustive list of issues:

a) Effects basis – the conditions proposed will need to be clearly linked to the actual and potential ecological effects, currently they are not. For example, measures like rabbit proofing are unlikely to address the effects discussed above but may worsen adverse effects for certain plants and invertebrates.

b) Compensation - there should be a clear distinction between conditions designed to avoid, minimise and remedy adverse effects and those designed to offset or compensate for residual effects for the loss of Threatened and At-Risk species. Compensation conditions should be offered on an *Augier* basis by the Applicant, be proportionate to the residual effects and be subject to clear objectives (e.g. no net loss or net gain of the subject biodiversity) and performance standards that are specified in the conditions.

c) Management Plans - any management plan conditions should be in accordance with section 21 of the July 2025 Panel Conveners' Practice and Procedure Guidance document.[43] Comprehensive draft management plans should be submitted to the Panel for review and/or certification prior to approval of the of application.[44] Management plan conditions must be subject to clear objectives, and performance standards that are specified in the conditions. Administrative detail can be contained within the management plans.

i. A clear process for certification of any management plan must be conditioned.

[43] Fast-track Approvals Act 2024: Panel Convenors' Practice and Procedure Guidance (22 July 2025) at section 21.
[44] Certification by the council/s that will enforce the conditions is also appropriate, but the management plan should be reviewed by the Panel at the application stage.

ii. Ecology management plans should be prepared in consultation with DOC, relevant iwi and the relevant Councils.

d) Avifauna - a bird collision monitoring program with appropriate carcass detection methods should be designed in consultation with a biostatistician[45] and implemented over an appropriate duration. The relevant condition should specify the minimum requirements and duration of the monitoring and its objective. Monitoring data should be shared with the Department.

e) Bird-sensitive anti-reflective coatings and/or applications to the panels, use of deterrent devices or visual warning devices/markings (flags, streamers, or visually distinctive markings on panels) to deter attempted landing on panels and limitations on angle or orientation of solar panels over defined spatial, temporal scales, or environmental conditions should be considered as mitigation measures under a condition/s.

f) Triggers/thresholds for pre-determined intervention/additional effects management, based on bird carcass detections should be included in the conditions to ensure adverse effects are addressed if Threatened or At-Risk species are being killed or injured by collision with solar infrastructure.[46]

g) Consideration should be given to staging of the solar farm, whereby a smaller part of the farm is constructed under intensive ecology monitoring conditions, and the next stage can only proceed if effects meet pre-determined criteria.

h) The Applicant's proposed review condition under sections 128 – 129 of the RMA should explicitly reference certain ecology effects that can be detected by monitoring (such as breach of carcass thresholds) and be able to be implemented at any time those effects are engaged (without limiting the ability to review the consent for other unforeseen adverse effects).

7. Conclusions

7.1. The site has significant biodiversity values which have not been identified by the Applicant in their AgScience report but have been demonstrated to be present by DOC's brief site visit and more recent site surveys for invertebrates and lizards commissioned by the Applicant.

7.2. DOC considers that a comprehensive site survey, including for vegetation, is required before the Panel will have adequate information to understand the values present, the ecological effects, the adequacy of mitigation, and appropriate conditions.

7.3. Significant residual adverse effects will inevitably result from the development, as threatened species will not be able to persist.

[45] The Department understands Lodestone have engaged biostatisticians from Proteus to develop a bird mortality monitoring program.

[46] See for example, the recent decision of independent commissioners to grant a 550,000 panel solar farm at 48 Ranfurly-Naseby Road - Helios OTA Op LP – 240065 Decision.pdf. See the relevant bird management Conditions 36 – 43. We note these conditions were adopted following a risk assessment of bird collisions at that site. The bird risk profile for Haldon and other Mackenzie solar proposals is higher.

7.4. If consent is granted, it will require adequate compensation to address those residual adverse effects. The Applicant has offered some suggestions, but there is no actual proposal. DOC considers that further work would be required to ensure that any compensation measures are appropriate and effective, and it is likely that off-site measures would need to be part of this.

Appendix A - Currently-known Mackenzie solar farm proposals at 02 February 2026

Appendix B – Haldon Station Solar Array Site Visit Vegetation Survey – Harding 2025

Appendix C – Mike Harding – Terrestrial Ecology Evidence

Appendix D – Haldon Station Invertebrate Survey Report – Chinn 2025

Appendix E – Advice Note Risks to Birds of Construction of Operation of the proposed Haldon Solar Farm – O'Donnell