

Addendum Landscape Assessment Report: Cumulative Effects Associated with Haldon Solar Project

Proposed Solar Farm
Nova Energy Ltd, Mackenzie Basin

3 September 2026



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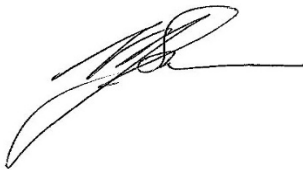
Prepared by:



.....
Paul Smith

Senior Landscape Architect – NZILA (Registered)

Reviewed by:



.....
Nikki Smetham

Senior Landscape Architect / Technical Lead – NZILA (Registered)

Rough Milne Mitchell Landscape Architects Limited

Level Two

69 Cambridge Terrace

Christchurch 8013

PO Box 3764

Christchurch 8140

Ph: 03 366 3268

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Contents

1 Introduction 4

2 Cumulative Effects Assessment 5

3 Conclusion 14

1 Introduction

1.1 Purpose and Scope

Rough Milne Mitchell Landscape Architects (**RMM**) prepared a Landscape Assessment Report (**Landscape Report**), dated 1 May 2026 that formed part of Nova Energy's Fast-track Application for the Proposed Twizel Solar Farm (**Twizel SF**).

Since preparing the LAR, the Haldon 320ha Solar Farm Fast-Track project (**Haldon SF**) has been approved by a Fast-track Panel.¹ This solar farm (**SF**) now forms part of the environment that was not the case when preparing the LAR. Subsequently, this change to the environment prompts the consideration of cumulative effects.²

The locations of the two SFs within the Mackenzie Basin are illustrated on below on **Figure 1**.



Figure 1. The location of the two SFs within the Mackenzie Basin.

The purpose of this Addendum Landscape Assessment Report (**Addendum Report**) is to assess the actual and potential cumulative effects of the proposed Twizel SF in relation to the consented Haldon

¹ Haldon Solar Farm Decision, 10 August 2026.

² Ibid. Paragraph 154.

SF. For completeness, other SFs are proposed within the Mackenzie Basin and within the Waitaki District south of Lake Ruataniwha. However, they are not consented.

2 Cumulative Effects Assessment

2.1 What are Cumulative Effects

Cumulative effects are not defined in the Fast-track Approvals Act (FTAA). The meaning given in the Resource Management Act 1991 (RMA) is used. Under the RMA, a cumulative effect is defined as “any cumulative effect which arises over time or in combination with other effects— regardless of the scale, intensity, duration, or frequency of the effect”.³

Cumulative effects are also described in Te Tangi a te Manu⁴ (TTatM) as per the below.

“Cumulative effects are the effects of a proposal in combination with those of previous developments. This might relate to such things as s127 variations to a resource consent (e.g. further additions to an approved development), expansion of a facility (e.g. shopping mall), intensification of an element of infrastructure (e.g. ‘four-laning’ a two-lane highway), or additional projects of a certain type in an area (e.g. further rural subdivision, wind farms, marine farms).

Cumulative effects should be considered carefully because in one sense all effects are cumulative. Previous lawfully established activities are part of the existing environment against which the effects of a new activity are assessed. Mostly, the effects of a proposal are simply the effects on the existing environment. Likewise, a proposal’s different types of effect (for instance noise and visual effects) are simply the proposal’s combined effects rather than what is meant by cumulative effects.

Cumulative effects come into play in circumstances where an additional effect takes a landscape beyond a ‘tipping point’ —which would normally require a benchmark against which the effects are to be measured. Such benchmarks might include the character envisaged in the district plan or the ‘capacity’ of a landscape to accommodate development before compromising its landscape values (its valued attributes). This is a matter of context and judgement. As with all matters of professional judgement, the key is in the reasons.”⁵

When considering actual and potential adverse cumulative effects, this assessment has taken into consideration visual amenity effects resulting from simultaneous and sequential views, and effects on the Mackenzie Basin’s local and wider landscape character and its ONL values.

2.2 Potential Issues

As outlined in Section 5 of the Landscape Report, the potential adverse landscape and visual effects arising from the proposed Twizel SF include the following:

³ RMA Section 3.d.

⁴ Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines', Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022.

⁵ Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines', Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. Para 6.46 – 6.48

- *Effects on the distinctive Mackenzie Country landscape character with its unique, natural and visual qualities of the high mountain environment.*
- *Effects on the openness and vastness of the Mackenzie Basin, including the long open views.*
- *Effects on the legibility of the outwash plain and the sense of landform continuity.*
- *Effects on the degree of naturalness.*
- *Effects on the high degree of aesthetic and experiential values, visual coherence – seasonal vegetation colour, dramatic views that reflect transient values (snow cover, vegetation colour, weather, low light, wildflowers/lupins, lake colours), in particular the scenic outlook from SH8.*
- *Effects on the shared and recognised (associative) values of the Mackenzie Basin.*

Regarding this, the Haldon and proposed Twizel SFs within the basin have the potential to cumulatively contribute to adverse landscape effects.

2.3 Parameters of the Cumulative Effects Assessment

The information sourced to inform this Cumulative Effects Assessment is from the following landscape assessment reports:

- Rough Milne Mitchell Landscape Architects Limited. Landscape Assessment Report. Proposed Solar Farm. Nova Energy Ltd, Mackenzie Basin. 1 May 2026.
- Boffa Miskell Limited 2025. Haldon Solar Project: Landscape Effects Assessment. Report prepared by Boffa Miskell Limited for Lodestone Energy Ltd. 22 August 2025.
- Boffa Miskell Limited 2025. Landscape Memorandum - Response to RFI #3. 8 April 2026.
- Vivian+Espie Ltd. Haldon Solar Project – Lodestone Energy Limited. Landscape and Visual Effects Assessment - Peer Review. 2 February 2026.

For completeness, the Haldon SF Landscape Assessment Report was peer reviewed by Vivian+Espie. This Addendum Report does not review / fact check either of those reports, rather it relies upon the information that has been included.

2.4 Visibility of the Haldon and Twizel Solar Farms

The description below focuses on the viewpoint locations where the Haldon and Twizel SFs will be visible from and their resulting degree of adverse effects, as assessed the respective landscape assessment reports. If a public place / road has not been mentioned, the SF has been assessed in the respective landscape assessment reports as not being visible from that public place. Comment has been included if mitigation vegetation provides screening.

The surrounding public roads and places have been grouped to assist with understanding the different viewing audiences and the sequential views of the two SFs as people travel through the central, eastern and southern parts of the Mackenzie Basin.

2.4.1

Centralised Locations within the Mackenzie Basin

State Highway 8 – Scenic Highway

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Potentially seen from short stretches of SH8. However, distance and landform will obscure most sightlines.	Beyond 13km	Nil
Twizel SF	Visible from two stretches, 650m and 500m between the Lake Ruataniwha Dam and the entry to the SF.	1.0km – 2.4kms	Moderate

The Alps to Ocean Trail

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Potentially seen from short stretches of SH8. However, distance and landform will obscure most sightlines.	Beyond 13km	Nil
Twizel SF	Not visible		Nil

2.4.2

Eastern Side of the Mackenzie Basin

Haldon Road

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Small portion of the northeast corner. Mitigation vegetation will assist with screening, while maintaining a sense of openness.	Beyond 5km	Very Low
Twizel SF	Not visible	-	Nil

Haldon Arm Road

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Small portion of the northeast corner. Mitigation vegetation will assist with screening, while maintaining a sense of openness.	200m - 1.9km	Very Low to Low-moderate
Twizel SF	Not visible		Nil

2.4.3

Southern Part of the Mackenzie BasinPukaki, Tekapo, Ōhau Rivers

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	At most, will be seen from very limited locations along the 4wd tracks alongside these rivers.	1.5km – 2km	Very Low to Low
Twizel SF	Not visible	-	Nil

Twizel River Trail – 13kms long

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Not visible	-	Nil
Twizel SF	Visibility varies between fully screened, difficult to distinguish due to distance, partly screened to clearly seen / prominent. With the latter, being from the most distant 2km stretch of this trail.	Adjacent - 6kms	Nil to Low-Moderate

Old Iron Bridge Road

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Not visible	-	Nil
Twizel SF	Briefly seen alongside Twizel Substation from a short stretch of the elevated section of road. Screened by topography from most of the lower stretch of road.	1.5km	Very Low to Low

Ōhau River Four-Wheel Drive Track

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Not Visible	-	Nil
Twizel SF	Screened by topography from most of the lower, western stretch of road. Prominent element by 4wd users along the elevated eastern stretch of road.	Adjacent – 1.5km	Very Low to Moderate

McAughtries Road – Elevated Stretches including beside Ōhau B and C Power Stations

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Beyond Ōhau B Power Station, it will be hard to perceive and will form a very small part of a much larger view. Visible from Ōhau C Power Station.	3.6km	Low

Twizel SF	Will be most readily visible from the upper 2.2km stretch of McAughtries Road, northwest of the Ōhau B Power Station, also from the 900m stretch of road near Ōhau C Power Station.	900m – 1.5kms	Moderate to Moderate-High
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McAughtries Road – Lower Stretches Between Ōhau B and C Power Stations

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Not Visible	-	Nil
Twizel SF	Will be intermittently seen when travelling between Ōhau B and Ōhau C Power Stations.	700m – 1.3km	Low-Moderate to Moderate

Falston Road

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Will be seen from most of this road at the far side of the lake. Albeit views will be oblique and distant at times.	2km	Very Low to Low
Twizel SF	The very southern extent of the SF will be seen, with most of the site obscured by the landform containing the canal.	2km - 2.8kms	Low-Moderate to Moderate

Lake Benmore and Lake Benmore Shoreline

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Close views will be mostly screened by an escarpment or riparian vegetation. Beyond 500m, lake edge topography and particularly the riparian vegetation and pine shelterbelt, will continue to provide considerable screening at long distances.	500m to 2kms away	Very Low to Low-Moderate
Twizel SF	Not visible	-	Nil

Lake Benmore – Ōhau C Campground

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Limited visibility with the SF being difficult to distinguish when views are available.	2km	Low
Twizel SF	Not Visible	-	Nil

Falston Campground

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Limited visibility with the SF being difficult to distinguish when views are available.	4.2km	Very Low
Twizel SF	Not visible	-	Nil

2.4.4

Other Elevated Vantage Points

Ben Ōhau - Greta Track

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Not visible	-	Nil
Twizel SF	Visible from a 3km stretch of track, forming a small part of the wider view.	14 - 20kms	Low-Moderate

Benmore Range Easement Track

	Visibility	Viewing Distance	Degree of Effects
Haldon SF	Visible from varying stretches of this elevated trail. Will form a small part of the wider view.	6kms	Low
Twizel SF	Visible from varying stretches of this elevated trail. Will form a small part of the wider view.	4kms	Low-Moderate to Moderate

2.5

Simultaneous Visual Effects

Cumulative effects on visual amenity can be caused by simultaneous views / combined visibility of multiple solar farms. Combined visibility occurs where the observer can see the two SFs from one viewpoint. Combined visibility may either be in combination (where the two SFs are within the observer's arc of vision at the same time) or in succession (where the observer has to turn to see the two SFs).

Based on the above visibility description in **Section 2.4**, there are only four locations within the Mackenzie Basin where the Twizel SF may be seen at the same time or in the same view as the Haldon SF. These four locations are illustrated below on **Figure 2**.



Figure 2. The four locations within the Mackenzie Basin where simultaneous visibility and visual effects resulting from the two SFs may occur.

State Highway 8 – Scenic Highway (Location 1)

The Twizel and Haldon SFs are potentially seen from the stretch of SH8 near Lake Ruataniwha Dam. However, the Haldon SF will be very difficult to distinguish at 13kms away, on the eastern / far side of Lake Benmore.

The brevity of the view, the relatively flat viewing angle and the distance in which Haldon SF will be seen means that it is unlikely that road users will comprehend both SFs from this stretch of road. Therefore, whilst theoretically both visible, it is likely that a road user will only recognise the Twizel SF and cumulative visual effects will be **very low to nil**.

McAughtries Road beside Ōhau C Power Station (Location 2)

The Twizel SF will be seen when facing north at 1.4kms away and the Haldon SF seen will be seen when facing east at the eastern / far side of Lake Benmore at 3.6kms away from the lookout area beside the Ōhau C Power Station, along McAughtries Road.

These two SFs will be seen at the very southern end of the Mackenzie Basin, co-located with the hydro infrastructure including the Benmore to Inlington Powerline and Twizel Substation that assists with providing the visual context within this energy generating landscape. They will not appear as a single SF because they are separated by the incised rivers and Lake Benmore. However, whilst separate, they will not be perceived as sprawling through the basin as they are both situated at the river confluence above Lake Benmore and the broader open character beyond the solar arrays

including Lake Benmore will remain. Due to this, adverse cumulative visual effects will be **low to low-moderate**.

Falston Road (Location 3)

The Twizel and Haldon SFs are potentially seen at the same time from the northern end of Falston Road near the McCaughtries Road intersection. The Twizel SF will be seen when facing north at 1.4kms away and the Haldon SF will be seen when facing east at the eastern / far side of Lake Benmore at 2kms away.

The road alignment runs northwest to southeast, and this viewing audience is primarily people travelling along the road, with no destination points along this stretch of road. In this regard, people travelling southwest will see the Haldon SF and people travelling northeast will see the Twizel SF. Subsequently, road users will not see both SFs at the same time because one SF will always be behind and outside road users primary and peripheral fields of view. Due to this, the adverse cumulative visual effects will be **very low to nil**.

Benmore Range Easement Track (Location 4)

The Twizel and Haldon SFs will be visible from elevated areas on the Benmore Range Easement Track at a distance of 4 - 6kms.

These two SFs will be seen by a small viewing audience from this infrequently used trail, at the very southern end of the Mackenzie Basin, located 4kms apart. They will be co-located with the hydro infrastructure including the Benmore to Inlington Powerline and Twizel Substation which assists with providing the visual context within this energy generating landscape. The two SFs will not appear as a single SF because they are separated by the incised rivers and Lake Benmore, which will be more evident from this elevated vantage point. However, whilst separate, they will not be perceived as sprawling through the basin, rather the broader open character beyond the solar arrays will remain. Due to this, adverse cumulative effects on visual amenity will be **very low to low**.

2.6 Sequential Visual Effects

Cumulative effects on visual amenity can be caused by sequential visibility. Sequential views and resulting cumulative effects occur when an observer will see the two SFs in sequence (i.e. one after the other) while travelling along a defined route. The degree of adverse effects will depend on, direction of view ('direct', 'oblique', etc.), distance between SFs, frequency of sequential views, speed of travel and distance over which the effect would occur or time separation between sequential views.

2.6.1 Centralised Locations within the Mackenzie Basin

State Highway 8 – Scenic Highway

SH8 is recognised as a scenic highway and the central route through the South Island connecting main cities and towns and it generally supports high traffic volumes. People travelling through the Mackenzie Basin on SH8, may only see the Twizel SF from the short stretch of the SH immediately between the Lake Ruataniwha Dam and the entry to the SF. The Haldon SF will be very difficult to see from SH8 as it is 13kms to the southeast beyond Lake Benmore. Due to the difficulty in seeing the Haldon SF, it is unlikely that the two SFs will result in adverse sequential cumulative effects on the SH8 experience.

Alps to Ocean Trail

The Twizel SF will not be seen, and the Haldon SF will be difficult to see from the A2O Trail, therefore sequential views will not occur.

2.6.2 Eastern Part of the Mackenzie Basin

The Twizel SF will not be seen from Haldon and Haldon Arm Road. Therefore, sequential views will not occur.

2.6.3 Southern Part of the Mackenzie Basin

People travelling to the Ōhau C and Falston Campgrounds, and Lake Benmore will see the two SFs in sequence. The Twizel SF will be visible from McAughtries Road, with Haldon SF coming into view beside the Ōhau C power station / lookout. Once on Falston Road, the Twizel SF will be out of sight, and the Haldon SF will be seen at the far side of Lake Benmore.

People who holiday in this area and those who spend days on the lake will notice an increase presence of solar infrastructure and a reduction in openness. The magnitude of the potential sequential cumulative effects will be mitigated by separation, being 4.3kms apart, located on different landforms, Lake Benmore, Pukaki and Twizel Rivers located between them and the predominance of the Mackenzie Basin's outwash plains, braided rivers, lakes, and enclosing mountain ranges remaining the dominant outlook experienced.

The cumulative effects arising from views of Twizel SF when seen in sequence with the Haldon SF will result in a **low to low-moderate degree** of adverse effects on visual amenity.

2.6.4 Other Elevated Vantage Points

The Haldon SF will not be seen from Ben Ōhau - Greta Track. Therefore, sequential views will not occur.

Ben Ōhau and Benmore Range Track are both day walks, that are highly unlikely to be hiked in the same day. Therefore, whilst the Twizel SF will be visible from elevated parts of Ben Ōhau and both SFs will be seen from the Benmore Range Easement Track, they will not be seen in sequence from these vantage points. Therefore, there are no sequential cumulative effects beyond the matters assessed in Section 2.5.

2.7 Assessment of Landscape Effects

2.7.1 Wider Scale

The Haldon SF is 320ha and Twizel SF will be 565ha, collectively being 885ha in area.

One of the key characteristics of the Mackenzie Basin's rural landscape is its open character which stems from its openness, vastness, and lack of built form. The Mackenzie Basin is in excess of 400,000ha in area and the South Basin, in which the SFs are located, is approximately 21,500ha in area. At a wider scale, the Haldon SF remains subservient to the openness and vastness of the Mackenzie Basin. The inclusion of the Twizel SF will not materially alter this because it is situated on the southern edge of the basin and collectively, the two SFs will equate to approximately 4% land coverage of the South Basin. The change in character within these two sites will therefore not be dominant and the legibility and coherent character of the Mackenzie Basin's ONL will remain.

At a Basin wide scale, the general clustering of the Haldon and Twizel SFs in the southern part of the basin, albeit 4.3kms apart on different landforms will avoid the perception of sprawling solar development throughout the entire basin. Also, co-locating the Twizel SF within a concentrated part of the existing energy infrastructure within the basin assists in reducing its potential adverse cumulative effects.

Overall, the addition of the Twizel SF will have a **very low degree** of adverse cumulative effects on Mackenzie Basin's distinct landscape character, and its landscape values beyond the South Basin.

2.7.2

Local Scale

At a local scale, the Twizel and Haldon SFs will contribute a combined presence of large-scale solar infrastructure, that will add to the renewable energy infrastructure character within the basin. However, the magnitude of cumulative effects will be mitigated by distance, being 4.3kms apart, low profile in nature appearing as horizontal structures in the landscape, located on different landforms, and separated by Lake Benmore, Pukaki and Twizel Rivers. Therefore, the legibility and coherent open character of the Mackenzie Basin's ONL will be maintained.

The Twizel SFs location in relation to the Haldon SF, the Waitaki Hydro Scheme and Twizel township (built to accommodate the Waitaki Hydro workers) also assists with providing the landscape context that rationalises the location of SF infrastructure in this part of the basin. Notably, this part of the basin contains more built form than all other areas. Therefore, the Twizel SF will be perceived and contribute to the renewable energy generating character of this localised area, that in turn will reduce its potential cumulative effects.

Overall, the Twizel SF will have a **low to low-moderate degree** of adverse cumulative effects on the landscape character and values of the southern part of the Mackenzie Basin.

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Conclusion

Since preparing the LAR, the Haldon SF has been approved through the Fast-track consenting process. This has resulted in a change to the receiving environment for the Twizel SF. This prompts the consideration of cumulative effects. The purpose of this Addendum Report is to assess the actual and potential landscape and visual cumulative effects of the Twizel SF in relation to the Haldon SF.

The Twizel SFs simultaneous and sequential cumulative effects only occur from a few public locations, and in most instances result in **very low to low degree** of cumulative visual effects. The exception to this is from from McAughtries Road and the Ōhau C Power Station, and when travelling along McAughtries and Falston Roads to Lake Benmore and the lakeside campgrounds. From these locations the adverse cumulative visual effects are assessed as a **low to low-moderate** degree.

At a local scale, the Twizel SF will have a **low to low-moderate degree** of adverse cumulative effects on the landscape character and values of the southern part of the Mackenzie Basin. At a wider scale, these adverse cumulative effects will be of a **very low degree**.