

Under The Stars NZ Ltd
153 Main Street
Greytown
0211755194

To: South Wairarapa District Council

From, Under The Stars NZ Ltd

This is a submission on the following proposed plan change:

Draft Wairarapa International Dark Sky – Outdoor Artificial Lighting Plan Change.

As a business that works in the dark and takes people on evening stargazing tours, this submission is an important step in helping new astronomy businesses take a foot hold in the Wairarapa, and for established ones to continue to grow, providing new jobs and boosting the economy.

It seems obvious and straightforward that the better the outdoor artificial lighting is regulated, the better the sky will be from reduced light pollution spilling into the sky.

This is a great step forward in helping the Dark Sky Society get accreditation for the sky. In return, the number of tourists will increase which in turn helps our economy.

Stargazing is a great and accessible dark experience and with a darker sky we will get more businesses offering stargazing tours. This helps rebalance our traditionally summer heavy tourist season in the South Wairarapa with a year-round tourist base as often stargazing is better in the Winter.

But, it isn't just good for business, but also the people living in the region. Darker skies have been proven to aid better quality sleep, healthier body routines and increase wellbeing. Avoiding blue and white light at night is vital for humans and the environment, we all need quality dark areas at night.

Children should be able to see the stars at night. There are so many places in the world that you cannot see stars or the Milky Way. Without these stellar signposts, we lose a part of who we are by not being able to look further into the cosmos.

I seek the following decision from the South Wairarapa and Carterton District Councils:

Approve the Draft Wairarapa International Dark Sky – Outdoor Artificial Lighting Plan Change.

Kind regards,

Becky Bateman

Director

Under The Stars NZ Ltd



WAIRARAPA SPORTS ARTIFICIAL SURFACE TRUST

Chester Road - Carterton

A charitable entity registered under the
Charities Act 2005
Registration CC33144

P.O Box 190
Masterton

Submission by Wairarapa Sports Artificial Surface Trust (WSAST) on the Proposed Plan Change for the Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting

WSAST wish to be heard in support of this submission.

WSAST could not gain an advantage in trade competition through this submission.

If others make a similar submission, WSAST would be prepared to consider presenting a joint case with them at any hearing.

WSAST was set up in 1992 for the purpose of;
“To supply and lay an artificial playing surface for public sport at Clareville, Wairarapa”.

WSAST has an existing established hockey complex at Clareville that the Wairarapa community highly value. The operation of this complex is run by volunteers and financially relies on grants from Councils, Trusts and rental from Hockey Wairarapa.

WSAST commissioned the first artificial turf with lights for hockey in 1992. Due to demand, a second turf with lights was constructed in 2009.

As hockey is predominately a winter sport, floodlights are an essential element to the turfs for late afternoon and evening games including practices. Approximately a third to half of the hockey games and practices played on the turfs, are under floodlights.

Turf lighting at the complex for both turfs is set up for typical competition standard lighting (level 3). The 18.1 metre light masts are fitted with Philips MVP507 fittings which takes either a Philips lamp (4000k Kelvin) or an Osram lamp (5000k Kelvin). The electrical circuit does not incorporate the ability to have sectional lighting or selectable lower lighting for training.

There is a significant cost difference to upgrade from the current Metal Halide lamps to LED fittings and including, almost a doubling in weight if LEDs are fitted which the masts may not support. The Trust is not in a position to fund additional requirements due to the propose Dark Skies criteria if adopted by the Councils.

As already acknowledged, lighting provisions that are restrictive on outdoor sports lighting and which may trigger resource consent would be onerous for sports clubs, which are usually community run organisations with limited resources.

Clareville Hockey Complex falls within the Dark Sky Management Area as identified within Appendix 15 of the Wairarapa Combined District Plan.

Under PART B – 21 DISTRICT WIDE LAND USE RULES, criteria is set out for activities that are permitted within the stated rules. Below are areas of concern for the WSAST.

21.1.11 Outdoor Artificial Light


(b) Outdoor Sports Lighting at Recreation Facilities

- (i) All outdoor sports lighting shall have a colour temperature of light emitted of 4000K Kelvin or lower.
- (iv) Outdoor sports lighting shall not operate between 10pm and 7am.
- (v) All outdoor sports lighting shall provide the following controls;
 - (1) Automatic curfew controls to ensure the lighting is off between 10pm and 7am.
 - (2) ~~Local control to turn lights on and off.~~
 - (3) If the lighting has a lighting level for competition, it shall also have a selectable lower lighting level for training.

Relief Sort:

Existing rights to continue with no impediment in the future and or additional cost as a result of the proposed Plan Change for the Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting.

Yours Sincerely



Lindsay Annear
Chairperson for WSAST
29 October 2020

Contact Details

Email address: laneend.annear@xtra.co.nz

Cell phone: 027 4466 334

To South Wairarapa District Council

Name of submitter: Ricky Clarkson, Wainuiomata/Orongorongo park ranger,
Greater Wellington Regional Council

This is a submission on the following proposed policy statement (*or on the following proposed plan or on a change proposed to the following policy statement or plan or on the following proposed variation to a proposed policy statement or on the following proposed variation to a proposed plan or on the following proposed variation to a change to an existing policy statement or plan*) (the **proposal**):

The Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting Plan Change.

I could not gain an advantage in trade competition through this submission.

The specific provisions of the proposal that my submission relates to are:

- A new rule will require new outdoor lighting to be tilted down or shielded so light goes out and down – not out and up.
- A new rule will make sure the ‘colour temperature’ of new lighting is 3000 Kelvin and under.
- An exemption to the above rules if outdoor lighting is on a five-minute (or less) sensor/timer.

My submission is:

I support the proposed changes to the plan. These changes will help minimise lighting impacts on the natural environment in the South Wairarapa District, an area adjacent to the park I am responsible for (Wainuiomata Orongorongo water collection area).

The Greater Wellington Regional Council currently runs free stargazing and bushwalk nights promoting dark skies as a public service. These changes and the proposed Dark Sky Reserve will ensure that the park continues to be able to run these events in to the future and will protect the Taonga which is the night sky.

I seek the following decision from the local authority:

- Approval of the proposed plan change.

I do not wish to be heard in support of my submission.



Signature of submitter
(or person authorised to sign
on behalf of submitter)

12/10/2020

Date

(A signature is not required if you make your submission by electronic means.)

Electronic address for service of submitter: Ricky.clarkson@gw.govt.nz

Telephone: 0212496473

Postal address (or alternative method of service under [section 352](#) of the
Act): C/O GWRC 1056 Fergusson Drive, Clouston park 1056

Contact person: Ricky Clarkson, Wainuiomata/Orongorongo park ranger, GWRC

From: Joyanne Stevens joyannestevens@hotmail.com
Subject: Submission on Wairarapa International Dark Sky Reserve - Outdoor Artificial Lighting Plan Change
Date: 27 October 2020 at 3:25 PM
To: planning planning@swdc.govt.nz



We fully support this plan change which will further enhance the already amazing Wairarapa night sky and enable part of the Wairarapa to be certified as an International Dark Sky Reserve.

We ask Council to adopt the Plan Change in its entirety.

We do not wish to be heard in support of our submission.

Alan & Joyanne Stevens



SOUTH WAIRARAPA DISTRICT COUNCIL

Submission by South Wairarapa District Council on the Proposed Plan Change for the Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting

To: The Chief Executive
South Wairarapa District Council
PO Box 6
Martinborough
planning@swdc.govt.nz

Date: 29 October 2020

Submitter name: South Wairarapa District Council

Contact: Russell O'Leary
Group Manager Planning and Environment

Address: South Wairarapa District Council
19 Kitchener Street
Martinborough 5711

Phone: 06 3069611

Email: Russell.Oleary@swdc.govt.nz

Introduction

South Wairarapa District Council (**SWDC**) wishes to make a submission to the South Wairarapa District Council (**SWDC**) on the Proposed Plan Change for the Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting (**Proposed Plan Change**), which was publicly notified on 30 September 2020.

South Wairarapa District Council **do not** wish to be heard in support of this submission.

South Wairarapa District Council **could not** gain an advantage in trade competition through this submission.

If others make a similar submission would you be prepared to consider presenting a joint case with them at any hearing? **No**

Regards



PP
Godwell Mahowa
Planning Manager

Submission and Relief Sought

As a general submission point, South Wairarapa District Council fully supports the intent of the Proposed Plan Change and the benefits an International Dark Sky Reserve may bring to the Wairarapa region.

Since the Plan change was notified the Council has discovered that the proposed rules for Outdoor Artificial Lighting, as drafted, inadvertently may control lighting from vehicles and lighting mounted to vehicles. For example lights from vehicles used while undertaking primary production activities in the Rural Zone.

Lighting from vehicles is paramount for safety in the evenings. In addition, vehicle lighting allows primary production and other activities to occur in evenings.

It is considered that vehicle lighting or lighting mounted to vehicles will have very limited impact on the Dark Sky.

In this regard, South Wairarapa District Council seeks the relief outlined in the table below in relation to the Permitted Activity Rule 21.1.11.

Provision	Relief Sought	Reason
21.1.11 – Outdoor Artificial Lighting	Amend Rule 21.1.11(a) to read (proposed amendment in blue text); 21.1.11 Glare and <u>Outdoor</u> Artificial Light (a) The emission of <u>outdoor artificial light (including glare)</u> meets the following standards: (i) A maximum artificial light level of 8 lux (lumens per square metre)	The rules for Outdoor Artificial Lighting, as drafted, inadvertently may control lighting from vehicles and lighting mounted to vehicles. For example lights from vehicles used while undertaking primary production activities in the Rural Zone. Lighting from vehicles is paramount for safety in the

	<p>measured at 1.5m above ground level at the site boundary.</p> <p>(ii) <u>Within the Dark Sky Management Area identified within Appendix 15, all outdoor lighting shall have a colour temperature of light emitted of 3000K Kelvin or lower.</u></p> <p>(iii) <u>Within the Dark Sky Management Area identified within Appendix 15, all outdoor lighting with a light output of 500 lamp lumens or greater shall be shielded or tilted so as to not emit any light at or above a horizontal plane measured at the light source.</u></p> <p><u>Exception:</u></p> <p>(iv) <u>Lighting controlled by motion-activated switches limiting the duration of illumination to less than five (5) minutes after activation are exempt from complying with standards (ii) and (iii) above.</u></p> <p>(v) <u>Lighting from or mounted to movable vehicles</u></p>	<p>evenings. In addition, vehicle lighting allows primary production and other activities to occur in evenings.</p> <p>It is considered that vehicle lighting or lighting mounted to vehicles will have very limited impact on the Dark Sky.</p>
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**SUBMISSION BY POWERCO LIMITED ON THE WAIRARAPA INTERNATIONAL
DARK SKY RESERVE – OUTDOOR ARTIFICIAL LIGHTING PLAN CHANGE**

To: South Wairarapa District Council and Carterton District Council
PO Box 6
Martinborough 5741
Email: planning@swdc.govt.nz

From: Powerco Limited
Private Bag 2061
New Plymouth
(Note - this is not the address for service)

1. This is a submission by Powerco Limited (Powerco) on the Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting Plan Change.
2. Powerco could not gain an advantage in trade competition through this submission.
3. The specific provisions of the Plan Change that this submission relates to, along with the decisions sought, are set out in the attached schedule (Schedule 1). In summary, this submission seeks to ensure that the ability to undertake works on the electricity distribution network during hours of darkness are not unreasonably constrained by the new provisions.
4. Powerco does not wish to be heard in support of this submission.
5. If others make a similar submission, Powerco would be prepared to consider presenting a joint case at any hearing.

Signature of person authorised to sign on behalf of Powerco Limited:



Gary Scholfield

Environmental Planner

Dated this 30th day of October 2020

Address for Service: Powerco Limited
PO Box 13 075
Tauranga 3141

Attention: Gary Scholfield

Phone: (07) 928 5659

Email: planning@powerco.co.nz

Schedule 1 – Submission by Powerco

Introduction

This submission has been prepared on behalf of Powerco Limited (Powerco). Powerco is New Zealand's largest electricity and second largest gas distributor in terms of network length and has been involved in energy distribution in New Zealand for more than a century. The Powerco network spreads across the upper and lower central North Island servicing over 440,000 consumers. This represents 46% of the gas connections and 16% of the electricity connections in New Zealand.

Powerco is a "Lifeline utility" as described in Part B of Schedule 1 of the Civil Defence Emergency Management Act 2002, as we are an entity that distributes both natural gas and electricity through a network. Our networks are also recognised as "Regionally Significant Infrastructure" within the Regional Policy Statement (RPS) for the Wellington region.

Powerco has electricity assets within the South Wairarapa and Carterton District's including poles, transformers, high and low voltage above ground lines / underground cables and substations. A reliable and constant energy supply is critical to sustaining the regional economy and way of life. At times, this may mean that works need to be undertaken on our networks during the hours of darkness, with sufficient illumination to ensure a safe work environment for our staff and contractors.

Powerco's submission is that the District Plan should be drafted to ensure appropriate provision is made for the on-going operation and maintenance of Powerco's network, including ensuring that works can occur during night-time hours without undue restriction. Unless this matter is appropriately addressed by the Plan Change, the RPS will not be given effect to; and the sustainable management purpose of the Resource Management Act will not be promoted - Powerco's assets are a physical resource.

Chapter 21 District Wide Land Use Rules

Powerco opposes the amendments to rule 21.1.11(a) insofar as they could restrict works that need to be undertaken during hours of darkness. Routine work is not generally undertaken at night, however extraordinary or emergency repair work may need to be. In order to undertake such work safely, illumination of the work site would be required. For above ground assets, this illumination may be directed upwards.



Relief sought:

Add a further exemption to rule 21.1.11(a), as follows (or such other additional or consequential relief as is necessary to achieve consistency with the relief sought):

- (v) *Night-time works undertaken by a network utility operator are exempt from complying with standards (ii) and (iii) above.*

Conclusion

In summary, Powerco supports the majority of the proposed plan change but requests that the matter identified above is taken into account and that the suggested amendments are incorporated.

Powerco would welcome the opportunity to discuss these comments further with the Council and to review any further draft provisions. If you have any queries or require additional information, please do not hesitate to contact Gary Scholfield on (07) 928 5659 or email gary.scholfield@powerco.co.nz.

Form 5

Submission on notified proposal for policy statement or plan, change or variation

Clause 6 of Schedule 1, Resource Management Act 1991

To: *South Wairarapa District Council*

Name of submitter: *Maritime New Zealand*

This is a submission on the following proposed policy statement (*or* on the following proposed plan *or* on a change proposed to the following policy statement *or* plan *or* on the following proposed variation to a proposed policy statement *or* on the following proposed variation to a proposed plan *or* on the following proposed variation to a change to an existing policy statement *or* plan) (the **proposal**):

Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting Plan Change

I could not gain an advantage in trade competition through this submission.

The specific provisions of the proposal that my submission relates to are:

Chapter 21.1.11 – Outdoor Artificial Light

Chapter 27 - Definitions

Any other provisions required to give effect to this submission.

My submission is:

- *Maritime New Zealand has an international obligation and national obligation under the Maritime Transport Act 1994 to provide appropriate aids to navigation (AtoN) that meet the volume of traffic and degree of risk around the New Zealand coast.*
- *An AtoN is designed to assist with safe navigation and thereby reduce the risk to loss of life and protect the environment. An AtoN is manufactured to meet international standards for colour and intensity to ensure they are effective and efficient in their design. Maritime New Zealand maintains two AtoN's within the proposed IDA area – Cape Palliser and Honeycomb Rock lighthouses.*
- *Broadly speaking, Maritime New Zealand is in support of the Darky Sky initiative and have made recommendations on changes we could implement to assist with inclusion of the lighthouses in the proposed IDA area as indicated in the Section 32 Report, paragraph 9.3.4.4. However, standards proposed to be included in the District Plan will conflict with the international standards*

which Maritime New Zealand must comply with when providing AtoNs. Further, if Maritime New Zealand was to comply with the proposed standards when providing AtoNs, it may have an adverse effect on the environment by potentially creating a shipping hazard.

- *There is currently no IDA guidance on how maritime lights which are required to meet specific colour and intensity requirements could be included in an IDA area. However, the IDA guidance does recognise that some allowance needs to be made where lighting is required by law (see IDA Guidance, page 6, footnote 2). Maritime NZ intends to continue the work we are doing with the Wairarapa Dark Sky Association so that Maritime New Zealand's AtoNs will meet the IDA standards as much as possible, however, it may be that strict adherence to the standards proposed to be included in the District Plan may not achieve safe navigation of ships.*

I seek the following decision from the local authority:

Include an additional exception under rule 21.1.11(a)(iv) that reads:

Any lighting whose function is to ensure the safe navigation or operation of ships at sea

Alternatively, include a definition of “outdoor artificial light” that excludes any lighting whose function is to ensure the safe navigation or operation of ships at sea,

Any other consequential amendments to the proposal required to give effect to this submission.

*I do not wish to be heard in support of my submission.

Signature of submitter



Date: 30/10/2020

Electronic address for service of submitter: jim.foye@maritimenz.govt.nz

Telephone: 04 494-1211

Postal address (or alternative method of service under section 352 of the Act):

Maritime New Zealand

PO Box 25620

Wellington 6140

Contact person: *Jim Foye - Leader Aids to Navigation and Maritime Communication*



Level 5, Majestic Centre
100 Willis Street
PO Box 5084, Lambton Quay
Wellington 6145
New Zealand
Telephone: 64 4 894 5200
Fax: 64 4 894 3305
www.nzta.govt.nz

New Zealand Transport Agency Reference: 2020-0810

South Wairarapa and Carterton
District Councils Reference:
The Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting Plan Change

30th October 2020

Debbie Donaldson
Perception Planning Limited
For / South Wairarapa and Carterton District Councils

Sent Via Email: planning@swdc.govt.nz

Dear Debbie,

The Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting Plan Change

Attached is a submission from Waka Kotahi, New Zealand Transport Agency (Waka Kotahi) on the above.

We welcome the opportunity to discuss the contents of our submission should this be useful.

If you have any questions please do not hesitate to contact Kathryn St Amand (04) 897 4609, Kathryn.StAmand@nzta.govt.nz; or Mark Owen mark.owen@nzta.govt.nz.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'K St Amand'.

Kathryn St Amand
Principal Planner (Consultant)
Consents and Approvals, Transport Services
Waka Kotahi NZ Transport Agency

FORM 5

Submission on a notified proposal for Plan Change under Clause 6 of Schedule 1 Resource Management Act 1991 The Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting

Debbie Donaldson
Perception Planning Limited
For / South Wairarapa and Carterton District Councils

Sent Via Email: planning@swdc.govt.nz

This is a submission on a change proposed to the following plan:

Wairarapa Combined District Plan

The specific provisions of the proposal that our submissions relate to are:

Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting in its entirety to the extent the provisions have the potential to compromise Waka Kotahi NZ Transport Agency (Waka Kotahi) statutory obligations in ensuring a safe and sustainable transport system. The two state highways potentially affected are State Highway 2 and State Highway 53. Waka Kotahi notes there are no state highway roads within the Aorangi Forest Park, which is at the core of the proposed Dark Sky Reserve area where even temporary lighting must be restricted.

The Waka Kotahi submission is:

1. Waka Kotahi is a Crown entity that takes an integrated approach to transport planning, investment and delivery. Waka Kotahi's statutory objective is to undertake its functions in a way that contributes to an affordable, integrated, safe, responsive, and sustainable land transport system.
2. Waka Kotahi has a mandate under the Land Transport Management Act 2003 (LTMA), the Government Rooding Powers Act 1989 (GRPA), and the Government Policy Statement on Land Transport 2018/19–2027/28 (GPS) to carry out its functions in a way that delivers on the transport outcomes set by the government, one of which is working towards a safer transport system free from death and serious injury.
3. Waka Kotahi supports the proposed district plan change for the Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting on the understanding the amended plan provisions will not hinder Waka Kotahi in carrying out its statutory functions to provide safe state highways where adequate road lighting is provided, instructional road signals and signage can be displayed; and road maintenance and upgrades can be carried out in a safe and efficient manner. Matters of interest to Waka Kotahi are therefore lighting of state highways, lighting required for road maintenance/upgrade/emergency works, lighting for road

signals, and lighting for accident/incidents/hazards. These types of lighting can be situated both within and sometimes outside the boundary of a designated state highway road area.

4. Waka Kotahi activities within state highway designations will not be affected by the proposed plan change however standard road lighting does not meet the 500-lumens and 3000K colour temperature output limits introduced by this plan change. To support the environmental outcomes sought for the International Dark Sky Reserve, Waka Kotahi has committed to ensuring that when we replace the current highlighting (predominantly High Pressure Sodium) lanterns, that as we migrate to LED, we will endeavour to meet the Dark Skies criteria with lanterns that will meet 500-lumens and 3000K colour temperature outputs. This may in some circumstances require additional light poles to be installed to ensure adequate intersection lighting with the lower 500-lumen outputs. All road lights are tilted downwards so no change to current practice in that regard would be required. Light infrastructure changes can be progressed by our highway's maintenance team through the National Land Transport Plan funding rounds for programmed light replacement maintenance works on both State Highway 2 and State Highway 53 in the Wairarapa districts.
5. When carrying out works within a designation, Waka Kotahi is required to provide an outline plan of works and considerations in the outline plan will cover, amongst other matters, any required temporary worksite night lighting. Waka Kotahi will seek to ensure that such lighting, whilst providing a safe worksite environment, minimises skyglow as far as practicable. Skyglow environment outcomes would be achievable because there are no state highways within the core of the proposed dark sky reserve area, night lighting would be localised and unlikely to trigger the 80% compliance for communities so temporary light emissions would not challenge the International Dark Sky Association Guidelines for Dark Sky Reserves, and shields are likely to be used effectively.
6. Waka Kotahi activities are subject to district plan rules when road infrastructure maintenance, upgrade and construction or emergency works step *outside* the state highway designated road boundary. When that occurs, these activities would fall within the ambit of a **temporary activity** as defined by chapter 27 of the District Plan (being non-repetitive activities of a transient nature). Such road works activities can regularly occur during the evening and night time when it can be more efficient to stop traffic on the state highway and so lighting for safe working conditions as well as lit traffic control signals are required.
7. **Temporary activities** are provided for in the General Rules section of the District Plan under permitted activity Rule 21.1. Standard 21.1.16 (a) permits temporary activities of 12 months or less; and Standard 21.1.16 (g) provides an exemption for official traffic signs that comply with the Land Transport Rule: Traffic Control Devices 2004 and the Manual of Traffic Signs and Marking (MoTSaM); we note these standards have been replaced by the Traffic Control Devices Manual.
8. Waka Kotahi considers the temporary activity period of 12 months and the official traffic signs exemption will generally continue to satisfactorily provide for road infrastructure maintenance, upgrade, construction or emergency works outside of designation boundaries in the Wairarapa following this plan change. Should any major construction works exceeding 12 months be required, and if night-time lighting for those works steps outside the state highway designation boundary, that would trigger the need for resource consent under this proposed change to general rule 21.1.11 Outdoor Artificial Light. If resource contents for night-time lighting were not granted that could hinder major road works projects and maintenance.
9. Waka Kotahi considers there are two pathways available to address the scenarios in paragraph 8. The first would be to seek an amendment to the proposed plan change to exempt night-time work site lighting from the need to comply with rule 21.1.11 Outdoor Artificial Light, thus avoid a future resource consent scenario (see Table 1 for suggested wording) and the potential uncertainties that brings. The second is

to accept the provisions as proposed and seek resource consent if and when required based on the likelihood that resource consent would be forthcoming. The skyglow environment outcomes would be the same whether night-time work site lighting was approved via resource consent or via an outline plan, for the reasons outlined in paragraph 5 above. If future resource consents for night-time work site lighting were unsuccessful this could affect the timeliness of delivering major construction projects which would in turn accrue social and economic costs from having to rely more heavily on daytime hours or night-time lighting only within designation boundaries.

10. For transparency we list the following necessary road safety lighting that would not meet lumen or temperature output limits proposed and which are likely to occur within state highway road designations or on a temporary basis outside road designations (for the purposes outlined above):

- a. Traffic signals (permanent and temporary) – it is very likely that traffic signal aspects will exceed the 500-lumen limit. It is anticipated that District Plan provisions will not apply to traffic signals within a designation and are exempt under temporary activities standards outside a designation.
- b. Rotating beacons such as are used by emergency services (police, fire ambulance, traffic control vehicles), and utility and road worker crews – generally between 1200 to 7200 lumens so will exceed the 500-lumen limit. The safe operation of road maintenance work and emergency vehicles is critical to the road network and community and are not controlled by District Plan rules.
- c. The strobe lights on the rear panel of Temporary Traffic Management and Incident Response vehicles – these are between 24,000 and 100,000 Lumens (very bright flash) again required for the safe operation of road maintenance work. It is anticipated that District Plan provisions will not apply to such use of strobe lights which occur on a temporary basis and typically within a road designation and / or on mobile equipment.
- d. Worksite light – required for safe night-time maintenance, construction activity or emergency works. The lighting used will exceed the 500-lumen limit and may also use light sources cooler than the 3000K warm light International Dark Sky preference. Such lights may step outside a road designation but would occur on a temporary basis only.

11. Waka Kotahi is able to support the plan change because:

- a. The new provisions are unlikely to prevent or interfere with Waka Kotahi carrying out its statutory functions and obligations.
- b. Permanent road lighting is provided within road designation boundaries and therefore exempt from the proposed Outdoor Artificial Light standards, and Waka Kotahi is able to support the anticipated environmental outcomes for the International Dark Sky Reserve through changes to standard road lighting within state highways.
- c. Temporary worksite lighting is typically established within state highway road designation boundaries thus exempt from proposed Outdoor Artificial Light standards however, where that is not possible for purposes of construction or emergency works, such lighting is usually temporary in nature and therefore exempt from district plan standards for up to 12 months.
- d. On the rare occasion that worksite or MoTSaM (Traffic Control Devices Manual), required outdoor artificial light needs to be established outside of a state highway road designation for a period of longer than 12 months, it is anticipated resource consent will be achievable because that lighting is highly unlikely to contribute to skyglow such that the quality of viewing of the night sky is impacted; and such lighting is unlikely to raise the 80% limit on light emissions for a community – being the acceptable tolerance outlined in the International Dark Sky Reserve requirement; and

- e. The proposed provisions could be amended to provide certainty for Waka Kotahi's construction and maintenance activities if these carry on for longer than 12 months outside of a state highway designation.

12. Further points are summarised in Table 1, which forms part of our submission.

13. Where a provision is not specified in Table 1 below, Waka Kotahi supports the way it is drafted.

14. Waka Kotahi could not gain an advantage in trade competition through this submission.

We seek the following decision from the local authority:

15. To approve the proposed plan change as notified.

OR

16. Amend proposed Rule 21.1.11 Outdoor Artificial Light to provide an exception for road worksite construction light as outlined in Table 1.

Waka Kotahi does not request to be heard in support of its submission. If presence at the hearing would be beneficial to proceedings however, Waka Kotahi will attend.

Signature of person authorised to sign on behalf of Submitter:



Kathryn Barrett

Principal Planner, Consents and Approvals

Waka Kotahi NZ Transport Agency

Consentsandapprovals@nzta.govt.nz

Kathryn.barrett@nzta.govt.nz

DATE: 30 October 2020

Table 1: Decisions Sought on Plan Change for the Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting

The following table sets out Waka Kotahi’s comments on specific proposed provisions under this plan change.

Red Underline = notified text_(amending current district plan provisions).

Blue underline = proposed text

	Plan item	Support / Oppose	Provision	Relief Sought
1	Chapter 19.3.4, Methods to Implement General Amenity Values	Support	(g) Liaison with Road Controlling Authorities to promote the use of <u>streetlighting with a colour temperature of 3000K (Kelvin) or lower</u> , shields and other devices <u>on streetlights</u> to direct light downwards.	Retain as notified. Waka Kotahi has agreed to alter the colour temperature outputs for road lighting in keeping with the environmental outcomes sought.
2	Chapter 21 District Wide Land use Rules Rule 22.1.16	Support	Glare and Outdoor Artificial Light (a) The emission of outdoor artificial light (including glare) meets the following standards: (i) A maximum artificial light level of 8 lux (lumens per square metre) measured at 1.5m above ground level at the site boundary. (ii) <u>Within the Dark Sky Management Area identified within Appendix 15, all outdoor lighting shall have a colour temperature of light emitted of 3000K Kelvin or lower.</u> (iii) <u>Within the Dark Sky Management Area identified within Appendix 15, all outdoor lighting with a light output of 500 lamp lumens or greater shall be shielded or tilted so as to not emit any light at or above a horizontal plane measured at the light source.</u> <u>Exception:</u> (iv) <u>Lighting controlled by motion-activated switches limiting the duration of illumination to less than five (5) minutes after activation are exempt from complying with standards (ii) and (iii) above.</u> <u>(v) Temporary worksite light for state highway road construction and maintenance purposes which may be in place for the duration of a project exceeding 12 months.</u>	Option to retain as notified or apply additional exception as suggested. This rule might only apply to Waka Kotahi night works where work site lighting is required for longer than 12 months at a time outside of a state highway designation. Should Commissioners consider an exemption is possible, the wording in blue could be added. This would be Waka Kotahi’s preferred outcome and we welcome comments from the Wairarapa Dark Sky Association.

3	Chapter 22 Assessment Criteria Rule 22.1.11	Support	<p><u>Outdoor</u> Artificial Light</p> <ul style="list-style-type: none"> (i) The extent to which the light will adversely affect adjoining allotments. (ii) The impact of light direction on the safe and efficient operation of the road network. (iii) The extent to which the <u>lighting(s) are is</u> necessary for reasons of security, <u>heritage</u>, public amenity, or safety. (iv) The hours during which the lighting will operate. (v) Proposed methods to avoid, remedy or mitigate potential adverse effects including the height, orientation, angle, <u>light colour temperature</u>, and shielding of the light source. (vi) <u>The extent to which the light will contribute to skyglow and adversely affect the quality of viewing of the night sky.</u> (vii) <u>For outdoor sports lighting, whether the lighting is consistent with the requirements of Australian Standard AS 2560 Guide to sports lighting</u> 	<p>Retain as notified.</p> <p>Should work site lighting outside a state highway road designation ever require a resource consent to remain in place for longer than for a 12-month period, Waka Kotahi is confident that would not contribute to skyglow such that the quality of viewing of the night sky is impacted, and shields are likely to be effectively used hence resource consent would be forthcoming.</p>
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30 October 2020

To: South Wairarapa District Council

The Wairarapa Dark Sky Association

This is a submission on the following proposed plan change:

Draft Wairarapa International Dark Sky – Outdoor Artificial Lighting Plan Change.

We could not gain an advantage in trade competition through this submission.

The specific provisions of the proposal that our submission relates to are: the proposed change as a whole, and particularly changes to section 21.1.11 and section 22.1.17.

Our submission is:

We support the proposed changes to the District Plan, and welcome the development of regulation to manage artificial light at night in the Wairarapa. This proposed plan change is a prerequisite for the Wairarapa Dark Sky Association's (WDSA) key goal of achieving International Dark Sky Reserve status for the Wairarapa. Without this plan change we would not meet the criteria applied by the International Dark Sky Association for accrediting the Wairarapa as a reserve.

Our reason for supporting this change is that we wish to protect the unpolluted dark night time sky of the Wairarapa. Our measurements of sky darkness, both in townships and in rural areas, clearly show that the current level of light pollution across the district is low. The International Dark Sky Association sets specific minimum criteria for darkness measurements in accredited dark sky areas. We have found that the Wairarapa easily exceeds those criteria in rural areas, and in some cases can even exceed them when measured in the middle of townships. We wish to protect and preserve the dark night sky of the Wairarapa, and we believe that this proposed plan change will support that goal by limiting the use of artificial light at night.

We believe that the proposed changes strike an appropriate balance between supporting the use of artificial light at night when needed for the purposes of safety or recreation, and limiting the inappropriate use of artificial light in circumstances when light does not increase safety or have a specific functional purpose.

Some kinds of artificial light at night can have harmful impacts when used inappropriately.¹ We believe that by preserving the darkness at night the plan change will bring the following benefits:

¹ Royal Society of New Zealand T Aparangi; Blue Light Aotearoa - Impacts of artificial blue light on health and the environment: evidence summary. 2018

Maintaining the natural environment for plants and animals in the Wairarapa District.

Light is a fundamental environmental cue for activities in many organisms. There is clear evidence that artificial light at night can disturb and disrupt animals and insects, for example by affecting navigation, foraging or reproductive behaviour.^{2,3,4} This can represent serious dangers to animal populations.

There is also evidence that artificial light at night can disrupt mechanisms within plants, generating stress and altering dormancy, shoot growth and flowering processes.^{5,6,7}

The proposed changes will help to preserve the dark Wairarapa sky, and to minimize the impact of light pollution upon the natural environment of the Wairarapa.

Maintaining the health and wellbeing of the residents of the Wairarapa District

There is clear emerging evidence for the adverse impact of artificial light on human health.^{8,9} Artificial light can disrupt natural physiological rhythms and induce stress upon individuals. This evidence has resulted in a policy statement from the American Medical Association urging caution with the use of outside lighting at night and specifically recommending “the use of 3,000K or lower lighting for outdoor installations such as roadways. All LED lighting should be properly shielded to minimize glare and detrimental human and environmental effects, and consideration should be given to utilize the ability of LED lighting to be dimmed for off-peak time periods.”¹⁰ These recommendations are well aligned with the proposed changes in the Wairarapa.

Managing artificial light at night will minimize the potential adverse health impacts of artificial light on people in the Wairarapa District.

Maintaining a natural amenity for residents and visitors to the Wairarapa District.

There is extensive interest in the night sky as a natural phenomenon with which humans have interacted in different ways over millenia. The Wairarapa region has seen burgeoning interest in nightscape photography as a consequence of the dark sky and spectacular natural nightscapes that currently exist here, while still being within a short travel time of a major population centre.

² Gaston KJ, Bennie J, Davies TW, Hopkins J. The ecological impacts of nighttime light pollution: a mechanistic appraisal. *Biological reviews*. 2013 Nov;88(4):912-27.

³ Owens AC, Cochard P, Durrant J, Farnworth B, Perkin EK, Seymoure B. Light pollution is a driver of insect declines. *Biological Conservation*. 2020 Jan 1;241:108259.

⁴ Dominoni DM. The effects of light pollution on biological rhythms of birds: an integrated, mechanistic perspective. *Journal of Ornithology*. 2015 Dec 1;156(1):409-18.

⁵ Meravi N, Kumar Prajapati S. Effect street light pollution on the photosynthetic efficiency of different plants. *Biological Rhythm Research*. 2020 Jan 2;51(1):67-75.

⁶ French-Constant RH, Somers-Yeates R, Bennie J, Economou T, Hodgson D, Spalding A, McGregor PK. Light pollution is associated with earlier tree budburst across the United Kingdom. *Proceedings of the Royal Society B: Biological Sciences*. 2016 Jun 29;283(1833):20160813.

⁷ Chaney WR. Does night lighting harm trees. *Department of Forestry and Natural Resources, Purdue University*. 2002 Jun:3.

⁸ Kumar P, Ashawat MS, Pandit V, Sharma DK. Artificial Light Pollution at Night: A Risk for Normal Circadian Rhythm and Physiological Functions in Humans. *Current Environmental Engineering*. 2019 Aug 1;6(2):111-25.

⁹ Hatori M, Gronfier C, Van Gelder RN, Bernstein PS, Carreras J, Panda S, Marks F, Sliney D, Hunt CE, Hirota T, Furukawa T. Global rise of potential health hazards caused by blue light-induced circadian disruption in modern aging societies. *npj Aging and Mechanisms of Disease*. 2017 Jun 16;3(1):1-3.

¹⁰ Motta M. American Medical Association Statement on Street Lighting. *JAVSO*. 2018 Dec;46(2):193.

The extensive interest in the night sky is seen both locally in the development of businesses that introduce people to the night sky and interpret its meanings and symbolism, and nationally and internationally in the extensive growth of interest in sky and astronomical phenomena. At a national level, Matariki is becoming a touchstone for wider engagement with Mataranga Maori and traditional practices of navigation and agriculture. Internationally, emerging interest in connection with the night sky is exemplified by the recent release by Lonely Planet of *Dark Skies: a practical guide to astrotourism*, demonstrating the prominence that dark skies are now attaining within the wider field of environmental tourism.¹¹ At the time of writing the International Dark Sky Association has accredited 16 International Dark Sky Reserves, and informs us that they are aware of 17 communities within New Zealand that have achieved accreditation for some form of dark sky protection or are working towards it.

The proposed changes will have the effect of preserving the dark sky of the Wairarapa as an amenity for residents of and visitors to the district, and will keep the Wairarapa at the forefront of emerging interest in dark skies and engagement with the night time environment.

In comparison with these benefits, we do not believe that the proposed changes are likely to bring harm or cost to Wairarapa communities. Consequent changes to light fittings are expected to be made prospectively as the opportunity arises, minimizing the burden of cost, and we do not see other direct costs arising from the change. The change does not prohibit the use of artificial light at night where there are specific functional purposes, such as for road safety, but seeks to minimize the harms that can unintentionally arise from such lighting use.

We seek the following decision from the South Wairarapa and Carterton District Councils:

Approve the Draft Wairarapa International Dark Sky – Outdoor Artificial Lighting Plan Change.

We wish to be heard in support of our submission.

Vivien Napier

Chair, Wairarapa Dark Sky Association

¹¹ <https://shop.lonelyplanet.com/products/dark-skies-1>



Submission by Genesis Energy Limited

Trading as Genesis

ON

Proposed Plan Change for the Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting

22 October 2020

Submission by Genesis Energy Limited

Trading as Genesis

ON

Proposed Plan Change for the Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting

To: The Chief Executive
South Wairarapa District Council
PO Box 6
Martinborough
planning@swdc.govt.nz

Date: 22 October 2020

Submitter name: Genesis Energy Limited

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1. Introduction

Genesis Energy Limited (**Genesis**) welcomes the opportunity to provide a submission to the South Wairarapa District Council (**SWDC**) on the Proposed Plan Change for the Wairarapa International Dark Sky Reserve – Outdoor Artificial Lighting (**Proposed Plan Change**), which was publicly notified on 30 September 2020.

Genesis wishes to be heard in support of this submission.

Genesis could not gain an advantage in trade competition through this submission.

Nāku noa, nā



Karen Sky

Group Manager Environment and Community

2. Background

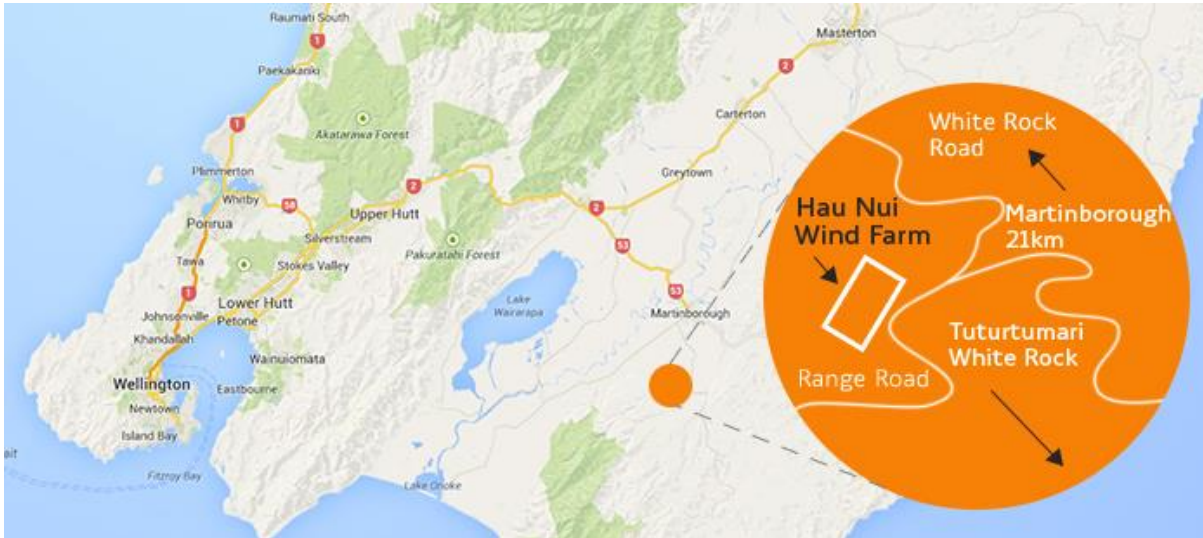
Genesis is an electricity generator and energy retailer with a diverse portfolio of renewable and thermal electricity generation assets including hydro, thermal and wind generation plants spread across New Zealand (refer **Appendix A**). In the South Wairarapa district, Genesis owns and operates the Hau Nui Wind Farm (**Hau Nui**), located approximately 20 km south of Martinborough (refer **Figure 1**) and within the proposed Dark Sky Management Area.

Hau Nui uses renewable wind energy to generate electricity from 15 wind turbines for supply to consumers via the local Wairarapa network, and at times via the national grid. The wind farm provides enough power for around 4,200 homes in the Martinborough area, and depending on demand and output, as far as Greytown. Hau Nui has the capacity to generate 7.3 MW (megawatt) and there is potential for further development in the future.

The South Wairarapa area is recognised for its significant wind energy potential. The June 2020 “Wind Generation Stack Update” report¹, prepared for the Ministry of Business, Innovation and Employment, identifies the Wairarapa and Southern Wairarapa regions having the potential to contribute an additional 1,500 MW of wind generation capacity. This represents nearly 14% of the New Zealand total wind energy potential, or nearly 20% of the North Island total wind energy potential.

¹ Available from <https://www.mbie.govt.nz/assets/wind-generation-stack-update.pdf>.

Figure 1: Hau Nui Wind Farm location



3. Submissions and Relief Sought

As a general submission point, Genesis supports the intent of the Proposed Plan Change and the potential benefits an International Dark Sky Reserve may bring to the Wairarapa region. However, as currently drafted, Genesis is concerned that the Proposed Plan Change may unintentionally restrict the future development of Hau Nui and other wind farm potential within the region.

Genesis is continuously reviewing opportunities for future development at Hau Nui to realise its significant wind energy potential. These development opportunities may involve the replacement of existing turbines with new technology, and/or expansion of the wind farm to increase generation capacity.

Whilst wind turbines do not require outdoor artificial lighting in general (other than a motion sensor controlled light at each entrance door which will meet the Proposed Plan Change rules), new or replacement turbines may trigger the need for aircraft warning lights in accordance with Civil Aviation Rules. The light colour, intensity, and duration are specified by the Civil Aviation Rules subject to the scale and build of the fixed structure. Given the important civil aviation safety requirement, Genesis considers the Proposed Plan Change should explicitly provide for outdoor artificial lighting within the Dark Sky Management Area that are required by the applicable Civil Aviation Rules. The explicit reference to the applicable Civil Aviation Rules will allow for future changes in those requirements which may occur in response to new information and technology.

In this regard, Genesis seeks the relief outlined in the table below in relation to the Permitted Activity Rule 21.1.11 or district wide Assessment Criteria 22.1.17 for outdoor artificial light.

Provision	Relief Sought (Proposed Plan Change additions <u>red underlined</u> / deletions red struck through) (Genesis additions <u>bold underlined</u>)
CHAPTER 21 DISTRICT WIDE LAND USE RULES 21.1 Permitted Activities	
21.1.11	Amend 21.1.11 as follows: 21.1.11 Glare and <u>Outdoor</u> Artificial Light (a) The emission of <u>outdoor artificial</u> light (including glare) meets the following standards: (i) A maximum artificial light level of 8 lux (lumens per square metre) measured at 1.5m above ground level at the site boundary. (ii) <u>Within the Dark Sky Management Area identified within Appendix 15, all outdoor lighting shall have a colour temperature of light emitted of 3000K Kelvin or lower.</u> (iii) <u>Within the Dark Sky Management Area identified within Appendix 15, all outdoor lighting with a light output of 500 lamp lumens or greater shall be shielded or tilted so as to not emit any light at or above a horizontal plane measured at the light source.</u> <u>Exception:</u> (iv) <u>Lighting controlled by motion-activated switches limiting the duration of illumination to less than five (5) minutes after activation are exempt from complying with standards (ii) and (iii) above.</u> (v) <u>Lighting as required by the applicable Civil Aviation Rules.</u> (b) ...
CHAPTER 22 ASSESSMENT CRITERIA 22.1 Consents under District Wide Rules	
22.1.17	Alternatively, if Council considers it is inappropriate to amend Rule 21.1.11 as suggested above, amend 22.1.17 as follows: 22.1.17 <u>Outdoor</u> Artificial Light (i) The extent to which the light will adversely affect adjoining allotments. (ii) The impact of light direction on the safe and efficient operation of the road network. (iii) The extent to which the lighting(s) are is necessary for reasons of security, <u>heritage</u> , public amenity, or safety. (iv) The hours during which the lighting will operate. (v) Proposed methods to avoid, remedy or mitigate potential adverse effects including the height, orientation, angle, <u>light colour temperature</u> , and shielding of the light source. (vi) <u>The extent to which the light will contribute to skyglow and adversely affect the quality of viewing of the night sky.</u> (vii) <u>For outdoor sports lighting, whether the lighting is consistent with the requirements of Australian Standard AS 2560 Guide to sports lighting.</u> (viii) <u>Requirement for lighting under the applicable Civil Aviation Rules.</u>

Appendix A – Genesis Energy: assets and operations

Genesis Energy is New Zealand's largest electricity and gas retailer, supplying energy to more than half a million customers nationwide. We also generate and trade electricity and natural gas through a diverse range of assets across the country.

Genesis Energy's diverse portfolio of generation assets comprises:

- Thermal generation: the Huntly Power Station, the largest electricity generation facility in New Zealand by capacity (948 MW), which relies on Waikato River flows for cooling purposes.
- Renewable generation: three hydro schemes including Tongariro (362 MW), Waikaremoana (138 MW) and Tekapo (190 MW). These schemes comprise eight power stations – six in the North Island and two in the South Island – and use an extensive range of lakes, rivers and streams for generation purposes. We also own a 7 MW wind farm at Hau Nui in the North Island.
- Genesis Energy has a 46% interest in the Kupe Joint Venture, which owns the Kupe oil and gas field.
- Genesis Energy holds resource consents to establish a wind farm at Castle Hill in the northern Wairarapa (outside the proposed Dark Sky Management Area).