



If calling, please ask for Democratic Services

Climate Committee

Thursday 16 March 2023, 9.30am

Taumata Kōrero – Council Chamber, Greater Wellington Regional Council,
100 Cuba Street, Te Aro, Wellington

Quorum: *Seven members*

Members

Cr Gaylor (Chair)

Cr Bassett

Cr Duthie

Cr Laban

Cr Nash

Cr Ropata

Cr Woolf

Cr Saw (Deputy Chair)

Cr Connelly

Cr Kirk-Burnannd

Cr Lee

Cr Ponter

Cr Staples

Recommendations in reports are not to be construed as Council policy until adopted by Council

Climate Committee

Tuesday 16 March 2023, 9.30am

Taumata Kōrero – Council Chamber, Greater Wellington Regional Council,
100 Cuba Street, Te Aro, Wellington

Public Business

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2.	Conflict of interest declarations		
3.	Public participation		
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Climate Committee
16 March 2023
Report 23.96



For Information

SEA LEVEL RISE IN THE WELLINGTON REGION

Te take mō te pūrongo

Purpose

1. To provide a summary of the latest understanding of sea level change in the Wellington region including vertical lands movements and provide an introduction to the NZ SeaRise - Te Tai Pari O Aotearoa programme.

Te horopaki

Context

2. NZ SeaRise has released location specific projections out to the year 2300 for every 2 km of the coast of Aotearoa New Zealand which can be accessed through an interactive online tool.
3. A number of storm events and episodes of coastal erosion around the Wellington Region including along the Wairarapa coast have raised questions about long term effects of sea level rise on coastal communities around the Region.

Ngā tūāoma e whai ake nei

Next steps

4. Greater Wellington will progress work to update an analysis of relative sea level trends in the region. This work is undertaken every 5 years with the last report in 2018.
5. Dr Iain Dawe, Senior Policy Advisor, along with Professor Tim Naish (Victoria University of Wellington) and Dr Richard Levy (GNS Science) will speak to a presentation (**Attachment 1**) at the meeting.

Ngā āpitihanga

Attachments

Number	Title
1	Sea Level Rise in the Wellington Region presentation

**Ngā kaiwaitohu
Signatories**

Writer	Iain Dawe – Senior Policy Advisor
Approvers	Matthew Hickman – Manager, Environmental Policy Al Cross – Kaiwhakahaere Matua mo te Taiao General Manager Environment Management

He whakarāpopoto i ngā huritaonga Summary of considerations
<i>Fit with Council's roles or with Committee's terms of reference</i> The Climate Committee's purpose is to "Oversee, review and report to Council on the management and delivery of Greater Wellington's strategies, policies, plans, programmes, initiatives and indicators for climate change mitigation and adaptation."
<i>Contribution to Annual Plan / Long Term Plan / Other key strategies and policies</i> This relates to one of the four overarching strategic priorities of the 2021-31 Long Term Plan - responding to the climate emergency.
<i>Internal consultation</i> There was no internal consultation required.
<i>Risks and impacts - legal / health and safety etc.</i> There are no risks and impacts arising from this paper.

Sea Level Rise and Impacts in the Wellington Region

- Dr Iain Dawe, GW

And

Te Tai Pari o Aotearoa | NZ SeaRise Programme

- Prof. Tim Naish, VuW

- Dr Richard Levy, GNS Science



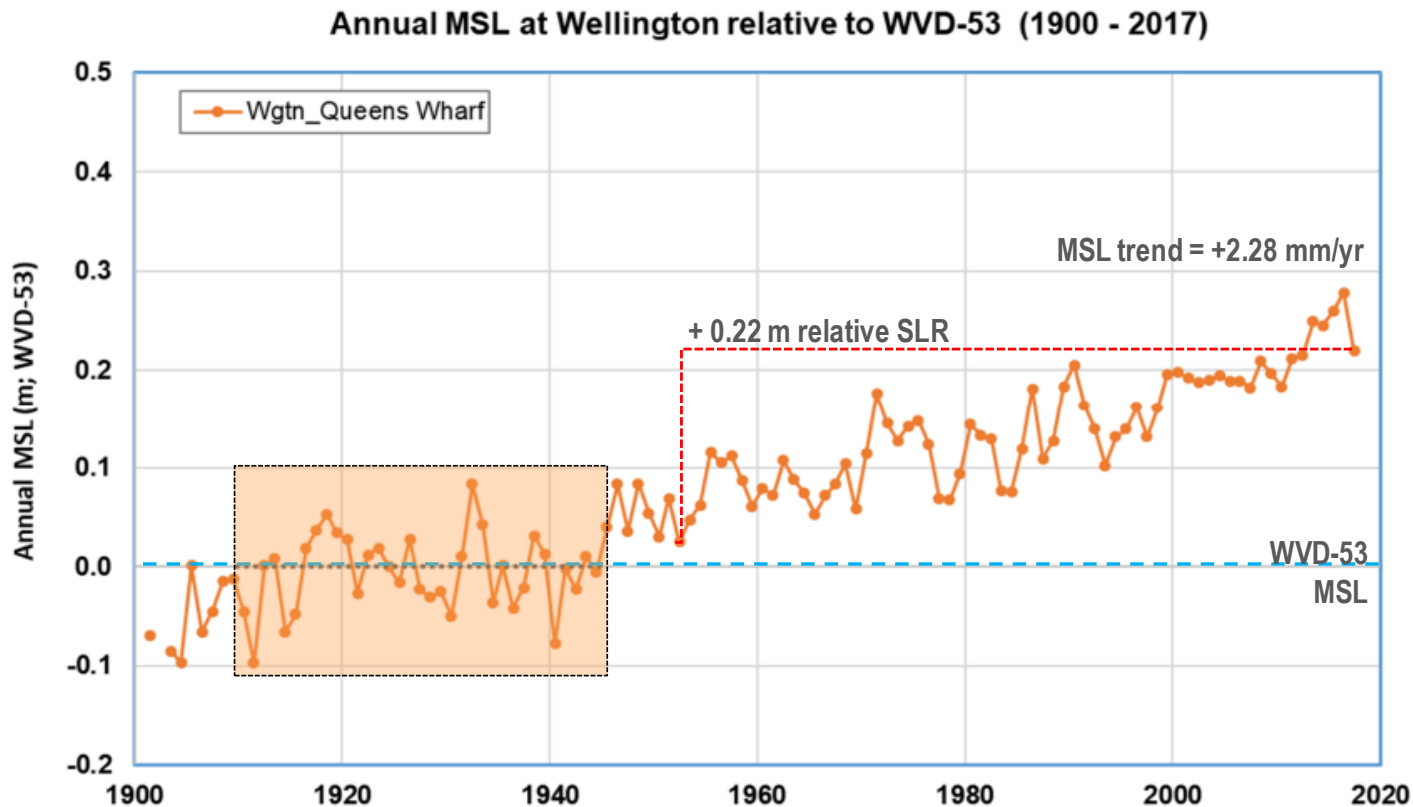
Purpose and Context

- In recent years a number of storm events around the Wellington region including along the Wairarapa coast have caused erosion and inundation and damage to roading, infrastructure, houses and private property
- This has raised questions about the long term effects of sea level rise on coastal communities around the region and how this may exacerbate existing hazards

This presentation will:

1. Provide a summary of the latest understanding of sea level change and its impacts on the Wellington region including effects of vertical lands movements
2. Provide an introduction to the NZ SeaRise - Te Tai Pari o Aotearoa programme

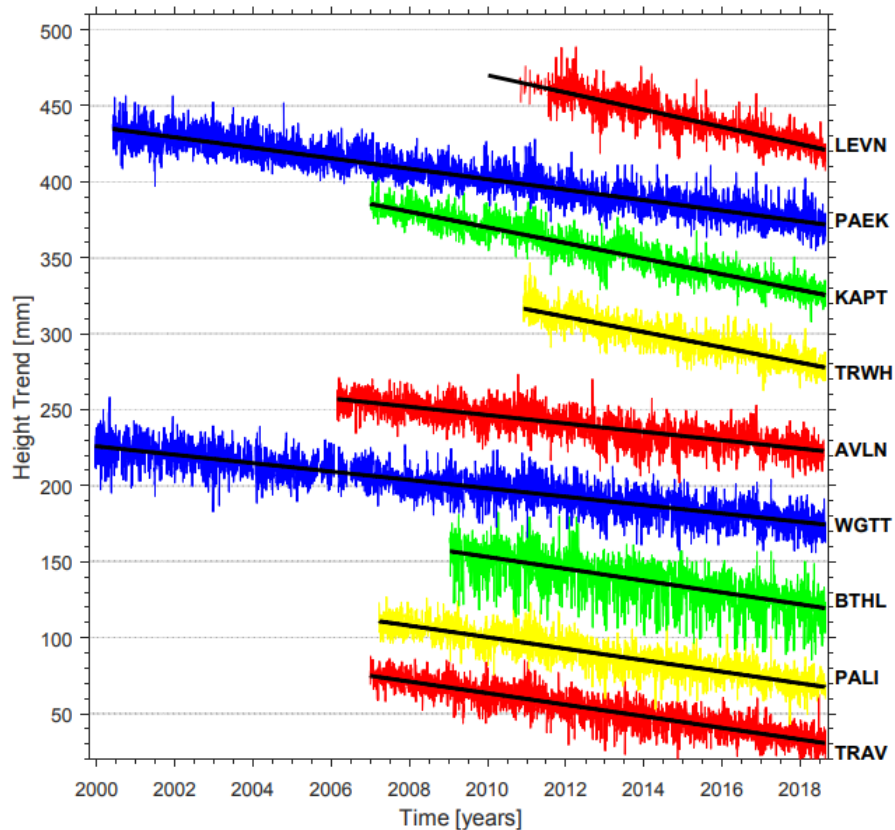
Sea level trend for Wellington



- GW commissions work every 5 years to analyse and update our understanding of sea level trends in the region
- 1st report in 2012 and 2nd in 2018
- Sea level is rising year on year

Annual mean sea level series to the end of 2017 for Wellington (Queens Wharf tide gauge). Boxed area is the period from which baseline mean sea level was derived for the 1953 survey datum (WVD-53). Credit: Rob Bell (NIWA) and Prof. John Hannah (Vision NZ).

Vertical land movements in the Wellington region



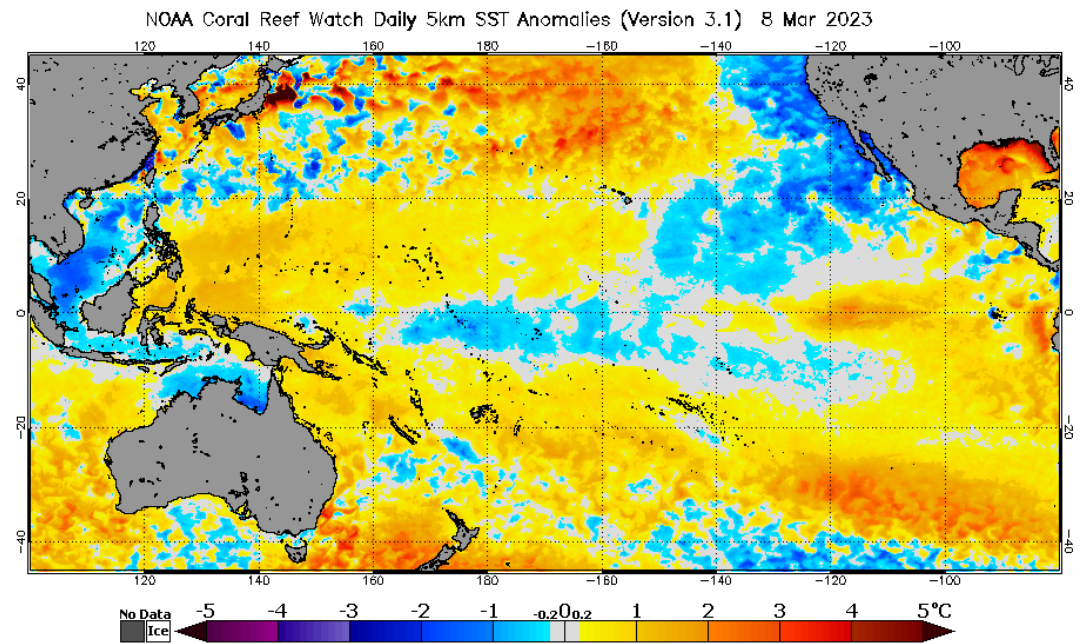
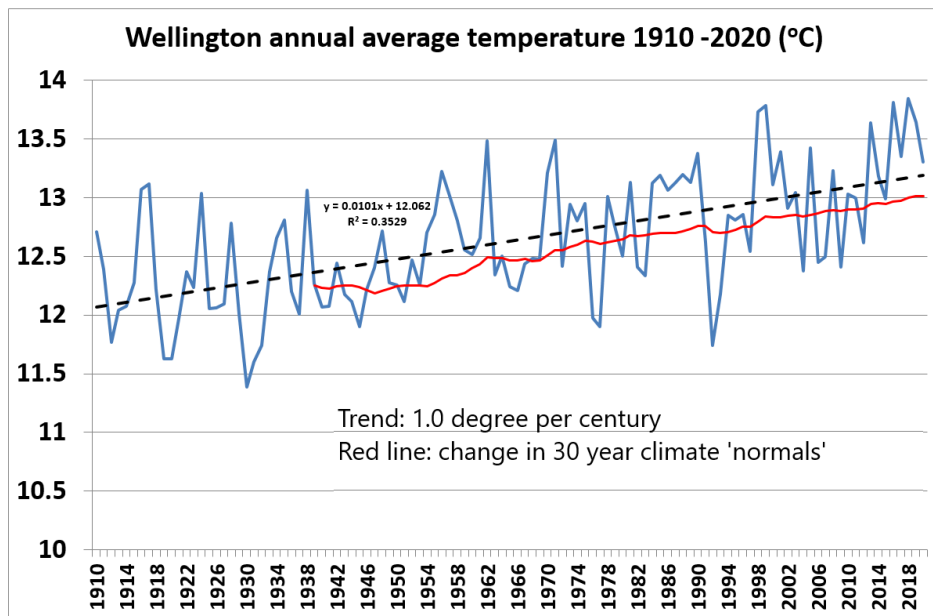
Data from the national network of continuous GNSS (cGNSS/GPS) operated by GeoNET and PositioNZ tide gauge networks operated by LINZ. PAEK = Paekākāriki. KAPT = Kāpiti.
Credit: P. Denys (Otago University).

- Tectonic subsidence around region measured at -1 to 4 mm/yr over past 25 years
- Effectively doubling the eustatic sea level rise trend
- Relative sea level rise currently in the order of 3-4 mm/yr for the region

What is driving sea level rise?

Global warming causing:

- Ocean expansion
- Melting ice (glaciers and polar icesheets) leading to... **Sea level rise**
- We are locked into several centuries of sea level rise



Impacts of sea level rise

- Increased coastal flooding – high tides & storm surge
- Potentially permanent inundation – esp. estuaries/lagoons, coastal wetlands & river mouths
- Increased vulnerability to storm damage
- Impeded river and stormwater drainage
- Changes in estuary tidal prisms, hydraulics & sedimentation
- Salt water intrusion – rivers & aquifers
- Potential erosion & shoreline change – esp. beaches



Coastal flooding and erosion



Storm surge/Storm tide

- Storm surge is a temporary elevation in sea level due to weather conditions
- It poses a risk to many low lying coastal areas
- The risk is increasing due to sea level rise



NATASHA ESAU

Storm surge Kāpiti

- Sea surface elevation ~ 0.5 m above mean level due to storm surge effects
- Result: Sea wall completely overtopped, heavy scouring in the backshore and damage to property and coastal infrastructure



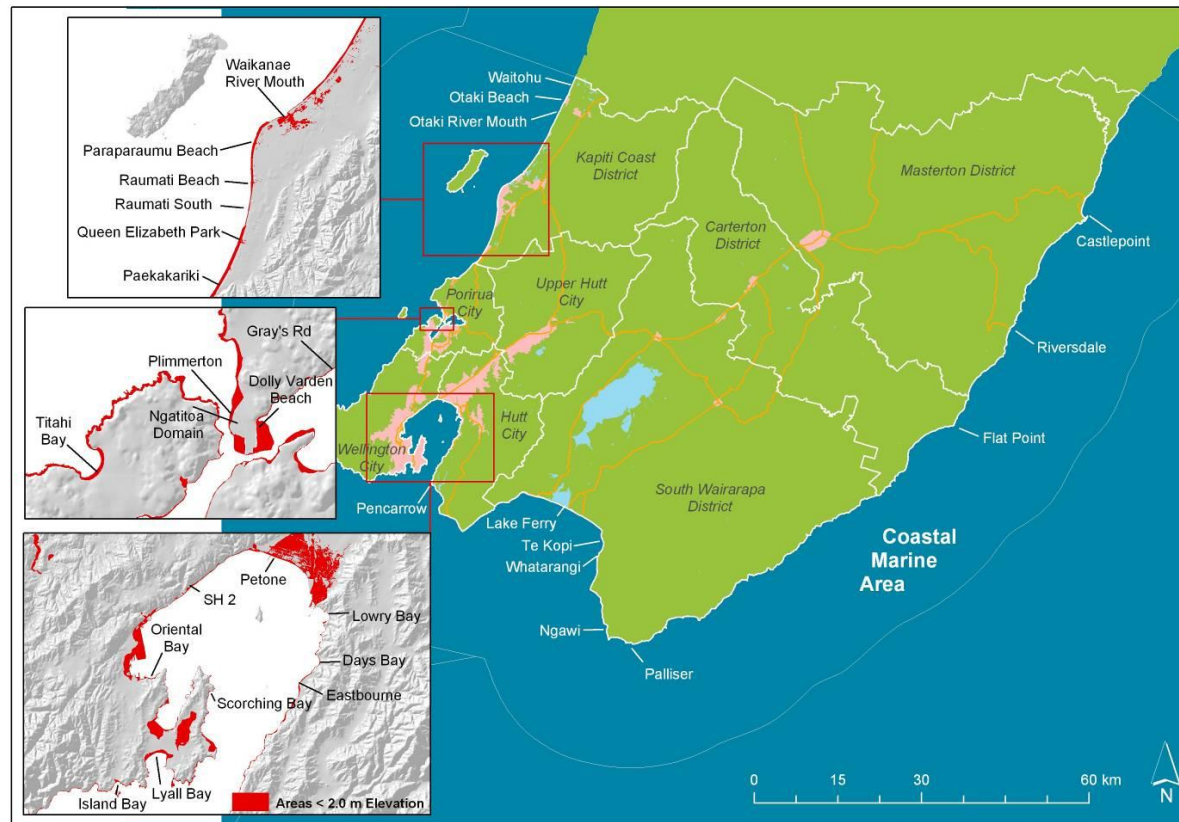
Inland effects

- Impeded drainage at river mouths and stormwater outfalls
- Rising water tables leading to soil saturations and longer periods of surface flooding



BRIAN SCADDEN

Coastal hazard hotspots in the Wellington region



GW Sea level rise and storm surge modelling

Greater Wellington Regional Council Climate Change Mapping 3D viewer prototype Background Help Information

Sea Level Rise and Storm Surge Modelling

Click buttons to swap content

Sea Level Rise

Storm Surge

+ Storm Surge

Storm surge is the lift in coastal water level that occurs during a storm, measured relative to the predicted tide height.

The surge is caused primarily by strong winds pushing water onshore and low air pressure causing a lift in the water level.

When this occurs together with large waves it can cause severe local flooding and erosion, particularly over high tide.

The size of the storm surge at a given location depends on the orientation of the shoreline to the storm; the intensity, size, and speed of the storm; and the contour of the local seabed.

Learn more about storm surge.

+ How to use

+ Data sources

SLR value
1.5m
1.0m
0.5m
0.0m

5 m
Storm Surge Water Depth
0 m



<https://mapping1.gw.govt.nz/GW/SLR/>

Te Tai Pari o Aotearoa | NZ SeaRise Programme

Prof. Tim Naish, Te Herenga Waka-Victoria University of Wellington

Dr Richard Levy, GNS Science



Te Tai Pari o Aotearoa | NZ SeaRise Programme



- The NZ SeaRise: Te Tai Pari O Aotearoa programme has released location specific sea-level rise projections out to the year 2300 for every 2 km of the coast in order to improve projections of sea-level rise for Aotearoa
- These projections can be accessed through a new online tool developed by Takiwā, a Māori owned data management and analytics platform: www.searise.nz
- We can see how much and how fast sea level will rise along ‘our own’ stretch of coast under different climate change scenarios
- Funded by the MBIE Endeavour Fund. Involves 30 local and international experts from Te Herenga Waka-Victoria University of Wellington, GNS Science, NIWA, University of Otago and the Antarctic Science Platform

Climate Committee
16 March 2023
Report 23.75



For Decision

LOW CARBON ACCELERATION FUND ROUND TWO 2022-23 APPLICATIONS

Te take mō te pūrongo

Purpose

1. To advise the Climate Committee (the Committee) of:
 - a Applications to the Low Carbon Acceleration Fund (LCAF)
 - b the Climate Emergency Response Programme Board (the Programme Board) recommendation regarding the extension of LCAF eligibility to include CentrePort Limited.

He tūtohu

Recommendations

That the Committee:

- 1 **Recommends** that Council approves the allocation of a \$266,651 grant to Metlink for the 'Solar power generation – Stations roofs' project.
- 2 **Recommends** that Council approves the allocation of a \$750,000 grant to Sky Stadium for the 'Energy efficient lighting opportunity' project.
- 3 **Recommends** that Council approves the allocation of a \$150,000 grant to the Strategy Group for the 'Solar prospecting study' project.
- 4 **Recommends** that Council approves in principle the 'Diesel bus conversion to electric project #2' from Metlink. A final recommendation on funding amount will be made at a later Climate Committee meeting based on the result from the first trial currently underway.
- 5 **Recommends** that the Council extends the Low Carbon Acceleration Fund eligibility to CentrePort Limited.

Te tāhū kōrero

Background

2. The LCAF is funding borrowed against the value of Council's 255,660 free allocation New Zealand Units (NZUs), or emissions units, gifted to it by the government for its pre-1990 forests at the inception of the NZ Emissions Trading Scheme (ETS).
3. In February 2022, Council agreed to expand the total amount of funding in the LCAF to reflect the increasing value of Council's free allocation NZUs (Low Carbon Acceleration

Fund - Report 22.66). Council also agreed to limit the funding to no more than 70 percent of the present value of the Council's 255,660 free allocation NZUs across all LCAF projects, past and present, determined by the current NZU spot price at the time of funding decisions.

4. At the time of writing, the spot price of NZUs is \$68.50. If the Council's free allocation NZUs were sold at this price, they would net \$17.51 million.
5. There are two funding rounds planned for the LCAF in 2022-23. This current one is the second round. The first round took place in August 2022 (Low Carbon Acceleration Fund round one 2022-23 application - Report 22.338).
6. \$8 million from the LCAF has previously been allocated to parks restoration work, including the restoration of the wetlands and dune forest at Queen Elizabeth Park and for forest planting at Kaitoke Regional Park.
7. In total, \$589,500 was allocated during round one in 2022. \$39,500 was allocated to the Wellington Regional Stadium Trust (WRST) for a fuel switching, energy efficiency and renewable energy project feasibility study at Sky Stadium. \$550,000 was allocated to Metlink to convert a diesel bus to a battery electric drive train, establish charging facilities for it, and put it into operation in the Metlink fleet.
8. Therefore, the total funding available within the 70 percent cap is \$3.67 million at the time of writing. Unless the price of NZUs changes, this is the total unallocated funding from the LCAF that can be used. The LCAF is not an annual or continuous source of funding and therefore is better suited to establishing low carbon assets than covering operating costs.
9. In the second round, proposals were put forward by Metlink, Sky Stadium and Strategy Group. These were assessed against the LCAF funding criteria by members of Greater Wellington's Climate Emergency Response Programme Board. Options put forward for consideration by Climate Committee were assessed as meeting the LCAF funding criteria. Applications are in **Attachments 1, 2, and 3**.
10. The criteria approved by Council are for projects that:
 - a Will reduce Greater Wellington's corporate carbon footprint
 - b Are additional carbon savings that would not otherwise have occurred (or occurred as soon).
11. Projects are favoured if they:
 - a Have a high value of carbon saved per dollar of funding
 - b Have additional benefits – e.g., biodiversity, flood protection, public amenity, carbon savings that accrue to others
 - c Are of strategic significance to achieving carbon reduction goals
 - d Have a high likelihood of being successfully delivered.
12. Bids for feasibility and planning are eligible alongside bids for implementation funding.
13. The fund is open to applications from Greater Wellington and Wellington Regional Stadium Trust (WRST).

Te tātaritanga Analysis

14. Officers recommend that LCAF eligibility is extended to include CentrePort Limited. This was requested at the Council workshop on the 24 November 2022 and discussed by the Programme Board on the 16 February 2023. CentrePort Limited's emissions are included in the Greater Wellington carbon footprint, so emissions reduction projects implemented at CentrePort Limited will contribute to achieving Greater Wellington's emission reduction goals. This will potentially enable sustainable energy projects (operational projects rather than corporate projects) and perhaps partnerships between those eligible for LCAF – Greater Wellington, WRST and CentrePort Limited.
15. Officers recommend that the application 'Diesel bus conversion to electric project #2' from Metlink (**Attachment 1** – Metlink application – LCAF Round 2) be approved in principle. This project is worth further investment, however it needs more scoping. It is recommended that the final decision (how many buses should be funded and at what cost) is subject to results of the first trial currently underway. This more detailed recommendation will be presented at the next Climate Committee meeting.
16. Officers recommend that the application 'Solar power generation – Stations roofs' from Metlink (**Attachment 1** – Metlink application – LCAF Round 2) be approved. This is to install solar power generation on the Masterton Station roof. This can also be used as a trial for future solar power generation on station roofs. This project meets the LCAF criteria and has a good return on investment. The amount requested is \$266,651. The project will go through a procurement exercise.
17. Officers recommend that the application 'Energy efficient lighting opportunity' from Sky Stadium (**Attachment 2** – Sky Stadium – Energy Transition Plan: Energy Efficient Lighting Opportunity) be approved for half of the money requested. The reason for this recommendation is that Greater Wellington is a 50 percent funder of the stadium. The project aims to replace existing lighting fixtures with LED. The stadium floodlights are currently being replaced with LED, so this project focuses on the remaining lighting. This project meets the LCAF criteria and has a good return on investment. Sky Stadium requested \$1,500,000. However, officers recommend the Committee approve half of it (\$750,000) and that Sky Stadium seek other sources of funding for the other half.
18. Finally, officers recommend that the application 'Solar prospecting study' from the Strategy Group (**Attachment 3** – Strategy Group – Solar Prospecting study for the Wellington Region) be approved. This feasibility study aims at identifying suitable sites for developing solar 'farms' within the Wellington Region. If Greater Wellington established its own solar farms, it could claim the use of emissions-free electricity in its operations equivalent to the amount generated. This project meets the LCAF criteria as it has high strategic value. The amount requested is \$150,000. The project will go through a procurement exercise.
19. There are some projects that are not recommended for LCAF funding. One is a Metlink trial for implementing EV charging at Park and Ride facilities and another is a proposal for a Metlink business travel climate pass product. These applications do not meet the LCAF criteria since they will not lead to a reduction of Greater Wellington's organisational emissions. However, both projects are of interest for other reasons, and

Metlink may further develop the proposals and seek other funding sources and partnerships.

20. The feasibility of installing solar energy generation canopies over carparks at Paraparaumu and Waikanae Stations was investigated. This did not progress as the costs per kilowatt installed were more than double that of solar on station roofs and of solar farms. Also installing solar canopies at these sites would block alternative uses of the carpark land for 25-30 years.

Ngā hua ahumoni
Financial implications

21. The total value of the three recommended projects is \$1,166,651. This includes the Metlink project ‘Solar power generation – Stations roofs’ (\$266,651), the Sky Stadium project ‘Energy efficient lighting opportunity’ (\$750,000) and the Strategy Group project ‘Solar prospecting study’ (\$150,000).
22. The ‘Diesel bus conversion to electric project #2’ is recommended to be approved in principle and funding will be recommended after the results from the first conversion (round one of the LCAF). The conversion of one bus is expected to cost up to \$440,000, but is currently being confirmed.

Ngā Take e hāngai ana te iwi Māori
Implications for Māori

23. There are no implications specifically for Māori as a consequence of this matter. Note that there is a chance that the solar prospecting feasibility study identifies opportunities for mana whenua landowners. If the case arises, implications for Māori will be carefully managed and reported on with the feasibility study.

Te huritao ki te huringa o te āhuarangi
Consideration of climate change

24. This report follows Greater Wellington’s climate change guidance.
25. The LCAF funds projects that will reduce Greater Wellington’s corporate carbon footprint. This is aligned with the LTP’s overarching priority ‘Responding to the climate emergency’.

Project	Amount applied for	\$/tonne lifetime carbon saved GWRC	Strategic significance
Metlink – Diesel bus conversion to electric project #2	\$440,000 per bus	522-1,244 \$/t CO ₂ e (depending on use)	High – This project answers point 4 of the Corporate Carbon Neutrality Action Plan ‘Accelerate the implementation of an electric bus fleet in the region by 2030’

Project	Amount applied for	\$/tonne lifetime carbon saved GWRC	Strategic significance
Metlink - Solar power generation – station roofs	\$266,651	-924 \$/t CO ₂ e (over 25 years, including cost savings)	High – This project supports point 3 of the Corporate Carbon Neutrality Action Plan 'Investigate securing renewable electricity supplies for Greater Wellington operations including via procurement, partnerships and/or direct investment'.
Strategy - Solar prospecting study	\$150,000	N/A – feasibility study	High – This project supports point 3 of the Corporate Carbon Neutrality Action Plan 'Investigate securing renewable electricity supplies for Greater Wellington operations including via procurement, partnerships and/or direct investment'.
Sky Stadium - Energy Efficient Lighting Opportunity	\$1,500,000	-220\$/t CO ₂ e (over 20 years, including cost savings)	Medium – This project does not directly support the Climate Emergency Response Programme's action plans. However, it plays a role in achieving the carbon neutral target Greater Wellington set in 2019.

Ngā tikanga whakatau Decision-making process

26. The matters requiring decision in this report were considered by officers against the decision-making requirements of Part 6 of the Local Government Act 2002.

Te hiranga Significance

27. Officers considered the significance (as defined by Part 6 of the Local Government Act 2002) of these matters, taking into account Council's *Significance and Engagement Policy* and Greater Wellington's *Decision-making Guidelines*. Officers consider that these matters are of low significance as they have only a minor impact on residents and ratepayers and they do not affect Greater Wellington's ability to perform its role.

Te whakatūtakitaki

Engagement

28. Given the low significance of the matters for decision, officers considered that no related public engagement was required.

Ngā tūāoma e whai ake nei

Next steps

29. If the Climate Committee so recommends, the applications to the Low Carbon Acceleration Fund will be referred, for approval, to Council’s next meeting on 30 March 2023.

Ngā āpitihanga

Attachments

Number	Title
1	Metlink application – LCAF Round 2
2	Sky Stadium – Energy Transition Plan: Energy Efficient Lighting Opportunity
3	Strategy Group – Solar Prospecting study for the Wellington Region

Ngā kaiwaitohu

Signatories

Writers	Mélanie Barthe – Kaitohutohu Senior Advisor Climate Change Jake Roos – Climate Change Advisor Craig Fairhall – Principal Advisor Strategy
Approvers	Lisa Early – Kaitaki-a-Tima Team Leader Climate Change Zofia Miliszewska – Kaiwhakahaere Matua Manager Strategy and Performance Luke Troy – Kaiwhakahaere Matua Rautaki General Manager Strategy Samantha Gain – Kaiwhakahaere Matua Waka-a-ātea General Manager Metlink

He whakarāpopoto i ngā huritaonga Summary of considerations
<i>Fit with Council's roles or with Committee's terms of reference</i> The Climate Committee's delegation includes to "Oversee, review and report to Council on the management and delivery of Greater Wellington's strategies, policies, plans, programmes, initiatives and indicators for climate change mitigation and adaptation."
<i>Contribution to Annual Plan / Long Term Plan / Other key strategies and policies</i> Operation of the LCAF relates to one of the four overarching strategic priorities of the 2021-31 Long Term Plan – responding to the climate emergency – and to actions in the Corporate Carbon Neutrality Action Plan.
<i>Internal consultation</i> Council staff and Sky Stadium staff were made aware of the opportunity to apply to the LCAF for eligible carbon-reduction projects.
<i>Risks and impacts - legal / health and safety etc.</i> There are no identified risks or impacts arising from this paper.



Low Carbon Acceleration Fund Application

Round 2 – February 2022

Metlink Projects

Diesel Bus Conversion to Electric Project #2

Solar Power Generation– Station Roofs

Attachment 1 to Report 23.75



1. Introduction

This application intends to provide context around potential Metlink projects that could use some or all the of the funding made available through the Low Carbon Acceleration Fund.

The application covers two projects that Metlink is wishing to undertake:

1. Diesel Bus Conversion project
2. Solar power generation from installations on station roofs.

The projects have a degree of scalability (in terms of the number of buses and station roofs we can convert)

In the previous round funding was awarded for the conversion of diesel buses to electric, this project is underway and further funding for additional buses is sought in this round.

2. Applicant

This application is on behalf of the Greater Wellington Public Transport division (Metlink).

3. Project Outlines

This application covers the projects that Metlink is seeking to undertake.

- Diesel Bus Conversion #2 – additional funding for bus conversions
- Solar Power Generation –to trial the generation of solar based electric power from systems installed on the roofs of stations. This will utilise assets already owned by Metlink to provide green energy for use by the station and also potentially for sale through the national grid.



Project 1 - Bus Diesel to Electric Conversion

Background

GWRC declared a climate change emergency on 21st August 2019 and “set a big, bold target to be carbon neutral by 2030”. In terms of transport emissions, this specifically included an action to “accelerate the implementation of an electric bus fleet in the region by 2030.”

The Metlink fleet is primarily comprised of diesel buses in various forms (long vehicle, double decker etc). Metlink in conjunction with NZTA funding supports purchase of the buses with the ownership structure consists of operators owning them directly, or for some buses ownership vested in the operator with a transferring asset clause to Metlink at contract end. As GWRC is seeking to electrify its fleet any transferring vehicles which are diesel based do not fit its long term model. It is likely that these will be either resold, scrapped or potentially due to financial considerations their use (and emissions generation) extended.

As the asset life expectancy of a bus is approximately 20 years selling the vehicle transfers the emissions issue to someone else (not removing the issue from NZ). A preferred option is to repower the buses and extend their lifespan by converting them from diesel to electric. This avoids the waste from scrapping or continued emissions via another owner. As new EV buses cost approximately \$700k-\$1mn (depending on bus size/type) there is also a financial aspect for consideration of lower cost alternatives to a new vehicle.

Conversion from diesel to electric powered buses has been successfully trialled in Wellington region. While it doesn't replace purchasing of new buses to replace old fleet, in certain situations it is an opportunity to extend the life of an existing asset that would otherwise be scrapped.

During round 1 of the LCAF funding Metlink was awarded funding to undertake a conversion of a diesel bus, this application is for further funding to continue the carbon reduction goals by converting more buses.

Project Detail

The projects aim is to undertake conversion of a diesel-powered bus to electric and then apply the converted bus in an operational capacity. The bus fleet used for conversion will be assessed for access to electric charging capacity to ensure that it is practical to do so.

The current project is in the tender stage with Operators, the outcome and bids received will identify the practicalities for conversion and provide guidance on the exact cost for bus conversion. Based on this Metlink will be able to determine the number of additional buses it can convert for the funding available

The additional funding may also allow Metlink to extend funding to an operator that was not successful in the first round and bring them on the journey of replacing their diesel buses through conversion. This will depend on an analysis of the bids received.



The project will

- Convert an ICE diesel buses to electric motor (repower)
- Undertake testing and certification of the bus to meet standards and requirements
- Make changes to commercial agreements for inclusion of the bus in the fleet.

Alternatives if Not Funded

Bus conversions are currently not funded through Waka Kotahi, and therefore are not part of the plan to remove ICE vehicles from the fleet at this time. This means any alternative approaches to purchasing new buses needs to be funded from other sources.

Given the constraints it is unlikely that bus repower conversions will be undertaken unless alternative funding sources are available.

Benefits

Transport is a large part of the emissions generated in the Wellington Region. The key benefit from the project is removal of an ICE powered vehicle that emits carbon and replacement with an electric vehicle that has no direct emissions.

Secondary benefits are

- the avoidance of early life disposal of an asset, reducing waste and
- avoiding incurred cost. Metlink has a number of transferring diesel buses which we are obligated to procure at the end of an Operators contract. Given the move to electric these would likely be then scrapped incurring early replacement cost and wasted money

The project also assists in GWRC's aim of decarbonisation showing that GWRC is committed to the targets and actively seeking methods how this can be achieved outside of normal purchasing channels. These benefits are social in nature as GWRC's playing its part in addressing the wider climate emergency.

Buses can travel anywhere from 40,000 to 100,000km per year depending on their use. Key routes have higher usage, and this would be the focus for a bus conversion to maximise the value.

Benefits Outline

- Based on a high use bus, each bus emits approximately 51 tCO₂ per year
- Based on a 15-year use period this overall lifetime reduction of 761 tCO₂ emitted per bus converted.

Attachment 1 to Report 23.75



Costs

The project requests **\$440,000** per bus to be converted. This is based on knowledge and learning gained during the current project being applied to reduce both time and cost.

The project costs at a high level are broken down as follows:

Item	Cost	Notes
Conversion Costs (per bus)	\$400,000	Estimated conversion cost (reduced from the previous). Note depending on funding level granted economies of scale may lower costs per bus.
Charger (per bus)	\$40,000	Allowance if charging infrastructure needs to be extended.
Sub Total	\$440,000	Per Bus.
Estimated costs based on multiple buses		Note, depending on funding economies of scale may reduce the per bus cost.
2 Buses	\$880,00	
3 Buses	\$1,320,00	
4 Buses	\$1,760,00	
5 Buses	\$2,200,00	

Metlink currently has several hundred diesel buses in its fleet. Ideally a larger funding allowance would enable us to convert a greater number of buses and reduce the carbon output from the fleet.

Risks

Conversion of buses to electric is not without risk. The initial trial will help identify and resolve potential issues, it is expected that an operator will be able to demonstrate a successful conversion before additional funding is given.

The key risks arising from the project are:

Risk Area	Description	Risk Rating	Mitigation
Bus Conversion	Physical conversion of the bus from diesel to electric is not a well-tested and common approach	Medium	Detailed planning based on previous conversion work and review by 3 rd parties.
Suppliers	The process is new and first trial undertaken by an operator, experienced commercial providers of	Low - Medium	Learnings from 1 st conversion will be applied. If a new

Attachment 1 to Report 23.75



	this work are not readily available. We may need to rely on an operator which is not desirable long term		operator is chosen, then will be a medium risk.
Procurement	The buses require electric motors. Given world-wide supply chain issues this may introduce delays into the project.	Low	Planning and ordering confirmation. Project timelines to be set with considerations taken into account.
Commercial	The bus targeted for conversion will be transferring assets. These are owned by the operator and introducing changes will require commercial negotiations to ensure the value is retained by GW.	Low	This will be defined during the first stage project. The process will be repeated for future vehicles.

Project Timeframes

Detailed planning has yet to be undertaken for the project but provisional timeframes (based on an approval by Council in March 2022) are:

Description	Expected Duration	Estimated Date
Setup of project including: <ul style="list-style-type: none"> Internal planning and design Commercial negotiations with operator 	2 Months	April – May 2023
Design and procurement	TBC – allow 4 months	TBC (supply chain dependent)
Implementation (bus conversion, testing and certification)	TBC	
Entry into service	1 month	Estimate December 2023

Diesel Bus Conversion Carbon Calculations

Diesel Bus Conversion	Higher Use DD	Lower Use DD	Max Use LV
Emissions from Service - Diesel			
Annual Distance Travelled (in and out of service)	39,321	24,576	60,000
Diesel Bus (kgCO ₂ /km)	1.350	1.350	0.950
Total Emissions (KgCO₂ p.a.)	53,083	33,177	57,000
Emissions from Service Electric			
Distance Travelled (in service)	39,321	24,576	60,000
Electric Bus (kgCO ₂ /km)	0.15	0.15	0.10
Total distance not made to station	5,839	3,649	6,270

Attachment 1 to Report 23.75



Net Emission Reduction (kgCO₂ p.a.)	47,244	29,527	50,730
Net Emission Reduction (tonnes CO₂ p.a.)	47.24	29.53	50.73
Net Emission Reduction (tonnes CO₂ p.a.) over lifetime of asset (expected 15 years)	708	442	761
Cost per tonne of CO₂ abated	\$776	\$1,244	\$722



Project 2 – Solar Power Generation Utilising Station Roofs

Background

GWRC declared a climate change emergency on 21st August 2019 and “set a big, bold target to be carbon neutral by 2030”. A part of the GW carbon footprint is our electricity usage and where we obtain it from. Approximately 84% of New Zealand’s electricity generation is through renewable energy and for GW to reach its target it needs to use or generate electricity through renewable sources.

Solar energy presents a major opportunity for growth in supplying renewable electricity to the New Zealand market to meet GW’s carbon neutral and New Zealand’s 100% renewable electricity target. The Electricity Authority (EMI) reports that New Zealand currently has around 160MW (2022) of installed grid connected solar power, representing only 0.5% of New Zealand’s total electricity supply.

Implementing solar generation on existing GW stations is one way to achieve this and maximise the use of the GW asset base.

Undertaking a small solar trial on a location such as a train station roof will allow GW to understand the benefits and complexities of this approach. Additionally generating energy will allow the site to be self-sufficient (in net energy terms) and its carbon neutrality.

Project Detail

The project is proposing to install a Solar photovoltaic system on the Masterton Train Station building roof. This will install a grid connected 100.1 kW-peak solar photovoltaic system which will generate electricity to be used at the station and excess fed back into the grid (revenue generation).

The Masterton Station currently uses around 131 MWh of electricity per year. The installed system will provide a green source of energy which on average is estimated to provide 100% of the stations annual electricity requirements. However, power production and consumption will only coincide about half the time, meaning at times the station will be exporting electricity and other times importing (e.g. at night). This will not only help ensure that GW uses carbon neutral sources but also with an increasing cost, and need, of electricity reduce GW’s power footprint and the associated costs.

Additionally excess power can be sold back into the national grid providing a revenue source. The energy production of the system would at times significantly exceed usage of electricity within the building; around 50% of the electricity generated would be exported. GWRC could benefit from this via electricity sales and by claiming renewable energy certificates (RECs) to credit against the emissions of its other electricity use.

Attachment 1 to Report 23.75



Apart from Waterloo Station (which will require work in the foreseeable future), Masterton Station has the largest roof of all Metlink train stations making it the best choice for an installation.

For details of the commercial and technical proposal see Attachment 1 & 2.

Alternatives if Not Funded

This project would not proceed without LCAF funding.

Costs

As this is a long term infrastructure project there are initial installation and ongoing maintenance costs. The project is requesting funding for the installation costs with expectation that revenue and expense reduction from the generated electricity will cover on going maintenance.

The system has a negative cost of carbon and is likely to pay for itself through electricity savings and export sales within 12 years of commissioning. The cost per watt (W) of capacity installed is higher than what is typical for rooftop solar systems due to higher health and safety requirements than usual (because it is a working train station) and asbestos management.

Initial Implementation Costs	
Legal and Tender Costs	\$15,000
System cost (based on a received indicative quote from Arise Energy) for a 100KWp system	\$191,870
Asbestos management allowance @15%	\$28,781
Distribution board upgrade (allowance)	\$5,000
Metering (allowance)	\$2,000
Sub Total	\$242,651
Contingency 15%	\$24,000
Total	\$266,651
Expected Revenue and Maintenance Costs Ongoing	
Cost per watt of capacity installed	\$2.27
Energy produced year 1	134MWh
Energy produced 25 years	3233MWh
Electricity saving/sales revenue 25 years	\$606,141
Maintenance costs 25 years	\$44,081
Net revenue 25 years – Maintenance	\$562,059

Attachment 1 to Report 23.75



Net cost 25 years (not discounted)	-\$370,189
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Risks

The initial trial will help identify and resolve potential issues before any wider installations are attempted across GW assets.

The key risks arising from the project are:

Risk Area	Description	Risk Rating	Mitigation
Solar Installation	Physical installation of the solar system may cause damage to the structure with costly repairs	Low	Solar installation is a well-trying procedure. It has been noted that butanol roofs may be an issue so these will be avoided.
Asbestos	Asbestos issues prevent installation.	Low	There is known asbestos at the site, an allowance has been made for management of this.
Suppliers	That the supplier cannot perform the required delivery or lacks sufficient experience in this type of work.	Low	There is a reasonable number of experienced suppliers and installers in the market. Evidence of previous installation work will be requested as part of the tender process.
Procurement	Supply chain issues may cause delays.	Low	Planning and ordering confirmation. Project timelines to be set with considerations taken into account. Solar panels are becoming a common product and it is not expected there will be any lengthy delays.
Commercial	The expected generation levels, or revenue from sale will not be reached.	Low	An experienced supplier will be chosen, reference sites will be investigated for confirmation of delivery output against initial estimates.
Financial	Inflation increases costs - The current high inflation environment may cause an increase in prices	Low	Contingency has been allowed in the project.

Attachment 1 to Report 23.75



Project Timeframes

Detailed planning has yet to be undertaken for the project but provisional timeframes (based on an approval by Council in March 2022) are:

Description	Expected Duration	Estimated Date
Setup of project including: <ul style="list-style-type: none"> Internal planning and tender design 	2 Months	April – May 2023
Design and procurement	Allow 2 months	TBC (supply chain dependent) provisionally June – July 2023
Implementation	1 month	August 2023
Project Closeout	1 month	September 2023

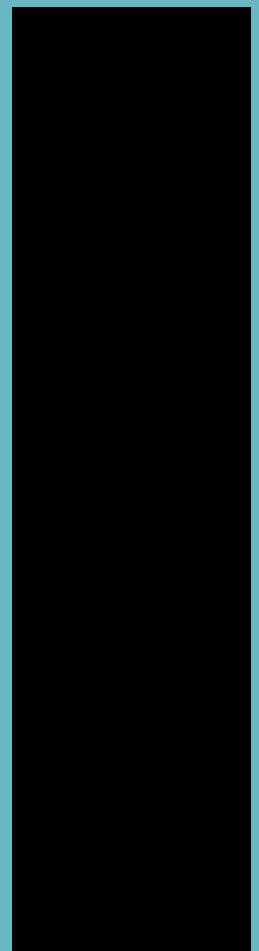
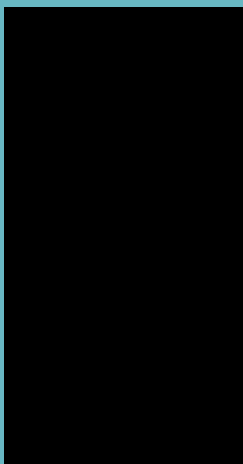
Carbon Calculations

Carbon saving operational	572	tCO ₂ e
Embodied carbon	171	tCO ₂ e
Carbon saved lifetime 25yrs	401	tCO ₂ e
Cost of carbon	-\$924	/tCO ₂ e
Carbon intensity of electricity produced	0.053	kgCO ₂ /kWh

Sky Stadium

Energy Transition Plan: Energy Efficient Lighting Opportunity Summary - Progress Update

EAC19190



Document Control

Version	Date	Description	Prepared by	Reviewed by	Approved by
0.1	01/02/2023	Energy Transition Plan: Energy Efficient Lighting Opportunity Summary - Progress Update	George Gray	Ben Thomson	Ben Thomson

Project Information

Project info	Description
Name	Sky Stadium Energy Transition Plan
Client	Wellington Regional Stadium Trust (WRST)
Job #	EAC19190
File location	G:\Shared drives_EAC\Projects\In Progress\19190 Sky Stadium - Energy Transition Plan\7. Report\7.2 Report Document

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1. Energy Efficient Lighting Opportunity

The Wellington Regional Stadium Trust (Sky Stadium) have contracted Lumen to develop an energy transition pathway and roadmap for Sky Stadium to reduce energy-related carbon emissions over the next 10 years. The results of this study will enable Sky Stadium to make technically and commercially viable investment decisions that support their transition to a low carbon energy future.

This is an interim report that covers the energy efficient lighting opportunity within the scope of the larger Energy Transition project. This opportunity was selected because of its ability to both reduce emissions and produce a good financial return.

Sky Stadium already has a project underway to replace the main stadium floodlights with LEDs. Analysis to date has shown that switching the remaining non-LED lighting to energy efficient LED lighting would reduce operating costs by \$114,000 p.a. and energy related emissions by 61 tCO₂-e p.a. In addition, this project would reduce peak electrical demand by an estimated 172kVA which could allow for increased electrification onsite for the fuel switching opportunities that are also being evaluated as part of this project.

Project Scope

Currently, the stadium floodlights are being upgraded which will reduce peak electrical demand by an estimated 256 kVA. However, the remaining lighting on site is mostly the original fitout and there hasn't been any significant site wide lighting changes since the stadium opened in 2000.

This project will focus on the remaining lighting onsite which is not energy efficient or LED lighting. The benefit of upgrading all areas at once would be to save on labour costs with efficiency of scale. Additionally, Sky Stadium would save on maintenance hours by replacing fixtures before they fail at end of life, which, after 23 years, many have already begun to.

A preliminary investment figure has been worked up with the help of Ecopoint who have been to site to review the lighting. As it is a large site with many different lighting types, this is an estimate only and is subject to a full lighting audit before providing finalised pricing.

The expected investment is approximately \$1,500,000 and includes fitting upgrades and install labour. More details can be found in the attached spreadsheet (Appendices A & B).

Project Benefits

By investing an energy efficient lighting rollout across the site, Sky Stadium should expect to save \$114,000 per annum in both energy costs and maintenance savings. This allows for a simple payback of 14 years and a positive net present value (NPV) of \$230,000 over 20 years. This is based of replacing around 6,200 bulbs with energy efficient alternatives. The hours of operations for each area used in the energy savings calculations were determined by the building management system (BMS) settings and observations from site visits. More details can be found in the attached spreadsheet (Appendices A & B).

As the project is expected to save 61 tCO₂-e p.a. in energy related carbon emissions it would also achieve a marginal abatement cost (MAC) of -\$220 /tCO₂-e as shown in Table 1 below. This MAC is far below the current cost of carbon in NZ (\$70 - \$80 /tCO₂-e) indicating the project has a good financial return.

Table 1: Site wide energy efficient lighting opportunities

Description	Electricity (MWh)	Electricity (kVA)	Opex (\$)	Emissions (tCO ₂ -e)	Capex (\$)	Payback (years)	NPV (\$)	MAC (\$/tCO ₂ -e)
LED Lighting Upgrades	464	172	\$ 114,000	61	\$ 1,500,000	14	\$ 230,000	-\$ 220

Overall decarbonisation context

In 2022, Sky Stadium emitted a total of 417 tonnes of carbon dioxide equivalent (tCO₂-e) of greenhouse gas emissions from its energy use. Most of the emissions, 301 tCO₂-e, came from electricity usage while 102 tCO₂-e came from the use of natural gas (kitchens equipment, domestic hot water and space heating) and 14 tCO₂-e from diesel use in generators. Site visits were carried out on the 19th of September 2022 and the 30th of January 2023.

Below is a summary of the findings to date:

1. Energy efficiency: energy management opportunities such as installing occupancy sensors and a site wide energy efficient lighting opportunity (focus of this report)
2. Fuel switching: replacing 950 kW gas-fired boiler with an electric boiler, replacing gas-fired domestic hot water boilers with electric hot water heat pumps and installing a split unit air conditioning for the control room.
3. Generation of energy on-site: solar PV and electricity grid emissions reduction.

As part of the analysis for the fuel switching opportunities, Lumen spoke with Wellington Electricity to review the available electrical capacity for increased electrification onsite. Sky Stadium currently has 3.6 MVA of electrical capacity provided by four dedicated transformers which should be sufficient for future electrification of energy uses currently fuelled by natural gas. However, Wellington Electricity has informed us that the Stadium would need to get approval for further demand increases due to the limits of the connecting lines to the site (currently 11MVA). These lines are due for upgrade in 2025.

By focusing on energy efficiency opportunities that reduce peak electrical demand in the short term, Sky Stadium can pursue fuel switching opportunities in the medium and long term without running into capacity issues and costly high voltage electrical infrastructure upgrades.

Additionally, energy efficiency opportunities, such as improved lighting, can not only reduce peak electrical demand and emissions, but also free up operating expenditure that can be redirected to other important areas. By replacing lighting fixtures with LED, the frequency of maintenance and replacement of lights can be reduced, freeing up valuable time that can be used for other tasks. Overall, investing in energy efficiency through lighting can not only reduce energy costs, but it can also increase operational efficiency, allowing Sky Stadium to focus on their core business.

'Solar prospecting' study for the Wellington Region

Applicant

The Climate Change Team, Strategy Group.

The proposal

To commission experts to identify suitable sites for developing solar 'farms' within the Wellington Region for Greater Wellington Regional Council (Greater Wellington), including holding initial discussions with the current landowners regarding 25–30-year leases for this purpose. The proposal is to find sites that if developed could provide 50MW of peak solar output, a land area of around 75 hectares.

Background

As part of its 10-Point Plan for corporate carbon neutrality, Greater Wellington has an action to investigate the development or procurement of renewable electricity supplies for its operations. The procurement method - purchasing 'green electricity' solely through a contract with an electricity supplier - has been ruled out as it lacks credibility. There are various strands of investigation for Greater Wellington to develop its own renewable energy assets, including putting solar energy installations on existing Greater Wellington owned buildings or land. However, these options' potential is highly constrained by the suitability and physical size of the buildings and land. The alternative is to acquire or lease the necessary space, and not rely on existing assets. The most straightforward approach is to focus on solar farms built on rural land.

About solar farms

- Solar farms involve rows of panels being arranged on mostly flat land with space in between so they do not shade each other and so they can be serviced.
- The rows automatically tilt from east to west each day to increase the amount of incident solar energy and thereby their output.
- Solar farms are compatible with other kinds of farming, as the partial shade beneath them is beneficial to certain crops and animals.
- All the electricity they generate is exported/sold through the national grid.
- When executed well in the right place, they are profitable, providing acceptable, low risk returns on investment, and providing emissions abatement at negative cost.
- Large solar farms are already being built around the country by private investors.
- Owners can claim 'renewable energy certificates' (RECs) which are tradable within Aotearoa NZ and can be used to remove the emissions of an equivalent amount of electricity-usage from an organisation's emissions inventory/carbon footprint.

How much?

Assuming that Greater Wellington uses RECs from solar farms to remove emissions of entire business units/activities of council, here is the amount of solar generation capacity it would need to establish. Note this an entirely arbitrary measure, Greater Wellington could make use of any number of RECs up to its total electricity consumption, and if it had more than it needed, it could sell them.

Note also that there will be significant increased electricity demand from all Greater Wellington's business units in the future. However, it is likely that Metlink buses will be the largest area of increase.

Attachment 3 to Report 23.75Table 1: Generic parameters (approximate) for solar farms in the Wellington Region¹

Parameter	Value
MW of installed solar	1 MW
Generation / MW	1500 MWh
Land area required / MW	1.5 hectares
Total Cost / MW to install	\$1.5M / MW
Gross Annual Revenue / MW	\$225,000

Table 2: Estimate of solar capacity needed to match electricity requirements of GW business units

Business unit	Peak output (MW)	Land area (Ha)	Current cost to build (M)	Gross annual income (M)
Council operations	0.9	1.4	\$1.4	\$0.2
Metlink	17.8	26.7	\$26.7	\$4.0
Centreport (GW share)	2.9	4.3	\$4.3	\$0.6
Stadium (GW share)	0.5	0.7	\$0.7	\$0.1
Wellington Water Ltd (GW share)	15.2	22.8	\$22.8	\$3.4
Total current	37.3	55.9	\$55.9	\$8.4
Metlink Bus extra 2030/31	13.8	20.8	\$20.8	\$3.1

Project Detail

The project will involve a process to procure and manage a supplier with expert knowledge to identify sites with the potential to be developed into economically viable solar farms with a total peak generating capacity of 50MW. Note that if pursued, further complications at the development stage may mean not all – possibly up to half – of these opportunities will ‘pan-out.’ The focus will be on the Wairarapa and to a lesser extent Kāpiti, as these have the most flat, rural land, whereas the other areas have little. Following contract start, the supplier will undertake the following steps:

1. Data collection;
2. Identification and mapping of constraints to development; some of the constrains are listed as an example:
 - Distribution/transmission line maps
 - Substation locations and capacities
 - Flood risk
 - Earthquake risk
 - Military areas
 - National Parks/ Reserves
 - Heritage Areas

¹ From a solar farm report recently carried out for Kāpiti Coast District Council.

Attachment 3 to Report 23.75

- Roads and access
 - Bio-diversity areas topography
 - Terrain slope
 - Land use classifications
3. Producing “heat maps” showing graphically the overall potential for solar farms of different areas
 4. Selection and appraisal of candidate sites; that would include
 - Discussion with distribution (line) companies about grid connection capacity
 - Identification of landowners, initial dialog with them
 5. Production and delivery of a final report with recommendations of which sites to pursue.

Alternatives if Not Funded

There is presently no budget available for this work. The alternative to Low Carbon Acceleration Fund (LCAF) funding would be to seek to include it in the next annual plan or Long-Term Plan.

Benefits

As well as providing emissions abatement at negative cost as detailed above, the main co-benefit of solar farms is that they are profitable, providing a financial return on investment. Furthermore, they can be compatible with continued farming and represent only a partial, reversible land use change. Regarding the prospecting report, while it will not reduce emissions itself, the results will be valuable investment information and could be sold or shared with other parties for them to pursue instead of Greater Wellington, if it chooses not to pursue these opportunities itself.

Costs

One provider of prospecting services would charge \$3,000 per MW of potential solar generating capacity fully identified, ready for the development phase. With a target of 50MW, the fee would be **\$150 000. This is the amount of funding requested.**

Risks

The project has minimal risk of failing to attain its outcomes. We know of one suitable provider of solar prospecting services already, so the project will be able to be completed. Also it seems likely - given the areas of land needed are small compared to the amount of flat rural land in the Region - that suitable sites will be found. However, there may be public relations risk when it becomes known the Council is carrying out these investigations and specific sites are identified. Regardless of the merits of a solar farm in any given location, it is likely there will be local objectors. Council would need to be prepared to manage this criticism and provide clear, proactive messaging about what it is doing and why.

Project Timeline

Description	Expected Duration	Estimated Date
Procurement & contract signing	Six weeks	April – May 2023
Implementation	3 months	June - August 2023
Report back to Council	TBC	Early Sept 2023

Climate Committee
16 March 2023
Report 23.77



For Information

CLIMATE CHANGE PROGRAMME UPDATE

Te take mō te pūrongo

Purpose

1. To update the Climate Committee (the Committee) on activities of the Climate Emergency Response programme undertaken by the Climate Change team in the Strategy Group.

Te horopaki

Context

Greater Wellington Climate Emergency Response Programme

2. Council declared a climate emergency in August 2019. This decision responds to the urgency climate change presents and encourages a step change in how Greater Wellington Regional Council (Greater Wellington) addresses climate change, both corporately and in how it uses its influence in the Wellington Region.
3. To demonstrate that step change, Council adopted two ten-point climate action plans – a Corporate Carbon Neutrality Action Plan and a Regional Climate Emergency Action Plan. These are collectively referred to as the Greater Wellington Climate Emergency Response Programme (the Programme).
4. Governance is provided by the Climate Emergency Response Programme Board, comprised of Greater Wellington senior managers, reporting to the Climate Committee.
5. Oversight of the work towards our corporate carbon targets is provided by the Corporate Carbon Neutral Steering Group. This Steering Group comprises managers with an area of responsibility related to Greater Wellington's carbon footprint.
6. There is a Climate Change team at Greater Wellington. They are a mix of full time and part time workers, comprising a team leader, three senior advisors, a coordinator and a consultant advisor. The programme of work includes oversight of the Climate Emergency Response Programme and contributing to regional climate change work. Current projects for the Climate Change team are described below.

Te tātaritanga

Analysis

7. The Climate Change team is working with Greater Wellington staff and Council to review the two climate emergency (10-point) action plans, which describe what we are doing

about climate change. The action plans have been effective over the previous three years but, with continuously changing context, are ready for a refresh. Two other projects will feed ideas into the review – those looking at corporate climate risk and corporate emissions reduction.

8. The corporate climate risk project aims to increase our understanding and management of Greater Wellington's corporate (not regional) exposure to climate-related risks. The first stage is underway to gather the knowledge Greater Wellington already has and record the risks, gaps, needs and opportunities. A report of this information, following the international Taskforce on Climate-related Financial Disclosures (TCFD) framework, will be used to assess next steps and inform organisational climate adaptation planning.
9. A 12-month Three Waters Better Off funded project looks at data-driven corporate carbon reduction initiatives. Based on initial analysis of our carbon footprint, the Climate Change team has identified some priority areas to scope. These include improving data accuracy for Parks and Flood Protection land grazing and fertiliser emissions, exploring options for grazing reduction on Flood Protection land, and opportunities for emissions reduction and operational efficiencies in heavy machinery use. This work can also support Round Two Low Carbon Acceleration Fund projects.
10. We are finalising our 2021/22 corporate carbon footprint. This was audited by Toitū Envirocare and we expect independent verification of our total emissions in March 2023. Based on the unverified data, our footprint has decreased from the previous year by two percent. This is due to a reduction in usage of Metlink bus and rail diesel, CentrePort Limited diesel, and Wellington Water Limited chemicals, as well as reductions in other smaller emissions sources. However, our baseline has increased due to the inclusion of previously uncounted emissions sources, such as rail replacement buses, flood protection grazing, and an improved sludge measure. The finalised and verified data will be presented at the next Climate Committee meeting.
11. Greater Wellington is also partnering with territorial authorities and AECOM consultants to produce a carbon footprint for the Wellington Region. The last one was done in 2019. This new footprint will be delivered by the end of May 2023.
12. The Climate Change team runs the process to identify, gather and assess proposals for the Low Carbon Acceleration Fund, and coordinates implementation of Council decisions regarding the Fund.
13. The team also provides climate change advice to Greater Wellington teams, contributes to submissions, and is planning a new staff training course on climate action, working closely with experts across the organisation, such as Greater Wellington's senior environmental scientist.
14. Greater Wellington works with the Wellington Regional Leadership Committee (WRLC) and their mana whenua and other regional partners on two inaugural climate change projects – the Regional Emissions Reduction Strategy and the Wellington Regional Climate Change Impacts Assessment.
15. The Regional Emissions Reduction Strategy has a project lead, who is part of the WRLC Secretariat, and a project sponsor at Greater Wellington. The Strategy is due in February 2024.

16. The Wellington Regional Climate Change Impact Assessment is led by Wellington City Council, with significant input from Greater Wellington staff. A partnership approach with mana whenua is important to this project. Subject matter experts, including those from across Greater Wellington, have contributed their knowledge at successful workshops on impacts to the economy, people and built environments, governance, the natural environment, transition, and cascading risks. The results are expected in June 2023, leading to the next project phase, developing a Regional Adaptation Plan.
17. Three staff represent Greater Wellington on the newly established Climate Group. This is a cross-cutting regional sector special interest group, established to improve the effectiveness and efficiency of the regional sector’s response to climate change.
18. The Climate Change team also organises regular meetings of officers from each of the Territorial Authorities in the Wellington Region to promote alignment of climate responses around the Region, share information and co-fund projects.

Ngā Take e hāngai ana te iwi Māori
Implications for Māori

19. Mana whenua and Māori are impacted by the choice of emissions reduction pathways that Greater Wellington takes to meet its climate goals, and by the need to partner with mana whenua on climate change projects. Regional climate planning must work in partnership to address the implications of climate change impacts, adaptation, and mitigation for Māori / mana whenua.

Ngā tūāoma e whai ake nei
Next steps

20. Updates will be provided to future Climate Committee meetings as needed.

Ngā kaiwaitohu
Signatories

Writer	Lisa Early – Kaitaki-a-Tīma Team Leader Climate Change
Approvers	Zofia Miliszewska – Kaiwhakahaere Matua Manager Strategy and Performance Luke Troy – Kaiwhakahaere Matua Rautaki General Manager Strategy

He whakarāpopoto i ngā huritaonga Summary of considerations
<i>Fit with Council's roles or with Committee's terms of reference</i> The Climate Committee's purpose is to "Oversee, review and report to Council on the management and delivery of Greater Wellington's strategies, policies, plans, programmes, initiatives and indicators for climate change mitigation and adaptation."
<i>Contribution to Annual Plan / Long Term Plan / Other key strategies and policies</i> This relates to one of the four overarching strategic priorities of the 2021-31 Long Term Plan - responding to the climate emergency.
<i>Internal consultation</i> Staff were consulted as appropriate for each climate change project.
<i>Risks and impacts - legal / health and safety etc.</i> There are no risks and impacts arising from this paper.