Business Case to retain Wellington's trolley bus network

Presentation to the Greater Wellington Sustainable Transport Committee meeting
14th February 2017
Porirua City Council premises

My name is Paul Bruce. I am a class one Meteorologist, formerly employed as a lead forecaster at MetService, & most recently three term regional councillor.

Today, I am asking you to consider a **Business Case to retain Wellington's trolley bus network**. This project has the support of the Civic Trust, Sustainable Energy Forum (SEF), Living Streets, FIT, Save the Basin, OraTaiao, Dr. Susan Krumdieck. The Architectural Centre has sent in a separate petition.

Agenda item 2.1 in the Mangers Report notes that one prototype trolley conversion running with Wrightspeed powertrain, will have acceptance testing early this month.

Item 5.3 of the Electric Vehicle report notes that "GWRC has provided an incentive mechanism in its current tender for bus operators to specifically encourage low emission bus fleets, with additional weighting provided for battery only electric buses."

Yet, the Greater Wellington Regional Council (GWRC)'s Transport Strategy proposes the retirement of Wellington city's 100% electric trolley bus fleet and the dismantling of its power distribution infrastructure from mid-2017.

Hybrid vehicle utilising a "Wrightspeed" drivetrain on a trolley bus chassis with a gas turbo fossil fuelled motor, will lead to increased greenhouse emissions, the exact amount unknown until trials have been completed.

C**ouncillors,** You are the leaders of the region, and have expressed a desire for a better, fully electric public transport fleet. Zero emission transport is urgent, given that climate change is continuing apace, with sea level rise of several meters now commonly predicted for this century if we don't eliminate all our emissions within a very narrow time frame.

Trolley buses are zero emission vehicles.

World-wide sentiment towards building new trolley bus networks, and retaining and upgrading existing networks means that over 300 cities currently use trolley buses for all or part of their public transport services. Reasons for their increasing popularity include zero emissions, quietness, efficiency and capacity to adapt to new power distribution and battery storage technologies.

Beijing is recoverting battery buses to trolley bus, and Shanghai is coverting diesels to trolleys.

In the USA there are five trolleybus systems. San Francisco and Seattle have large systems and they are at present completely renewing their trolleybus fleets.

There are also rapid developments in trolleybus technology with modern batteries allowing greater offline capability.

A substantial number of trolleybus operators around the globe have introduced trolley buses equipped with a battery-package on board that allows for extensive off-wire operation of the vehicles. Existing trolleybus systems frequently consider "in-motion-charging" as the adequate way to further develop traditional trolleybuses technology.

Councillors, existing trolleys are good for another 5 to 10 years, and exciting upgrades that have been shown to be cost effective overseas, are then possible.

A business case that provides an objective assessment of the value of the existing trolley bus fleet and its supporting infrastructure should be commissioned by GWRC so that its contribution to GWRC's overall transport and environment strategies can be determined.

Existing trolleys have higher passenger capacity than proposed battery buses, and can be used to mark the strategic east/west core, consistent with the new bus network.

The complete trolleyable route in the new network, the East-West Spine, is part of a unit planned to be awarded by negotiation with NZ Bus rather than by tender. We would expect detailed cost analysis to be part of that negotiation, which will be informed by the tenders for other units, which will be submitted before negotiations with NZ Bus take place.

The case for retirement of the trolley bus fleet has not been made. Their retirement is contrary to GWRC publicly stated goal of obtaining an all-electric bus fleet.

The decision made by Council two and half years ago could be contestable in a judicial review.

Key factors in favour of trolley bus retention include:

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1. The case for trolley buses and their supporting infrastructure to be decommissioned appears short-sighted and does not adequately consider the opportunity provided by the network to support GWRC's public transport spine strategy. Removal of the overhead distribution network would mean there is no possibility of its being reinstated in the future, due to cost and consent constraints.
2. Current thinking does not view the distribution network as an asset. The cost of removal, estimated at $10.5 M, seems to be an expensive exercise in preventing future opportunities being considered.
3. World-wide sentiment towards building new trolley bus networks, and retaining and upgrading existing networks means that over 300 cities currently use trolley buses for all or part of their public transport services. Reasons for their increasing popularity include zero emissions, quietness, efficiency and capacity to adapt to new power distribution and battery storage technologies.
4. Negative perceptions about the quality and reliability of the service provided by the trolley bus fleet should be tested in the public arena. Effective training on driver retention and capability can also be examined, to provide fact rather than conjecture about supposed skill shortages and drivers' preferences to operate diesel buses.
5. The analysis used to provide an estimate of the costs required to maintain the power distribution network is high-level and takes a "total replacement" approach to rectifier equipment and underground distribution cabling. It appears that a detailed review of the underground reticulation system has not been carried out, and its overall condition has not been assessed. A more objective approach to establishing the state of the network should be undertaken.
6. Bus tender documents specify an east/west trolley bus route to be awarded to the incumbent which contains overhead wiring apart from a short section through the Miramar Gap.
7. The prototype hybrid vehicle utilising an electric "Wrightspeed" drivetrain on a trolley bus chassis has yet to eventuate, and it now seems highly likely that trolleys will be replaced by more polluting diesel buses. However, the hybrid vehicle would itself still lead to increased greenhouse emissions, the exact amount unknown until trials were completed.

A business case that considers the long-term viability of the city's trolley buses and supporting infrastructure should be commissioned by GWRC as part of its implementation of the public transport strategy.

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Media Statement:
Request for Business Case for retention of Wellington's trolley bus network

A coalition of Wellington organisations called for a professional business case study to maintain Wellington's trolley bus network at the first meeting of Greater Wellington Regional Council's Sustainable Transport Committee meeting of this year on 14th February. "Wellington's zero emission trolley fleet is a strategic asset in a city already committed to phase out it's dirty fossil fuel buses" says Paul Bruce, former three term regional councillor.

Mr Bruce spoke on behalf of the Civic Trust, Sustainable Energy Forum (SEF), Living Streets, FIT, Save the Basin, OraTaiao, Dr. Susan Krumdieck, requesting that a business case be carried out. The Architectural Centre sent in a separate petition supporting retention of the Wellington's trolley bus fleet.

"Council ambitions to design and build a new type of natural gas powered bus would increase greenhouse emissions and is an experiment too risky for rate payers" says Mr Bruce. Its historic decision to destroy the trolley system is an unsafe and based on incorrect information and high-end costs. It also contradicts the Council's own Electric Vehicle officer report encouraging low emission bus fleets. "It is another example of the Council's left hand not knowing what its right hand is doing" says Mr Bruce.

Mr Bruce added, "existing trolleys have higher passenger capacity than battery buses and they can be used with the planned bus route network and tender process.

More than 300 cities around world are operating and expanding trolley bus networks. They are more popular because they are clean, quiet and quick. Lyon, France has new trolley buses, San Francisco and Seattle have large trolley systems and Beijing and Shanghai Beijing are reconverting failed battery buses to trolleys. "Other cities are building trolley buses with new technical developments to improve trolley bus performance" says Mr Bruce.

"GWRC publicly stated goal is an all-electric bus fleet. It follows that the council make an objective assessment of the trolley buses contribution to city transport needs and environmental impact," Paul Bruce concluded.

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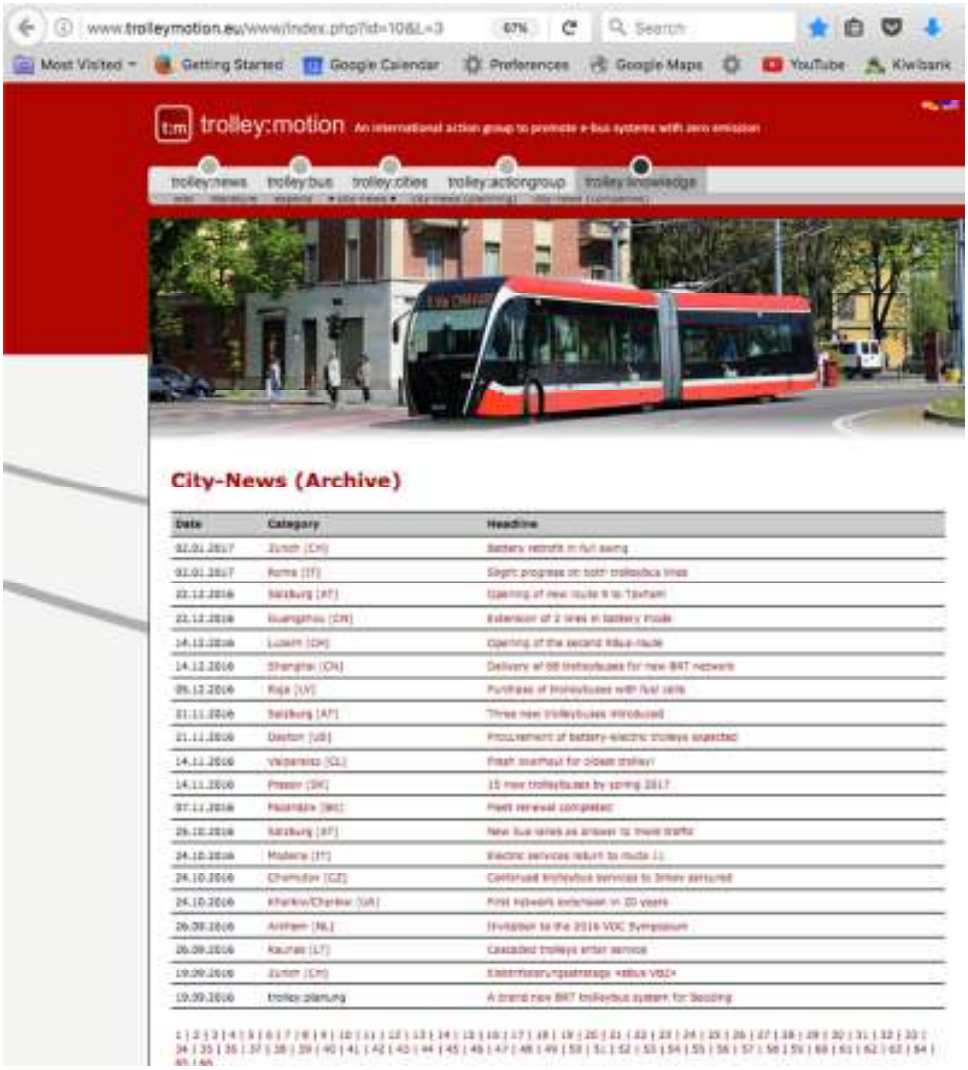
Further information:



In case of Wellington, we already HAVE an existing overhead network, which allows for zero-emission bus operation – a favorable situation compared to other cities.

See below for links to a couple of useful reports on developments in Europe and, in particular note the top of page 6 in the "Civitas" document urging the retention of existing trolleybus installations so that they can become the core of networks utilising in-motion charging (with all buses ultimately fitted with trolleypoles to charge their batteries running under overhead lines and then continue beyond the wired routes, de- and re-poling automatically). This is under way in Arnhem, Eberswalde, Esslingen, Gdynia, Landskrona, Linz, Lublin, Riga and Solingen.

This is what needs to be studied for Wellington. Adaptation of the existing OHLE to maximise in-motion charging opportunities makes sense. On the other hand, there is absolutely no sense in dismantling any existing trolleybus system - indeed, it would be criminally irresponsible to do so!

TrolleyMotion, is probably the best place for news
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