

1. Introduction

The current franchise tendering process offers real opportunities to develop the current rail network in a sustainable and resilient way. This paper considers two important issues, firstly developing the rail service to be a clean, modern and forward thinking business and a beacon of travel for its local consumers and Wales visitors, especially in regard to future travellers; Secondly to look at ways in which the service providers can work with and benefit its community.

2. Use of Alternative low carbon fuel sources

The Wales rail network needs to address current Wales, UK and International legislation and policies by addressing the use of polluting fossil fuels, particularly important as large sections are not electrified so rely solely on polluting diesel engines for the rail stock. Whilst this poses problems it also provides an opportunity to develop a sustainable service fuelled by alternative methods/fuels.

There are major changes in other modes of transport, road vehicles and boats/ferries with the adoption of low carbon alternatives mainly hydrogen and fuel cell technology. Whilst it will take time for these to become mainstream use the gap in the rail network will become more apparent over the next 5 to 10 years, and realistically without plans in place within this tendering process it will take a long period of time for it to catch up, or become obsolete as a mode of transport with huge investments costs required to address this i.e. to look for the readily available options in regard to rolling stock now will bring huge barriers to investment over the franchise period.

There are many examples of the adoption of alternative fuels:

2.1 Aberdeen and London hydrogen powered bus services:

<http://www.aberdeeninvestlivevisit.co.uk/Invest/Aberdeens-Economy/City-Projects/H2-Aberdeen/Hydrogen-Bus/Hydrogen-Bus-Project.aspx>

<http://www.cnn.com/2016/11/30/hydrogen-powered-double-decker-buses-are-coming-to-london.html>

2.2 Examples of battery powered electric cars are vast and they are now accepted modes of transport with charging points being installed across the UK. More recently dual fuel, hydrogen, /fuel cell cars, and hydrogen powered vehicles are being introduced:

<https://www.theguardian.com/environment/2015/nov/04/the-future-is-here-mass-market-hydrogen-cars-take-to-britains-roads>

2.3 In Scotland the ferry services are looking to provide a hydrogen/fuel cell island ferry service, please see the Ferry services plan, 2013 to 2022:

http://www.transport.gov.scot/sites/default/files/documents/rrd_reports/uploaded_reports/j254579/j254579.pdf

2.4 There are also developments were the introduction of alternatively fuelled trains is within the near future not outside of the scope of the franchise operating period.

Alstom is a major developer in this field and presented its zero-emission train at InnoTrans, the railway industry's largest trade fair, which took place in Berlin from 20 to 23 September 2016



Coradia iLint Train

Despite numerous electrification projects in several countries, a significant part of Europe's rail network will remain non-electrified in the long term. In many countries, the number of diesel trains in circulation is still high – more than 4,000 cars in Germany, for instance.

Coradia iLint is a new CO₂-emission-free regional train and alternative to diesel power. It is powered by a hydrogen fuel cell, its only emission being steam and condensed water while operating with a low level of noise. Alstom is among the first railway manufacturers in the world to develop a passenger train based on such a technology. To make the deployment of the Coradia iLint as simple as possible for operators, Alstom offers a complete package, consisting of the train and maintenance, as well as also the whole hydrogen infrastructure out of one hand thanks to help from partners.

This launch follows the Letters-of-Intent signed in 2014 with the German Landers of Lower Saxony, North Rhine-Westphalia, Baden-Württemberg, and the Public Transportation Authorities of Hesse for the use of a new generation of emission-free train equipped with fuel cell drive.

“Alstom is proud to launch a breakthrough innovation in the field of clean transportation which will complete its Coradia range of regional trains. It shows our ability to work in close collaboration with our customers and develop a train in only two years,” declared Henri Poupart-Lafarge, Alstom Chairman and CEO.

Alstom’s Coradia range of modular regional trains has a proven service track record spanning more than 16 years. Over 2,400 trains have been sold around the world and demonstrate a high availability rate. Coradia iLint is based on the service-proven diesel train Coradia Lint 54. It will be manufactured in Salzgitter, Alstom’s largest site

<http://www.alstom.com/innotrans2016/>

These trains could be adapted to Wales lines, such as change in door siting, platform height etc., an order for these trains would provide the resources to carry these out.

3. Context of this paper

Transition Bro Gwaun (TBG) a local community group based in the Fishguard and Goodwick area, engaged with franchisees for the Wales train service and they were invited to a launch of their Tidal Flow project in November, 2016, the reason being that they need to look to demand for their renewable technology supplies in the future. The local grid network is limited and therefore need to plan for energy storage and supply in the future. Stenaline who operates the Ferry service from Fishguard are partners of the project.

<http://transitionbrogwaun.org.uk/>

As well as franchisees attending the meeting, others have been in touch via emails and also meetings have been held to discuss issues. The meetings were attended by RENEW Wales (All Wales community project), Local Energy,(Energy Saving Trust, WG community renewable programme), and Community Energy Wales (membership organisation representing community groups) to discuss issues around supply and also opportunities to

involve communities in the rail network services. All have been consulted during the production of this evidence.

It was clearly acknowledged at the meetings and discussions that the rolling stock for the majority of the network is old and requires imminent replacement, however caution about the proven performance of alternative fuels was obvious and that opinions mainly were that it was not ready for the current replacement needs. Although as shown there are examples of developments currently being demonstrated on other networks.

3.1 What the tendering needs to address: Based on the conclusions above the most important issue around any replacement rolling stock should be how adaptable it would be to alternative fuels in the future i.e. whichever units are procured they will be a huge investment for the service whatever model is selected, and if they are not adaptable to alternative fuels will set the development of the service back offering only polluting diesel as the option for the foreseeable future. If units are not procured but are hired in then again the length of time this agreement is held if they are not adaptable should be considered.

The tendering offers an opportunity to heavily weight points for franchisees who plan for alternative fuels especially on the non electrified rails.

3.1.1 Recommend that the committee refers to experts within field of hydrogen trains to determine a time frame for introduction of alternative fuels, this again should be stipulated within the tendering process. A link to an upcoming hydrail conference and to contacts for this is below:

<https://hydrail.appstate.edu/>

4. Resilient and Cohesive Communities

The Well Being of Future Generations Act, 2015 determines that communities should plan and be supported to become more resilient and cohesive. An efficient, clean and sustainable rail service is an important part of the transport system for communities across Wales. Additionally as communities look for more secure and sustainable energy sources it is clear that a partnership approach for viable local energy systems is required, i.e. with the removal of feed in tariffs the economic viability of renewable technologies has been drastically affected, furthermore the grid system especially in rural areas is insufficient to support local energy supplies; this scenario requires a change in approach looking at partnerships to ensure the future of alternative energy sources and the benefits they bring to local communities, alongside the mitigation of climate change impacts. This is reflected in TBG's approach to the rail franchisees.

4.1 During meetings and other discussions with Franchisees there has been a very positive response to seeking community partnerships across the rail network. Ideas have been proffered on both sides and have included:

- *Provision of rail buildings and land for community renewable technologies, both parties would benefit from lower electricity costs, security of supply and an income for the local community
- Partnership approach to rail services, for example the community providing local food for cafe's and trains OR a franchise for ticket sales OR growing produce on land or stations

4.1.1 Recommend that the tendering reflects a partnership approach with local communities across the rail network opening many opportunities for community benefit beyond the rail service, additionally offering a link to rail users and non users across Wales.

* It is important that the tendering papers take account of the longer term requirements for renewable technology installations, i.e. the tendering is for 15 years whereas the renewable technologies would be installed for up to 25 years, so would be required to be adopted by future service providers.