RAILFUTURE CYMRU/WALES
A PLAN FOR THE ELECTRIFICATION OF THE RAILWAYS OF WALES

The Deputy First Minister Ieuan Wyn Jones has set out his plans for a more integrated transport system for Wales. "We are committed to our One Wales goal of securing a system of integrated transport fit for the 21st century, which will unite our nation and deliver on our plans for carbon reduction'

The Wales Transport Strategy "One Wales Connecting the Nation" has prioritized five key areas. These are:-
Cutting transport emissions vital for the One Wales objective of an annual 3 per cent cut in emissions in devolved areas by 2011.
Joining up local transport as part of a genuinely integrated system
Improving access to key sites and settlements
Enhancing our country's international connectivity, and
Promoting safety and security

Wales and Northern Ireland are the only two countries in Europe that have railways without a section of electrified line.

Some European countries have a fully electrified network such as Switzerland which includes main lines, country branches and urban networks and this could be emulated by Wales. At present only 40 per cent of the UK network is electrified. Railfuture supports fully the Network Rail/ATOC goal that electrification should take place wherever it is economically viable so that over time the benefits are felt by a significant majority- perhaps 80 per cent -of customers. We hope that this will include 80 per cent of the customers in Wales.

Transport Scotland

Transport Scotland has published a Strategic Transport Projects Review for 2012-22 that proposes a rolling programme of electrification building on the already extensive electric network in Strathclyde and the two electrified main lines West and East Coast to England. The Scottish National Planning Framework includes the Scottish ministers long term aspirations to electrify the whole of the Scottish rail network

The case for electrification

Railfuture advocates a progressive electrification of the railways of Wales to:-
A reduce and carbon emissions

B reduce costs Electric trains have lower maintenance and fuel costs. They have less wear and tear and are more energy efficient. With less units under maintenance they have a higher availability.so
C provide opportunities for an integrated transport system for Wales. Joint heavy and light rail running is possible using tram- trains.
D enhance international conductivity with England, Scotland and Europe (via the Channel Tunnel). Railfuture's proposals will link with line already electrified in England
E provide a security of energy supply and move away from complete dependence on oil. The price of oil is volatile but increasingly upwards as world supplies diminish. Electrification uses a variety of energy sources including renewable energy from tidal, hydro and wind, from coal including the use of indigenous coal, gas that is being imported at Milford Haven and nuclear power from Wyllfa. Wales is rich in the opportunity for energy production.
F improve air quality and the health and well being for those traveling by rail and living near to railway lines by the reduction of emissions. There will also be a reduction in noise levels.
G support Welsh industry. Many of materials required for the construction of the electrification infrastructure are produced in Wales including steel, cement and transformers
H provide, urgently needed, replacement rolling stock. The High Speed Trains on the London South Wales route were built in 1976 and the Pacers now used in the South Wales valleys will soon require refurbishment or replacement
I be more efficient. Electric traction has more rapid acceleration and thus journey times can be reduced and track capacity increased.
J reduce signaling costs The recent re signaling in South Wales is compatible with electrification and thus further signaling costs will be reduced
K provide more capacity Trains formed of multiple units can be divided to provide seating capacity appropriate to the service.

Railfuture's progressive plan

Electrification should take place in the following stages:-

Stage 1 Paddington to Swansea via Westerleigh Junction and Bath.(A13.6 tier1)
The Swindon , Kemble, Gloucester, Chepstow, SevernTunnel Junction line should also be electrified as a diversionary route with the Swidon to Kemble section reinstated as double line .We wish to point out that Severn Tunnel Junction to Bridgend/Margam has higher flows than between Swindon and Bristol both routes and is in fact as high as the Didcot to Swindon section. This strongly support the evidence that electrification must extend to Swansea.

Stage 2 Crewe, Chester and Holyhead including the branch to Llandudno(A22.3 tier4)

Stage 3 The Cardiff Valleys network including the Vale of Glamorgan, Maesteg and Ebbw Vale branches (15.1 tier5)
The Vale of Glamorgan line will also provide a diversionary route between Cardiff and Bridgend .

Stage 4 Severn Tunnel Junction to Gloucester (A13.6 tier 3)
In your calculations only the Cardiff Nottingham service is included, the Maesteg to Cheltenham and diverted services between South Wales and Paddington and Bristol and Birmingham have not been included This error could result in this section of line being in a lower tier than merited by the number of services.

Stage5 Wrexham to Bidston as an extension of the Mersey Rail network (D22.4 tier5)

Stage 6 The Marches line from Chester and Crewe to Newport (A14.1 tier5)
Essential for the One Wales objectives

Later stages would follow as passenger levels increase and world fuel prices rise would include

Stage 7 West Wales lines first to Carmarthen (A14.3 tier 6)
including the Swansea District line. Also as a diversionary route

Stage 8 Carmarthen to Milford Haven ,Pembroke Dock and Fishguard Harbour

Stage 9 Cambrian lines Shrewsbury to Aberystwyth and Pwllheli

Stage 10 The remaining branches Llandudno Junction to Blaenau Ffestiniog, and Llanelli to Craven Arms.

The codes are for gaps identified by Network Rail in the Network R U S Electrification Strategy and the tiers are priority rankings

Cross border conductivity

One of the strongest cases for electrification is the extension of the Paddington to Airport Junction electrification westwards to Swansea. Plans are in hand for the electrification to be extended as part of Crossrail from Airport Junction to Maidenhead but the natural terminus for Crossrail is Reading or even Oxford It is essential for Wales that the electrification does not terminate at Bristol. This will create delays to onward travel and increased journey by either a change of trains for electric trains to High Speed Trains or the use of hybrid trains (electric and diesel powered) with a much lower speed when using diesel traction

The nearest electrified sections of line to Wales at present are at Crewe and Oxley (Wolverhampton) and English government could consider extensions to Chester and Shrewsbury respectively. It is essential that Welsh Assembly Government considers extensions from Chester and Crewe across the border into Wales.
The Birmingham to Bristol and South Wales route is electrified to Barnt Green and plans are in hand to extend this electrification to Bromsgrove. A natural extension would be to Cheltenham and Bristol connecting with the South Wales main line

Service changes

Electrification will provide for the increase frequency service required between Newport and Swansea to bring the service up to the 15minute interval service enjoyed by many of the Cardiff Valley line
The Manchester to West Wales service will be able to run direct via the Swansea District line,as advocated in Railfuture's Development Plan for Welsh Railways and West Wales Direct ,if an enhanced service is provided between Newport and Swansea. This service will have to terminate in Swansea when electrification of the Marches line is completed with a connecting service from Cardiff via the Swansea District line to West Wales
A later stage could see through services reinstated to Carmarthen/Milford Haven.
Cardiff to Bristol services will be electrified but there will be no through service from Cardiff to Taunton
Nottingham to Cardiff via Birmingham will be electrified
If electrification is extended to Shrewsbury through services from the Cambrian and from Holyhead via Wrexham to Birmingham could be lost
If electrification is extended to Chester through services from North Wales to Crewe could be lost
New service possibilities include Wrexham to Liverpool.

Depots

The new electric trains will require new or modified depots
A The site of Swansea High Street and Malliphant sidings adjacent to Swansea High Street station will accommodate trains of up to 12 coaches in use on Paddington to Swansea services. The present Landore deport should be retained and used for servicing diesel units used for West Wales services
B Cardiff Canton depot will be converted to service electric trains used on the Cardiff Valley network with the servicing on the remaining diesel trains in South Wales moving to Landore
C Chester depot will come redundant when the use of class175 diesel units ceases but upgraded facilities will be required at Holyhead and Crewe where ATW now owns the former LNWR depot.. Consideration could be given to a new depot on railway owned land adjacent to Bangor station to provide for services starting at Holyhead and Llandudno and also future services to Caernarvon.
D Machynlleth depot can be extended and converted to an electric depot when the Cambrian line are electrified

Freight

Electrification will also benefit the movement of freight traffic. The marshalling yards at Newport, Cardiff and Margam should be electrified and the first traffic to be electrically hauled would be that on the Great Western main line (subject to the constraints of Crossrail).
Electrification of the Severn Tunnel to Gloucester route and onwards to the Midlands will enable the movement of steel traffic from South Wales to the Midlands and the north to be converted to electric haulage.
Electrification to Avonmouth and Portbury Docks in Bristol would allow the movement of imported coal by electric traction to Aberthaw, Fidlers Ferry and Rugeley power stations

An increase in part load or Enterprise trains should be encouraged to move freight from road to rail and provide a service to Europe

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Transport consortia

SEWTA

The SEWTA board approved a Railway Electrification paper at its meeting on 26th June 2009. SWETA supports the electrification of the South Wales main line to Swansea and the Valleys lines network including the Maesteg, Vale of Glamorgan and and Ebbw Vale lines

SWWITCH

SWWITCH supports the electrification of the South Wales main line to Swansea but at present has no aspirations for further electrification

TraCC

TraCC has no electrification aspirations

TAITH

TAITH has commissioned a feasibility study, jointly with Merseytravel, of the electrification of the line between Wrexham Central and Bidston. At present ways are being investigated to reduce the estimated costs of this electrification scheme (Wales RUS 22.04.)

Welsh Assembly Government

Welsh Assembly Government publishes its draft Welsh Transport Plan on 16th July 2009 and it is anticipated that it will include a section on electrification.
However to date WAG has given no indication that it supports electrification other then its support for an appraisal of the Wrexham to Bidston electrification and recent comments that it supports the electrification of the South Wales main line to Swansea

The Scottish Assembly has published an electrification plan for Scotland and WAG should do likewise for Wales even though its has lesser transport powers.

Network Rail

Network Rail is publishing it's Network Route Utilisation Strategy in sections and the draft Electrification section has been published (but only in electronic form) for consultation until 14th July 2009

References

Planning Ahead Network Rail/ATOC 2014-9 CP5 2009.
SEWTA Board papers June 2009
Wales Route Utilisation Strategy 2008
Regional Transport Plan SEWTA 2008
Regional Transport Plan SWWICH2008
Regional Transport Plan TraCC 2008
Regional Transport Plan TAITH 2008

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