

## **Railway investment on the Great Western Main Line and in Wales**

### **Introduction**

On 1<sup>st</sup> March 2010 I announced the Government's plans for extension of electrification on the Great Western Main Line (GWML) in England and Wales and the procurement of a new fleet of trains. I have confirmed Agility Trains as preferred bidder to deliver a new fleet of trains to take full advantage of the electrification and to deliver better, faster and more comfortable services across the route.

In my statement, I committed to deposit a document in the House of Commons Library setting out the appraisal that assisted the Department in determining the extent of electrification. Department for Transport officials have worked extensively with their colleagues in the Welsh Assembly Government (WAG) to develop the business case for electrification into Wales.

At a time of significant pressure on public spending, I am determined to maximise the value of our expenditure. Passenger demand and revenue on the GWML is high and growing. That is why I have authorised electrification and the new train fleet.

I believe this investment and other improvements such as that taking place at Reading station represent a very significant improvement to the GWML for both passengers and freight customers.

I am very conscious that there has been some disappointment that I have not been able to commit to electrification between Swansea and Cardiff. In fact, the electrification of the line to Cardiff and the delivery of the new bi-mode trains is good news for people travelling to Bridgend, Port Talbot, Neath and Swansea with better, faster and more comfortable through services. Trains to London will be 20 minutes faster than today and more capacity will be provided. These significant improvements will bring Swansea and West Wales closer to London and Cardiff, help improve connectivity and boost the local economy.

The policy of the Government is to support a progressive electrification of the rail network in England and Wales. In conjunction with the Secretary of State for Wales I will keep under active review the business case for future electrification of the GWML between Cardiff and Swansea in the light of developing future service patterns.

**Secretary of State for Transport**

## **Improvements for passengers**

The investment on the GWML delivers electrification between Maidenhead, Reading, Newbury, Oxford, Bristol and Cardiff along with new trains to operate long distance plus many regional, local and commuter services.

The GWML has seen significant increases in passenger demand with the Thames Valley and Greater Bristol both being key growth areas. Between 2000 and 2006 there was 20% increase in passenger numbers between the Bristol urban area and London. We anticipate significant demand continuing on the route.

When fully introduced alongside electrification of the route, the Inter City Express Programme (IEP) will deliver over 8,000 additional seats on services into Paddington over the peak three hours, representing a 31% increase compared with today. Trains will operate under electric power for most of their journeys. The bi-mode capability allows them to operate on new, cleaner and greener diesel engines over those sections of line that are not electrified, continuing to provide through services to London often with significantly reduced journey times.

The appraisal used by the Department for Transport (DfT) assumes the following indicative service patterns following electrification and the introduction of new trains. Final service patterns may be different following future franchise competitions.

### *Cheltenham & Gloucester*

The IEP will be used to increase the frequency of London services to hourly all day. Cheltenham to London services are expected to be 20 minutes quicker once the new trains are in service.

### *Oxford and Newbury*

IEP would be deployed on some services alongside other electric trains providing a significant capacity boost and some journey time reductions. It is planned that certain new bi-mode services would continue onto the Cotswold line to Worcester and from Newbury towards Exeter.

### *Bristol*

Services from Bristol Temple Meads to and from London will increase from two to four trains per hour with new fast trains via Bristol Parkway completing the journey 22 minutes faster than today. Passengers from Bath can expect a seven minute reduction in journey time.

### *Newport and Cardiff*

Services to and from London will continue at two trains per hour but with trains to Cardiff completing the journey 17 minutes faster than today. There will be a significant increase in capacity. Passengers from Newport and Cardiff can expect to start using the new trains in December 2016, with electrification completed and service improvements one year later in 2017.

*Bridgend, Port Talbot, Neath, Swansea and West Wales*

Services between London and Swansea will be 20 minutes faster than today, completing the journey in two hours and 39 minutes. The bi mode new trains will switch from electric to diesel power at Cardiff with no journey time penalty.

The investment in electrification and new trains compliments other investment on the route. The £16bn construction of Crossrail will extend electric train services from Essex and Central London to Slough, Heathrow and Maidenhead. The £850 million upgrade of Reading station provides a significant increase in passenger capacity and allows more room for services from the west to reach London.

**Appraisal of electrification and the new train fleet**

A key consideration in considering the extent of electrification is the frequency of diesel services that can be sensibly converted to electric operation and the likely growth of passenger demand. Because the infrastructure required for electrification is expensive, electric train frequency needs to be significant. Frequency also needs to be high to achieve the maintenance savings from the train fleet. This is why electrification of London to Oxford, Newbury, Bristol and Cardiff services is good value for money with some high frequency electric trains planned on these routes.

The case for electrification to Swansea was examined closely but could not identify more than one train per hour becoming an electric train. New intercity diesel trains and the proposed IEP bi-mode trains can achieve the same journey times as electric trains and consequently there would be no passenger benefits from electrification between Cardiff and Swansea. The new bi-mode trains will be able to accelerate quickly from the intermediate stations, curves and junctions on the route. They will switch seamlessly from electric to diesel operation when they leave Cardiff.

Network Rail has estimated that electrification between Cardiff and Swansea would cost £62m. It was found that, for a service of one train every hour in the off peak period, the business case was weak. There was no evidence of a pattern of demand that would lead to an imminent need to increase this frequency. Cardiff electrification by contrast will be used by four trains per hour, consisting of two from London and two regional services from Bristol.

Further ways in which to improve the case for electrification to Swansea were looked at, by examining whether other diesel services on this section could be converted to electric operation. However, significant changes were needed that would have required passengers to change trains, sometimes more often than once. The alternatives would also have increased train crew and rolling stock requirements.

A bi-mode operation to Swansea also assists with the resilience of intercity services to South Wales both during the period electrification is installed between Bristol and Cardiff and at times of service disruption. There are

occasions when the Severn Tunnel needs to be closed entirely in order that essential maintenance takes place. The alternative route (via Gloucester) will not be electrified and requires bi mode type trains to maintain the through South Wales – London service at these times.

To ensure this route is resilient, DfT is working with Network Rail to re-double the line between Swindon and Kemble by 2015. It was singled as an economy measure some 30 years ago. The approval for this scheme was given in the Budget speech on 23<sup>th</sup> March. This scheme will improve this diversionary route with more capacity for South Wales trains. The work would be ahead of the main electrification activity on the route via the Severn Tunnel when some disruption to passenger services is likely. From 2016 onwards services will use the new bi-mode fleet to maintain good through links between South Wales and London.

The results of the appraisal work is shown in Appendix 'A', which shows the business case for IEP trains and electrification between London and Cardiff (with bi-mode trains through to Swansea) and the incremental case for electrification on to Swansea and the deployment of all electric IEP trains on the Swansea trains.

Because the measurable outputs in terms of journey times and capacity are the same for Swansea in both cases, the additional value from electrification is limited to the change from diesel to electric mode of traction, with environmental benefits and reduced operating costs for those trains which extend to Swansea. Thus, the overall Benefit to Cost Ratio (BCR) for the incremental electrification is very poor (0.1).

### **Conclusions and next steps**

DfT has now resumed the procurement of the IEP trains with the proposal that Agility Trains has put forward as preferred bidder. DfT will now work with Agility Trains with a view to reaching financial close by the end of 2011.

Over the course of the next six years, Network Rail will electrify the GWML.

Passengers in Oxford, Newbury, Swindon, Bath and Bristol will enjoy the benefits of electrification and the new trains in the first stage, with Newport, Cardiff and Swansea passengers enjoying the benefits shortly afterwards.

Network Rail has been asked to work closely with the train operators in mitigating the disruptive impacts of electrification work.

In the course of the examination of the case for electrification, it was established that, at an initial high level, there appears to be a good case for electrifying the key valley commuter lines north of Cardiff via Pontypridd and Caerphilly as well as the lines to Penarth and Barry Island. We will now work with the Welsh Assembly Government to develop a full business case. Provided the earlier findings are confirmed, there is then the possibility electrification of the Cardiff valley lines could take place during the next rail investment control period beginning in 2014.

In conjunction with WAG, we will also keep under active review the business case for future electrification of the GWML between Cardiff and Swansea in the light of developing future service patterns.

## Appendix A. Details of economic case

	Electrification London to Cardiff and Bi-Mode IEP trains to Swansea	Electrification Cardiff to Swansea and IEP Electric Trains to Swansea*
(a) Time Benefits	470	0
(b) Crowding Benefits	550	0
(c) Highway User Benefits	605	0
(d) Environment Benefits	110	5
(e) Other Benefits *	160	0
<b>(1) User Benefits ( a+b+c+d+e)</b>	<b>1895</b>	<b>5</b>
(f) Rail Revenue	1075	0
(g) Operating Costs	1270	-20
(h) Infrastructure Costs	555	65
<b>(2) DfT Financial Impacts (f-g-h)</b>	<b>-750</b>	<b>-45</b>
<b>(3) Non DfT Financial Impacts</b>	<b>-200</b>	<b>0</b>
<b>NPV (1) + (2) + (3)</b>	<b>945</b>	<b>-40</b>
<b>BCR (1) / - [ (2) + (3) ]</b>	<b>2.0</b>	<b>0.1</b>

### Notes

- HM Treasury's 'Green Book' on the Appraisal and Valuation in Central Government sets down clear standards for the economic appraisal of spending and policies by Government departments. WebTAG is the DfT's transport specific guidance. BCR calculations are compliant with these documents.
- "User benefits" takes account of attributes such as time benefits arise from faster journeys for customers, crowding benefits arise from more capacity being provided and other benefits include reduced noise and increased quality benefits arising from the conversion from diesel to electric traction
- "DfT Financial Impacts" takes account of revenue generated by the investment and the operating and infrastructure costs incurred such as the capital costs of electrification.
- Figures presented are discounted £m 2002-03 prices
- Figures are rounded to nearest £5m
- Figures assume a cap in rail demand growth in 2032-33
- BCRs are calculated from unrounded figures

\* Figures represent incremental benefits and costs of electrification Cardiff to Swansea compared to the Bi-Mode operation between Cardiff and Swansea, with GWML electrification extending from London to Cardiff only.