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Alstom's response to parliamentary inquiry into Britain's rail capacity launched by the APPG for High Speed Rail

Summary

The key messages are:

(i) A combination of continued investment in existing infrastructure and facilities together with investment in new infrastructure and technology can provide much-needed capacity increases

(ii) All new capacity developments must be scaleable in order to accommodate future growth and readjustment

(iii) HS2 benefits go far wider than rail passengers and could be a powerful catalyst for improved national infrastructure such as electricity grid and communications super highway

(iv) Without significant investment in infrastructure to increase capacity, the rail and road transport system will saturate with a detrimental effect on economic growth and overseas investment in the UK

Q1: How do you view the current capacity situation on Britain's railways?

A. The transport network is reaching saturation on certain corridors, in particular on commuter lines in the South East and on intercity lines such as the West Coast Main Line from London to Manchester and Birmingham. The London Underground network is also heavily congested at mainline interchange stations at peak hours, resulting in bottle necks and in some cases, station closures cancelling out any journey time savings main line and commuter operators have been able to provide through improved timetabling.

Some investment is beginning made to update ageing infrastructure, such as the fitment of train control systems on London underground lines and the implementation of ERTMS on mainlines which, when fully integrated, gives an opportunity to increase capacity; however the UK is far behind other European countries in this regard.

Likewise, investment is being made to introduce efficient, modern rolling stock and to life extend existing vehicles. Maintenance depots, often originally conceived to house steam or diesel fleets require substantial upgrading in order to support the new fleets, also provide attractive opportunities for private sector investment. At the same time, industry must champion the UK's home-grown high-tech engineering facilities that provide value for money lifetime support for fleets.

Q2: What capacity do you believe Britain's railways will require in the future?

A. No comment from Alstom ; a body of material is already available on this point

Q3: What is the best way of providing capacity and future-proofing Britain`s rail network?

A. A mix of investment in existing and new railway infrastructure, including HS2, combined with smart forward thinking is required in order to free up capacity on the existing

network and create and plan for further increases in capacity. This will also enable industry to take best advantage of the technological developments made in rolling stock and equipment.

Alstom endorses the plan to electrify major rail routes as a priority, after almost fifteen years with little significant investment in this area. Electrifying the routes currently operated by diesel trains and upgrading the oldest electrified lines to modern standards will enable the use of faster, more versatile, more reliable and more environmentally friendly trains. It will also provide the opportunity to develop community railways in suburban and rural areas with tram and tram-train technology.

Where the electrification of these lines requires route re-signalling with AC immune systems we advocate that this be done using ERTMS. ERTMS systems make it possible for trains to be run more closely together, efficiently and safely and although the government has recently announced pilot schemes to develop ERTMS, we believe that the technology needs to be deployed at a faster rate. ERTMS is seen by railways around the globe as the way to increase capacity on busy routes. Since the first pilot scheme in 1999, some 35,000 kilometres of route and 7000 vehicles are now equipped, 50% outside Europe. Some 70 million train kilometres of operation have been achieved, increasing by two million kilometres per month.

On the Mattstetten-Rothrist line in Switzerland, which runs on ERTMS level 2 supplied by Alstom, around 242 trains, both freight and passenger run in mixed traffic every day, at speeds of up to 200km/h. The headway between trains has been reduced to less than two minutes (110 seconds), allowing for a 15 % capacity increase on this high-density mixed traffic line. (Source: UNIFE).

In Denmark, preparing to implement **a total network roll out** of ERTMS quickly, and by being prepared to change their operating rules the result will be an increase in available train paths as well as a significant reduction in maintenance hours and at the same time significantly improving the working environment safety of those staff. The cost is estimated at €2.6 billion but this is lower than the civil engineering work needed to create the equivalent infrastructure.

With the addition of investment in modern traffic management systems, aimed at optimising the throughput of train services, the operation of mixed passenger and freight traffic can be enhanced across an entire network. An example of this in Europe is the Bologna Railway Node in Italy, the key junction between the North and the Centre of Italy's railway network which controls 8 different lines (5 mainlines, 2 regional and a freight belt all around Bologna), 31 stations or junctions and supervises the Bologna Centrale main station. An average of 1200 trains per day is managed by this single traffic management system.

Investment in infrastructure must be scaleable to cope with increased traffic demand. Several urban and mainline routes are now at or very close to the limit of their capacity capability. Thanks to skilled engineering and technology solutions, it is possible to increase these as demonstrated by train conversion and lengthening programmes.

In parallel, scaleable investment in the facilities to support this work as well as the integration of new fleets is essential. In general, train depot facilities require external (non-TOC) financing to bring them in line with modern maintenance strategies to prepare for the transformation needed to maintain the new fleets. Alstom did just this in 1999, when preparing to phase out the former West Coast Main Line coaching stock and introducing the state-of-the-art tilting Pendolino fleet. An extensive and cost-efficient depot development plan also catered for the ability to subsequently extend the fleet from nine to eleven carriages, a programme which began on 13 March 2012. Similarly, in order to support fleets throughout their whole lifecycle, industry must be prepared to invest in, retain and build up the dwindling hi-tech engineering resource; investing in assembly facilities is important but this is only a fraction of the value chain. The average age of this engineering resource is of particular concern and we risk having to resource all highly-skilled engineering capability outside the UK.

Further scaleability is necessary in planning for signalling and power supplies. For example, the 3rd rail power supply south of the Thames has reached its physical limits and is no longer able to provide for capacity growth. This network is also constrained by limited space for the additional DC substations that are required to power the new Thameslink fleet. A solution at the beginning of the line upgrade project would have been to install 25kV overhead power lines in order to cope with the inevitable increased draw on power from the bigger trains to be deployed on the line.
Forward thinking will ensure that planning permission is obtained now for the future; this will enable extra track and power to be added quickly when the time is right. Coupled with the introduction of Smart Grid technology, this will lead to better power distribution to cope with varied and peak demand around the country.

Whilst investment in existing infrastructure is essential in order to provide greater transport capacity now, we also believe that HS2 will be a major catalyst for increased capacity to meet future demand. It will draw off the intercity traffic from the current congested intercity routes leaving space for mixed freight and commuter passenger operation. If just 20% of the current level of freight is diverted from the motorway to the existing railway, this effectively frees up motorway capacity, creating better through-times and fluidity and much less wear and tear on our motorways. This should be a major consideration for road users who, without HS2 can only look forward to more congestion and the possibility of having to pay tolls for prime time motorway journeys. Furthermore, electric hauled freight trains will not only run faster but will also provide more environmental benefits than long-distance road haulage.

Q4: What will the effects of providing extra capacity be, beyond addressing journey supply? What would be risked by failing to provide that capacity?

A. The key to managing extra capacity is to ensure efficient functioning of catchment and distribution areas and intermodal transfer; smooth connectivity for the increased passenger numbers in and out of major exchange stations and around cities.
In the specific case of HS2, the catchment needs to be considered carefully in order to provide access to and from the line, as do onward connexions to other fast rail routes, as well as urban transport. Without these key enablers the considerable capacity of HS2 will not be realised.

Reims in France is an exemplar of ambitious and efficient transport planning, linking urban and high speed travel. The city, approximately 144 km from Paris (similar to London-Birmingham), and its surrounding areas are connected to two TGV stations, by a new tram system, which itself has several interchanges with several bus routes. People are efficiently transported in and out of the city and around it making Paris an hour's commute for city and suburban dwellers.

Beyond journey supply, HS2, by allowing a closer link between London and other cities, will help the development of those cities. Many examples exist of the benefits felt by cities in France, Spain and Sweden. We need not repeat those here.

We can focus rather, on **the benefits that HS2 can bring to non-transport users**. The corridor that will be built should be set out to utilise its continuous formation to integrate other utilities within the proposed route. With some forward thinking now, it is possible to build digital communications, Smart Grid technology and water reticulation networks within the corridor, all of which will be of significant national benefit. The data highway communications alone will, in a stroke, move forward the Government's Digital Britain initiative by creating better links for people and businesses situated 20-30 miles on either side of the high-speed line.

The HS2 alignment can be seen as a North-South utility spine for the country and facilitate the spur connections at strategic locations along the route and supply communities on either side of the corridor. An integrated planning approach such as this could support sustainable development and also attract private investment because such a scheme will be capable of drawing income from these services; i.e. proving a revenue stream to investors not linked to railway traffic.

If the investment in developing rail capacity does not go ahead, with HS2 at its heart, people will no longer be able to move around efficiently. Motorways will become more congested and this will inevitably have a detrimental impact on investment in jobs and business outside the capital, from domestic as well as potential overseas investors.