



## **Siemens/Alstom (M.8677)**

**ORR representations to the  
European Commission – Phase I**

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# Executive summary



*These representations are a consolidated version of ORR's position at Phase I of the merger control process. We intend to publish a non-confidential version of this document on ORR's website.*

1. These representations outline the Office of Rail and Road's (**ORR's**) serious concerns about the proposed merger of the mobility business of Siemens AG (**'Siemens'**) and Alstom SA (**'Alstom'**) (together the **'Parties'**). We consider that the transaction will have significant adverse effects on competition in key railway supply chains in Great Britain (**'GB'**), particularly in the key areas of signalling and rolling stock, which collectively account for over £2 billion p.a. of rail industry expenditure.
2. The Parties have a long, entrenched incumbency advantage dating back to the privatisation of British Rail in 1994.

## Signalling

3. We are concerned that in GB markets for **signalling** projects and products, the transaction would be tantamount to a "2 to 1" merger, creating a single near-monopoly provider. Both in terms of scale, and, technological ownership and capability, the Parties would obtain substantial market power as a result of the proposed transaction, which, in the absence of firm remedies, will have a significant detrimental effect on competition in GB.
4. ORR considers that the framework for analysis of signalling projects and products is national, and, in line with the Commission's established practice, the competitive assessment of the merger should focus on short to medium term market conditions. We therefore highlight the particular nature of the GB market and the impact ORR considers the merger will have on this jurisdiction within that timeframe.
5. Control and ownership of key technology is closely related to the overall market conditions in GB. Historically, and in the future, the undertakings which control access to key technology and systems that were developed to operate alongside, and, are consequently retro-compatible with GB's installed asset base have maintained a stranglehold on the GB signalling markets. In particular, for interlocking products, the Parties are the only suppliers with a record of supplying the GB mainline in the post-privatisation era. Post-merger, the Parties will be well-placed to use this advantage to stifle and restrict competition from smaller niche providers of signalling products, and prevent new entry.

6. Since privatisation, progress on alternative interlocking technologies, and consequently substantial entry into major signalling provision, has been minimal.
7. The role of alternative technologies is marginal. [X]. Attempted entry by other operators, [X], has been on an extremely small scale, insufficient to be used as evidence of a potential source of credible competition for major signalling demand in the short or medium term. Other alternatives, such as the Asian operator CRSC, have made no impact on GB markets to date. Any arguments that they are likely to impose a credible competitive restraint on the Parties in a reasonable period of time post-merger are, at best, speculative.
8. ORR does not believe that its concerns are addressed by countervailing buyer power. [X].

## Rolling stock

9. We are also concerned about the impact on competition for the supply of **rolling stock**.
10. In these markets, the Parties have a strong history of close rivalry, and continue to be amongst the final shortlisted bidders for high-value rolling stock contracts. They are particularly close competitors within the wider European competitor set.
11. Only this month, the Parties were two of the final three short-listed bidders for the major deep tube rolling stock contract, which was awarded to Siemens. We also note the potential for the merged Parties to leverage their aforementioned power in the signalling market, given the increased necessity for interoperability between trains and installed signalling technology.
12. ORR does not believe that its concerns would be substantially mitigated by the threat of entry into the GB market by Asian suppliers such as China's CRRC. Such suppliers have no record of supplying GB purchasers and, as demonstrated by recent large-scale procurements, (notably CRRC was not invited to bid for HS2), they face a significant challenge in obtaining the credentials required to do this.

## Remedies

13. In order to address ORR's significant concerns and to maintain a sufficient degree of competition in each of these markets, it is submitted that significant structural remedies are required, including the divestiture of:
  - Intellectual property;
  - Substantial assets; and,
  - The significant transfer of specialised workforce.

# 1. Introduction

## ORR's role

- 1.1 ORR is the independent economic and safety regulator for the railways in GB, and monitor of performance and efficiency for England's motorways and trunk roads. A core facet of ORR's role is to hold the primary UK rail infrastructure manager Network Rail to account for the day-to-day running of Britain's railways and for delivering its plans to provide passengers with a punctual, reliable service. We monitor Network Rail's performance on train punctuality, upkeep of rail assets and delivery of big projects.
- 1.2 Over the current five-year price control period ('CP5'), running from 2014-19, Network Rail is expected to spend approximately £38 billion on maintaining, renewing, and enhancing the network. In relation to the next control period (2019-24), CP6, Network Rail has currently projected spending of approximately £34 billion on maintenance and renewals, with this figure rising to accommodate enhancements during the course of the control period. One of ORR's functions is to monitor and report on Network Rail's performance to help ensure that it operates as an efficient asset management company.<sup>1</sup>
- 1.3 In addition to being the designated UK rail regulatory body, ORR is also a competition authority with powers held concurrently with the Competition and Markets Authority ('CMA') to apply competition enforcement and markets powers in matters relating to the supply of services relating to railways.<sup>2</sup> Our competition jurisdiction is wider than that of our sector-specific economic regulation. We therefore monitor the competitive situation in markets across the wider GB railway sector, making targeted interventions where appropriate.
- 1.4 The CMA is the UK's designated merger authority; we have worked closely with the CMA in responding to this proposed transaction.
- 1.5 Our strategic objectives<sup>3</sup> include promoting a dynamic and commercially sustainable rail sector, securing value for money from the railway, and, ensuring the delivery of better customer service. A key way in which we seek to meet our objectives is to promote and protect the existence of a healthy, robust and competitive supply chain for products and services relating to the railway. In particular, we must protect the

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<sup>1</sup> Under section 4 and Schedule 4A of the Railways Act 1993

<sup>2</sup> Under section 67(3) of the Railways Act 1993

<sup>3</sup> <http://orr.gov.uk/about-orr/what-we-do/our-strategy/our-strategic-objectives>

competitiveness of the supply chain for the core products and services required by Network Rail to run its business efficiently.

- 1.6 We are also conscious of a key imminent development in the sector, namely the construction of High Speed 2 ('**HS2**'), a proposed infrastructure project to build a high-speed rail line linking London with key regional cities in the North of England. HS2 is due to begin operating between London and Birmingham in 2026; HS2 will be completed in 2033. Budgeted costs for HS2 are approximately £55 billion in 2015 prices.<sup>4</sup> Firms will be invited to submit bids for rolling stock contracts in Summer 2018. For signalling, potential suppliers will be shortlisted during 2019.

## Methodology

- 1.7 In making this submission ORR has drawn on its significant experience of regulating the GB railways sector, and particularly its monitoring of the competitive situation in the markets affected by the proposed merger.
- 1.8 ORR has also drawn on its in-house expertise in both signalling and rolling stock. As noted above, ORR is the designated national safety authority for UK railways. In relation to rolling stock and signalling, our technical experts assess compliance with European interoperability specifications.
- 1.9 Since the merger was announced, we have met with, and gathered the views of, key GB stakeholders affected by the merger. This includes purchasers of signalling and rolling stock products and services, smaller providers of signalling products, and, potential new entrants. [REDACTED].
- 1.10 ORR has made a number of submissions and representations to the Commission since the proposed merger was announced. This document represents a consolidated version of ORR's representations to the Commission. ORR is happy to continue to contribute its expertise in the on-going competition assessment of this transaction.

## Focus

- 1.11 Unless otherwise stated, this submission addresses GB rail markets, though the Parties are active throughout Europe and beyond.

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<sup>4</sup> E.g. see *High Speed Two Phase Two Financial Case*, DfT, July 2017, <http://qna.files.parliament.uk/qna-attachments/752426/original/high-speed-two-phase-two-financial-case.pdf>.

1.12 Both of the Parties are active in the provision of a number of rail products and services which are as follows:

- **Siemens:** rolling stock; infrastructure; automation and power systems; railway signalling and control systems; cab radio; and railway electrification.
- **Alstom:** rolling stock; infrastructure; railway signalling and control systems; information solutions; electrification; communication systems; track laying; station utilities; and workshops and depots.

1.13 This submission focusses on the two areas that ORR anticipates will give rise to the most significant detriment to competition in GB in the event the merger goes ahead, namely, the supply of rolling stock, and signalling services. ORR notes that there are other potentially important areas of overlap including, for example, electrification of the railway network.

1.14 ORR has been active in monitoring these markets, and, as such, has developed a significant knowledge base as to how they operate in GB. Both markets represent material categories of expenditure within the GB railway sector as shown in Figure 1 below, in which all figures are annualised. As noted later in this paper, the value of individual contracts can also be significant.

1.15 We focus, in particular, on what we term GB's 'main line' network,<sup>5</sup> though where relevant we make reference to non-main line markets. The Parties are potentially important players in other GB rail networks including light rail and metropolitan rail services. As with the main line network, the Parties are potential bidders for a range of contracts including rolling stock and signalling. A particularly important facet of this is the London Underground ('LU') network.

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<sup>5</sup> By this, we mean those networks that are interoperable with the UK's principal over-ground rail network, managed by Network Rail

Figure 1 – GB total industry expenditure<sup>6</sup> (main line network only), CP5 to date<sup>7</sup> (2017/18 prices)



1.16 ORR notes that within the two broad areas of rolling stock manufacturing and signalling, there may be variations in competitive competitions between sub-sets of those products and services, for example:

- For signalling, there may be differences between market segments such as the supply of particular pieces of equipment. In this regard, we note that the Parties are somewhat unusual in the scale of their operations and their ability to provide the bulk of required services internally; and
- In relation to rolling stock there may be differences as between intercity and commuter stock, and, as denoted by Commission decisional practice, between high speed and non-high speed rolling stock, and, additionally as between manufacture, maintenance, and financing.

1.17 ORR would be happy to discuss such sub-sets of products and services in future representations to, and dialogue with, the Commission.

<sup>6</sup> The signalling figure contained in Figure 1 excludes signalling-related operations expenditure but also includes costs that are incurred internally by Network Rail. The total does not include the signalling costs associated with enhancements expenditure, which we are unable to estimate at this point

<sup>7</sup> At the time of writing full data was unavailable for the last two years of CP5.



## 2. Signalling

- 2.1 This chapter provides ORR's view of how competition for signalling products and projects takes place in GB; an overview of historic and current competitive conditions; and our views on the impact on competition of the proposed merger.
- 2.2 We provide detail on the role played by entry barriers, and in particular on the significance of the Parties' vertical integration between interlocking equipment and signalling projects.

### ORR's views on competitive assessment

- 2.3 ORR considers, in line with previous Commission decisional practice, that the framework for analysis of signalling markets is national. Therefore, it is imperative that the approach taken, both in terms of market definition and competitive assessment must reflect the specific nature of the GB market.
- 2.4 This includes consideration of how signalling services are purchased in GB, (see paragraphs 2.30 to 2.39).
- 2.5 Additionally, ORR considers that the competitive assessment, consistent with established practice, should focus on short to medium term market conditions. Key to this are GB specific issues in relation to legacy and interlocking (see paragraphs 2.11 to 2.22) and the potentially limited impact of Digital Railway (see paragraphs 2.23 to 2.27).

### Signalling products and projects

- 2.6 Infrastructure operators use signalling systems to direct railway traffic.
- 2.7 An analogue signalling system consists of various signalling products, including: signals; train detection; point machines<sup>8</sup>; power systems AWS<sup>9</sup>/TPWS<sup>10</sup>; cables and line side equipment housings; interlockings; and control centres with train describer/automatic route setting/communications systems.
- 2.8 Signalling projects are often complex, involving various elements including some or all of: project specific engineering; design; development and project management; procurement of necessary signalling products; installation; testing; and maintenance.

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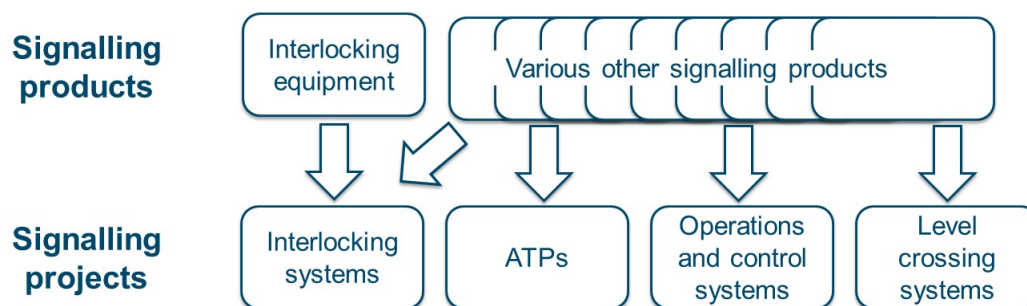
<sup>8</sup> Trackside devices for operating sets of railway points

<sup>9</sup> Automatic Warning System

<sup>10</sup> Train Protection and Warning system

- 2.9 An important feature of a signalling system is the way in which components are integrated (components may be integrated into the network via a series of processes such as design, installation, and testing). In recent years, the process of integration and overall project management has increasingly been passed to suppliers, rather than being retained by purchasing infrastructure managers. This partly reflects commercial factors but, crucially, principally results from the increasing sophistication and complexity of products, such that detailed knowledge of their operation increasingly lies with suppliers rather than customers.
- 2.10 Figure 2 below sets out a simplified illustration of the market structure for signalling, in particular the “four key systems” of railway signalling projects and the ways in which each of these systems, and their constituent physical components, interact. Of the numerous signalling products that underpin the delivery of signalling projects, we focus in this submission on interlocking equipment, which, as explained below, we believe has and will continue to play a critical role in the competitive dynamic for the supply of signalling projects in GB.

**Figure 2 – Overview of relevant markets**



## The key role of legacy and interlocking in GB

- 2.11 GB railways are the oldest in the world. The GB network also contains some of the most congested and intensively used railways in Europe.
- 2.12 Interlocking equipment, fundamentally, controls the movement of trains by ‘locking’ particular routes. Interlocking prevents trains from undertaking conflicting movements, by only permitting trains to proceed when routes are set, locked and trains detected in safe combinations. It is the central component of a fail-safe signalling system. GB railways use a ‘block-based’ system, preventing trains from entering a section of track (a block) until it has been safely cleared.

- 2.13 In the mid-1980s, British Rail set up a tripartite agreement with two companies, Westinghouse and General Electric Signals ('GEC'), to develop and deploy the solid state interlocking system ('SSI'). No other organisation was permitted to sell this system. SSI has subsequently been used extensively across the GB network, and sold around the world. Newer, next generation computer-based interlocking ('CBI'), developed by the Parties and their predecessors continues to use the same concepts as the original SSI technology.
- 2.14 During the period between the privatisation of British Rail and the beginning of CP5 in 2014 (approximately 20 years), GB's mainline network was almost entirely reliant on the interlocking equipment that was developed in the 1980s by British Rail's research division. This technology and the associated intellectual property was subsequently vested with the two partnership private companies GEC, and Westinghouse. It is likely that this decision was deliberate in order to ensure competition existed for interlocking products for when the rail sector was liberalised.
- 2.15 GEC's SSI derivative '*Smartlock*' (now *Smartlock 400*) technology is now owned by Alstom, through acquisition, and, the Westinghouse '*Westlock*' technology is owned by Siemens.<sup>11</sup>
- 2.16 Importantly, these CBI SSI products are, by virtue of the nature of their development, and in contrast to many other interlocking products available across Europe, fully and efficiently retro-compatible with GB's installed signalling systems and trackside asset base.
- 2.17 At privatisation, in 1994, Railtrack (the predecessor of Network Rail) attempted to introduce two European interlocking systems on a minor scale on routes at Horsham and Manchester South. However, integration with GB practice proved difficult and no further attempt was made to introduce new systems for a significant period.
- 2.18 During Network Rail's current regulatory control period, CP5 (2014-2019), some minor progress has been made by two alternative interlocking technologies:
- Ansaldo's SEI interlocking; and
  - Atkin's adoption of Alstom's '*ElectroLogIXS*', which is, as a result of the Alstom/GEC merger, is now under the ultimate control of the Parties.
- 2.19 ORR understands that neither of the above technologies have been actively deployed on GB's mainline network. This is in stark contrast with the over 100 deployments (each) of *Smartlock* and *Westlock* interlockings that have been

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<sup>11</sup> *Westlock* and *Smartlock* are examples of modern 'computer-based' interlocking

deployed post-privatisation. It is notable that Network Rail's total asset base constitutes over 1700 interlocking systems, the majority of which still date back to the British Rail era.

- 2.20 The Ansaldo product's only engagement with the GB network is a planned trial on a relatively minor local line between Ferriby and Gilberdyke in Humberside. By way of illustration, ORR estimates that the stations on this section of the line collectively account for less than 0.02% of passenger entries and exists in 2016/17.<sup>12</sup> [✂].
- 2.21 It is also notable that notwithstanding the fact that the *ElectroLogIXS* system is a very well established product, it has made a negligible impact in GB to date. Alstom obtained a US trademark for the product in 2006; and, as far as ORR is aware, Atkins has been developing the product for use in the UK [✂], since at least 2016.
- 2.22 A further possible source of competition that may be cited, is Asian entry, for example through CRSC. ORR understands however, that there has been no activity on the GB network from this company, and significant, time consuming and costly steps would have to be taken in order for this organisation to be a credible supplier of signalling services in this country.

## Digital railway

- 2.23 Digital signalling will see the introduction of a range of new technology. New features will include: European Train Control System (“**ETCS**”); Traffic Management (TM); Automatic Train Operation (ATO); and Driver Advisory Systems (DAS).
- 2.24 These additional features will, in general, place much more complexity on-board the train, such that integration with existing train management systems is essential. The introduction of digital signalling will also start to introduce new skill sets not previously required or provided by signalling suppliers. A key factor will be the management of substantial amounts of data and the integration of multiple complex systems. Terms such as ‘Big Data’ and ‘Data Analytics’ are often used in this context. Another critical skill set needed for ‘digital’ is cyber security.
- 2.25 Digital signalling may result in changes to existing signalling markets that rely on analogue systems. However, the core requirements for signalling will remain the same, namely the need for an interlocking system, train detection, point operating systems, and a signaller display system.

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<sup>12</sup> ORR estimates of station usage 2016/17, published on 1 December 2017  
[www.orr.gov.uk/statistics/published-stats/station-usage-estimates](http://www.orr.gov.uk/statistics/published-stats/station-usage-estimates)

2.26 ORR notes some bullish rhetoric on the possible impact on digital signalling, however underpinning this are a number of key factors which ORR consider relevant with regards to the impact of this transaction, namely:

- Analogue signalling will remain the most widely used signalling technology for the foreseeable future. By the end of Network Rail's next five-year control period (CP6, which ends in Spring 2024), it is anticipated that most of GB signalling will remain analogue. ORR also expects that conventional signalling will continue to play a prominent role throughout the next control period, CP7; and
- Digital railway will, effectively, supplement rather than replace the current technology. In essence a 'digital' railway will add an additional layer of complexity and new capabilities on top of the existing 'analogue' railway. Many core requirements will stay constant (e.g. interlocking).

2.27 Importantly, *Smartlock* and *Westlock* are both retro-compatible, with analogue trackside equipment, but also suitable for deployment in future ETCS solutions. Indeed, they are an essential input into such solutions.

## EULYNX

2.28 A recent project involving 12 Member States, known as EULYNX is seeking to introduce common architectures with standardised interfaces to signalling and control systems. Its objectives include applying this to interlocking and facilitating the smooth transition to ETCS.

2.29 ORR notes however, that this project is voluntary, and, particularly given legacy issues, a long way off achieving universal adoption.

## Buyers of signalling projects and products

### Network Rail

2.30 Network Rail is the owner and infrastructure manager of most of the rail network in England, Scotland and Wales. It has approximately 37,000 employees. It has one shareholder, the UK government, and reinvests its income into the railways.

2.31 On 1 September 2014, Network Rail was re-classified as a public sector body. This has led to a number of key changes to its operation. Notably, it is subject to much closer control by governments on its spending. It is unable to raise finance on its own account meaning the funding available to it is effectively fixed.

- 2.32 Network Rail is subject to 5 year funding periods (control periods), in which its high-level outputs and funding are specified by governments. ORR closely monitors Network Rail's delivery and performance.
- 2.33 Network Rail has recently published its strategic business plans for control period 6 ('CP6') (2019-2024). ORR, in turn has published its 'Periodic Review 2018: Draft Determination', a process which includes ORR carefully scrutinising Network Rail's business plans and determining what the company should deliver in respect of its role operating, maintaining and renewing its network, and, how the funding available to it should be best used to support this.
- 2.34 In GB Network Rail is a near monopsonist buyer of signalling projects [✂].<sup>13</sup>
- 2.35 During CP5 to date, Network Rail's signalling expenditure has been in the region of £0.8-0.9 billion p.a., although some of these costs were incurred 'in-house', i.e. were made up of staff costs and overheads relating to Network Rail's own staff rather than through signalling contractors. In recent years, Network Rail has contracted the majority of its major signalling through regional framework contracts, which specify a schedule of prices for a range of specified types of work, e.g. ranging from a full renewal to relatively minor maintenance. Smaller, less planned, and/or more specialist pieces of work tend to be procured outside of the framework.
- 2.36 It should be stressed that, as with many other areas of its network, an infrastructure manufacturer such as Network Rail is a buyer of signalling projects rather than products such as interlocking equipment.

## HS2

- 2.37 HS2, as part of their project to build a high-speed line between linking London with key regional cities, will issue a tender imminently for signalling services as part of their 'Railways Systems' works package. Signalling will be a key component of this project.<sup>14</sup>
- 2.38 Interestingly, HS2 will primarily be a greenfield site, potentially presenting an opportunity to alternative approaches to signalling practices. However, it will still be necessary for the line to interact with existing infrastructure when it reconnects to the main line network at specified points.

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<sup>13</sup> Other buyers include, as outlined below, HS2 and metro networks

<sup>14</sup> <http://assets.hs2.org.uk/sites/default/files/CS086%20Supplier%20Guide%20%20Web%20-%20Interactive%20V2.pdf>

## Metro systems

- 2.39 Operators of urban or metro systems within GB also purchase signalling projects. This includes Transport for London ('TfL'), which purchases signalling solutions for the LU network and the London Overground network.

## Competitive situation in GB and position of the Parties

### The Parties

- 2.40 Both of the Parties are vertically-integrated in the supply of a wide range of signalling products and projects in GB. Both Parties are able to offer packaged signalling solutions. Such solutions range from the design and planning of a project to managing a project from start to finish including the provision of all the necessary signalling products/trackside equipment within an overall signalling system.
- 2.41 Each of the Parties has a long established presence in GB with an experienced and specialist workforce (Siemens employs approximately 4,400 persons in the UK whilst Alstom employs approximately 2,000 persons). Each Party also has a long history of undertaking complex projects on GB's, sometimes arcane, infrastructure. The Parties both have a number of established premises across GB enabling them to undertake projects efficiently across the country.
- 2.42 A number of smaller suppliers are active in the supply of signalling products at one or more levels in the supply chain, however, not to the same extent as the Parties. Some niche suppliers, specialise in one particular facet of the supply chain e.g. traffic management systems, often seeking to gain a foothold in the market by focussing on innovating in these particular areas and seeking to bring their specific expertise to improve efficiencies in overall signalling projects.
- 2.43 Indeed, for certain particular signalling products, there are other suppliers e.g. for trackside equipment such as points, train detection and signals; communications equipment; and, power systems. A key exception to this are CBIs approved for use by Network Rail, which are almost exclusively supplied by the Parties.

### Market shares

- 2.44 On a worldwide basis, press reports, drawing on estimates published last year by the consultancy SCI Verkehr,<sup>15</sup> suggest that the Parties combined would have a global

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<sup>15</sup> See <http://www.theindependentbd.com/arcprint/details/116474/2017-09-30>

share of all signalling spend of 30-34%, compared with, notably, CRSC's 20%.<sup>16</sup> However, in GB, this share is much higher.

2.45 Prior to Network Rail's CP5, the holders of the intellectual property of *Smartlock* and *Westlock* interlocking technology have consistently been the key players in the supply of GB signalling projects.

2.46 A series of mergers has led to an increasingly concentrated market, resulting in the duopoly which exists today. The relevant mergers were:

- Siemens' acquisition of Invensys<sup>17</sup> plc in 2013;<sup>18</sup>
- Alstom's acquisition of Balfour Beatty's share of Signalling Solutions Limited (SSL) in 2015;<sup>19</sup> and
- Alstom's acquisition of General Electric signalling in 2015.<sup>20</sup>

2.47 In ORR's view, the ownership of upstream technology by the Parties, including the key interlocking products, has and will continue to confer significant advantages on the Parties in markets for signalling projects, particularly post-merger.

2.48 The market share estimates in the Siemens/Invensys decision suggest a collective market share (across all signalling projects) for the Parties of between 55% and 80% in GB.

2.49 ORR considers that the analysis of bidding information provides the strongest indication of the market power of the Parties and the closeness of their competition. Market share data and a reliance on *ex post* shares could obscure important intelligence on the precise nature of competition for individual contracts.

2.50 We note, in particular, that during CP5 the Parties were by a distance the two largest suppliers in GB. The Parties' combined account for 93% of Network Rail's major signalling spend for the year 2016/17. The scale of the Parties' activities can also, in

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<sup>16</sup> As with rolling stock (see above), we would expect CRRC's share of the global merchant market, excluding sales within China, to be considerably smaller

<sup>17</sup> The owners of Westinghouse signals from 1999

<sup>18</sup> <https://www.siemens.com/press/en/pressrelease/2012/infrastructure-cities/mobility-logistics/icmol201211015.htm>.

<sup>19</sup> <http://www.alstom.com/press-centre/2015/5/alstom-acquires-100-of-signalling-solutions-ltd-ssl-in-the-united-kingdom/>.

<sup>20</sup> <http://www.railwaygazette.com/news/business/single-view/view/alstom-entirely-refocused-on-rail-as-ge-deal-completed.html>.



ORR's view, be easily verified through a simple count of Network Rail's MaSREF<sup>21</sup> regional framework contracts for CP5 (see below). The result of such contract awards is that that one of the Parties is either the primary or secondary contractor for all contracts. The Parties are both primary and secondary contractors for six out of the eight contracts.

**Figure 3 – Network Rail's CP5 signalling framework contracts**

Framework area	Primary contractor	Secondary contractor
Scotland	Siemens	SSL (Alstom)
Central (west)	Siemens	SSL (Alstom)
Central (east)	SSL (Alstom)	Siemens
Wales & West	Siemens	SSL (Alstom)
Great Western (inner)	SSL (Alstom)	Siemens
Great Western (outer)	SSL (Alstom)	Siemens
Anglia & Kent	Atkins	SSL (Alstom)
Sussex & Wessex	Atkins	Siemens

2.51 [✂].

2.52 [✂].

2.53 Network Rail has internal capabilities for smaller renewal activities. There are also a large number of specialist equipment suppliers, which work for main contractors such as the Parties. Various consultancies provide support for risk assessment and business case work.

2.54 Historically in GB, it has primarily been the Parties together with, to a much lesser extent, Atkins, Balfour Beatty and Amey, who have been in a position to provide all of a customer's requirements. There is a number of smaller players in the market, able to bid for relatively small contracts. [✂].

## Impact of the merger

### Horizontal theory of harm – loss of bilateral competition

2.55 ORR considers that the proposed transaction is effectively a "2-to-1" merger to monopoly for the provision of signalling projects and products in GB.

2.56 Absent the merger, we would expect the Parties to continue to be strong competitors in the future. The loss of competition resulting from a merger would, in our view,

<sup>21</sup> 'Major Signalling, Renewals and Enhancements Framework'

undoubtedly be significant from the perspective of the Commission's significant impediment to effective competition (SIEC) test.

2.57 The Parties and their predecessors have a long history of being the two main suppliers in GB and a strong incumbency advantage. ORR considers that the Parties have a history of close competitive rivalry and, absent the merger, a prospective future of close competition for the supply of large scale signalling projects and services. As such, there is a risk that the merger will have a significantly adverse impact on the state of competition in this sector of the railway supply chain.

2.58 For the reasons outlined above, ORR considers that only the Parties have access to:

- Accredited technology viably capable of efficient interoperation with GB's installed asset base;
- The requisite scale of operations and established geographical presence across GB required to undertake signalling projects efficiently;
- The requisite expertise and experience of working on complex projects on the GB network;
- An established workforce capable of the requisite sales, R&D planning, design, project management and IT.

2.59 A further concern is the potential for the rationalisation of CBI SSI technologies post-merger, i.e. the retirement of one or more of *Smartlock*, *Westlock* or *ElectrologIX*. This could potentially permanently reduce competition against the tried and tested interlocking solutions, which have historically had a key influence on the overall state of competition for the provision of signalling projects.

## Forthcoming competitions

2.60 ORR is particularly concerned about the impact of the merger on Network Rail's forthcoming procurement for signalling services during the next regulatory control period (CP6). This will cover MaSREF arrangements. [X]. The advent of digital signalling, to the extent it will have an eventual effect, will be too late to have any impact in this regard. Despite Network Rail's stated intention to encourage new-entrants,<sup>22</sup> ORR questions its ability to do so given limitations on its ability to take risk and due to the lack of credible alternative interlocking solutions.

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<sup>22</sup> Network Rail's strategic business plan for CP6

2.61 We also note, and we are concerned about, the impact on HS2's upcoming signalling competition. Whilst much of the project is green-field, there is still a need for interoperability where the line meets the existing network. Additionally, as stated above, the Parties are likely to retain significant advantages in terms of their scale of operations, physical presence and experience and knowledge of working in GB.

2.62 Future issues may also arise for the supply of signalling services to LU. The Parties are both potentially active in this space, for example, Siemens was the supplier of the signalling system for the Victoria Line.<sup>23</sup> The Parties are not, however, as far as we understand, pre-eminent for the supply of signalling services to LU in the same way as on the main line network.

## Vertical theory of harm – access to technology

2.63 As well as the loss of the bilateral competition between the Parties, ORR considers that competition currently generated by smaller operators competing at the fringes of the market would also be stifled by the combination of the technology and scale of the Parties. This fringe competition, involving niche operators, is a key dynamic in the GB industry, with such operators often focussing very closely on development and innovation in order to bring newer more efficient solutions to market as part of wider signalling solutions. [REDACTED].

2.64 As noted above, access to interlocking products represents a particularly important barrier to the supply of signalling projects. [REDACTED], the proposed merger has the potential to seriously undermine the viability of this route to market. ORR makes the following points in this regard:

- **Lack of open application program interfaces ('APIs')** – stakeholders have informed ORR that interlocking and other GB signalling technologies, in contrast to a degree with some European counterparts, do not benefit from open APIs. This means access terms are contingent on negotiating reasonable terms from one of the Parties. Schemes such as EULYNX are in their preliminary stages and will not, in ORR's view, present a mitigation to this issue in the short to medium term.
- **Frequency of bidding** – the Parties have historically been head-to-head competitors for most signalling projects in GB. However, there have nonetheless been instances where only one of the two has bid for a piece of

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<sup>23</sup> See [https://www.siemens.co.uk/en/news\\_press/index/news\\_archive/2017/new-victoria-line-timetable-means-a-train-every-100-seconds.htm](https://www.siemens.co.uk/en/news_press/index/news_archive/2017/new-victoria-line-timetable-means-a-train-every-100-seconds.htm).

work.<sup>24</sup> In such cases, the non-bidding member of the Parties had a relatively strong incentive to license its technology [REDACTED]. Post-merger, such opportunities would likely be lost.

- [REDACTED].

## Entry barriers

2.65 In ORR's view, the adverse impact of the merger would not be mitigated by entry or expansion by alternative signalling operators. The GB market, for a number of reasons which are unique to the jurisdiction, is characterised by high barriers to entry. Primary amongst these, are those set out in more detail, below.

## Interlocking

2.66 The single key barrier to entry in these markets is, in ORR's view, access to interlocking products. [REDACTED].

2.67 [REDACTED].

2.68 [REDACTED], ORR considers [REDACTED], there are minimal alternatives available to Network Rail outside of the Parties.

2.69 The pre-eminence of a relatively small number of interlocking products is not a unique feature of the GB market and/or the product of an unusual approach to procurement by Network Rail. Rather, Europe-wide, it is usual for each country to have a very small number of interlocking products, often dominated by companies with a strong in-country presence, i.e.:

- Germany - primarily Thales (L90) and Siemens (SIMIS)
- France - mainly Alstom (Smartlock), Thales (PIPC) and Ansaldo (ACC/SEI)
- Italy - mainly Alstom (Smartlock), Ansaldo (ACC/SEI) and Bombardier (Ebilock)
- Spain - mainly Alstom (Smartlock), Siemens (Westtrace), Thales (L90/L905), Ansaldo (SEI), Bombardier (Ebilock), CAF & ENISE (S3e)
- Netherlands - mainly Siemens (Simis-C/Simis W), Alstom (VPI/Smartlock), Bombardier (Ebilock)

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<sup>24</sup> [REDACTED]

- 2.70 The pre-eminence, throughout Europe, of vertically integrated Original Equipment Manufacturers (“**OEMs**”) demonstrates, in ORR’s view, the close link between upstream and downstream markets, meaning that, to a large extent, the key barriers to entry and expansion in upstream markets are the same as those that apply downstream.
- 2.71 ORR notes, in observing the technologies in operation across Europe, that GB may be unique in terms of the impact of this merger in that it would result in a “2 to 1” concentration of existing, deployed, interlocking technologies.
- 2.72 It is, in ORR’s view, significant that Siemens, one of the world’s largest electrical engineering and electronics companies with a wide range of its own technology, including the internationally successful SIMIS family of interlocking products, chose to expand its activities in GB through the acquisition of Invensys. Since then Siemens in GB has been exclusively reliant on the established *Westlock* standard rather than trying to introduce its own alternative technology.
- 2.73 [✂].

## Accreditation

- 2.74 Signalling is a safety critical process. Rightly, it is subject to the highest level of risk reduction accreditation procedures. These include:
- Signalling accreditation under the Railway Industry Supplier Qualification Scheme (RISQS);
  - A requirement to obtain an approved safety licence; and
  - The need for product approvals for both existing and future products.
- 2.75 [✂] accreditation for a new-entrant interlocking product, even one that had been successfully deployed in other jurisdictions, would be expected to involve expenditure in excess of £10m and a time commitment in excess of two years.

## Need for physical presence in UK and on-the-ground expertise

- 2.76 The Parties are unrivalled in terms of their established presence and workforce. Any new-entrant, in order to undertake signalling projects in GB, would need to acquire the requisite expertise, premises and on-the-ground workforce.

## Long-term decline of conventional signalling

2.77 A further deterrent to any would-be entrant is the future long-term decline of conventional signalling.

2.78 Whilst ORR considers it likely that analogue systems will continue to play a role in the GB network for a number of years, including the need for significant expenditure on renewals projects, the lack of long-term future growth is likely to be a key deterrent factor for any new entrant considering investment in this area in this jurisdiction.

## Evidence of attempted new entry or expansion

2.79 There is limited evidence of entry or expansion in GB signalling markets, other than through acquisition.

2.80 As noted above, a relatively small number of companies have been able to bid for the largest GB signalling contracts. In some cases, this may simply be a matter of scale, and the unacceptable risks that undertaking a particularly large signalling contract would entail. [✂].

2.81 [✂].

## Buyer power

2.82 The Commission's Guidelines on the assessment of horizontal mergers<sup>25</sup> set out the legal framework within which the Commission will assess countervailing buyer power in the context of a merger. In analysing whether countervailing buyer power exists, the Commission will consider: "*the bargaining strength that the buyer has vis-à-vis the seller in commercial negotiations due to its size, its commercial significance to the seller and its ability to switch to alternative suppliers*". The Commission determines countervailing buyer power by whether: (i) the customer is able to credibly threaten to resort to alternative sources of supply in the event the supplier chooses to increase prices or decrease quality of delivery, and (ii) the speed at which the buyer is able to switch. It is more likely that large and sophisticated customers will possess this kind of buyer power. Buyer power must exist and remain effective following the merger; buyer power may be reduced if the merger removes a credible alternative.

2.83 In *Siemens/Invensys*,<sup>26</sup> the Commission viewed countervailing buyer power as being so significant as to obviate the need for it to reach firm conclusions on issues such as

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<sup>25</sup> Paragraphs 64-67 of the Guidelines on the assessment of horizontal mergers (2004/C 31/03)

<sup>26</sup> *Siemens/Invensys Rail*, paragraph 52 ([link](#))

market definition, since, it was argued, buyer power would fully mitigate the competition concerns arising from any plausible market definition:

*“...The demand on railway signalling is highly concentrated, typically with one customer for mainline... customers apply sophisticated tender procedures which grant them significant buyer power... a majority of customers who responded to the market investigation confirmed that they usually manage to impose lower prices...”*

2.84 In our view, the Commission should adopt an in-depth approach that takes a holistic view of the buyer power of infrastructure operators (particularly in GB) that goes beyond their undoubted scale of operations. ORR suggests that the Commission consider the wide range of evidence that is available on the efficiency of rail infrastructure providers and both their ability and incentives to exercise buyer power. In short, it is ORR’s view that any arguments that suggest Network Rail will continue to have buyer power post-merger are likely to be overstated.

2.85 In GB, whilst Network Rail is overwhelmingly the largest customer of the Parties for signalling services (albeit it accounts for a modest proportion of the Europe-wide revenue of the Parties combined),<sup>27</sup> set against this are a number of other considerations, notably:

- The proposed merger would result in a very high level of concentration on the supply side, such as would only be mitigated by an unusually high level of countervailing buyer power. Any ability to date that Network Rail has had to exercise buyer has in part have been a product of the (albeit modest, given the already high concentration in this market) rivalry between the Parties. The transaction removes its ability to resort to any alternative credible source of supply. [✂];
- Network Rail is a monopolist and, as such, does not face the normal market disciplines to bring down production costs in the same way as a firm facing competition;
- Network Rail’s governance and management incentives are not those assumed in standard regulatory theory, in that it is not a profit-maximising company; and

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<sup>27</sup> Estimated at in excess of €15billion p.a., see: [https://www.siemens.com/investor/pool/en/investor\\_relations/financial\\_publications/speeches\\_and\\_presentations/Analyst-Call-Presentation-Siemens-Mobility-Alstom.pdf](https://www.siemens.com/investor/pool/en/investor_relations/financial_publications/speeches_and_presentations/Analyst-Call-Presentation-Siemens-Mobility-Alstom.pdf). During all five years of CP6 Network Rail’s aggregate external expenditure on **all** signalling and control has been forecast at c £2billion, with major signalling installations accounting for around one third of this total.

- In 2014, Network Rail was reclassified into the public sector, leading to efficiency implications including the introduction of fixed borrowing limits. [✂].

2.86 The ability to exercise buyer power turns on the credibility of a threat to cease purchasing the services. In Network Rail's case, we do not view it as credible that it would materially reduce its consumption, or that it would enter the signalling market in a self-supply model.

2.87 ORR would be happy to share with the Commission its experience of analysing Network Rail's incentives and efficiency.<sup>28</sup>

## Reconfiguring procurement practices

2.88 [✂].

2.89 ORR notes previous UK decisional practice such as in *Babcock/Devonport*<sup>29</sup> whereby the theoretical possibility for a monopsonist buyer to reconfigure its procurement processes to obviate market power in the supply chain have been used as a justification for a clearance decision. [✂].

2.90 Network Rail has already identified a number of potential efficiencies in the way that it procures signalling and is currently putting in place a new approach informed in part by a recent review of its overall (i.e. beyond signalling) approach to working with third parties,<sup>30</sup> and also by recent technical change. [✂].

2.91 [✂].

2.92 [✂].

## Capacity

2.93 We are aware of specific historic issues with regard to the procurement of signalling services. [✂].

2.94 A further factor to consider is the considerable challenge that Network Rail will face in delivering a significant volume of signalling investment during CP6, as shown Figure 4 below, which measures signalling renewal in Signalling Equivalent Units

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<sup>28</sup> E.g. see <http://orr.gov.uk/rail/consultations/pr18-consultations/pr18-draft-determination>

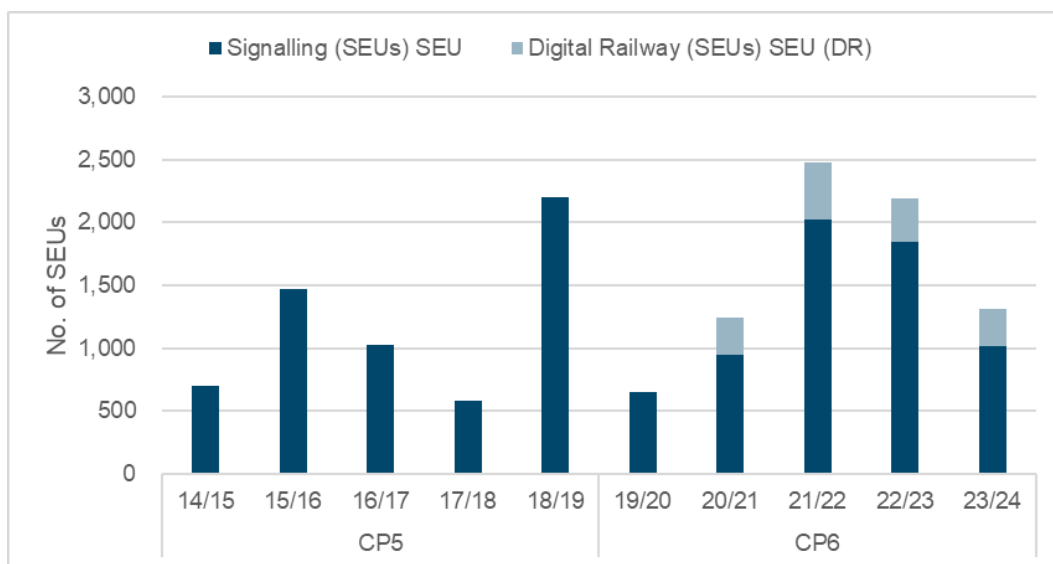
<sup>29</sup> See OFT decision of 20 August 2007 on acquisition by Babcock International Group plc of Devonport Management Limited: [Link](#)

<sup>30</sup> See <https://thehansfordreview.co.uk/>



(“SEUs”)<sup>31</sup>. [✂]. Figure 4 also represents, in ORR’s view, the significant extent to which conventional signalling will continue to play a significant role, and be the subject of substantial expenditure throughout CP6 and likely beyond.

**Figure 4 – Profile of signalling renewals across CP5 and CP6**



## Signalling - summary

2.95 In summary, ORR has serious horizontal and vertical concerns. These concerns relate both to the concentration of technology (primarily interlocking), but also to the scale of the proposed merged Parties’ operations in GB. No other operators have, nor could hope to acquire in any reasonable period-of-time, the experience, workforce, presence and technological capabilities and intellectual properties to render them capable of exerting a competitive restraint on the post-merger Parties for the supply of signalling projects or products. Indeed, it may be the case that GB is the Member State worst affected, given its lack of any alternative operator with the required scale or technological capability to compete with the Parties post-merger.

2.96 On the issue of buyer power, whilst Network Rail has put plans in place to strengthen its approach to procurement in the future regarding this element of its supply chain; these plans are untested. ORR suggests that the Commission should carefully consider the extent to which Network Rail’s purported buyer power will be sufficient

<sup>31</sup> ORR, 2018 periodic review draft determination, Supplementary document - review of Network Rail’s costs.

to mitigate competition concerns in the case of a merger that will create a market participant with a market share of at least 75%.

2.97 The impact of a lessening of competition in these markets could be significant given the importance of signalling to the GB railway. A relatively small post-merger price increase could lead to additional costs of tens of millions of pounds per year.<sup>32</sup> It could also have important implications for innovation and service quality including passenger safety.

2.98 ORR therefore urges the Commission to scrutinise carefully the impact of this merger on the competitive situation for signalling projects and products in GB. ORR considers that divestiture remedies, involving intellectual property, assets and workforce, are necessary in order to sufficiently address the substantial detrimental impact on competition the merger will otherwise cause in this jurisdiction.

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<sup>32</sup> E.g. see [http://ec.europa.eu/competition/publications/reports/kd0115715enn\\_info.pdf](http://ec.europa.eu/competition/publications/reports/kd0115715enn_info.pdf)

## 3. Rolling stock

3.1 This chapter outlines ORR's representations in relation to rolling stock markets. In particular ORR addresses the competitive threat posed by CRRC in GB.

### ORR's role

- 3.2 ORR is the designated national safety authority for GB's railways. Operators must obtain ORR's authorisation before putting any 'structural subsystems', including rolling stock, into service. In assessing compliance with European interoperability specifications ORR assesses a wide range of new rolling stock projects. All GB orders for new rolling stock are subject to authorisation. We therefore consider many different types of passenger and freight rolling stock.
- 3.3 The rolling stock supply chain has also been reviewed by ORR under its function as a competition regulator and using its statutory competition powers. In 2006, ORR referred the passenger rolling stock leasing market to the (then) UK Competition Commission ('the **CC**'), having identified facets of the market capable of preventing, restricting or distorting competition. The market remains subject to a Transparency Order imposed by the CC to address competition concerns. This Order remains subject to monitoring by ORR.

## How competition takes place

### Mainline rolling stock

- 3.4 GB's current fleet of mainline rolling stock numbers approximately 13,300 vehicles. The average replacement cost of each of these vehicles is in excess of £1 million.<sup>33</sup>
- 3.5 Rolling stock asset lives are much longer (approximately 35 years) than rail franchises (less than ten years). This means that almost all passenger rolling stock is owned by rolling stock leasing companies ('**ROSCOs**').
- 3.6 Rolling stock manufacturers, including the Parties, build new rolling stock which is typically then sold to ROSCOs.<sup>34</sup> Manufacturers may also be responsible for carrying out train maintenance.

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<sup>33</sup> For useful up-to-date information on rolling stock generally see *Long Term Passenger Rolling Stock Strategy for the Rail Industry Fifth Edition*, March 2017, [https://www.raildeliverygroup.com/files/Publications/2017-03\\_long\\_term\\_passenger\\_rolling\\_stock\\_strategy\\_5th\\_ed.pdf](https://www.raildeliverygroup.com/files/Publications/2017-03_long_term_passenger_rolling_stock_strategy_5th_ed.pdf)

<sup>34</sup> Although other models do exist, including the Thameslink and IEP procurements (see below), whereby each contract was won by single builder-financier consortium

- 3.7 The principal ways in which new rolling stock is procured are described in the CC's ROSCOs report.<sup>35</sup> In the main, procurement is either:
- Driven by the Department for Transport ('**DfT**'), by, for instance, specifying it in a franchise invitation to tender;
  - Introduced by a franchised Train Operating Company ('**TOC**') through a franchise bid; or
  - Purchased by rolling stock lessors speculatively, without any commitments to lease it (less commonly).
- 3.8 TOCs (or DfT) may in the first instance either seek out a ROSCO financier, who will liaise with the manufacturer to build the customer's preferred rolling stock, or they may negotiate directly with a manufacturer to build rolling stock and seek finance for the stock separately.
- 3.9 The main factors of competition in this market are price, together with various measures of service quality (including safety etc.). Perceptions of service quality are to some extent determined by companies' track records; this provides established players with a degree of an incumbency advantage.

## Other networks

- 3.10 The procurement of rolling stock for other networks is more centralised, lacking a vertical separation between infrastructure management and service operations. Competitions to supply rolling stock are less frequent.

## Current competitive conditions

- 3.11 In Figure 5 below, we present estimates of the Parties' shares of all of post-privatisation rolling stock. This is based on contracts that had been signed as of 1 November 2017.<sup>36</sup> Rolling stock contracts vary in scale and periodicity since privatisation there have been 95 separate orders for a total of 46 different classes of rolling stock. The average order size was 130 vehicles, but individual orders ranged in size from 2-1140 vehicles. In these circumstances, as noted below, ORR would suggest that a direct assessment of individual competitions may give a more

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<sup>35</sup> [http://webarchive.nationalarchives.gov.uk/20120120031944/http://www.competition-commission.org.uk/rep\\_pub/reports/2009/fulltext/546.pdf](http://webarchive.nationalarchives.gov.uk/20120120031944/http://www.competition-commission.org.uk/rep_pub/reports/2009/fulltext/546.pdf)

<sup>36</sup> [X]. Our focus on contracts signed has led to the omission of some nonetheless anticipated new build, e.g. see <https://www.shropshirestar.com/news/business/2017/10/17/680m-invested-in-new-west-midlands-trains/>

accurate and nuanced picture of competitive conditions than aggregate market share estimates.

**Figure 5 - Manufacturers' shares of post privatisation GB rolling stock orders (mainline stock only), total orders**

	Diesel	Electric	Total
Alstom	140	887	1,027
Bombardier	1,030	4,886	5,916
CAF	275	201	476
Hitachi	-	1,605	1,605
John Parry	2	-	2
Siemens	153	2,824	2,977
Stadler	138	240	378
<b>Total</b>	<b>1,738</b>	<b>10,643</b>	<b>12,381</b>
<b>The parties %</b>	<b>17%</b>	<b>35%</b>	<b>32%</b>

## Mainline stock

3.12 As shown in Figure 5 above, the Parties are two of the small number of manufacturers who have supplied main line rolling stock in the post-privatisation era. Alstom does not currently have train manufacturing facilities in GB (its Washwood Heath plant closed in 2005) and might be expected to manufacture newbuild stock intended for the GB market elsewhere in Europe.<sup>37</sup> Similarly, new Siemens rolling stock (including Thameslink, see below) is built at Siemens' plants in Krefeld, Germany. Siemens has previously stated publicly that it would consider the case for a new GB assembly plant, if it were to be successful in winning a large future contract for HS2 or LU rolling stock.

3.13 Both of the Parties are, Europe-wide, particularly strong in the supply of high-speed intercity rolling stock. Each of the two firms builds well-recognised families of intercity rolling stock, including: Siemens ICE; Alstom TGV; and Pendolino. Within the European competitor set, the Parties are particularly close competitors. For example, they compete far more closely and far more often with each other than other smaller players such as Newag, Pesa and Skoda.

3.14 The data summarised in Figure 5 above show that Bombardier has, overall, been more successful in winning rolling stock contracts than either of the Parties. ORR suggests, however, that the intensity of the competition between the two companies

<sup>37</sup> Although it may have scope to expand into new build from one of its maintenance depots, see *Modern Railways*, November 2017, p64-65

would be best demonstrated by the frequency and intensity by which they compete for important, high-value contracts, for example:

- 2007 - Siemens and Alstom were two out of the three shortlisted entities for new Intercity Express Programme ('IEP') stock. The £4.5 billion contract was awarded to Hitachi in 2009.
- 2008 - Siemens and Alstom were two of four prequalified bidders for the manufacture of new Thameslink rolling stock. The contract was awarded to Siemens in 2011, with an approximate value of £1.6 billion.
- 2011 – Siemens won an approximately £0.55 billion contract for new Eurostar rolling stock. This win highlighted the intense rivalry between Siemens and Alstom, with the latter using legal means (separate challenges regarding both safety rules and the tendering process) to attempt to overturn Eurostar's decision.
- 2018 – Siemens won a £1.5 billion contract to supply 'deep tube' rolling stock to LU. Between them the Parties accounted for two of the final three bids, the third being made by a Bombardier/Hitachi consortium.<sup>38</sup>

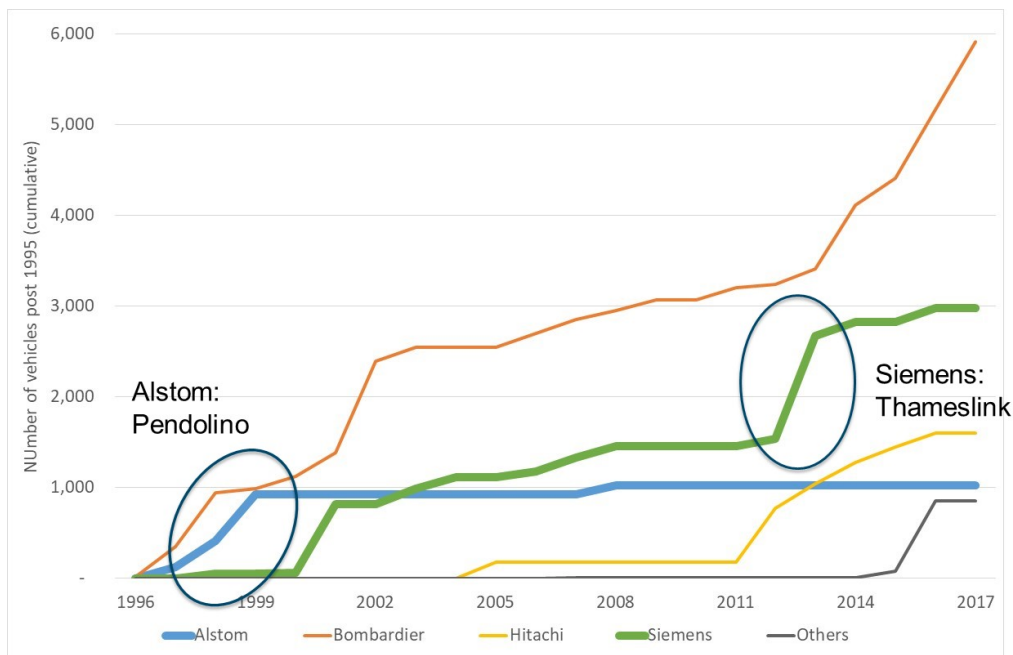
3.15 In other words, whilst the Parties, even post-merger, would not be (measured by post privatisation orders) as large as GB's historically most successful player, Bombardier, the Parties have been, and continue to be, perennial challengers for the largest and most valuable orders. The historic importance to the parties of two large historic orders is illustrated by Figure 6 below. In Figure 6:

- The scale on the left hand axis measured the cumulative total number of vehicles supplied by each manufacturer over the period 1996 to 2017; and
- We have annotated the Figure to show the significant increases in fleet size brought about by two major contract wins by the Parties in the late 1990s and early 2010s.

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<sup>38</sup> <http://www.metro-report.com/news/single-view/view/siemens-to-supply-london-underground-deep-tube-fleet.html>

**Figure 6 - Manufacturers' shares of post privatisation GB rolling stock orders (mainline stock only), time series**



3.16 Some of the key barriers to entering markets for the supply of rolling stock are summarised in past Commission decisions such as *Bombardier/ADtranz* (2001). A number of exacting standards must be met in order to win one of the largest rolling stock contracts such as those typically contested by the Parties. These standards include access to finance and technical capabilities. A key barrier for non-traditional suppliers is the need for extensive credentials in those aspects of a customer requirement that will be most challenging for suppliers to deliver. ORR submits that the significance of these barriers is illustrated by CRRC's recent failure to be shortlisted to bid for HS2.

## Other networks

3.17 We believe that similar issues arise for the supply of rolling stock to other GB networks, i.e. that the merger will remove one, from what is already a small pool of suppliers. Indeed, the specialised nature of LU's rolling stock (which cannot be straightforwardly adapted from existing 'families' of rolling stock such as Alstom's high speed TGV) may mean the pool of potential bidders for rolling stock contracts is smaller than on the mainline.

3.18 The list of firms who compete with the Parties for the supply of services to LU is largely the same as for the main line network.<sup>39</sup> In this market segment, Alstom has the stronger track-record of the Parties. Of the eight distinct fleets that currently operate on the LU network, Alstom (or a predecessor company) supplied four<sup>40</sup>. An important caveat regarding this figure is that these fleets were all built some time ago, most notably in the case of the Bakerloo and Piccadilly line rolling stock, which was manufactured in the 1970s. As with main line rolling stock, ORR suggests that a better indication of the competitive interaction between the Parties may be gained by considering their involvement in recent or prospective competitions (see above).

3.19 For the supply of rolling stock to HS2, the two parties are both important bidders, as described under *Impact of the merger* below.

## Impact of the merger

3.20 The number of new vehicles expected to be delivered in GB over the course of CP5 (2014-19) and the start of CP6 (2019-2024) has reached 6,010, with a total cost of more than £10 billion.

3.21 Absent the merger, we would have expected the Parties to continue being important players in this high-value market. We are therefore both concerned that merger will reduce the number of competitors, but more crucially it will deprive the GB market of the extant fierce rivalry between the Parties. ORR suggests that this merger is more than a “5 to 4” or a “4 to 3”, but in fact represents a transaction whereby two of the top three regular competitors for major rolling-stock contracts in GB are being combined. Furthermore, the rivalry of the Parties is particularly acute in competitions for high speed rolling stock.

3.22 In our representations below, we draw on examples from non-mainline networks, but believe that very similar considerations apply to the mainline, particularly for the largest orders:

- **HS2** – the Parties are two of the five companies that have been shortlisted for the forthcoming competition to supply rolling stock for HS2, a contract with a value in the region of £2.75 billion.<sup>41</sup> The shortlisted bidders for the HS2 rolling

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<sup>39</sup> [REDACTED]

<sup>40</sup> Neither Siemens nor any predecessor company manufactured any of the current LU fleets

<sup>41</sup> <https://www.ft.com/content/c73e38f6-bfdb-11e7-b8a3-38a6e068f464>



stock contract are the Parties plus a Bombardier/Hitachi JV, CAF, and Patentes Talgo, the Spanish high speed manufacturer.<sup>42</sup>

- **Docklands Light Railway** – the Parties are two of the final four bidders for the 43 new London Docklands Light Railway ('DLR') trains.<sup>43</sup>

## CRRC

3.23 The extent of current and future competition from new entrants, including China's CRRC corporation, is something that the Commission may consider to be a relevant factor in the analysis of this merger. When the Parties' intention to merge was announced in 2017, the need to respond to the competitive threat posed by CRRC was widely cited as a key justification.

3.24 Measured by recent years' revenues CRRC is, by a distance, the world's largest supplier of rolling stock. However, CRRC's revenues have been heavily reliant on its domestic Chinese market. ORR notes that "mainland China" accounted for over 90% of its revenues in 2017, as in all previous years.<sup>44</sup> Like the China Railway itself, CRRC is owned by the Chinese government. Without these domestic 'captive sales' CRRC would not be in the current global top five suppliers of rolling stock. In particular, CRRC has so far made limited headway in Europe, and none (that we know of in terms of passenger rolling stock)<sup>45</sup> in GB.

3.25 ORR is aware of some historic perceptions of low quality associated with Chinese manufacturers and some of their components and supply chains. The extent to which these persist and are likely to play an important role in future competitions should, ORR would suggest, be an important focus of the Commission's investigation of this transaction.

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<sup>42</sup> See <https://www.gov.uk/government/news/hs2-reveals-bidders-in-race-for-275-billion-trains-contract>

<sup>43</sup> See [http://www.railtechnologymagazine.com/Rail-News/tfl-opens-bidding-for-43-new-dlr-trains?utm\\_source=Rail%20Technology%20Magazine&utm\\_medium=email&utm\\_campaign=8908777\\_RT\\_M%20Bulletin%20Nov%20Wk%204&dm\\_i=IJS,5AY21,KT1RJ7,KGPRF,1](http://www.railtechnologymagazine.com/Rail-News/tfl-opens-bidding-for-43-new-dlr-trains?utm_source=Rail%20Technology%20Magazine&utm_medium=email&utm_campaign=8908777_RT_M%20Bulletin%20Nov%20Wk%204&dm_i=IJS,5AY21,KT1RJ7,KGPRF,1)

<sup>44</sup> See <http://passthrough.fw-notify.net/download/389710/http://www.crccgc.cc/Portals/73/Uploads/Files/2018/4-27/636604235027673005.pdf>. The monetary value of CRRC's sales outside of mainline China has been fairly static in recent years, amounting to RMB 26bn during 2015, RMB 19bn during 2016, and RMB 19bn during 2017

<sup>45</sup> In 2017 CRRC won an award for the supply of engineering wagons to LU, e.g. see <http://www.railjournal.com/index.php/rolling-stock/crrc-wins-first-british-contract.html>

3.26 The ongoing procurement exercise carried out by HS2 provides, in ORR's view, a useful recent illustration of the role played to date by CRRC for the supply of passenger rolling stock in GB markets. [REDACTED].

3.27 [REDACTED].

3.28 [REDACTED].

3.29 ORR [REDACTED] contends that the contention of an imminent threat of Asian, and specifically CRRC entry into European markets should be carefully scrutinised. [REDACTED].

## Rolling stock - summary

3.30 In summary, ORR considers that the Parties have a history of strong rivalry and, absent the merger, a prospective future of close competition for the supply of major rolling stock contracts, and in particular for the supply of high speed rolling stock. As such, there is a strong risk that the merger will have a significantly adverse impact on the state of competition in this aspect of the GB railway supply chain.

3.31 Whilst overall competitive conditions and, in particular, the strengths of the Parties are different in the rolling stock and signalling markets. The Commission should also, however, consider whether, in the future, there may be stronger links between the two markets. The move towards a digital railway<sup>46</sup> will mean that a greater part of signalling functionality will be located on board trains. In this context, a vertically integrated supplier such as either of the Parties will be at an advantage in the supply of rolling stock, potentially leading to a convergence of competitive conditions.

3.32 As for signalling, ORR therefore represents that significant structural remedies in GB are necessary to sufficiently address the competition concerns raised by this merger.



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<sup>46</sup> E.g. see <https://www.networkrail.co.uk/our-railway-upgrade-plan/digital-railway/>