EUROPEAN COMMISSION
DG Competition

CASE M.7801 - WABTEC / FAIVELEY TRANSPORT

(Only the English text is authentic)

MERGER PROCEDURE
REGULATION (EC) 139/2004

Article 8(2) Regulation (EC) 139/2004

Date: 4/10/2016

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PUBLIC VERSION

COMMISSION DECISION

of 4.10.2016

declaring a concentration to be compatible with the internal market and the EEA Agreement (Case M.7801 – WABTEC / FAIVELEY TRANSPORT)

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declaring a concentration to be compatible with the internal market and the EEA Agreement (Case M.7801 – WABTEC / FAIVELEY TRANSPORT)

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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to the Agreement on the European Economic Area, and in particular Article 57 thereof,

Having regard to Council Regulation (EC) No 139/2004 of 20 January.2004 on the control of concentrations between undertakings[1], and in particular Article 8(2) thereof,

Having regard to the Commission's Decision of 12 May 2016 to initiate proceedings in this case,

Having regard to the opinion of the Advisory Committee on Concentrations[2],

Having regard to the final report of the Hearing Officer in this case[3],

Whereas:

1. THE NOTIFICATION

(1) On 4 April 2016, the Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004[4] (the 'Merger Regulation'), by which the undertaking Westinghouse Air Brake Technologies Corporation ('Wabtec') would acquire within the meaning of Article 3(1)(b) of the Merger Regulation indirect sole control of the whole of the undertaking Faiveley Transport S.A. ('Faiveley') by way of purchase of shares (the 'Transaction'). Wabtec is hereinafter referred to as the 'Notifying Party' whereas Wabtec and Faiveley are collectively referred to as the 'Parties'.

2. THE PARTIES

(2) Wabtec is a US-based international undertaking active in the manufacture and supply of railway equipment and in the provision of services in the railway sector. It is the market leader on the American continent.

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1 OJ L 24, 29.1.2004, p. 1 ('the Merger Regulation'). With effect from 1 December 2009, the Treaty on the Functioning of the European Union ('TFEU') introduced certain changes, such as the replacement of 'Community' by 'Union' and 'common market' by 'internal market'. The terminology of the TFEU will be used throughout this decision.

2 OJ C ...,...200. , p....

3 OJ C ...,...200. , p....

4 OJ L 24, 29.1.2004, p. 1.

(3) Faiveley is a French-based undertaking active in the manufacture and supply of integrated systems and services for the railway sector. Its activities focus on the European market.

3. THE OPERATION AND THE CONCENTRATION

(4) The operation consists of two steps. First, Wabtec will indirectly acquire 51.5% of shares in Faiveley pursuant to a share purchase agreement signed on 6 October 2015. As a result Wabtec will achieve sole control of Faiveley. Second, Wabtec will launch a mandatory tender offer for the remaining shares in Faiveley.

(5) The operation therefore constitutes a concentration within the meaning of Article 3(1)(b) of the Merger Regulation.

4. UNION DIMENSION

(6) The undertakings concerned have a combined aggregate world-wide turnover of more than EUR 2 500 million[5] (Wabtec EUR 2 292 million; Faiveley EUR 1 048 million). The combined aggregate turnover of the undertakings concerned in each of Germany, France, Italy and the United Kingdom is more than EUR 100 million and the aggregate turnover of each undertaking concerned is more than EUR 25 million in each of those four Member States. Each of the undertakings concerned has a Union-wide turnover in excess of EUR 100 million (Wabtec EUR […] million; Faiveley EUR […] million) but they do not achieve more than two-thirds of their aggregate Union-wide turnovers within one and the same Member State.

(7) The concentration therefore has a Union dimension pursuant to Article 1(3) of the Merger Regulation.

5. THE PROCEDURE

(8) On 4 April 2016, the Commission received the notification in the case.

(9) On 12 May 2016, the Commission adopted a decision pursuant to Article 6(1)(c) of the Merger Regulation, opening proceedings (the 'Article (6)(1)(c) Decision').

(10) On 17 June 2016, the Commission adopted a decision pursuant to Article 10(3) of the Merger Regulation, extending the deadline for adopting a final decision by 20 days with agreement of the Notifying Party.

(11) On 8 July 2016, the time limit for adopting a final decision was suspended in accordance with Article 10(4) of the Merger Regulation and Article 9 of Commission Regulation (EC) No 802/2004 implementing the Merger Regulation. The suspension ended on 13 July 2016.

(12) On 25 July 2016, the Notifying Party submitted commitments to the Commission ('First Commitments').

(13) On 25 July 2016, the Commission launched a market test to assess whether the First Commitments were suitable to address the competition concerns identified by the Commission.

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[5] Turnover calculated in accordance with Article 5 of the Merger Regulation and the Commission Consolidated Jurisdictional Notice (OJ C 95, 16.4.2008, p. 1).

(14) On 16 August 2016, the Notifying Party submitted revised commitments to the Commission ('Final Commitments').

(15) The meeting of the Advisory Committee took place on 22 September 2016.

6. COMPETITIVE ASSESSMENT

6.1. General

(16) The Parties are global suppliers of various types of train equipment to rolling stock manufacturers and train operators. Together with Knorr-Bremse, they are the three major worldwide suppliers of such equipment. As a result of the Transaction, the merged entity would become *'a new global railway equipment leader'*, ahead of Knorr-Bremse.[6]

(17) Globally, Faiveley appears to concentrate more on the European markets and on passenger transport while Wabtec is stronger in the US and in freight applications. That may be due to historic reasons and due to the fact that the rail market in Europe is to a large extent a passenger market while in the US it is a freight market, save for some urban transit such as underground vehicles. However, both Parties manufacture and supply a broad range of equipment for both freight and passenger transit applications.

(18) Within the EEA, their activities overlap with respect to the supply of (i) complete friction brake systems and their subsystems; (ii) friction materials; (iii) brake discs; (iv) pantographs; (v) train doors; (vi) energy meters; and (vii) event recorders. Affected markets[7] arise with respect to all of those products except train doors, energy meters and event recorders.[8]

(19) The Transaction would also give rise to vertically affected markets between the Parties' activities in friction materials (upstream) and activities in complete brake systems (downstream).

6.2. Original equipment market ('OEM') and independent aftermarket ('IAM'); homologation

(20) In the train industry, trade generally takes place on two levels: (i) sales to original equipment manufacturers ('OEMs'), including both rolling stock manufacturers and subsystem manufactures, and (ii) sales in the independent aftermarket ('IAM'). The Commission nonetheless considered in its recent decision in M.7538 – *Knorr Bremse / Vossloh* that since the IAM market largely mirrors the OEM market, it was adequate to assess the OEM market only.[9] The case concerned train systems such as brake systems – but not components that require regular replacement such as friction materials or brake discs.

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6 See Faiveley's investor presentation, '*2015/2016 half-year results*', slide 15, quoted from www.faiveleytransport.com on 28.4.2016.

7 For the definition of 'affected markets', see Annex 1 to the Commission Regulation (EC) No 802/2004 implementing Council Regulation (EC) No 139/2004 on the control of concentrations between undertakings, OJ L 133, 30.4.2004, p 1.

8 Under certain market delineations, affected markets may arise with respect to event recorders and a potential sub-segment of train doors.

9 M.7538 – *Knorr Bremse / Vossloh*, paragraph 36.

(21) The Notifying Party submits that it is appropriate to assess only the OEM markets with the exception of (i) brake discs and (ii) friction materials for which meaningful IAM markets exist, with suppliers selling directly to the train operators.

(22) The market investigation has not called the findings in M.7538 – *Knorr Bremse / Vossloh* into question. The Commission will therefore assess the markets for train systems and subsystems at the OEM level. However, for components that need regular replacement, the situation may be different.

(23) The Notifying Party also notes that many train equipment such as brake systems and pantographs (and even for instance friction materials) usually need to undergo a homologation procedure to demonstrate compliance with the regulatory requirements. The complexity and the duration of the homologation process varies depending on the importance of the product to the safety of the train. In general the homologation requirement supports the procurement of spare parts from the supplier of the original parts of the train as a new homologation may be needed if replacing original components of a train system with spare parts from another supplier.

6.3. Energy meters

6.3.1. Relevant product markets

(24) The Parties' activities overlap horizontally with regards to energy meters.

(25) Energy meters are installed in railway vehicles to facilitate the exact measurement of energy consumption. This serves two main purposes: (1) providing consumption data for the identification and assessment of potential energy saving measures; and (2) providing consumption data to permit more precise billing for the electricity used.[10]

(26) Energy meters are used in various rail-operated vehicles, but are used in particular in high-speed trains and electrically-powered regional trains.

(27) Energy meters generally consist of a sensor and a Data Handling System ('DHS'). The energy sensor calculates the active and reactive energy consumption of a train during traction, as well as regeneration during braking. The sensor sends the energy data to the DHS for processing, storage and/or transmission to a ground server. The DHS typically produces profiles of energy usage over set periods of time.

(28) These parts (sensor and DHS) are usually sold together. The main exception involves Wabtec's sales to […].[11]

(29) The European standard EN 50463 sets requirements for energy measurement with rolling stock. Thus, all manufacturers' energy meters in the EEA are designed to satisfy the requirements of EN 50463. Energy meters are sold both to OEMs for incorporation into new trains and to rail operators for retrofit of existing train fleets. Thus, energy meters are supplied both to OEM and IAM customers.

(30) There are no precedents from the Commission or a national competition authority that define the relevant market for energy meters for trains.

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[10] Without on-board energy meters, energy billing is usually based on theoretical consumption values derived from train data or simulations of train runs. The accuracy of such billing is limited by the assumptions used in the underlying calculations, the specific external factors influencing the energy consumption of any particular train run, and driver variation. It will not pick up the specific fluctuations due to train efficiency, weather, track conditions, driving style, etc.

[11] Form CO, paragraph 554.

(31) The Notifying Party submits that the relevant product market encompasses all energy meters.

(32) From a demand-side point of view, customers follow the European standard EN 50463 which sets requirements for the supply of energy meters with respect to the level of accuracy and the time reference period. Demand is therefore not differentiated.

(33) From a supply-side point of view, most suppliers offer a similar range of energy meters. This is notably because European standard EN 50463, which sets functional requirements for energy meters, has resulted in similarity among suppliers of basic energy meters.

(34) As explained in recital 28, a product market definition at component level (sensors and DHS) would probably not make sense since energy meters are mostly sold together.

(35) Therefore, on this basis, it appears that the most plausible product market definition encompasses all energy meters. The relevant product market definition for energy meters can however be left open in this case since no competition concerns would arise under the narrowest segmentation possible.

6.3.2. Relevant geographic markets

(36) There are no precedents from the Commission or a national competition authority that define the relevant market for energy meters for trains.

(37) In the absence of a Commission precedent, the Notifying Party submits that the relevant geographic market for energy meters is EEA-wide because there are no legal barriers to trade, major competitors are competing across the EEA, and all are TSI approved. The response to recent and ongoing bids in France, Germany, Switzerland and the Nordic countries provides concrete evidence of cross-border competition. As an example, the Italian company Saira won a retrofit project in 2015 for the supply of stand-alone energy meters in Norway, Sweden and Denmark.

(38) Nothing in the market investigation suggests that the Notifying Party's proposed product and geographic definitions are incorrect. Moreover, the relevant geographic market definition for energy meters can be left open in this case since no competition concerns would arise under the narrowest segmentation possible.

6.3.3. The Parties' activities and lack of affected market

(39) Wabtec sells energy meters in the EU through its wholly-owned subsidiary, Mors Smitt, based in France. It has manufacturing locations in several EEA countries, as well as in China.

(40) Faiveley also sells energy meters in the EEA but manufactures only in France. Faiveley began development of its energy meter in 2008, before the adoption of the standard EN 50463 in 2012. Faiveley thus had to select an architecture for its product without the benefit of knowing what the industry-wide standard would be, and therefore offers a slightly differentiated product – known as DEMETRA. Since the adoption of EN 50463, […].

(41) In 2014, Faiveley won a large contract from the French government-owned SNCF to retrofit 700 TGV trains, […].

(42) Therefore, the Parties' activities overlap horizontally in the market for energy meters in the EEA. The overlap exists at both OEM and IAM level, at least potentially.

(43) As regards components, […]. Therefore, the Parties' activities do not overlap in relation to the supply of DHSs or sensors on a stand-alone basis. […]

(44) The Transaction would not give rise to any affected markets, even if the narrowest possible sub-segments are considered in isolation. The Commission notes that the Parties' combined share in the potential sub-segment for retrofit energy meters in the EEA, for the period 2011–2014 amounts to [10-20]%. […] . This […] gives Faiveley a [10-20]% market share, while the negligible increment of [0-5]% is attributable to Wabtec's market share.

(45) Competitors include LEM, Microelletrica, Saira, Bombardier, and Alstom. The Commission notes that the Parties' combined market share remains modest and that a number of notable competitors would remain on the market after the Transaction.

(46) In the market investigation, a majority of rolling stock manufacturers did not think that the Transaction would affect competition with respect to energy meters and event recorders. Rail operators were less enthusiastic about the transaction with a quarter of them believing the transaction would negatively affect competition for energy meters and event recorders, a majority not knowing, and roughly a fifth thinking the Transaction would not affect competition.[12]

(47) On the basis of the absence of affected market, the Commission considers that the Transaction is unlikely to give rise to a significant impediment to effective competition in the EEA with respect to energy meters.

6.4. Event recorders

6.4.1. Relevant product markets

(48) The Parties' activities overlap horizontally with respect to event recorders.

(49) Event recorders are used to record data relating to the operation of train controls and performance. Most rolling stock contain an event recorder for safety reasons in case of an accident, as the data recorded (e.g., data relating to the operation of train, including the train's location and speed, application of the brakes, operation of the doors, etc.) is important evidence to determine the possible causes of an accident.

(50) Neither the Commission nor the national competition authorities have defined markets for railway event recorders. The only potentially relevant decision is General Electric/Honeywell, where the Commission dealt with flight data recorders. In that decision, the Commission considered the products to be part of a wider market of buyer-furnished equipment for avionics products.[13]

(51) In the absence of a relevant Commission precedent, the Notifying Party submits that the relevant product market consists of a single market for sales of railway event recorders. This includes sales of event recorders to OEMs and end users and for all types of rolling stock.

(52) From the point of view of demand-side substitutability, customer demand is determined by the specifications of each customer for each vehicle according to the level of complexity of each system. The design of event recorders does not depend on (i) the type of customer, (namely an OEM compared to an end-user), or (ii) the type of rolling stock (transit compared to freight). OEMs and end-users typically set

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12 Replies to question 164 of Q1 – Questionnaire to rolling stock manufacturers, and to question 137 of Q2 – Questionnaire to rail operators.

13 M.2220 – *General Electric / Honeywell*, paragraph 249.

specific requirements for event recorders for each particular train. Thus, one OEM/end-user may require a complex event recorder for a high-speed train, whereas another OEM/end-user may request a more basic event recorder for a high-speed train. Therefore, the end-user requirements vary depending on the complexity of the system desired by the customer. Regulatory requirements are generally consistent across most types of rolling stock.

(53) From a supply-side point of view, all suppliers offer modular multifunctional event recorders. These event recorders can be tailored for any type of rolling stock and for both newly built and retrofit applications. The core design of an event recorder is similar for all suppliers. As a result, all event recorders are generally substitutable.

(54) Therefore the most plausible product market definition seems to encompass all event recorders. The relevant product market definition for events recorders can however be left open in this case since no competition concerns would arise under the narrowest segmentation possible.

6.4.2. Relevant geographic markets

(55) In the absence of a relevant Commission precedent, the Notifying Party submits that the relevant geographic market for event recorders is at least EEA-wide, notably because tender procedures confirm the existence of extensive cross-border trade and little differentiation in pricing.

(56) The Notifying Party nevertheless recognizes that national regulations play an important role in the market for event recorders. As a consequence, the design of an event recorder may vary depending on the country in which the train will be installed and operated. In particular, the UK requires standards that differ from the rest of Europe.

(57) In the UK, the standards GM/RT2100, 2130, 2304 and 2472 result in designs of event recorders that are closer to US-designed event recorders in terms of the degree of enclosure hardening that is required. These event recorders consist of a resilient closed box. The closed structure of the device makes it less modular since input/output interfaces are more difficult to add.

(58) For the rest of Europe, the European standards result in the design of event recorders with a more open structure, which make them more flexible and modular. This makes it somewhat easier to customize event recorders designed to European rather than UK standards.

(59) In addition, trains running on the French national railway network must be equipped with a specific device called ATESS[14], which includes an event recorder function. ATESS is supplied solely by Faiveley. Since no other EEA country has adopted similar regulations, and since ATESS are not substitutable with normal event recorders, they seem to form a market of their own where Faiveley is the only competitor.

(60) The Commission notes that the different regulatory standards that exist in different EEA countries impact demand and supply-side substitutability. Wabtec will be naturally more successful in the UK where its US-standards compliant event recorders will be more fitting, whereas a supplier like Faiveley will be naturally more

[14] Acronym for French 'Acquisition et Traitement des Evénements de Sécurité en Statique' (static security events acquisition and treatment).

successful in continental countries such as France where its event recorders' architecture fits the regulatory standards.

(61) The relevant geographic market definition for events recorders can however be left open in this case since no competition concerns would arise even under the narrowest plausible geographic market definition, whether the market is defined at national level (in which case there would be no overlap) or EEA-wide.

6.4.3. Parties' activities

(62) Wabtec sells event recorders in the EEA. Wabtec's event recorders are based on products designed for the North American market. Its sales in the EEA are limited to the UK and made on an occasional basis.

(63) Faiveley mainly sells event recorders designed to comply with regulations applicable to event recorders in the rest of Europe. Those requirements led to a specific design of event recorder, which incorporates a box that is not as tightly sealed as Wabtec's. This type of event recorder is more flexible and modular, and better adapted to supporting the additional functionalities sought by many European customers. Faiveley sells event recorders in France, Belgium, Germany and Italy.

(64) As a result, the Parties' sales do not overlap at a national level.

(65) At EEA level, the Parties' sales of event recorders do overlap but do not amount to an affected market, with Faiveley having a market share of [5-10]% over the period 2011-2014, and the increment consisting in Wabtec's negligible market share of [0-5]%.

(66) As explained above at recital 59, ATESS probably constitute a product market of their own, but for the sake of completeness, the Commission notes that Faiveley's market share rises to [20-30]% if ATESS sales are included in the overall events recorder market. As noted Wabtec does not produce ATESS, and, if they are included in the overall events recorder market, its market share drops to [0-5]%.

(67) In addition, multiple suppliers ensure competition for railway event recorders in the EEA. Deuta-Werke and Hasler are the two leading suppliers of event recorders in the EEA. They have broad product ranges and well-established relationships with OEMs and end users, and they compete for most opportunities throughout the EEA. Post-Transaction, the combined entity would continue to face strong competitors on the market for event recorders. Hasler and Deuta-Werke in particular would exert significant competitive pressure on the post-merger entity.

(68) There is no affected market in case the most plausible market definition (event recorders without ATESS) is retained. In case the less plausible market definition of event recorders including ATESS is retained, the Transaction would give rise to an affected market. However, the increment in the Parties' combined market share would be so minimal ([0-5]%) that it could not reasonably give rise to any merger-specific effects. Therefore, the Commission considers that the Transaction is unlikely to give rise to significant impediment to effective competition in the EEA with respect to event recorders.

6.5. Doors

6.5.1. Relevant product markets

6.5.1.1. Background and previous cases

(69) Different doors are installed on rolling stock, including for instance passenger access doors, internal doors and driver doors. The Parties' activities overlap with respect to access doors and internal doors.

(70) In its recent decision in the case M.7538 – *Knorr-Bremse / Vossloh*, the Commission concluded that (access) doors for rail vehicles constitute a distinct market. The Commission further concluded that there was no need to segment the market according to, for instance, the type of rolling stock in question.[15]

6.5.1.2. The Notifying Party's position

(71) The Notifying Party submits that the relevant market concerns either the manufacture and supply of all doors, or that distinct markets exist for (i) access doors and (ii) internal doors.

(72) With regard to access doors, the Notifying Party submits that the market concerns either the manufacture and supply of access doors for all different kinds of rolling stock, or that distinct markets exist according to the type of rolling stock in question, namely (i) high-speed trains, (ii) mainline and regional trains, (iii) (unengined) passenger coaches, (iv) underground trains and (v) light rail vehicles ('LRVs').

6.5.1.3. Results of the market investigation and the Commission's assessment

(73) The results of the market investigation did not call in to question the Commission's findings in M.7538 – *Knorr-Bremse / Vossloh*. As to technical differences between different types of rolling stock, rolling stock manufacturers overwhelmingly considered that different types of rolling stock require different solutions for their systems, including doors.[16] However, rolling stock operators were more split on the question, though a clear majority of even them considered that high-speed trains have specific requirements.[17]

(74) The Commission notes that market participants' market shares[18] differ to some extent between access doors for different kinds of rolling stock with the exception of IFE / Knorr-Bremse, which is strong in all potential segments. Of the Parties, Faiveley achieves higher market shares in heavier rolling stock and particularly in high-speed trains while Wabtec concentrates on underground trains and LRVs.

6.5.1.4. Conclusion on product market definition

(75) Therefore, and considering all evidence available to the Commission, the Commission considers that a distinct market exists for the production and supply of doors for rolling stock. It can be left open whether this market should be further segmented as the outcome of the competitive assessment remains the same under all alternative market definitions.

6.5.2. Relevant geographic markets

(76) In its recent decision in the case M.7538 – *Knorr-Bremse / Vossloh*, the Commission found that the market was likely EEA-wide, though it did not conclude on the exact scope of the market.[19]

(77) The Notifying Party submits that the market(s) for train doors are EEA-wide.

(78) The results of the market investigation do not call into question the existence of an EEA-wide market.

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15 M.7538 – *Knorr-Bremse / Vossloh*, paragraph 55.

16 Replies to questions 8, 11, 12 and 16–19 of Q1 – Questionnaire to rolling stock manufacturers.

17 Replies to questions 7, 10, 11 and 15-18 of Q2 – Questionnaire to rolling stock operators.

18 Market shares provided by the Notifying Party.

19 M.7538 – *Knorr-Bremse / Vossloh*, paragraph 58.

(79) Therefore, and considering all evidence available to the Commission, the Commission considers that the market, including its potential sub-segments, is EEA-wide.

6.5.3. Access doors for underground trains

(80) The Transaction only gives rise to affected markets if the potential sub-segment of access doors for underground trains is considered in isolation. According to the Notifying Party, the Parties' combined market shares remain below 20% under all other alternative market definitions. Moreover, Faiveley's market shares have been in a constant decline: while Faiveley's market share in access doors for all kinds of rolling stock was [40-50]% in 2005–2007, it decreased to [30-40]% in 2007–2009 and was down to [10-20]% in 2011–2014. Wabtec's market share has remained more constant at less than [0-5]%.

(81) In the potential segment of access doors for underground trains, the Parties' combined market share was [20-30]% in 2011–2014 (Wabtec: [5-10]%, Faiveley [10-20]%). Competitors include IFE / Knorr-Bremse ([50-60]%), Ultimate ([10-20]%) and Gebr Bode ([0-5]%).[20] Wabtec's market share was mainly due to one project (Lille underground) that it won in 2012.

(82) The Commission notes that the Parties' combined market share remains modest and that a number of notable competitors would remain on the market after the Transaction.

(83) In the market investigation, market participants were split as to whether the Transaction would have negative effects. Some market participants did refer to potential competition concerns related to, for instance, fewer remaining competitors. On the other hand, that view was not shared by all and, moreover, one market participant that was generally concerned indicated that it is already in discussions and in an approval process with a new entrant to access doors for underground trains.[21]

(84) Therefore, on balance and in light of the evidence available to it, the Commission considers that the Transaction is unlikely to give rise to a significant impediment to effective competition in the EEA with respect to train doors.

6.6. Friction brake systems for trains and their subsystems

6.6.1. Relevant product markets

6.6.1.1. Background and previous cases

(85) Brake systems are key safety systems of any train vehicle, and their basic function is to slow down or stop the train when required. There are a number of different technical solutions to achieve that function, such as friction brakes, magnetic brakes and dynamic brakes.

(86) The Transaction concerns friction/service brakes. They function by transforming the train's kinetic energy into heat through the application of friction materials against a brake disc or directly on the wheel treads of a train vehicle. The main components of friction brake systems are (i) the bogie brake, which is the mechanical brake and can

[20] Marker shares provided by the Notifying Party.

[21] Replies to question 163 of Q1 – Questionnaire to rolling stock manufacturers, and replies to question 136 of Q2 – Questionnaire to rolling stock operators.

consist of disc brakes[22] and/or tread brakes[23], and (ii) a brake control system that manages the brake function through a pressure medium, which is either compressed air (pneumatic brakes) or a liquid (hydraulic brakes). Pneumatic systems also require (iii) an air supply unit (air compressor and air dryer).

(87) In its recent decision in case M.7538 – *Knorr-Bremse / Vossloh,* the Commission considered it likely that friction brake systems for rail vehicles constitute a distinct product market, separate from magnetic and dynamic brakes, and that friction brake systems could be further segmented by type of brake control system between (i) pneumatic and (ii) hydraulic. The Commission though left the question ultimately open.[24]

(88) The Commission has previously also left open the question of whether there are separate markets on the one hand for complete brake systems and, on the other hand for their subsystems – that is the bogie brakes, brake control systems and, for pneumatic brakes, air supply units.[25]

6.6.1.2. The Notifying Party's position

(89) The Notifying Party submits that the relevant market is the market for the manufacture and sale of complete friction/service brake systems for all types of rolling stock (OEM), with possible further segmentation, according to the type of rolling stock concerned, into brake systems for (i) high-speed trains, (ii) mainline and regional trains, (iii) locomotives, (iv) passenger coaches (un-engined), (v) underground trains, (vi) LRVs and trams, and (vii) freight cars.[26] The Notifying Party notes that the potential segment for hydraulic brakes corresponds to that of LRVs and trams that generally employ such brakes in contrast to other types of rolling stock that generally use pneumatic brakes. The Parties' activities in Europe do not overlap with regard to hydraulic brake systems or their subsystems as Wabtec does not supply those within the EEA.

(90) The Notifying Party submits that there are no distinct relevant markets for subsystems of friction brake systems as the majority of customers prefer to purchase brakes as complete brake systems: 95% of brakes for freight applications and 70–80% for passenger applications are purchased as complete brake systems. The Notifying Party has nonetheless acknowledged that customers may request bids for subsystems only and that some smaller suppliers are only able to supply subsystems instead of complete friction brake systems. The Parties have provided information with regard to (i) bogie brakes and (ii) pneumatic brake control systems.

(91) The Notifying Party submits that a pneumatic friction brake system can be electronically controlled ('electro-pneumatic friction brake system') by an electronic

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22 A disc brake consists of a brake disc and a brake caliper unit, which typically combines a brake cylinder, brake rigging and a slack adjuster. A disc brake causes the brake action by pressing a friction material (called 'brake pad') against the brake disc that is mounted either on an axle of the bogie or on a wheel.

23 A tread brake typically consists of a brake cylinder, brake rigging, a slack adjuster and a brake shoe holder. A tread brake causes the brake action by pressing a friction material (called 'brake shoe' or 'brake block') directly against the surface of a wheel tread.

24 M.7538 – *Knorr Bremse / Vossloh*, paragraph 48.

25 M.1629 – *Knorr Bremse / Mannesmann*, paragraph 15.

26 Including magnetic track brakes which the Notifying Party submits are typically supplied as an integral part of the brake system (part of the mechanical bogie brake subsystem).

brake control subsystem. The Notifying Party notes that customers in the EEA increasingly require such equipment, particularly in complex applications such as in high-speed, mainline and regional trains.

6.6.1.3. Results of the market investigation and the Commission's assessment

(92) Friction compared to other brake systems: The replies to the market investigation support the view that friction/service brake systems constitute a distinct market from dynamic and magnetic brakes. In particular, a vast majority of respondents considered that friction brakes cannot be substituted by other types of brakes or that friction brakes will be needed in addition to other types of brakes for reasons of, for instance, safety.[27]

(93) Pneumatic compared to hydraulic brake systems: The majority of both train operators and rolling stock manufacturers considered that hydraulic and pneumatic systems are not substitutable for each other. Respondents were, however, particularly clear in that pneumatic systems cannot be substituted for hydraulic ones.[28] The replies also generally supported the view that hydraulic brake systems find their main applications in LRVs and trams, though some respondents could consider pneumatic systems for those applications as well.[29]

(94) The Commission further observes that there are brake system suppliers that specialise in one or the other type of system, pneumatic or hydraulic, such as Hanning&Kahl for hydraulic systems. That fact supports the view that supply-side substitutability between hydraulic and pneumatic friction brakes may be somewhat limited.

(95) Brake systems in different applications: As to differences in brake systems between different types of rolling stock in general, rolling stock manufacturers tended to consider that brake systems in different types of rolling stock each have specific characteristics, though they also noted that many suppliers can supply friction brake systems for all or most applications.[30] Train operators, on the other hand, were more split on the question of possibly different requirements regarding brake systems in different applications, although the majority of them replied that requirements in high-speed trains differ from those in other types of rolling stock.[31]

(96) Electro-pneumatic compared to pneumatic brake systems: Market participants confirmed that there are differences between electronically controlled and non-electronic friction brake systems. While many respondents could consider both (non-electro) and electro-pneumatic brakes for many applications, including mainline and high-speed, they also saw issues and challenges with substitutability.[32] In any event, replies to the market investigation indicated that the demand in passenger applications in the EEA is, for the most part, focused on electronically controlled

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27 See, for instance replies to questions 21–23 of Q1 – Questionnaire to rolling stock manufacturers and to questions 20–22 of Q2 – Questionnaire to rail operators.

28 Replies to questions 24 and 26–27 of Q1 – Questionnaire to rolling stock manufacturers, and to questions 23 and 25–26 of Q2 – Questionnaire to rail operators.

29 See, for instance replies to questions 25–27 of Q1 – Questionnaire to rolling stock manufacturers, and to questions 24–26 of Q2 – Questionnaire to rail operators.

30 Replies to questions 8, 11, 12, 15–20, 25 and 31 of Q1 – Questionnaire to rolling stock manufacturers.

31 Replies to questions 7, 10, 11, 13–19 of Q2 – Questionnaire to rail operators.

32 See, for instance replies to questions 28–30 of Q1 – Questionnaire to rolling stock manufacturers and to questions 27–29 of Q2 – Questionnaire to rail operators.

(electro-)-pneumatic brake systems instead of (non-electro) pneumatic brake systems. Such systems bring numerous technical advantages, such as better reaction time and upgradebility.[33]

(97) Complete brake systems compared to subsystems: Finally, the majority of rolling stock manufacturers replied that they purchase both complete friction brake systems as well as their subsystems, which they then integrate into complete brake systems. Some, though not all, rolling stock manufacturers have also at least sometimes used the possibility of purchasing separate subsystems as a negotiation tool for getting better prices and conditions when purchasing complete friction brake systems.[34]

(98) With regard to the supply-side of brake subsystems, the Commission observes that there are market participants that only supply subsystems or even only one type of subsystem. For instance, Atlas Copco supplies air supply units but no other types of subsystems or complete friction brake systems.

(99) As regards bogie brakes in particular, a number of respondents indicated that disc brakes and tread brakes are not substitutable from the customers' perspective, for instance because of brake performance considerations. It was also noted that changing between the types of bogie brakes once a rolling stock vehicle has been designed would require significant redesign effort.[35]

6.6.1.4. Conclusion on product market definition

(100) In light of the above, and considering all evidence available to the Commission, the Commission considers that a distinct market exists for the manufacture and supply of complete pneumatic friction brake systems (as opposed to other types of brakes and hydraulic systems). The market for complete friction brake systems is also likely at least differentiated between electronically controlled and non-electronically controlled systems, and it cannot be excluded that a further differentiation or segmentation could be made according to the type of rolling stock in question (high-speed, mainline and regional, and so on). The exact product market definition can nonetheless be left open as the result of the competitive assessment remains the same under all alternatives.

(101) In addition, the Commission considers that separate markets exist for the subsystems of pneumatic friction brake systems: bogie brakes, brake controls and air-supply units. For brake controls, similar consideration between electronic and non-electronic brake controls apply as for complete pneumatic friction brake systems. For bogie brakes, disc brakes and tread brakes likely constitute separate markets. The exact product market definitions can nonetheless be left open as the result of the competitive assessment remains the same under all alternative approaches.

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33 See, for instance replies to question 97 of Q1 – Questionnaire to rolling stock manufacturers; replies to question 83 of Q2 – Questionnaire to rail operators; and reply to question 107 of Q3 – Questionnaire on friction materials and brake systems.

34 See, for instance replies to questions 32–33, 83 and 85 of Q1 – Questionnaire to rolling stock manufacturers.

35 See, for instance replies to the Commission's request for information to rolling stock manufacturers on 13 July 2016.

6.6.2. Relevant geographic markets

6.6.2.1. Background and previous cases

(102) The Commission has previously considered the markets for train brake systems (and their spare parts) to be EEA-wide or at least EEA-wide, though it has ultimately left the exact market definition open in its most recent decision M.7538 – *Knorr Bremse / Vossloh*.[36]

6.6.2.2. The Notifying Party's position

(103) The Notifying Party submits that the markets are at least EEA-wide. The Notifying Party acknowledges that its brake control system that is usable in the US cannot directly be used in Europe without redesign and homologation, and that the requirements for obtaining safety certificates for Europe are different than those for the Asian markets. In addition, acceptable prices for such products differ, at least between the US and Europe.

6.6.2.3. Results of the market investigation and the Commission's assessment

(104) The responses to the market investigation support the finding of an EEA-wide market. While some trade may take place even globally, a number of rolling stock manufacturers replied that they can either only source from the EEA or that they source from the EEA even if they could in principle source from elsewhere. A number of market participants, though not the majority, considered there to be barriers to trade beyond the EEA, referring for instance to specific European norms.[37]

(105) Therefore, and considering all evidence available to the Commission, the Commission considers that the markets are EEA-wide.

6.6.3. Complete friction brake systems in the EEA

6.6.3.1. Framework for assessment

(106) The Parties' activities in the supply of complete friction brake systems in the EEA only overlap with respect to the potential subsegment of freight cars. This application typically calls for more simple brake solutions compared to passenger trains. However, the Transaction would not give rise to affected markets with respect to this potential subsegment as the Parties' market share remains below 20%, and it is not discussed further in this Decision.[38] The same applies if assessing all complete brake systems together regardless of the type of rolling stock they are destined for.

(107) With respect to complete friction brake systems for passenger applications, the Parties' activities do not overlap in the EEA since Wabtec is currently unable to offer complete electro-pneumatic friction brake systems on which the EEA-demand focuses (see Recital (96)).[39] Nonetheless, the Commission raised doubts in its

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36 M.7538 – *Knorr Bremse / Vossloh*, paragraph 51; M.1629 – *Knorr Bremse / Mannessman*, paragraph 20; and M.818 – *Cardo / Thyssen*, paragraph 24.

37 Replies to questions 69 and 70 of Q1 – Questionnaire to rolling stock manufacturers.

38 In addition, some unengined passenger coaches may also require pneumatic instead of electro-pneumatic brake systems. However, the Parties' combined market share in this potential subsegment remains below 20% in the EEA and Wabtec has not sold any complete friction brake systems or their subsystems to passenger coaches since 2012.

39 It cannot be excluded that some brake systems or spare parts thereof to older applications still using (non-electro) pneumatic brake systems are demanded. However, such follow-up supplies are typically made by the original supplier OEM and are thus not subject to effective competition.

Article 6(1)(c) Decision regarding the elimination of Wabtec as a potential competitor in the EEA market for complete friction brake systems (for non-freight applications). Indeed, elements discovered in the Phase I investigation indicated that Wabtec was a potential entrant into the EEA market.

(108) In accordance with the Commission Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings[40] ('Horizontal Merger Guidelines'), a merger with a potential competitor can have horizontal anti-competitive effects in two situations: (i) when the potential competitor already significantly constrains the behaviour of the firms active in the market or (ii) it is likely to enter the market in a relatively short period of time after which it would constrain the behaviour of firms currently active in the market.[41]

(109) What constitutes an appropriate time period depends on the characteristics and dynamics of the market, as well as on the specific capabilities of the potential entrant.

(110) For the merger to have significant anti-competitive effects, two basic conditions must be fulfilled. First, the potential competitor must already exert a significant constraining influence or there must be a significant likelihood that it would grow into an effective competitive force. Evidence that a potential competitor has plans to enter a market in a significant way could help the Commission reach such a conclusion. Second, there must not be a sufficient number of other potential competitors, which could maintain sufficient competitive pressure after the merger.[42]

(111) In this context the Commission notes that the time periods considered may be different when the potential entrant is one of the merging Parties compared to the situation where a third party entry may be considered as a constraining factor on the merged entity's market power.[43] As such, the two-year period referred to in the Horizontal Merger Guidelines as the normal threshold relates to situations where the Commission has to assess whether entry by a third party would be sufficiently swift and sustained to deter or defeat the exercise of market power by the merged entity.[44]

6.6.3.2. Structure of the market

(112) Knorr-Bremse is a clear market leader for complete friction brake systems in the EEA with Faiveley as the number two in the market. Together, those two market players have a combined market share in all complete brake systems of [80-90]%, and they are even stronger at the high-end of products for high-speed, mainline and regional trains where their combined market shares are [90-100]% (the figures

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40 OJ C 31, 5.2.2004, p. 5.

41 Horizontal Merger Guidelines, paragraph 59.

42 Horizontal Merger Guidelines, paragraph 60.

43 See the Commission Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, OJ C 11, 14.1.2011, p. 1, paragraph 10, footnote 3. See further, for instance *Deutsche Bahn / English Welsh & Scottish Railway Holdings (EWS)* where the final commitments included the carrying out of expansion plans within five years, M.4746 – *Deutsche Bahn / English Welsh & Scottish Railway Holdings (EWS)*, paragraphs 104–114; and *Gaz de France / Suez*, where concerns related to an operator that was *best placed* to enter the market, M.4180 – *Gaz de France / Suez*, particularly paragraphs 391, 400 and 479; and M.1630 – *Air Liquide / BOC*, paragraph 66.

44 Horizontal Merger Guidelines, paragraph 74.

include also sales of subsystems that the rolling stock manufacturers have integrated into complete brake systems). The remainder of the market share is shared between smaller market players. The shares of various suppliers by order intake and type of rolling stock provided by the Notifying Party are listed in Table 1.

Table 1 - Complete friction brake systems and subsystems by order intake, EEA, 2011–2014[45]

Segment	Faiveley	Knorr-Bremse	Wabtec (only sub-systems except for freight cars)	Hanning & Kahl	Dako	Others (e.g. suppliers of sub-systems only)
All types of rolling stock	[10-20]%	[70-80]%	[0-5]%	[0-5]%	[5-10]%	[0-5]%
High-speed trains	[30-40]%	[50-60]%	-	-	-	[5-10]%
Mainline and regional trains	[10-20]%	[80-90]%	[0-5]%	-	[0-5]%	[0-5]%
Passenger coaches	[5-10]%	[70-80]%	[0-5]%	-	[10-20]%	[5-10]%
Locomotives	[10-20]%	[70-80]%	[0-5]%	-	[0-5]%	[0-5]%
LRVs and trams	[10-20]%	[40-50]%	-	[20-30]%	[5-10]%	[0-5]%
Underground trains / metros	[30-40]%	[40-50]%	[5-10]%	-	[10-20]%	[5-10]%
Freight cars	[5-10]%	[60-70]%	[0-5]%	-	[20-30]%	[5-10]%

Source: the Notifying Party

(113) The current market structure is in line with the Notifying Party's argument that only Faiveley and Knorr-Bremse are currently able to supply complete electro-pneumatic brake systems suitable for Europe, and that such systems (in contrast to purely pneumatic systems) are a de facto standard requirement in most European passenger train projects except those for LRVs and trams that use hydraulic systems. Therefore, at present only Faiveley and Knorr-Bremse effectively compete for the new friction brake projects where the brake manufacturer is expected to supply the complete friction brake system and not sub-systems only.

(114) The situation appears broadly similar even when looking at the different potential segments of the market. However, in the potential segment for LRVs and trams, the market structure is different. That is mainly due to the presence of one other significant competitor in that segment, Hanning & Kahl. Hanning & Kahl

45 The markets for complete brake systems are characterised by limited number of significant projects that are delivered over a number of years. Market shares for individual years may therefore fluctuate significantly and would not give a complete picture of the market participants' market positions. The figures provided by the Notifying Party include both orders for complete systems as well as for their subsystems. The Notifying Party claims they cannot make such a differentiation due to the necessary data not being available. However, given that the majority of friction brake systems are sold as complete systems, the figures are likely close to the market shares of complete friction brake systems.

concentrates on hydraulic brake systems, which are used in LRVs and trams (as opposed to other types of rolling stock that typically are equipped with pneumatic brakes).

(115) Historically, the market structure was relatively stable between 2005 and 2011: Faiveley's market share remained at [30-40]% for all of the three periods 2005–2007, 2007–2009 and 2009–2011 (when considering brakes for all types of rolling stock together). However, in 2011–2014 it fell to [10-20]%. According to Faiveley, the drop has been due to the temporary execution problems it had in some of its major projects with the main European rolling stock manufacturers.[46] That being said, market participants have in general not questioned Faiveley's technological capabilities. A market participant explains: *'- - has barely seen any applications for which Faiveley was not able to offer a technologically compliant solution.'*[47]

6.6.3.3. The Notifying Party's position

(116) Wabtec explains that, except for freight cars, it is unable to supply complete friction brake systems in the EEA. In particular, it does not have in its product portfolio the kind of electro-pneumatic brake systems that are needed in the EEA but can only supply (non-electro) pneumatic friction brake systems there. That is in contrast with Faiveley and Knorr-Bremse, both of which have such a product.

(117) Wabtec further submits that there is no significant likelihood that it would become an effective complete friction brake system supplier for non-freight applications in the EU '*in a relatively short period of time'*. Barriers to entry are high and it would take Wabtec at least 4–6 years before it could develop even one of the subsystems needed, namely electro-pneumatic brake control. Wabtec should therefore not be considered as a potential competitor for the supply of complete brake systems for all types of rolling stock in the EEA.

(118) Wabtec clarifies that it is missing three main components (of European standard); in order to be able to offer complete electro-pneumatic brake systems in Europe, it would need (i) an electronic brake control that is a de facto requirement in new European non-freight train projects, (ii) an electronic driver's brake valve and (iii) an oil-free air-supply unit.

(119) However, Wabtec acknowledges that it has been pursuing entry into the European market for complete electro-pneumatic friction brake systems. It has worked on two different projects aiming at developing a complete integrated electronic brake control system that could also be offered in the EEA: […]. Wabtec clarifies that it has no plans or development programmes in place to develop […].

[...]

(120) […] is a development project for a new integrated, compact and modular brake control system that Wabtec initiated at the end of […]. The system's development has been carried out as a […] the product itself was initially intended to be used […], including in Europe (though not specifically targeted there), […].

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[46] See, for instance Faiveley document *'Roadmap to Worldwide Excellence – Activity Report 2013/2014'*, page 3, http://www.faiveleytransport.com/sites/default/files/faiveley_activityreport2014_gb_0.pdf, quoted on 26 August 2018. See also reply to the Commission's request for information of 13.6.2016 addressed to market participant.

[47] Reply to the Commission's request for information of 13.6.2016 addressed to a market participant.

(121) However, engineers at Wabtec's European subsidiary Poli soon realised that […] could not be used in Europe without significant technical redesign: the product was too expensive, too sizeable and too heavy. A comparison of […] size and weight to existing competing products is provided in Table 2.

Table 2 - Comparison of […] with competitors' products

Attribute	Electro-pneumatic brake control units		
	EPAC (Faiveley)	EP Compact (Knorr-Bremse)	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]

Source: the Parties

(122) Size is particularly important in the EEA market as customers increasingly require electro-pneumatic brake control units that can fit in a contained space (for instance, under a seat) so as to not sacrifice profitable passenger space.[48]

(123) Furthermore, maintaining and servicing […] would be more complex and expensive for the train operator than servicing competitors' products: while most of the competitors' products constitute minimum line replaceable units 'MLRUs' that can easily be removed and replaced as a single unit and often by one serviceman, the design and weight of […] requires a more complex disconnection and replacement procedure, and the weight of the product requires more than one person to handle it. This will typically mean that […] needs to be serviced and repaired on the train. That is a disadvantage compared to the typical European approach that is to detach a faulty unit and replace it with another one while the original one is sent for repairs at a specialised shop, thus allowing for the train to return to commercial service quicker and needing less trained personnel at the train depot.

(124) […]

(125) […] was also found to be at a cost disadvantage compared to competitors' available solutions in the EEA. This is the result of […]. To address the lack of cost-competitiveness of […], Wabtec envisaged in […] developing a new version of […],. The […] is essentially a cost reduction exercise, aimed at bringing […] into price range that is acceptable for instance in the European market […]. However, Wabtec submits that its European engineers found that […] was not adequate to make […] suitable for Europe […].

(126) Wabtec further explains that […]. A capital allocation request ('CAR') of […], which included costs related to the European market, was internally rejected. […] the […] project has since continued without developments for Europe.

(127) Therefore, Wabtec submits that […] is not technically or commercially suitable for the EEA market. Moreover, even if Wabtec decided to continue with the development of […], it would take 4 to 6 years to finish. The timetable for […] submitted by Wabtec is included in Table 3.

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48 Parties' reply to the Commission's request for information of 6 June 2016, paragraph 97.

Table 3 - Timetable […]

Steps	Timing	Date of Completion	
		Best case	Median case
1. Feasibility Analysis	[…]	[…]	[…]
2. Preliminary Design	[…]	[…]	[…]
3. Detailed Design	[…]	[…]	[…]
4. Prototype Phase	[…]	[…]	[…]
5. Internal Validation	[…]	[…]	[…]
6. Homologation	[…]	[…]	[…]
	[…]	[…]	[…]
Total	4-6 years		

Source: The Notifying Party

[…]

(128) […] is an alternative project to […] that Wabtec's European arm started to explore […].[…] is designed to be more modular and integrated than […]. […] is also designed as an MLRU, providing the ease of servicing seen in competitors' products but not in […].

(129) […] project is managed by Wabtec's […]. Wabtec's group management accepted a CAR mandating further development of […] in […].

(130) According to Wabtec, […] still requires significant development […]. The development status of […] is presented in Table 4.

Table 4 - Status of the […] project

	Bogie control			Car control		
	pneumatic	electronic	software	pneumatic	electronic	software
1. Feasibility Analysis	[…]	[…]	[…]	[…]	[…]	[…]
2. Preliminary Design	[…]	[…]	[…]	[…]	[…]	[…]
3. Detailed Design	[…]	[…]	[…]	[…]	[…]	[…]
4. Prototype Phase	[…]	[…]	[…]	[…]	[…]	[…]
5. Internal Validation	[…]	[…]	[…]	[…]	[…]	[…]
6. Homologation (external validation and field test)	[…]	[…]	[…]	[…]	[…]	[…]

Source: The Notifying Party

(131) Wabtec submits that the development of […] will take 4 to 6 years to complete from the beginning of the development process. Under the best case scenario, the product […]. The timetable for […] submitted by Wabtec is included in Table 5.

Table 5 - Timetable for […]

Steps	Timing	Date of Completion	
		Best case	Median case
1. Feasibility Analysis	[…]	[…]	[…]
2. Preliminary Design	[…]	[…]	[…]
3. Detailed Design	[…]	[…]	[…]
4. Prototype Phase	[…]	[…]	[…]
5. Internal Validation	[…]	[…]	[…]
6. Homologation	[…]	[…]	[…]
	[…]	[…]	[…]
Total	[…]		

Source: The Notifying Party

Electronic driver's brake valve and air-supply units

(132) Wabtec submits that, even if it had an electronic brake control product, it would still need a European-standard (i) electronic driver's brake valve and (ii) oil-free air-supply unit to be able to offer complete friction brake systems in the EEA. Wabtec puts forward that it does not have development programmes related to those products. According to Wabtec, its development strategy is […]. Moreover, Wabtec's existing EU-compliant pneumatic driver's brake valve could be used to participate in some tenders for underground as well as mainline and regional trains in the EU.

(133) With respect to an electronic driver's brake valve for Europe, Wabtec clarifies that an electronic driver's brake valve is required on approximately 60% of the brake systems supplied to EEA customers. Moreover, even if non-electronic driver's brake valves could be used in some less demanding applications, such as fixed-configuration regional trains, the pneumatic product Wabtec has […] does not meet EEA customers' expectations […].

(134) Wabtec submits that it lacks the necessary […] to develop an electro-pneumatic driver's brake valve for the EEA; […]. Wabtec estimates that the development would cost approximately […] and take approximately 4 to 6 years […]. Therefore, […], the product could be ready and homologated only in […].

(135) Wabtec submits that it would not be able to procure the required electronic driver's brake valve from third parties as only Knorr-Bremse and Faiveley have such products, and they are not willing to supply other brake manufacturers.

(136) As regards air-supply units, Wabtec explains that it currently does not have a suitable product meeting the EU requirements. Wabtec has suitable products, including oil-free air-supply units, meeting the US standards but, according to Wabtec, those products are not suitable for use in Europe because of differences in technical requirements. Wabtec estimates that it would cost EUR […] and take 4 to 6 years for it to develop and homologate an oil-free compressor that meets the European requirements. Therefore, the product would be ready and homologated the earliest […].

(137) Wabtec submits that it could only procure a partial solution from third parties when it comes to air-supply units. In particular, Wabtec could not procure EU-compliant oil-

free compressors as such products for rail applications are not available on the market.

Wabtec considers it needs homologated products

(138) With regard to the development times, Wabtec explains that it is necessary to have a complete and homologated product ready before it can be taken seriously by customers and win any projects. That being said, Wabtec has taken part in a number of tenders in Europe during 2012–2015 that concerned complete brake systems for trains destined to be operated in Europe. Wabtec failed to win any of them. According to Wabtec this was, on many occasions, because it did not have a homologated and service proven system available. At present, Wabtec does not have any projects with any actual or potential customer in the EEA with a view to supplying complete electro-pneumatic brake systems to these customers, or developing such systems with them.

(139) Wabtec notes that it regularly discusses the supply of complete brake systems for Europe with some rolling stock manufacturers, including […]. Wabtec has nonetheless so far failed to convince them to seriously consider it as a complete brake system supplier in the EEA in the short term. […].[49]

6.6.3.4. Faiveley's new generation of brake control products

(140) In the course of the Phase II investigation, Faiveley disclosed to the Commission that it has been developing a new generation of brake control products, which it plans to launch commercially in the Innotrans fair in Germany in September 2016. The new products are known as *Metroflexx* […]. The new generation of brake control products will succeed Faiveley's current products, such as the EPAC product line that was initially developed between 1999 and 2003.

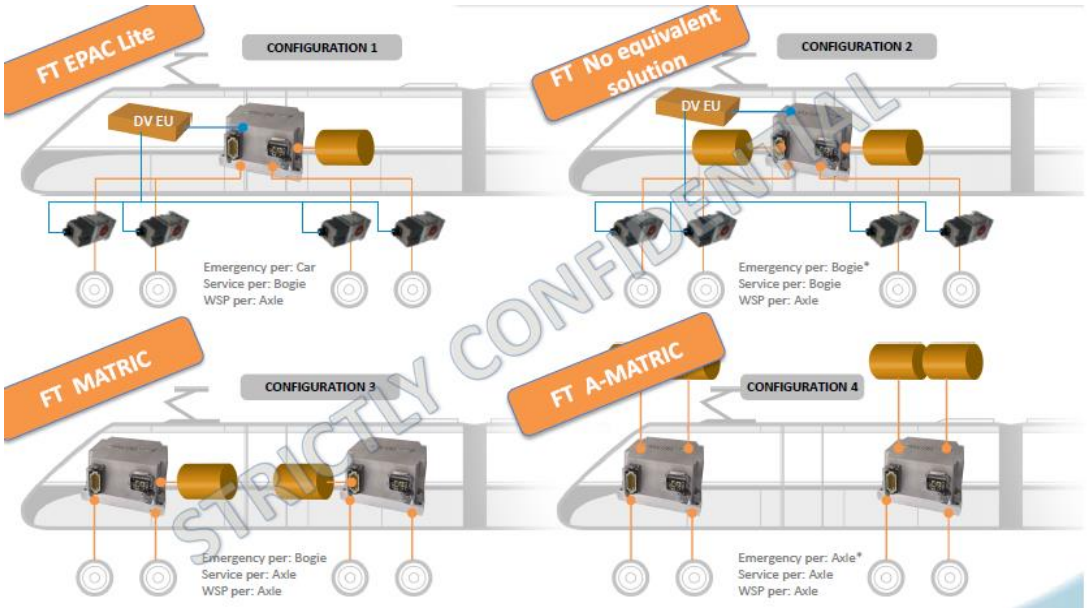
(141) According to Faiveley, the new products offer significant technical advancement compared to their predecessors. […]

(142) Faiveley estimates that the total manufacturing cost for a Metroflexx control unit is […] while the current products it is to succeed cost […] per unit to produce depending on the model.

(143) Faiveley adds that the new products also provide for functionalities that enable new brake configurations that require a smaller number of control units per rolling stock car than before. In practice, in some configurations where Faiveley's and Knorr-Bremse's current products require two to four control units per rolling stock car, the new product will require one or two. That further reduces costs of the brake control units in a set of configurations. For illustration, a comparison of Metroflexx and Faiveley's and Knorr-Bremse's current products are depicted inFigure 1 and Figure 2. The benefits compared to the current products are shown in configurations 2 and 4 in the Figures.

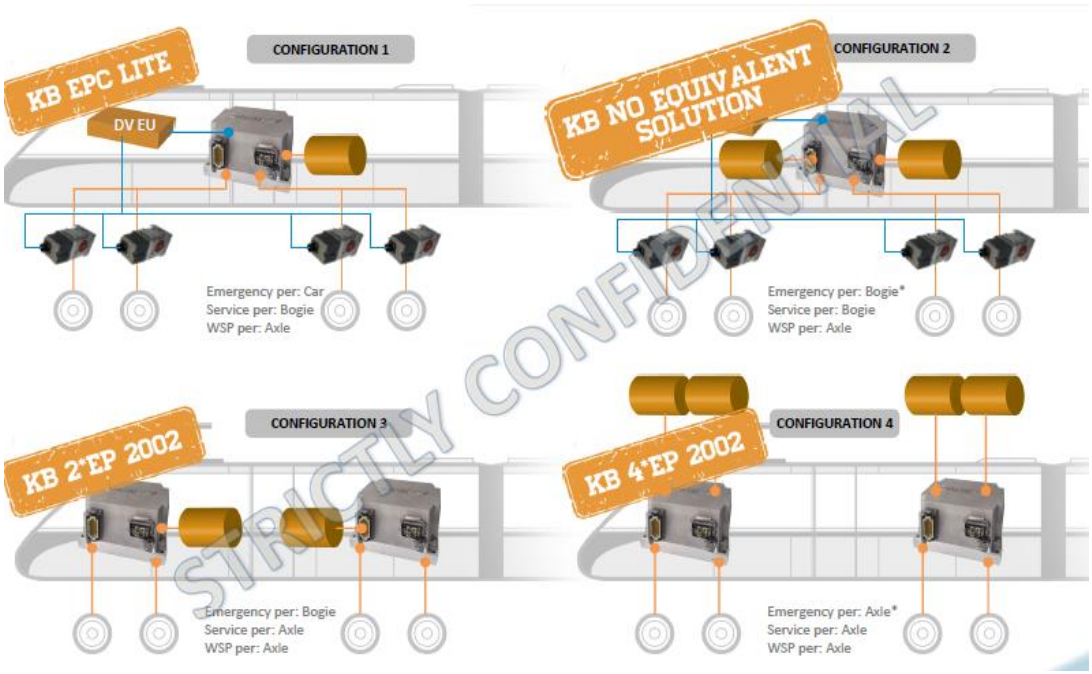
[49] […].

Figure 1 - […] compared to Faiveley's products



Source: Faiveley

Figure 2 - […] compared to Knorr-Bremse's products



Source: Faiveley

(144) The new Faiveley products have been designed as minimum line replaceable units that can easily be removed and replaced. Given their lower weight and smaller dimensions, they are easier to handle during maintenance compared to their predecessors or to competitors' current products.

(145) Finally, Faiveley explains that the products are retro-compatible in the sense that they are interchangeable with limited adaptations with Faiveley's existing brake control units. That will provide train manufacturers a level of comfort when switching to a new product: should problems arise with the new control product, they can easily be replaced with the previous, service-proven products (though the benefits, such as new brake configurations, would be lost).

6.6.3.5. Results of the market investigation and the Commission's assessment

Wabtec is missing an electro-pneumatic brake control system in the EEA

(146) The Commission observes that Wabtec's internal documents support its submission that it is not at present capable of supplying competitive complete electro-pneumatic friction brake systems for non-freight trains to be used in Europe. In light of the internal documents, the key subsystem missing from Wabtec's portfolio is the electronic brake control that Wabtec has been developing in its […] projects.[50]

(147) Nonetheless, the Notifying Party has claimed that even if it had the electro-pneumatic brake control, it could not offer complete electro-pneumatic friction brake systems in the EEA as it would still miss two other important components: (i) an EU-compliant electronic driver's brake valve and (ii) an EU-compliant oil-free air-supply unit. The Notifying Party has submitted it has no on-going projects to develop those subsystems and that it does not even have EU-compliant equipment to test an electronic driver's brake valve during development.

(148) For the reasons set out in recitals (149) to (152), the Commission has doubts about the Notifying Party's arguments related to electronic driver's brake valve's and air-supply units.

(149) First, it seems highly unusual for a company to spend time and money developing one missing part of a complete brake system but to have no concrete plans or projects to develop the other missing parts.

(150) Second, Wabtec's internal documents suggest that Wabtec […][51] […][52] While Wabtec has explained that these discussions only relate to the pneumatic parts of the driver's brake valve, the Commission considers that […] with respect to an electronic driver's brake valve within Wabtec. It is nonetheless unclear how advanced that development is.

(151) Third, replies to the market investigation purport that an electronic driver's brake valve may not even be absolutely necessary for a complete electro-pneumatic friction brake system. In particular, market respondents have indicated that this is not necessarily required as there are other technical means to operate the brakes or that many solutions exist in the market.[53]

(152) Fourth, while the results of the market investigation support the view that oil-free air-supply units have indeed become the de facto standard in new European rolling stock projects,[54] they do not support the Notifying Party's submission that suitable oil-free air-supply units would not be available from third parties for train applications. Instead, the results show that such systems are currently available at least from Atlas

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50 See, for instance slide 4 of document […], DocID351-17179; and slides 15–17 of document […], DocID00123-9.

51 An e-mail from […], DocID351-18791.

52 An e-mail from […], DocID351-18791.

53 Replies to question 35 of Q1 – Questionnaire to rolling stock manufacturers and replies to question 18 of Q4 – Questionnaire to manufacturers of brake systems, subsystems and components.

54 See confirmed minutes of a call with a market participant on 20 June 2016 and replies to question 24 of Q4 – Questionnaire to manufacturers of brake systems, subsystems and components. See also, for instance replies to question 98 of Q1 – Questionnaire to rolling stock manufacturers; replies to question 84 of Q2 – Questionnaire to train operators; and reply to question 108 of Q3 – Questionnaire on friction materials and brake systems.

Copco that is also currently supplying them to the train industry,[55] and that another supplier is in the process of expanding its product portfolio to cover suitable oil-free products.[56]

(153) Therefore, the Commission considers that there is some evidence that Wabtec could produce a complete friction brake system suited for the EEA as soon as it has a suitable electro-pneumatic brake control system available. However, it is not necessary to conclude on this question as the outcome of the competitive assessment does not depend on it.

It is likely that […] *would not be competitive in the EEA*

(154) Wabtec has been developing a new integrated electro-pneumatic brake control system known as […]. Wabtec nonetheless submits that the […] is not suited for the European market and would require significant redesigning before it would technically and commercially be suitable and viable in Europe.

(155) The Commission notes that […] has been developed in a US-led global project. Wabtec's internal documents suggest that the specific requirements of the European market […].[57]

(156) For the reasons set out in recitals (157) to (162), the Commission considers that […] is not technically and commercially suited for the European market and that it is unlikely that it could be used to build a competitive complete friction brake system for the EEA at present.

(157) First, […] than competitors' EEA products. […] could not, for instance be […]. A market participant describes: '*[t]he overall design of […] platform is in certain respects comparable to […] although not yet at the same level considering functionalities and packaging'*.[58] Wabtec's internal documents confirm that Wabtec internally considers such physical characteristics to be serious shortcomings for […] from a European perspective.[59]

(158) Second, […] maintenance costs are likely to be higher than those for competitors' products. Unlike for instance Faiveley's products, […] is not designed as an MLRU but removing and replacing it requires considerably more work if that is to be done instead of troubleshooting and servicing the unit on the train. Moreover, the weight of a […] unit it makes its handling during maintenance and repairs more difficult than handling the significantly lighter competitors' products (see Table 2). These reasons are likely to result in […] requiring longer maintenance brakes for the rolling stock that will be out of commercial service during such times.

(159) Wabtec's internal documents support the view that […] is inferior in terms of […], suggesting that Wabtec internally considers […] to be a weakness.[60] The

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55 See confirmed minutes of a call with a market participant on 20 June 2016. See, for instance replies to questions 94 and 95 of Q1 – Questionnaire to rolling stock manufacturers; replies to questions 105 and 118 of Q3 – Questionnaire on friction materials and brake systems; and replies to questions 25, 28 and 32 of Q4 – Questionnaire to manufacturers of brake systems, subsystems and components.

56 See, for instance confirmed minutes of a call with a market participant on 28.4.2016.

57 See, for instance an e-mail from […], DocID350-45.

58 Confirmed minutes of a phone call with a market participant on 2 June 2016.

59 See, for instance e-mails from […], DocID351-5162. See also an e-mail from […], DocID361-224.

60 See, for instance an e-mail from […], DocID351-5162.

Commission also understands train operators to be considerate of operating and life-cycle costs when procuring new rolling stock.[61]

(160) Third, […] is significantly more costly to produce than competitors' products. Wabtec has in its internal documents estimated that […] compared to […] products in a comparable set-up and considered that it would need to […].[62] Information from Faiveley's internal documents support the view that […].[63] Wabtec has considered reducing the costs of […].

(161) Fourth, the evidence available to the Commission suggest that Wabtec is internally doubtful of […] being suitable for or competitive in the European market. Doubts have been cast internally in senior management about the weight, size and cost of […], and it has also been suggested that it would eventually arrive too late.[64]

(162) Fifth, […]. Therefore, while some market participants have considered it likely that Wabtec might at some point offer a complete electro-pneumatic friction brake system in the EEA and have in general welcomed the idea,[65] they may not have been aware of the actual status and situation of […]. The Commission thus considers that, in the absence of evidence to the contrary, it cannot be excluded that Wabtec has presented […] which may have affected market participants' views about […].

(163) Therefore, and in the light of all evidence available to it, the Commission considers it unlikely that Wabtec could effectively enter the EEA market for complete friction brake systems with […] as it stands at present.

(164) Wabtec has envisaged a development programme to address […]. According to Wabtec, it would take it at least […] to complete that project and the project would be finalised in […].[…] would thus arrive […] Wabtec's alternative brake control product (see Table 5).

(165) Further, the Commission notes that even if Wabtec addressed the cost side of […], that would not address all the technical and life-cycle cost deficiences of […]. It is thus highly doubtful that […] would be competitive in the EEA without further technical redesign.

Wabtec's alternative project: […]

(166) […] is Wabtec's alternative project to overcome lack of an electro-pneumatic brake control system in the EEA. Wabtec's internal documents suggest that it was originally intendend as […].[66]

(167) The […] project is managed by Wabtec's European arm, initially without […]. However, Wabtec accepted a CAR for the development of […] in […]. The CAR

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61 Confirmed minutes of a call with a train operator 21 June 2016.

62 See, for instance document […], slide 6, Annex 6.2 – 0.28 to the Form CO; an e-mail from […], Annex 6.2 – 064 to the Form CO; and an e-mail from […], DocID351-19121.

63 See, for instance Faiveley presentation *'New Generation of Brake Control, June* 2016', slide 5, DocId1404-06256. See also Faiveley's reply to the Commission's request for information of 27 June 2016.

64 See, for instance an e-mail from […], DocID351-224 and an e-mail from […], Annex 6.2 – 064 to the Form CO.

65 See, for instance replies to questions 108, 158 and 159 of Q1 – Questionnaire to rolling stock manufacturers; and replies to question 93 of Q2 – Questionnaire to rolling stock operators.

66 See, for instance an e-mail from [...], DocID351-8799.

was accepted to facilitate possible remedies discussions with the Commission if the latter maintained competition concerns related to complete friction brake systems.

(168) According to Wabtec, it is aiming at […] in line with competitors' products. Moreover, […] seen in competitors' products but not […]. It would thus probably not be significantly inferior to the competitors' present products in terms of cost.

(169) The Commission notes that […] is in the early stages of development. […]. However, […]. The product thus still requires significant design effort as well as all testing and homologation, which has not begun and could not begin in the present state of development.

(170) The evidence available to the Commission does not allow it to call the project timetable submitted by Wabtec (see Table 5) into question. Wabtec's internal documents state, for instance that […][67]. The CAR funding […] further development was approved internally in Wabtec […]. Therefore, even if […], it appears that the product could not be fully completed and homologated until […].[68]

(171) Concerning the time it would take Wabtec to enter the market, Wabtec has submitted that it could only be successful once it has a fully completed and homologated brake system to offer. However, a number of market participants responding to the market investigation disagree with that statement. Instead, a number of major rolling stock manufacturers replied that they would consider a brake system that is not fully homologated at the moment of placing the bids, given that there is a time lag between tendering and awarding the contract and the actual implementation of the project. Similarly, some train operators, including major ones, also replied that they would consider a bid even if the brake system was not fully completed and homologated at the moment of placing the bids for new rolling stock.[69]

Timeliness of an entry by a potential entrant

(172) Concerning the time within which an entry by Wabtec would need to take place for it to be relevant in the merger assessment, the Commission recalls that the time periods considered may be different when the potential entrant is one of the merging parties compared to the situation where a third party entry may be considered as a constraining factor on the merged entity's market power.[70] Furthermore, what constitutes an appropriate time period depends on the characteristics and the dynamics of the market.[71]

(173) In the present case, the Notifying Party has submitted that the barriers to entry are high. That submission has been supported in the market investigation by market participants, citing for instance necessary R&D investments and homologation requirements.[72] Rolling stock manufacturers and train operators are not aware of any

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67 Slide 10 of document […], DocID351-18143.

68 […], see Table 5.

69 Replies to question 101 of Q1 – Questionnaire to rolling stock manufacturers, and replies to question 87 of Q2 – Questionnaire to rail operators.

70 See, for instance the Commission Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, OJ C 11, 14.1.2011, p. 1, paragraph 10, footnote 3.

71 Horizontal Merger Guidelines, paragraph 74.

72 See, for instance replies to question 99 of Q1 – Questionnaire to rolling stock manufacturers; and replies to question 85 of Q2 – Questionnaire to rail operators.

entry into the EEA market for electro-pneumatic friction brake systems during 2011-2016 (except for one rolling stock manufacturer naming Wabtec).[73]

(174) It further appears that development periods for new products in the market are long. That finding is supported by the fact that Wabtec considers its development efforts to take significant time despite the fact that it has been pursuing an entry already for a number of years. It is also supported by the development times Faiveley has faced with its brake control products.

(175) In addition, product life in the market spans a considerable number of years. For instance, Faiveley's new product line is intended to replace a previous product line whose first product (EPAC) was introduced in 2004; that is 12 years ago. The product life time is thus considerably longer than, for instance, in fast-moving consumer goods.

(176) In these conditions, the Commission considers it appropriate not to limit its assessment to a few years following the Transaction. Therefore, even an entry by Wabtec by 2019–2020 is, in principle, relevant in the context of the markets at issue.

Technological development in the market is dynamic

(177) The Commission recalls that, for the merger to have significant anti-competitive effects the potential competitor must either already exert a significant constraining influence or there must be a significant likelihood that it would grow into an effective competitive force.[74]

(178) When opening the proceedings and adopting the Article 6(1)(c) Decision, the Commission was under the impression that the market for complete friction brake systems was technologically mature and it was only aware of limited incremental technical developments introduced in the market. The question thus appeared to be whether Wabtec could reach the technological and commercial level existing in the market at present.

(179) However, during the Phase II investigation, Faiveley disclosed to the Commission that it has been developing a new product line to replace its present electro-pneumatic brake control solutions. The first products to be launched are known as *Metroflexx* and […].

(180) The Commission notes that Faiveley's new product line appears to include considerable technical innovation compared to its existing products, for instance in terms of […] the first such major innovation from Faiveley since it launched its current product line that was initially developed […]. The new product could also be produced at significantly lower costs than Faiveley's current products. With a targeted unit cost of […]. In addition, in some configurations, fewer control units would be required compared to the present products.

(181) The Commission notes that the production cost of Faiveley's new products would be significantly lower than that of […].

(182) The Commission further notes that the new products of Faiveley are significantly more advanced in their development process than any of the products Wabtec is developing. Faiveley has already indicatively offered the new products for sale, and

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[73] Replies to question 100 of Q1 – Questionnaire to rolling stock manufacturers; and replies to question 84 of Q2 – Questionnaire to rail operators.

[74] Horizontal Merger Guidelines, paragraph 60.

it expects to launch the product commercially at the Innotrans fair in Berlin in September 2016.[75]

(183) Faiveley has presented the new product to a number of rolling stock manufacturers, either in 2016 or in 2015 when the product was still in an earlier stage of development and was known under the name […]. The rolling stock manufacturers have generally expressed positive views about the new product even if they have been cautious, pending further information on the product. Retro-compatibility of the new product was viewed positively and as a potential way to facilitate faster market entry – […]. [76]

(184) The Commission considers that the introduction of such a new product by Faiveley shows that the market is experiencing technological development that is not only incremental. Such technological and commercial development is likely to make an entry by new entrants, such as Wabtec, even more challenging. It also appears more likely than not that […] (as it is now developed) would be rendered outdated or at least significantly disadvantaged even before being launched. A product such as […] would also not enjoy any benefits relating to retro-compatibility in the development and product launch phase.

(185) The Commission observes that Faiveley's new products target […]; that is the large but technically less demanding end of the rolling stock markets. However, the Commission notes that […] constitute a significant share if not the majority of the total market. They are also more likely entry points to the market – including for Wabtec – than, for instance, the technically more demanding high-speed segment. The importance of Faiveley's new products for the assessment cannot thus be brought into question because they do not at this stage address all possible segments of the market.

(186) While it cannot be excluded that Wabtec could eventually develop a product that is on par with Faiveley's […] Metroflexx products – Wabtec has significant financial and R&D resources – it is unclear in what time it could achieve that. Having already established that, given the particular characteristics of this market, an entry by Wabtec by 2019–2020 with a product like […] is, in principle, relevant in the context of the markets at issue, the Commission nonetheless considers it apparent that Wabtec could likely not develop a product on par with Faiveley's […] and Metroflexx products in the same time frame. Given that uncertainty, it can also not be excluded that Faiveley or the clear market leader Knorr-Bremse could by the time Wabtec achieves the level of […] Metroflexx have already moved a step further still in their technical and commercial offering.

Wabtec is currently not exercising significant constraints on the market

(187) The Commission recalls that a merger with a potential competitor can also have anti-competitive affects if the potential competitor already significantly constrains the behaviour of the firms active in the market.[77]

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75 See, for instance Faiveley's presentation '*Faiveley Transport – New Generation of Brake Control*', slide 16. See also Faiveley's response to the Commission's request for information of 27 June 2016 and documentary annexes to it.

76 See rolling stock manufacturers' replies to the Commission's request for information on Faiveley's new products. See also an e-mail from […].

77 Horizontal Merger Guidelines, paragraph 59; see also paragraph 60.

(188) To this effect, the Commission notes that Wabtec has, in the past, participated in tenders, though not winning any, even if it has not had an EEA-suited complete friction brake system available. The tenders in which Wabtec has participated and the reason why it considers it has been refused are included in Table 6.

Table 6 - Tenders for complete brake systems (transit) in the EEA in which Wabtec has participated

Year	Country	Car builder	Type of rolling stock	Project name	Reason for refusing Wabtec's bid
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]

Source: the Notifying Party

(189) The Commission notes that while it cannot, in principle, be excluded that participation by Wabtec in those tenders could have had a constraining effect on the suppliers present in the market for complete friction brake systems in the EEA, the Commission has not found evidence showing any significant effect. To the contrary, a major market participant explained during the market investigation that *'Wabtec's attempted entry into complete brake systems in the EEA so far has had no effects on price or on the behaviour or Faiveley or Knorr-Bremse'*.[78]

(190) The Commission has also investigated Faiveley's internal documentation to determine whether Faiveley's decision to develop […] Metroflexx has been influenced by Wabtec's activities or whether the new products have been intended to frustrate Wabtec's entry plans. The Commission has not found any such evidence. Rather, the evidence shows that Faiveley's development of new products has been […].[79]

[78] Confirmed minutes of a call with a market participant on 2 June 2016.

[79] See, for instance Faiveley document […], page 66, DocID1363-262; and Faiveley document […], slide 33, DocID1296-21.

Sub-systems exert competitive pressure on complete brake systems

(191) The Commission recalls that, for a merger with a potential competitor to have anti-competitive effects, there must not be a sufficient number of other potential competitors, which could maintain sufficient competitive pressure after the merger.[80]

(192) The only significant suppliers of complete friction brake systems currently present in the EEA appear to be Faiveley and Knorr-Bremse. While some market participants considered that there could be entrants other than Wabtec (in addition to Faiveley and Knorr-Bremse), none of the respondents could name any entrants that would be certain to enter and would have technologies independent of Knorr-Bremse and Faiveley.[81] Similarly, while some rolling stock manufacturers considered that they would seek new competitive opportunities, none of them named any market participant they could sponsor to enter the market.[82] Furthermore, the majority of rolling stock manufacturers did not consider they could self-supply complete friction brake systems.[83]

(193) However, the Commission recalls that the majority of rolling stock manufacturers replied in the market investigation that they purchase both complete friction brake systems as well as their subsystems, which they then integrate into complete brake systems. Some, though not all, rolling stock manufacturers have also at least sometimes used the possibility of purchasing separate subsystems as a negotiation tool for getting better prices and conditions when purchasing complete friction brake systems.[84]

(194) Therefore, it appears likely that some level of competitive constraint is derived from the possibility of integrating complete friction brake systems by the rolling stock manufacturers, in particular from combining mechanical bogie brakes and air supply units purchased from third parties with the rolling stock manufacturer's electronics. This is evidenced by the fact that Dako has supplied brake sub-systems for trains in the EEA to Stadler and Siemens for LRV and underground applications respectively.[85] Similarly, Wabtec supplied all the elements of a complete electro-pneumatic friction brake system except for the electronics […].[86]

(195) The Commission notes that air-supply units and mechanical bogie brakes are available from subsystem suppliers independent of Faiveley and Knorr-Bremse. For instance, Atlas Copco[87] supplies air-supply units while Dako supplies mechanical

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80 Horizontal Merger Guidelines, paragraph 60.

81 See, for instance replies to question 109 of Q1 – Questionnaire to rolling stock manufacturers; replies to question 94 of Q2 – Questionnaire to rail operators. See also replies to the Commission's requests for information of 21 June 2016.

82 Replies to question 103 of Q1 – Questionnaire to rolling stock manufacturers.

83 Replies to question 104 of Q1 – Questionnaire to rolling stock manufacturers.

84 See, for instance replies to questions 32–33, 83 and 85 of Q1 – Questionnaire to rolling stock manufacturers.

85 See http://www.dako-cz.cz/news-en/dako-cz-to-supply-brake-systems-for-stadler-flirt-iii and http://www.dako-cz.cz/news-en/cooperation-contract-with-siemens-company.

86 Confirmed minutes of a call with a market participant on 3 June 2016.

87 See confirmed minutes of a call with a market participant on 20 June 2016. See also, for instance replies to questions 94 and 95 of Q1 – Questionnaire to rolling stock manufacturers; replies to questions 105 and 118 of Q3 – Questionnaire on friction materials and brake systems; and replies to questions 25, 28 and 32 of Q4 – Questionnaire to manufacturers of brake systems, subsystems and components.

bogie brakes. The supply of air-supply units is discussed more in detail in Section 6.6.4.4 and the supply of mechanical bogie brakes is considered in more detail in Section 6.6.4.2.

6.6.3.6. Conclusion on complete friction brake systems

(196) When initiating the proceedings and adopting the Article 6(1)(c) Decision, the Commission was concerned that the Transaction was essentially a three-to-two merger with Wabtec being a potential entrant into the market where only Faiveley and Knorr-Bremse were present.

(197) As explained in the Section 6.6.3.5, the Phase II investigation has cast doubts over Wabtec's ability to make an effective entry within a relatively short period of time[88] into the market which is experiencing dynamic technological development that is not only incremental.

(198) In the market investigation, some market participants have expressed concerns related to the Transaction, noting for instance that *'reduced competition, back to 2 players only'*, *'less competition, increased prices'*[89] and *'the only full scope alternative is Knorr-Bremse - - we do not consider this adequate alternative'*.[90] Nonetheless, some market participants have in contrast considered that an entry by Wabtec would not make a significant impact on the market or that the Transaction would help make Faiveley a more efficient competitor against the incumbent Knorr-Bremse. They have noted, for instance that *' - - believes that Faiveley could become a stronger competitor of Knorr-Bremse after a merger with Wabtec, due to its improved financial competitiveness - - believes that Faiveley together with Wabtec could force Knorr-Bremse to lower its prices'* and that *'[t]he merger could potentially bring additional financing for R&D'*.[91]

(199) Therefore, on balance and in light of the evidence available to it, the Commission considers that in this particular case, the evidence available is not sufficient to establish to the requisite standard that Wabtec would already have significant constraining influence on Faiveley and Knorr-Bremse in the supply of complete friction brake systems in the EEA or that there would be a significant likelihood that Wabtec would grow into an effective competitive force following an entry into the market in a relatively short period of time.

6.6.4. Brake subsystems

6.6.4.1. Introduction

(200) The subsystems of a complete pneumatic or electro-pneumatic brake system are (i) mechanical brakes, (ii) brake controls and (iii) air-supply units.

(201) Train manufacturers may choose to purchase the subsystems separately and integrate them into complete brake systems as part of their procurement decisions ('make' instead of 'buy'). The competitive pressure that possibility exerts on the supply of complete brake systems has been discussed in Section 6.6.3.5. In addition to that

88 Relatively short period of time must be understood within the context of the specific industry.

89 Replies to question 159 of Q1 – Questionnaire to rolling stock manufacturers.

90 Reply question 95 of Q1 – Questionnaire to rolling stock manufacturers.

91 See, for instance confirmed minutes of calls with market participants on 2 June 2016 and 3 June 2016. See also replies to question 133 of Q2 – Questionnaire to rolling stock operators.

pressure, the Commission has assessed the effects of the Transaction on competition in the independent supply of such subsystems.

6.6.4.2. Mechanical brakes

(202) There are two different types of pneumatic mechanical brakes: (i) disc brakes that use brake pads and brake discs[92], and (ii) tread brakes[93] that use brake shoes/blocks. The Parties' activities in the EEA only overlap in the supply of disc brakes.

(203) According to the market share estimates provided by the Parties, the Transaction will not give rise to affected markets with respect to pneumatic mechanical bogie brakes if disc and tread brakes are considered together as their combined market share remains below 20%. However, should disc brakes be considered separately, the merged entity would achieve a combined market share of [30-40]% (Wabtec: [10-20]%, Faiveley [10-20]%).[94] According to the Notifying Parties, competitors include at least Knorr-Bremse and Dako.

(204) The Notifying Party submits that the Transaction would not give rise to competition concerns. It further clarifies that Wabtec's sale of mechanical bogie brakes has been on the decline, dropping from EUR […] million in 2012 to EUR […] million in 2013 and EUR […] million in 2014. All of Wabtec's orders pertain to repeat orders of earlier projects and it has not won completely new orders since 2013 (except for limited orders for special vehicles such as service cars). […] train platform for which Wabtec has enjoyed repeat orders has been discontinued […].

(205) The Commission notes that the merged entity's market share will remain modest and it will not become an undisputed market leader.

(206) As to the decrease in Wabtec's sales, such decrease could demonstrate volatility in sales in a market where a relatively small number of deals are reached in a given year. Such volatility is visible, for instance in Faiveley's sales that were EUR […] million in […], increased to EUR […] million in […] only to drop again to EUR […] in […]. Moreover, Wabtec itself achieved only EUR […] million sales in 2011 and had thus enjoyed increased sales between 2011 and 2012.

(207) The decrease in Wabtec's sales referred to by the Notifying Party is thus not necessarily an indication of a permanent decrease in Wabtec's competitiveness or role as a supplier. The Commission therefore does not agree with the Notifying Party that Wabtec's (or the merged entity's) market share would necessarily overstate its role in the market.

(208) After the Transaction, the merged entity would continue to meet competition from at least two suppliers of mechanical disc brakes: Dako and Knorr-Bremse.[95]

(209) During the market investigation, some market participants expressed doubts about Dako's technical capabilities when it comes to modern features of mechanical bogie

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92 A disc brake consists of a brake disc and a brake caliper unit, which typically combines a brake cylinder, brake rigging and a slack adjuster. A disc brake causes the brake action by pressing a friction material (called 'brake pad') against the brake disc that is mounted either on an axle of the bogie or on a wheel.

93 A tread brake typically consists of a brake cylinder, brake rigging, a slack adjuster and a brake shoe holder. A tread brake causes the brake action by pressing a friction material (called 'brake shoe' or 'brake block') directly against the surface of a wheel tread.

94 Market shares based on the Parties' average annual sales 2011–2014.

95 See, for instance replies to question 95 of Q1 – Questionnaire to rolling stock manufacturers.

brakes in passenger applications such as the compact size of the product.[96] Nonetheless, the results of the market investigation show that other market participants consider Dako a suitable supplier for most applications, and it seems that Dako is both actively developing its products and has actual on-going delivery and development relationships with EEA train manufacturers concerning various types of passenger train applications.[97]

(210) On balance and in light of the evidence available to it, the Commission thus considers that there are no significant reasons to call into question Dako's role as a supplier of and competitor in mechanical disc brakes.

(211) The results of the market investigation were divided: Many market participants were concerned; those market participants that explained their concerns were generally concerned about the reduction in the number of suppliers and considered the Transaction to thus result in less competition. On the other hand, it was explained that the Transaction would either not bring about any significant change or that it would create a competitor that is better able to compete against the overall brake system incumbent Knorr-Bremse.[98] A majority of rolling stock manufacturers also considered that they would have adequate alternative suppliers after the Transaction even if the merged entity stopped supplying them or only agreed to supply at inferior terms.[99]

(212) Therefore, on balance and in light of the evidence available to it, the Commission considers that the Transaction is unlikely to give rise to a significant impediment to effective competition in the EEA with respect to mechanical bogie brakes supplied independently as brake subsystems and not as parts of complete friction brake systems.

6.6.4.3. Brake controls

(213) There are four different kinds of brake controls for friction brakes: (i) electro-pneumatic, (ii) pneumatic, (iii) electro-hydraulic and (iv) hydraulic.

(214) As discussed in Section 6.5.3, hydraulic friction brake systems and brake controls are mainly used in trams while other types of rolling stock use pneumatic systems. Further, purely pneumatic brake controls are no longer suited for new rolling stock projects in Europe but train manufacturers require electro-pneumatic friction brake systems and brake controls. To the extent pneumatic brake controls are still supplied, the Transaction would not give rise to affected markets with respect to them as the Parties' combined market share remains below 20%.[100]

(215) There is no current overlap with respect to electro-pneumatic brake controls between the Parties as Wabtec does not and cannot currently supply them in the EEA.

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96 See, for instance a rolling stock manufacturer's reply to the Commission's request for information of 13 July 2016.

97 See, for instance replies to question 94 of Q1 – Questionnaire to rolling stock manufacturers; and replies of rolling stock manufacturers to the Commission's questions of 21 June 2016 and 13 July 2016. See also http://www.dako-cz.cz/news-en/dako-cz-to-supply-brake-systems-for-stadler-flirt-iii and http://www.dako-cz.cz/news-en/cooperation-contract-with-siemens-company.

98 See, for instance replies to questions 158 and 160 of Q1 – Questionnaire to rolling stock manufacturers; replies to question 133 of Q2 – Questionnaire to rolling stock operators; and replies to the Commission's requests for information on 13 July 2016.

99 Replies to question 95 of Q1 – Questionnaire to rolling stock manufacturers.

100 The Notifying Party's estimate for 2011–2014.

However, the Commission has investigated whether Wabtec could be a potential entrant into the market and whether the Transaction is likely to bring about competition concerns because of that independent entry not materialising. Questions and evidence relating to this matter have been discussed in detail in Section 6.6.3. It suffices to note here that the same considerations apply to the supply of electro-pneumatic brake controls independently of complete friction brake systems.

(216) With respect to hydraulic brake controls, Wabtec is not on the EEA market at present. One market participant has submitted that Wabtec might be in a position to enter the EEA market for hydraulic brake systems; however Wabtec denies this and the Commission's investigation did not reveal any plans by Wabtec to make such an entry. Moreover, the market structure in the potential market for hydraulic / electro-hydraulic brake controls differs from the market for electro-pneumatic brake systems and their sub-systems, for instance due to the notable market position of Hanning & Kahl, which only produces hydraulic brake systems.

(217) Therefore, on balance and in light of the evidence available to it, the Commission considers that the Transaction is unlikely to give rise to significant impediment to effective competition in the EEA with respect to brake controls supplied independently as brake subsystems and not as parts of complete friction brake systems.

6.6.4.4. Air-supply units

(218) The results of the market investigation support the Notifying Party's submission that oil-free air-supply units have become the de facto market standard in rolling stock applications in the EEA even if occasional but decreasing opportunities with oil-injected compressors may still appear.[101]

(219) The Parties' activities in the EEA do not overlap in the supply of oil-free air-supply units as Wabtec does not supply such units in the EEA and does not currently have a product that would meet technical requirements in the EEA. Nonetheless, the Commission has investigated whether Wabtec could have been a potential entrant into the market and whether the Transaction is likely to bring about competition concerns resulting from that independent entry not materialising. The investigation did not reveal any plans by Wabtec to make such an entry in the near future.

(220) Moreover, even if Wabtec were be in a position to make an entry into the market, alternative suppliers for air-supply units exist in the market, including those independent of brake manufacturers. Among the independent competitors, at least Atlas Copco is able to supply not only oil-injected but also oil-free compressors; moreover, another supplier is also in the process of expanding its product portfolio to cover suitable oil-free products.[102]

(221) Therefore, on balance and in light of the evidence available to it, the Commission considers that the Transaction is unlikely to give rise to significant impediment to effective competition in the EEA with respect to air-supply units supplied

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101 See confirmed minutes of a call with a market participant on 20 June 2016 and replies to question 24 of Q4 – Questionnaire to manufacturers of brake systems, subsystems and components. See also, for instance replies to question 98 of Q1 – Questionnaire to rolling stock manufacturers; replies to question 84 of Q2 – Questionnaire to train operators; and reply to question 108 of Questionnaire on friction materials and brake systems.

102 See, for instance confirmed minutes of calls with market participants on 28.4.2016 and 20.6.2016.

independently as brake subsystems and not as part of a complete friction brake system.

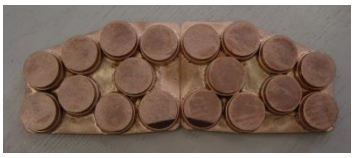
6.7. Friction materials

6.7.1. Relevant product markets

6.7.1.1. Background and previous cases

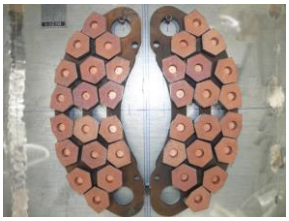
(222) Friction material is an essential part of the brake which converts the kinetic energy of a moving rail vehicle to thermal energy (heat) by friction. The conversion is done by pressing the friction material to a foundation brake (typically a block brake for freight trains and a disc brake for transit trains) causing the train to slow down or to stop.

(223) Pads are friction materials used in disc brakes, in which the friction is applied to a brake disc attached to the axle or wheel. Pads can be rigid or flexible. Flexible pads comprise a carrier plate on which individual friction elements ('pucks') are mounted. These different types of pads are illustrated below:



A classic, 'rigid' sintered pad

Wabtec's BMBS flexible pad



Knorr-Bremse's flexible ISOBAR

Federal Mogul's flexible SinterFlex

(224) Blocks (or shoes) are the friction material used in tread brakes, in which the friction is applied directly to the tread of the wheel. Example of blocks are shown below:

(225) In its decisional practice, the Commission has considered separate markets for friction material (i) according to foundation brake (that is disc brake and tread/block brake), with friction material for disc brakes referred to as pads, while friction material for tread brakes are blocks or shoes; (ii) by ingredient, namely organic,[103]

[103] Organic friction material consists of a mixture of up to 20 different materials in a synthetic resin bond.

sintered[104] and cast-iron[105]; as well as by (iii) the OEM and IAM sales. In all these instances, the Commission eventually left the exact market definition open.[106]

(226) Sintered pads could be further segmented into (i) 'rigid pads', made by welding sintered material directly on a carrier plate, so that the complete pad forms a rigid product; and (ii) 'flexible pads', an upgraded type of pad in which elements of friction materials ('pucks') are mounted independently on a carrier plate. This allows the pucks to remain flexible vis-à-vis the carrier plate and ultimately results in a better braking performance and reduced wear.[107] In addition, when the pucks are worn, they can be replaced without replacing the carrier plate, thereby lowering the life cycle cost of the product.[108] The Commission has not previously considered the potential further segmentation of sintered pads.

6.7.1.2. The Notifying Party's position

(227) The Notifying Party submits that the distinction between OEM and IAM sales is of limited relevance, given the small volumes sold on the OEM market.[109] In addition, the Notifying Party submits that there is to a large extent substitutability between organic and sintered material for trains running at a speed of up to 300 km/hour. Notwithstanding these claims, the Notifying Party generally concurs with the Commission's precedents as regards the possible market segmentations and proposes to assess the Transaction in relation to the following relevant segments: (i) the OEM market for organic pads; (ii) the IAM market for organic pads; (iii) the OEM market for sintered pads; (iv) the IAM market for sintered pads; (v) the OEM market for organic blocks; (vi) the IAM market for organic blocks; (vii) the OEM market for sintered blocks[110]; and (viii) the IAM market for sintered blocks.[111]

(228) As regards the possible further segmentation within sintered pads, the Notifying Party considers that flexible pads do not constitute a separate product market from rigid pads, but that the former are an evolution of the latter. Likewise, pucks, that is the individual friction material elements mounted on a flexible carrier plate, do not constitute a separate market from sintered pads. In any case, the Notifying Party submits that the precise market definition can be left open since the Transaction would not have any significant impact on pucks.

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104 Sintered friction material is made of fine metal powder, consisting of various ingredients such as iron, copper, and non-ferrous metal.

105 Cast-iron only exists for blocks and not for pads.

106 M.7174 – *Federal-Mogul Corporation / Honeywell Friction Materials*, paragraphs 16–17.

107 This is because each individual puck can move independently from the plate to ensure an optimal contact surface area with the brake disk and the heat is distributed more evenly to every puck than in the case of a rigid pad.

108 In comparison, 'rigid' pads need to be replaced entirely each time the friction material wears out. It should be noted that on the aftermarket pucks of one brand can typically only be replaced by the same type of puck, manufactured by the same producer. There is in other words, no interoperability between pucks and carrier plates of different brands.

109 The OEM market equates to around 5% of total sales with the IAM market representing 95% of total sales of friction materials.

110 Sintered blocks tend to be sold directly to the freight car operator that assembles them directly on the brake system both for first use and for replacement. Unlike other types of rolling stock, they are not sold separately on the OEM through brake system suppliers.

111 Cast iron is only used for tread brake blocks. As neither of the Parties to the Transaction is active in cast iron blocks, this possible market segmentation can be disregarded for the purposes of this decision.

6.7.1.3. Results of the market investigation and the Commission's assessment

(229) Replies to the market investigation indicate that friction materials for brake discs (that is pads) constitute a market separate from friction materials for tread brakes (that is blocks/shoes). Pads and blocks are not interchangeable since they have different characteristics and they are used in different types of rolling stock.[112] In particular, pads are used for more complex and highly technical vehicles, such as high-speed trains.

(230) Further, a majority of respondents to the market investigation stated that organic and sintered friction materials are not interchangeable as they differ in terms of costs, technical characteristics and final use.[113] In general, sintered materials are more expensive due to the materials used and the production process. For example, the average relative price on the IAM market (per unit) for organic pads is EUR 12 to EUR 20 and up to EUR 70 for high-temperature organic pads, whereas for sintered rigid pads it is EUR 80 to EUR 180. Flexible pads are even more expensive and can be sold at around EUR 1000.[114] Sintered materials can withstand higher temperatures, have a better braking performance and are more suitable for higher speed trains. In addition, sintered materials have a longer life cycle than organic materials and need to be replaced less often.[115] A majority of market participants did not support the Notifying Party's view that organic and sintered friction material are interchangeable for trains running at speeds up to 300 Km/h. This is because the two materials differ in terms of performance and a change would imply redesigning the braking system.[116] For example, a rolling stock manufacturer said that '*Once a brake system has been designed for sintered brakes, you cannot in practice go to organic pads. In addition to the homologation process, there would be technical problems with the braking system (brake pressures, calibration, etc)'.*[117] This is valid for new but also existing rolling stock.[118] A majority of train operators stated that they have never changed the friction materials in their existing rolling stock fleet from organic to sintered or vice versa.[119] Some respondents also indicated that some high-speed

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112 Replies to questions 5, 6 and 7 of Q5 – Questionnaire to friction material manufacturers; replies to questions 5 and 7 of Q3 – Questionnaire on friction materials and brake systems; replies to questions 42-43 of Q1 – Questionnaire to rolling stock manufacturers and replies to questions 36–37 of Q2 – Questionnaire to rail operators.

113 Replies to questions 8.1 and 8.2 of Q5 – Questionnaire to friction material manufacturers; replies to questions 8.1 and 8.2 of Q3 – Questionnaire on friction materials and brake systems; replies to questions 45.1 and 45.2 of Q1 – Questionnaire to rolling stock manufacturers and replies to questions 38.1 and 38.2 of Q2 – Questionnaire to rail operators.

114 Form CO, paragraph 274.

115 Replies to questions 8.1 and 8.2 of Q5 – Questionnaire to friction material manufacturers; replies to questions 8.1 and 8.2 of Q3 – Questionnaire on friction materials and brake systems; replies to questions 45.1 and 45.2 of Q1 – Questionnaire to rolling stock manufacturers and replies to questions 38.1 and 38.2 of Q2 – Questionnaire to rail operators.

116 Replies to question 11 of Q5 – Questionnaire to friction material manufacturers; replies to questions 9 and 10 of Q3 – Questionnaire on friction materials and brake systems; replies to question 47 of Q1 – Questionnaire to rolling stock manufacturers.

117 Confirmed minutes of a call with a market participant on 12 November 2015.

118 Replies to questions 43 and 44 of Q2 – Questionnaire to rail operators; replies to question 56 of Q3 – Questionnaire on friction materials and brake systems.

119 Replies to questions 46 and 47 of Q2 – Questionnaire to rail operators.

trains, such as the French TGVs, use some organic block brakes, but only as an auxiliary/parking brake.[120]

(231) As regards a possible distinction between flexible and rigid sintered pads as well as between sintered pads and pucks, replies to the market investigation varied and were inconclusive.[121] However, there is no need to define the exact product market in relation to a market for sintered pads. In particular, it can be left open whether the market for sintered pads could be further segmented (i) between rigid and flexible pads as well as (ii) between pucks and pads, since there would be no overlap in a market for flexible pads nor in a market for pucks and the competitive assessment would in any case focus on an overall market for sintered pads, on a market for rigid pads and, as far as input foreclosure is concerned, on a market for pucks.

(232) The friction material market for railway vehicles consists of (i) the OEM, which consists of sales to the original brake system manufacturers, and (ii) the IAM, which consists of sales of spare parts to rolling stock manufacturers or train operators.

(233) Since the car life-span is much longer than the brake block or pad life-span, in the friction material industry for rail vehicles, the IAM market is by far the larger market in terms of value. A majority of friction material suppliers pointed out that IAM sales are to a certain extent driven by OEM sales to the original brake system manufacturers (in other words, replacement friction materials are usually bought from the same manufacturer as the one that furnished the original friction material).[122] The originally installed and homologated friction material has a competitive advantage in the IAM because '*it has gained a pedigree in the application'* and is likely to be sourced by the train operator also later on.[123] This seems particularly true during the warranty period, given that the warranty would not cover products other than the original friction material.[124]

(234) However, it seems that after the warranty period, which generally lasts 2-3 years, and during the rest of the 30-year lifetime of a train, operators may replace the originally installed friction material with an alternative product. Further, most of friction material suppliers supply the aftermarket without being necessarily strong in the sale of friction material to brake systems manufacturers in the OEM market. This is in particular the case in respect of organic friction materials but less so for sintered friction materials. In addition, friction material suppliers that are active on both markets (which represent a majority of respondents to the market investigation) indicated that their IAM sales represent more than 50% of their total sales.[125]

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120 Replies to questions 5.1 and 13.1 of Q5 – Questionnaire to friction material manufacturers.

121 Replies to questions 22 to 26 of Q5 – Questionnaire to friction material manufacturers; replies to questions 22 to 25 of Q3 – Questionnaire on friction materials and brake systems; replies to questions 56 to 60 of Q1 – Questionnaire to rolling stock manufacturers and replies to questions 51 to 55 of Q2 – Questionnaire to rail operators.

122 Replies to question 47 of Q5 – Questionnaire to friction material manufacturers; replies to question 47 of Q3 – Questionnaire on friction materials and brake systems.

123 Replies to question 47 of Q5 – Questionnaire to friction material manufacturers; replies to question 47 of Q3 – Questionnaire on friction materials and brake systems and confirmed minutes of a call with a friction material manufacturer on 28.01.2016.

124 Replies to questions 47 of Q5 – Questionnaire to friction material manufacturers.

125 Replies to question 27 of Q5 – Questionnaire to friction material manufacturers.

(235) Therefore, it seems that the access to the IAM market is not completely dependent on the OEM market and the value of the IAM market is much higher compared to that of the OEM market.

(236) In light of the above, the Commission considers that the IAM market for the supply of friction material to car builders and train operators constitutes a separate market from the OEM market for the supply of friction material to brake system manufacturers and should be assessed separately.

6.7.1.4. Conclusion

(237) In light of the above, and considering all evidence available to the Commission, the Commission considers that, for the purposes of this decision, separate product markets exist for (i) organic pads; (ii) sintered pads; (iii) organic blocks; and (iv) sintered blocks. Each of these markets should be also segmented between OEM and IAM sales. However, there is no need to define the exact product market in relation to a market for sintered pads. In particular, it can be left open whether the market for sintered pads could be further segmented (i) between rigid and flexible pads as well as (ii) between pads (including both types of pads, namely rigid and flexible pads) on the one hand and pucks on the other, since the impact of the Transaction would be the same regardless of the precise market definition (as there would be no overlap in a market for flexible pads nor in a market for pucks and the competitive assessment would in any case focus on an overall market for sintered pads, on a market for rigid pads and, as far as input foreclosure is concerned, on a market for pucks).

6.7.2. Relevant geographic markets

6.7.2.1. Background and previous cases

(238) As regards the geographic scope of the markets, in its decisional practice the Commission considered the OEM markets on an EEA-wide basis, whereas IAM markets were considered on both an EEA and a national basis. The exact geographic market definition for IAMs was left open.[126]

6.7.2.2. The Notifying Party's position

(239) The Notifying Party states that the relevant markets are at least EEA-wide.

6.7.2.3. Results of the market investigation and the Commission's assessment

(240) During the market investigation, a majority of customers of friction material suppliers (that is original brake system manufacturers, rolling stock manufacturers and train operators) stated that, although they procure friction materials at the EEA level, they could also source globally for trains destined for the EEA market.[127] This would require the material to be homologated in the EEA, according to EEA regulatory standards. A majority of friction material suppliers indicated that supplies of friction materials to customers located in the EEA could occur at worldwide level.[128] However, a majority of respondents to the market investigation highlighted that EU homologation requirements constitute a barrier to entry and that due to those

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126 M.7174 – *Federal-Mogul Corporation / Honeywell Friction Materials*, paragraphs 18–23.

127 Replies to question 26 of Q3 – Questionnaire on friction materials and brake systems; replies to question 69 of Q1 – Questionnaire to rolling stock manufacturers, and replies to question 65 of Q2 – Questionnaire to rail operators.

128 Replies to question 28 of Q5 – Questionnaire to friction material manufacturers.

requirements it would be difficult for a non-EEA friction material supplier to enter the EEA market.[129] The Commission considers therefore that the geographic markets for the supply of friction materials are broader than national and are EEA-wide.

6.7.2.4. Conclusion

(241) In light of the above, and considering all evidence available to the Commission, the Commission considers that the markets for friction materials are EEA-wide.

6.7.3. Conclusion on the product and geographic market definitions

(242) In light of the above, and considering all evidence available to the Commission, the Commission will assess the impact of the Transaction on the EEA markets for (i) OEM organic pads; (ii) IAM organic pads; (iii) OEM sintered pads (iv) IAM sintered pads; (v) OEM organic blocks; (vi) IAM organic blocks; (vii) OEM sintered blocks and (viii) IAM sintered blocks.

6.7.4. Horizontal non-coordinated effects: the Transaction would lead to a significant impediment to effective competition, in particular through the creation or strengthening of a dominant position, in the production and supply of sintered brake pads and blocks in the IAM in the EEA

(243) In assessing the compatibility of a concentration with the internal market, the Commission must take into account any significant impediment of effective competition. Such competitive harm will generally result from the creation or the strengthening of a dominant position held by a single firm, one which would have an appreciably larger market share than the next competitor post-merger.[130]

(244) A merger may significantly impede effective competition in a market by removing important competitive constraints on one or more sellers, reinforcing their market power. The primary effect of such mergers would be the loss of competition between the merging firms. The removal of this constraint may also benefit non-merging firms, which may profit from higher prices. In addition, in oligopolistic markets, mergers involving the loss of competitive pressure between the merging firms combined with a reduction of competitive constraints on the remaining competitors may, even where there is little likelihood of coordination between the members of the oligopoly, also result in a significant impediment to effective competition.[131]

(245) The Commission will assess the impact of the Transaction in the IAM markets for the manufacture and supply of sintered pads and blocks in the EEA against this background.

6.7.4.1. Market structure

(246) Wabtec manufactures and sells the full range of friction materials (organic and sintered, pads and blocks) in the EEA both to OEM and IAM customers via its subsidiaries Becorit GmbH (Germany) and Cofren Srl (Italy). By contrast, Faiveley only manufactures sintered pads and blocks. In addition, Faiveley does not sell sintered friction materials to its brake system competitors, but uses them in its own

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129 Replies to questions 29 and 30 of Q5 – Questionnaire to friction material manufacturers; replies to questions 28 and 29 of Q3 – Questionnaire on friction materials and brake systems; replies to question 70 of Q1 – Questionnaire to rolling stock manufacturers, and replies to question 66 of Q2 – Questionnaire to rail operators.

130 Horizontal Merger Guidelines, paragraphs 2, 4 and 25.

131 Horizontal Merger Guidelines, paragraph 25.

brakes and as such, has no merchant market OEM sales. Faiveley does, however, have IAM sales, mainly in France.[132]

(247) Table 7, Table 8 and Table 9 show the Notifying Party's estimates of the Parties' and their competitors' market shares in (i) OEM merchant market for sintered pads[133]; (ii) OEM market for sintered pads including captive sales; and (iii) IAM market for sintered pads and sintered blocks respectively.[134] Since Faiveley does not produce organic material, the Transaction would not lead to any overlap between the Parties in the OEM and IAM markets for organic friction material. Therefore, those markets will not be discussed any further from a horizontal perspective.

Table 7 - OEM merchant sales of sintered pads

		Wabtec	Faiveley	KB/ICER	Federal Mogul	Miba
2012	Sintered pads and pucks	[80-90]%			[5-10]%	[10-20]%
	Sintered pads	[70-80]%			[20-30]%	
	Pucks	[80-90]%				[10-20]%
		Wabtec	Faiveley	KB/ICER	Federal Mogul	Miba
2013	Sintered pads and pucks	[70-80]%			[10-20]%	[10-20]%
	Sintered pads	[50-60]%			[40-50]%	
	Pucks	[80-90]%				[10-20]%
		Wabtec	Faiveley	KB/ICER	Federal Mogul	Miba
2014	Sintered pads and pucks	[40-50]%			[40-50]%	[5-10]%
	Sintered pads	[5-10]%			[80-90]%	
	Pucks	[80-90]%				[10-20]%

Notifying Party's best estimates[135]

(248) The Parties' activities do not overlap in the OEM merchant market for sintered pads and blocks, since Faiveley does not sell sintered material to other brake system manufacturers but produces it internally for its own brakes.

(249) Likewise, Knorr-Bremse does not sell its friction material to competing brake system manufacturers in the EEA. Knorr-Bremse in fact sources almost all of its sintered friction material (mainly pucks) for use on its brake systems on European trains from Wabtec.[136] More precisely, Knorr-Bremse purchases sintered pucks from Wabtec, and then assembles those pucks into sintered brake pads which are incorporated into its brake systems. ICER Rail[137] produces only one specific type of puck, and one

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132 Faiveley achieves in France approximately […]% of its 2011–2014 orders for sintered blocks and […]% of its 2011-2014 orders for sintered pads in the EEA. Faiveley has recently lost a strategic contract to Wabtec for the supply of sintered pads for SNCF TGV in France. As a result, its presence in France has been reduced.

133 'Sintered pads' should be read as including both rigid and flexible pads throughout the Decision unless otherwise specified.

134 The OEM market does not refer to sintered blocks, because sintered blocks are almost always sold directly to the freight car operator, who assembles it directly on the brake system both for first use and for replacement. Therefore, unlike other types of rolling stock, sintered blocks are not sold separately on the OEM through brake system suppliers.

135 Notifying Party's response to the Commission RFI of 29 June 2016.

136 A market participant's non-confidential response to question 1 of request for information of 11 March 2016.

137 ICER Rail S.L. is a Spanish joint venture established in May 2010 by ICER Brakes/Berkelium Group and Knorr-Bremse for the development of organic blocks and pads as well as sintered pucks for

specific sintered product that is designed for a specific Knorr-Bremse sintered pad, which it only supplies to Knorr-Bremse captively and which appears to be destined for markets outside the EEA.[138] ICER Rail seems to currently lack the necessary homologations for supplying sintered friction material for trains destined for the EEA market.[139] Given that Knorr-Bremse/ICER did not sell to any other OEM than Knorr-Bremse they do not have any merchant sales.

(250) So, if one puts aside captive sales, the only companies selling sintered friction materials to OEM brake customers in the EEA appear to be Wabtec and Federal Mogul with [40-50]% and [40-50]% market shares respectively.

(251) Among the OEM friction material suppliers, the table also shows the market share of Miba, an Austrian industrial equipment company.[140] According to the Notifying Party, in 2014, Miba had a [5-10]% market share of an overall market encompassing pads and pucks and [10-20]% market share of a market comprising only pucks.

(252) However, Miba's market shares in an OEM overall market for pads and pucks should to a large part be attributed to Wabtec. In fact,[…].[141][…].[142] […] Therefore […], Miba is not Wabtec's competitor in the market for pucks. Given the commercial relationship between Wabtec and Miba, certain sales of pucks to the OEM brake systems manufacturers should be attributed to Wabtec instead of Miba. Therefore, in 2014, Wabtec's market share in an overall market encompassing pucks and pads would be even higher than [40-50]%.

(253) As indicated in recital (231) above, if a possible market segmentation is considered within sintered pads, between a market for sintered rigid pads and a market for sintered flexible pads, there would be no overlap between the Parties' activities in sintered flexible pads, since Faiveley does not produce any flexible pads. Likewise, there would be no overlap between the Parties' activities in relation to pucks, if pucks and pads are considered as two separate markets, since only Wabtec produces pucks.

(254) If pucks are considered as a separate market, Wabtec would be the only supplier on a hypothetical market for the sales of pucks for integration into sintered pads, […]. Its market share would therefore be close to 100%.

(255) If captive sales are included, the structure of the supply of sintered pads and pucks to brake systems manufacturers would be as follows:

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rolling stock. It only produces friction materials. ICER Rail sells organic brake blocks covering the complete range of friction coefficients. It has also recently installed a new production line for sintered products, in particular for sintered brake pads for high-speed traffic. See. Form CO, paragraph 313.

138 Replies to questions 10, 22 and 35 of Q5 – Questionnaire to friction material manufacturers. A market participant's non-confidential response to question 1 of request for information of 11 March 2016.

139 Replies to questions 45.4.2, 45.6.2 and 46 of Q3 – Questionnaire on friction materials and brake systems.

140 Miba is a multinational group, originally based in Austria. It produces sintered components, engine bearings, coatings, power electronics, friction materials and other specialised machinery: http://www.miba.com.

141 […].

142 […] See Notifying Party's response to the Commission's RFI of 15 April 2016.

Table 8 - Table 8 - OEM sales of sintered pads and pucks including captive sales

2012		Wabtec	Faiveley	KB/ICER	Federal Mogul	Miba
	Sintered pads and pucks	[50-60]%	[0-5]%	[30-40]%	[5-10]%	[0-5]%
	Sintered pads	[20-30]%	[0-5]%	[50-60]%	[5-10]%	
	Pucks	[80-90]%				[10-20]%
2013		Wabtec	Faiveley	KB/ICER	Federal Mogul	Miba
	Sintered pads and pucks	[40-50]%	[5-10]%	[30-40]%	[5-10]%	[5-10]%
	Sintered pads	[10-20]%	[5-10]%	[50-60]%	[10-20]%	
	Pucks	[80-90]%				[10-20]%
2014		Wabtec	Faiveley	KB/ICER	Federal Mogul	Miba
	Sintered pads and pucks	[10-20]%	[0-5]%	[50-60]%	[20-30]%	[0-5]%
	Sintered pads	[0-5]%	[5-10]%	[60-70]%	[20-30]%	
	Pucks	[80-90]%				[10-20]%

Notifying Party's best estimates[143]

(256) It results that, even considering captive sales, Faiveley's internal sales are limited and are, for example, much smaller than Federal Mogul's sales, despite Federal Mogul not being vertically integrated. In other words, the market share figures seem to suggest that non-vertically integrated players, such as Wabtec or Federal Mogul, are in a position to effectively compete at the OEM level together with integrated players (such Faiveley).[144]

(257) As regards Knorr-Bremse's market share, it should be noted that a significant proportion of this share is only possible on the basis of Wabtec's sales of sintered pucks to Knorr-Bremse. In other words, without Wabtec's sintered pucks, Knorr-Bremse would not be able to make many of its sintered pads.

(258) In light of the above, in a market for the supply of sintered friction material (pads and/or pucks) to brake systems manufacturers (that is, the OEM market), the Transaction would not raise any significant impediment to effective competition for the following reasons: (i) on the one hand, if only merchant sales were considered, there would be no horizontal overlap between the Parties' activities; (ii) on the other hand, if captive sales were taken into account, the Parties' combined market share and the increment would be moderate. Between 2012 and 2013, the Parties' combined market share in the market for sintered pads would slightly exceed [30-40]% with an increment up to [5-10]%. In 2014, the Parties' market shares in a market for sintered pads plummeted and their combined market shares would amount to [5-10]% with an increment of [5-10]%. If one were to consider an overall market for sintered pads and pucks the Parties' combined market share would amount to [20-30]%. In any event, these market shares include non-merchant sales and therefore are not representative of the effective strength of the Parties and their competitors in the

143 Notifying Party's response to the Commission RFI of 29 June 2016. The variation of market shares between one year and another are partly due to the fact that the supply of sintered friction material is a bidding market.

144 This is also confirmed by Faiveley's own purchases of sintered material for the OEM which show that Faiveley, despite being a vertically integrated company for sintered friction material, sources a wide portion of its requirements from external suppliers. For example, in 2014, Faiveley has purchased […]% of its needs of sintered pads for integration in its OEM brake systems. See Form CO, paragraph 1316.

market for the supply of sintered friction materials to OEM brake systems manufacturers.

(259) Likewise, the Transaction would not lead to any significant impediment to effective competition were one to consider that the OEM market should be assessed at the level of sales of sintered friction materials to rolling stock manufacturers for new projects (so at the rolling stock OEM level). In this case, irrespective of how Knorr-Bremse's purchases of pucks from Wabtec's are treated[145], only Faiveley and Knorr-Bremse would have market share, since their sintered friction materials are provided to rolling stock OEM customers for new projects. Wabtec would not be present on that market[146] and there would be no overlap between the Parties' activities.

(260) Therefore, it appears that the Transaction would not lead to any significant impediment of effective competition as regards the OEM markets for the supply of sintered pads (including or excluding pucks) irrespective of whether captive sales are included or excluded. The horizontal competitive assessment will thus focus on the IAM markets for sintered friction materials.

(261) As regards the IAM sales of sintered friction materials, the Parties' market share would be as follows as set out in Table 9.

Table 9 - IAM Friction materials, EEA

IAM Sintered Friction Materials			Wabtec	Faiveley	KB/ICER	Federal Mogul
2012	Sintered blocks	IAM	[90-100]%	[0-5]%		[0-5]%
	Sintered pads	IAM	[50-60]%	[20-30]%	[5-10]%	[10-20]%
			Wabtec	Faiveley	KB/ICER	Federal Mogul
2013	Sintered blocks	IAM	[90-100]%	[5-10]%		[0-5]%
	Sintered pads	IAM	[60-70]%	[10-20]%	[10-20]%	[10-20]%
			Wabtec	Faiveley	KB/ICER	Federal Mogul
2014	Sintered blocks	IAM	[90-100]%	[0-5]%		[0-5]%
	Sintered pads	IAM	[50-60]%	[10-20]%	[20-30]%	[10-20]%

Source: the Notifying Party, Form CO

(262) Post-Transaction, the Parties' activities on the supply of friction materials would overlap in the IAM markets for sintered pads and blocks.

(263) In particular, post-Transaction the Parties' activities would lead to the following affected markets:

(1) the EEA IAM market for the supply of sintered pads, where the Parties' combined market share would amount to [60-70]% (with an increment of [10-20]%); and

(2) the EEA IAM market for the supply of sintered blocks, where the Parties combined market share would amount to [90-100]% (with an increment of [0-5]%).

(264) In a hypothetical aftermarket for pucks, they are sold as a brand-specific replacement for worn out pucks mounted on a carrier plate. To the extent that there would be a

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145 In this scenario one could argue that Knorr-Bremse's sales of sintered pads to rolling stock OEM customers for new projects should be attributed to Knorr-Bremse since ICER/Knorr-Bremse assembles the pucks into pads.

146 […] See the Notifying Party's reply to the Commission's RFI of 29 June 2016 of 4 July 2016.

market for pucks on a hypothetical aftermarket, the market shares would be likely to follow market shares for OEM 'flexible' sintered pads, the type of sintered pads that uses pucks. Indeed, on the aftermarket, every supplier exclusively sells pucks as a replacement on its own pads. The Notifying Party could not estimate market shares on such a market segment, but considered that the market shares would generally be in line with the OEM market including captive sales for sintered pads generally, for which the same conclusions apply, with the exceptions that (i) Knorr-Bremse would be likely to have a higher market share as it was the first to offer this type of product, while Wabtec's flexible pad 'BMBS' is more recent and (ii) Faiveley has no 'flexible' sintered pad yet.[147]

(265) In light of the foregoing, the competitive assessment will focus on the effects of the Transaction on the IAM markets for sintered pads and blocks.

6.7.4.2. The Notifying Party' position

(266) The Notifying Party claims that the overlap in the Parties' activities in sintered pads and sintered blocks would not raise any significant impediment to effective competition for the reasons set out in recitals from (267) to (278).

(267) First, Wabtec and Faiveley are not close competitors.[148] Faiveley is a niche player with limited presence in the IAM market for both sintered pads ([10-20]%) and blocks ([0-5]%). Its scope of activity is confined to France and its market shares derive from legacy contracts.

(268) In particular, Faiveley achieves most of its revenues with […]. In 2014/2015, […] accounted for […]% of Faiveley's sales of sintered blocks, and for […]% of its sales of sintered pads.

(269) Moreover, Wabtec and Faiveley regularly compete only for a limited fringe of customers, and, among them, mostly […].[149] Faiveley has recently lost to Wabtec a strategic contract for the supply of sintered pads for SNCF TGV in France which was previously split between Wabtec and Faiveley. That contract accounted for […]% of the total turnover of Faiveley's friction materials business and it represents around […]% of Faiveley's sales in the IAM market for sintered pads for rail applications. The Notifying Party hence claims that Faiveley has lost competitiveness in this market and cannot exert significant competitive pressure on Wabtec. In addition, according to the Notifying Party, even if one were to conclude that the Parties had fiercely competed for the award of the supply of sintered pads for SNCF's TGV fleet, this would be merely anecdotal and could not constitute proof of the intensity of competition existing on the market.[150]

(270) Second, the Parties' combined market share would not properly reflect the intensity of competition, because (i) the merged entity would face competition from other

147 Faiveley currently does not produce flexible pads. Its LLC pad is only 'semi-flexible'; it allows for a limited movement in one direction only but the sintered material is fixed to the plate just like in a rigid pad. Therefore there is currently no overlap between the Parties' activities in this possible market delineation. […]

148 Notifying Party's response to the Article 6(1)(c) Decision of 27 May 2016, paragraphs 266-271.

149 Notifying Party's response to the Article 6(1)(c) Decision of 27 May 2016, paragraphs 266-271.

150 Notifying Party's response to the Article 6(1)(c) Decision of 27 May 2016, paragraphs 266-271.

sizeable actual and potential competitors[151] and (ii) sintered materials (pads and blocks) can be replaced with organic materials.

(271) On an IAM market for sintered blocks, the merged entity would face competition from Federal Mogul ([0-5]%) and by suppliers of organic blocks, such as Bremskerl, Federal Mogul, Flertex, Frenoplast, ICER and TMD Friction. In addition, according to the Notifying Party, organic blocks could be considered substitutable with sintered blocks for trains running at speeds up to 300 km/h. To support this statement, the Notifying Party refers to two examples where a customer switched from sintered to organic material for the same application.[152] In addition, suppliers of organic blocks would have the necessary know-how and expertise to manufacture sintered blocks and constrain the merged entity. Furthermore, the IAM market for the supply of sintered blocks is a niche market[153], with very limited sales. Barriers to entry are low and suppliers of sintered pads could easily shift production to sintered blocks.

(272) On an IAM market for sintered pads, the merged entity would continue to face competition from strong competitors such as Federal Mogul ([10-20]%) and ICER ([20-30]%) as well as potential new entrants, such as Bremskerl which according to the Notifying Party has recently entered the sintered pads market, and the Chinese Puran. Furthermore, in the Notifying Party's view, sintered pads could be replaced by organic pads for trains running at speeds up to 300 km/h.

(273) Third, according to the Notifying Party, barriers to entry are not high.

(274) In particular, the UIC[154] homologation is not a significant entry barrier[155]. In the Notifying Party's view the UIC homologation process is not burdensome and not always needed. The Notifying Party estimates that customers would need from 18 months to two years maximum to qualify a new supplier. In addition, the Notifying Party claims that in Europe only 50% of the volume of sintered pads is UIC certified. According to the Notifying Party, ICER, Puran and Bremskerl could also become qualified suppliers of sintered pads soon.[156]

(275) The Notifying Party also claims that the OEM friction material suppliers enjoy only a limited competitive advantage for the sale of the same friction material on the IAM

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151 Notifying Party's response to the Article 6(1)(c) Decision of 27 May 2016, paragraphs 272–291.

152 The car builder AAE Switzerland switched from a Jurid sintered product to a Jurid organic product for its Megafret application running in the UK and the train operator Novatrans similarly switched from a Jurid sintered material to a Jurid organic material for its Multifret application running between Spain and Italy. See Form CO, paragraph 891.

153 Sintered blocks, unlike other types of friction materials, are not sold separately on the OEM through brake system suppliers but they are almost exclusively sold directly to freight car operators, which assemble them directly on the brake system both for first use and for replacement. That is why the difference between OEM and IAM is also less relevant for sintered blocks. See Form CO, paragraph 963, footnote 409.

154 The International Union of Railways ('UIC') is an international standardization and certification body for rolling stock parts and components. The UIC certification process implies complying with certain standard requirements set out in UIC Leaflets, namely the UIC leaflets 541-3 for brake pads and 541-4 for brake blocks. These standard requirements relate to the geometric features of the friction material (such as their size, shape and thickness) and the braking performance. Form CO, paragraph 270 and 277-293. The certification has a validity of 10 years for friction materials and can be renewed. See confirmed minutes of a call with a market participant on 26 January 2016.

155 Notifying Party's response to the Article 6(1)(c) Decision of 27 May 2016, paragraphs 292–298.

156 According to the Notifying Party, ICER and Puran are both currently undergoing the UIC homologation process for their sintered pads.

market. In the Notifying Party's view, the Article 6(1)(c) Decision overstates the link between the OEM and the IAM markets, which would remain primarily limited to short-lived advantage during the warranty period. The Notifying Party claims that after the warranty period and during the 30-year lifetime of a train, operators may replace the originally installed friction material with another product and thus give access to the aftermarket also to friction material suppliers that were not selected at the OEM level.

(276) In connection with the routes to the aftermarket, the Notifying Party also claims that competition in the IAM market would be ensured by dual-sourcing. Dual-sourcing is a policy developed by the industry over the past three to four years. Under that policy, railway operators request rolling stock manufacturers to ensure the qualification of two friction material suppliers either from the start (namely, as part of the OEM selection process), or during the lifetime of a train. Indeed, given the long lifetime of a train, operators will have ample opportunity to seek the qualification of alternative friction suppliers should the need for such an alternative source of supply arise. According to the Notifying Party, this means that even if a supplier was not qualified at OEM stage, it could still be qualified later on during the lifetime of the train. According to the Notifying Party, the Commission has not fully taken into account the replies on dual-sourcing from the market investigation carried out in the Phase I investigation.[157] Those replies instead confirm the current trend toward dual-sourcing and that a number of car builders have recently either requested or obtained dual qualification.[158] To illustrate this, the Notifying Party refers to Faiveley's own sales, as Faiveley has qualified on projects for the IAM, even if it was not the OEM supplier for the project.[159]

(277) Fourth, the Notifying Party claims that customers would have strong countervailing buyer power both in the OEM and the IAM markets for the supply of friction materials. The Notifying Party refers to the Commission decision in case M. 7174 – *Federal Mogul / Honeywell*, relating to organic friction materials, where the Commission found that OEM and IAM customers had countervailing market power and threatened to reduce their dependency from the merging parties.[160] According to the Notifying Party, SNCF provides a current example of multiple strategies that large buyers of sintered friction material may use to exercise market power. In fact, SNCF recently awarded a contract to Wabtec that had previously been dual-supplied by Wabtec and Faiveley. […][161] Moreover, during a 'Supplier day'[162] SNCF indicated to organic and sintered friction material suppliers (such as Frenoplast, Bremskerl, Federal Mogul and Ecobrakes and Puran) that it wished to support the homologation of a new friction material for its fleet of very high-speed and regional

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157 Notifying Party's response to the Article 6(1)(c) Decision of 27 May 2016, paragraph 296.

158 The Notifying Party specifically refers to the replies to question 53 of Q3 – Questionnaire on friction materials and brake systems; and replies to question 122 of Q1 – Questionnaire to rolling stock manufacturers.

159 For example, this is the case for […], which represented […]% of Faiveley's sales of friction material for railway applications in the last fiscal year. See Notifying Party's response to the Article 6(1)(c) Decision of 27 May 2016 and to the Commission's RFI of 29 June 2016 of 4 July 2016.

160 M.7174 – *Federal-Mogul Corporation / Honeywell Friction Materials*, paragraph 130.

161 SNCF put out for tender in December 2015 a five-year supply contract, […]. See Form CO, paragraphs 883, 884 and 903.

162 The Supplier Day took place in Lyon on 30 March 2016. See Annex 1 to the Notifying Party's response to the Article 6(1)(c) Decision.

trains (namely, TGV, Autorail Grande Capacité, Nouvelle Automotrice Transilien, Regiolis and Regio 2N) to promote competition on the market.[163]

(278) In light of the foregoing, the Notifying Party concludes that the elimination of Faiveley as a friction material supplier will not significantly impede effective competition in sintered blocks and pads.

6.7.4.3. The results of the market investigation and the Commission's assessment

(279) The Commission considers that the Transaction would significantly impede effective competition in the IAM markets for the supply of sintered pads and sintered blocks for the reasons set out in recitals from (280) to (299).

(280) First, as explained in recital (263) above, the Parties would have very high combined market shares in both IAM markets for sintered pads and blocks. It seems thus that the Transaction may lead to a significant impediment to effective competition, in particular, through the creation or strengthening of a dominant position in the production and supply of sintered materials in the IAM in the EEA.

(281) The merged entity would be the market leader in an IAM market for sintered pads, with a combined market share of [60-70]% (with an increment of [10-20]%). A majority of respondents to the market investigation consider Wabtec as the market leader in the supply of friction materials, and especially in sintered material, in terms of product range, quality and percentage of EU homologated products.[164] Faiveley is seen as strong in sintered pads, although its activities focus mainly on France.[165] Furthermore, Faiveley is the second supplier (the other being Wabtec) of UIC homologated sintered pads for TGV and high-speed trains in the EEA.[166] It should be noted that TGV trains account for approximately 45% of the installed base of high-speed trains in the EEA.[167]

(282) In an IAM market for the supply of sintered pads, the merged entity would face competition from Federal Mogul ([10-20]%), which is however perceived by a majority of the respondents to the market investigation as a more distant competitor.[168] Contrary to the Notifying Party's submission, Knorr-Bremse/ICER Rail could not be considered as an actual credible competitor to the merged entity. In particular, the Notifying Party attributes erroneously to Knorr-Bremse [20-30]% market shares in the IAM supply of sintered pads. In fact, Knorr-Bremse's sintered

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163 These are: TGV, Autorail Grande Capacité, Nouvelle Automotrice Transilien, Regiolis and Regio 2N. See Notifying Party's reply to the Article 6 (1)(c) Decision, paragraph 288.

164 Replies to questions 32.1 and 33 of Q5 – Questionnaire to friction material manufacturers; replies to questions 36.1 and 37 of Q3 – Questionnaire on friction materials and brake systems; replies to question 113 of Q1 – Questionnaire to rolling stock manufacturers and replies to question 96 of Q2 – Questionnaire to rail operators.

165 Replies to questions 32.2 and 33 of Q5 – Questionnaire to friction material manufacturers; replies to questions 36.2 and 37 of Q3 – Questionnaire on friction materials and brake systems; replies to question 113 of Q1 – Questionnaire to rolling stock manufacturers and replies to question 96 of Q2 – Questionnaire to rail operators.

166 Replies to questions 32 and 33 of Q5 – Questionnaire to friction material suppliers.

167 Form CO, paragraph 893.

168 Replies to question 42 of Q5 – Questionnaire to friction material suppliers; and replies to questions 41 and 42 of Q3 – Questionnaire on friction materials and brake systems.

friction material is made out of the pucks that Wabtec sells to Knorr-Bremse.[169] Therefore Knorr-Bremse's IAM sales appear from sales made by Wabtec to Knorr-Bremse. The Commission acknowledges the Parties' argument that these sales result from competitive processes through which Knorr-Bremse provides added value to the pucks sourced from Wabtec, however those market shares do not represent the market reality and the fact that currently Knorr-Bremse's IAM sales of sintered pads derive partially from sales from Wabtec to Knorr-Bremse. Knorr-Bremse has also not been mentioned as a significant player in a market for the supply of sintered friction material during the market investigation.[170] Its joint-venture ICER Rail currently produces only one type of sintered friction material[171], and thus has a portfolio which is not comparable to that of the merged entity.

(283) The merged entity would also be the market leader in an IAM market for sintered blocks, with a combined market share of [90-100]% (with an increment of [0-5]%). The remaining competitor would be Federal Mogul, with a [0-5]% market share. It seems thus that the Transaction may lead to a significant impediment to effective competition through the creation or strengthening of a dominant position in the production and supply of sintered brake blocks in the IAM in the EEA.

(284) Second, despite the Notifying Party's submission to the contrary, Faiveley and Wabtec appear to be close competitors as regards both sintered pads and blocks: a majority of the market participants identified Wabtec, followed by Faiveley and Federal Mogul as the three main market players.[172] However, Federal Mogul seems to have a more limited product portfolio than the merged entity and to lack the necessary homologations.[173]

(285) Wabtec and Faiveley compete fiercely in significant projects, among which the recent award of the SNCF contract for the supply of sintered pads for the TGV fleet. Contrary to what the Notifying Party argues, the fact that SNCF decided to recently award 100% of the next […] supply contract for sintered pads for the TGV to Wabtec, rather than split it between Faiveley and Wabtec as previously[174], shows the intensity of competition between the two Parties. In fact, the Parties competed with each other […].[175] In addition, the full list of Faiveley's EEA customers for sintered materials shows that in the past two years the only friction supplier that has been

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169 ICER Rail buys pucks from Wabtec but then integrates them into its proprietary flexible pads systems, such as ISOBAR. Form CO, paragraphs 326 and 934, Notifying Party's reply to the Commission RFI of 29 June 2016 of 4 July 2016.

170 Replies to question 42 of Q5 – Questionnaire to friction material suppliers; and replies to questions 41 and 42 of Q3 – Questionnaire on friction materials and brake systems.

171 Confirmed minutes of a call with a market participant on 3 February 2016. A market participant's response to questions 10 and 22 of Q5 – Questionnaire to friction material suppliers.

172 Replies to question 101 of Q5 – Questionnaire to friction material manufacturers; replies to questions 41 and 42 of Q3 – Questionnaire on friction materials and brake systems; replies of question 120 to Q1 – Questionnaire to rolling stock manufacturers and replies of question 101 to Q2 – Questionnaire to rail operators.

173 Replies to question 42 of Q5 – Questionnaire to friction material suppliers; and replies to questions 41 and 45.4 of Q3 – Questionnaire on friction materials and brake systems; confirmed minutes of a call with a market participant on 2 June 2016.

174 Under the contract in force […], Faiveley supplied […]% of SNCF's needs. Under the previous contract […], Faiveley supplied […]% of SNCF's needs.

175 […] EUI_1200494375_1_ Outcome of SNCF tender for TGV pads – 19.04.2016 (Confidential).doc.

qualified together with Faiveley is Wabtec. Moreover, those projects are not exclusively in France or related to the TGV family.[176]

(286) Third, contrary to the Notifying Party's submission, organic friction material suppliers do not seem to constrain the Parties' activities in the supply of sintered materials because organic friction materials are not considered substitutable to sintered friction materials for technical reasons.[177] Switches between sintered and organic material (and vice versa) occur rarely and thus are not indicative of the functioning of the market.[178] For example, a change from organic to sintered friction material may happen if, for instance, the original material proves problematic.[179] Moreover, '*a change from sintered to organic friction material is even more difficult than the other way round; it is difficult to find organic materials that would correspond to the sintered material. The biggest stumbling block is usually the heat capacity of the friction material, which is much higher in sintered material and cannot usually be matched by organic ones*';[180] and again '*once a brake system has been designed for sintered brakes, you cannot in practice go to organic pads. In addition to the homologation process, there would be technical problems with the braking system (brake pressure, calibration)*'.[181] In addition, there seems to be a growing tendency towards using more sintered friction materials that can handle higher braking powers and the associated heat generation. As a friction material supplier pointed out '*the tendency is to try to reduce brake system weight to counteract the weight increase cost by increasing safety requirements, which results in fewer brakes and, thus, higher stress on a single brake. That is one of the reasons behind the increased demand and interest for sintered material despite being them [sic] more expensive than the organic ones*'.[182] Furthermore, train operators prefer sintered friction materials to organic material due to the lower life-cycle costs normally associated with the replacement of sintered materials.

(287) Fourth, despite the Notifying Party's submission to the contrary, entry barriers are high to the IAM markets for sintered friction materials, especially sintered pads. This is due mainly to homologation requirements.

(288) Responses to the market investigation indicated that friction materials are procured through competitive bidding processes on the basis of product specifications, homologation and price.[183] They are also sold under long-term agreements of three to five years which are very difficult to renegotiate.[184]

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176 Notifying Party's response to the Article 6(1)(c) Decision of 27 May 2016, paragraph 268.

177 It should be noted that some high-speed trains are equipped with organic friction materials instead of sintered friction materials, such as ICE 1 and ICE 2 trains in Germany and the first generation of Renfe trains in Spain. However, this only applies to wagons with tread brakes and not with disc brakes. See confirmed minutes of a call with a market participant on 26 January 2016.

178 Confirmed minutes of a call with a market participant on 26 January 2016; confirmed minutes of a call with a market participant on 28 January 2016; replies to question 11 of Q5 – Questionnaire to friction material manufacturers; replies to questions 9 and 10 of Q3 – Questionnaire on friction materials and brake systems; replies to question 47 of Q1 – Questionnaire to rolling stock manufacturers. See also replies to questions 46 and 47 of Q2 – Questionnaire to rail operators.

179 Confirmed minutes of a call with a market participant on 26 January 2016.

180 Confirmed minutes of a call with a market participant on 26 January 2016.

181 Confirmed minutes of a call with a market participant on 12 November 2015.

182 Confirmed minutes of a call with a market participant on 28 January 2016.

183 Replies to questions 34 and 35 of Q5 – Questionnaire to friction material manufacturers; replies to questions 35 and 38 of Q3 – Questionnaire on friction materials and brake systems; replies to

(289) Contrary to the Notifying Party's submission, entry appears difficult in relation to sintered materials,[185] given the significant investments and time needed to develop and homologate the product. Friction materials for discs brakes are one of the most customised parts of a brake system and their suitability depends, among others, on the wheels, the weight of a train, the speed, the quality of the tracks, the frequency of stops of a train, etc. For new projects, existing friction materials cannot always be used, which implies that not only homologation but also innovation and development costs are high.[186]

(290) A majority of respondents to the market investigation indicated that entry is difficult in relation to sintered friction materials, due mainly to the homologation requirements. As a train operator indicated '*[…] for high speed-trains there are only a limited number of suppliers due to homologation requirements*'.[187] Contrary to the Notifying Party's submission, according to which the UIC requirement would not be necessary to enter the European market and thus could not represent a significant barrier to entry, it appears that, although UIC-certification is compulsory only for international trains, it is often requested by train operators (50% of the trains are UIC-certified).[188] Even though not all trains in Europe require UIC-certified sintered friction material, the certification by national authorities may be required. In certain instances, such as for the German ICE-3 trains, local certification can be as burdensome as the UIC certification.[189] In addition, a majority of respondents to the market investigation indicated that UIC homologation is slow and costly: it would require at least two to three years and a substantial investment.[190] Furthermore, respondents also highlighted long R&D as an obstacle to penetrating the market.[191] According to one friction material supplier, altering an existing product is also burdensome, since each modification creates a new product which needs to be homologated.[192]

(291) As regards access to the aftermarket, a majority of respondents to the market investigation pointed out that the originally installed and homologated friction material may have a competitive advantage in the IAM because '*it has gained a pedigree in the application'* and is most likely to be sourced by the train operator

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question 114 of Q1 – Questionnaire to rolling stock manufacturers and replies to question 99 of Q2 – Questionnaire to rail operators.

184 Replies to question 40 of Q5 – Questionnaire to friction material manufacturers.

185 The same applies to organic materials although to a lesser extent, see replies to question 53 of Q5 – Questionnaire to friction material suppliers; replies to question 57 of Q3- Questionnaire on friction materials and brake systems; replies to question 127 of Q1 – Questionnaire to rolling stock manufaturers; and replies to question 108 of Q2 – Questionnaire to rail operators.

186 Confirmed minutes of a call with a market participant on 26 January 2016.

187 Confirmed minutes of a call with a market participant on 19 November 2015.

188 Confirmed minutes of a call with a market participant on 3 February 2016 and confirmed minutes of a call with a respondent on 26 January 2016.

189 Confirmed minutes of call with a market participant on 26 January 2016.

190 Replies to question 55 of Q5 – Questionnaire to friction material manufacturers; replies to question 59 of Q3 – Questionnaire on friction materials and brake systems. Confirmed minutes of a call with a market participant on 3 February 2016.

191 Replies to questions 54.2 and 56 of Q5 – Questionnaire to friction material manufacturers; replies to questions 57.2 and 60 of Q3 – Questionnaire on friction materials and brake systems; replies to question 127.3 of Q1 – questionnaire to rolling stock manufacturers and replies to question 108.3 of Q2 – Questionnaire to rail operators.

192 Replies to question 48 of Q3 – Questionnaire on friction materials and brake systems.

also later on.[193] This seems particularly true during the warranty period (2-3 years), as warranty would not cover products other than the original friction material. Following the warranty period, homologation of totally new friction materials by the rail operator becomes more likely. However, homologation of new friction materials by the rail operator after the construction of the rolling stock can still take place albeit often related to quality or performance issues.[194] Therefore the advantage of being the originally installed supplier reduces in time, in particular compared to the 30-year lifetime of a train. In this context the Commission notes that […]% of Wabtec's sales in the IAM relate to products where it was not the OEM supplier. Similarly, for Faiveley, […]% of its IAM sales relate to products where it was not the OEM supplier.[195]

(292) Furthermore, having a relationship with the brake systems manufacturer is not the only route to the aftermarket. The friction material supplier may also gain aftermarket sales by selling directly to the rail operator.[196] In that respect, one respondent indicated that '*[g]enerally we are free [to access the aftermarket without the intermediation of the brake systems manufacturer] unless the product uses OEM Intellectual Property*'[197]; another one stated that '*friction material suppliers are free to sell in the aftermarket'.*[198] The latter case seems likely to occur when the original friction product is not protected by intellectual property rights or the rail operators do not have maintenance and service contracts directly with the brake system manufacturer.[199] In addition, a market participant pointed out that a direct

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193 Replies to questions 47 and 48 of Q5 – Questionnaire to friction material manufacturers; replies to question 47 of Q3 – Questionnaire on friction materials and brake systems; replies to questions 126 of Q1 – Questionnaire to rolling stock manufacturers and replies to questions 106 of Q2 – Questionnaire to rail operators.

194 Confirmed minutes of calls with a market participant on 28 January 2016 and on 10 June 2016; and replies to question 56 of Q3 – Questionnaire on friction materials and brake systems.

195 Notifying Party's response to the Commission RFIs of 26 August 2016 and of 29 August 2016. In particular, the […]% estimate excludes Faiveley's IAM sales which pertain to fleets for which Carbone Lorraine/FTG was the OEM supplier, except for TGV pads to SNCF in France. Carbone Lorraine/FTG was in fact the OEM supplier of certain TGV fleets, but not all. Faiveley does not know however whether the TGV pads it sells to SNCF are eventually installed on TGV train sets originally equipped with Carbone Lorraine/FTG pads or not. Therefore, the […]% estimate includes all FTG's IAM sales of TGV pads to SNCF, whether FTG/Carbone Lorraine was the OEM supplier or not. It excludes, however, all of FTG's IAM sales of friction materials on other fleets for which FTG/Carbone Lorraine was the OEM supplier (such as Eurostar, Renfe's AVE and ATPRD, SNCB's HLE18 locomotives).

196 Replies to questions 47 and 48 of Q5 – Questionnaire to friction material manufacturers.

197 A friction material supplier's reply to question 47.1 of Q5 – Questionnaire to friction materials suppliers.

198 A friction material supplier's reply to question 47.1 of Q5 – Questionnaire to friction materials suppliers.

199 Replies to question 48 of Q5 – Questionnaire to friction material manufacturers and replies to question 99 of Q2 – Questionnaire to rail operators, where a train operator in particular acknowledged that '*Where […] does have control over the selection of relevant spare parts, it would seek to tender the supply of such spare parts where possible. However, in practice, the technical and safety-critical nature of brake systems can itself create practical commercial obstacles in terms of appointing suppliers other than the relevant OEM. There are commonly IPR rights embedded in the systems and associated documentation that historically original equipment manufacturers have been loath to grant rights over, particularly where they are OEM suppliers (or-sub-suppliers) to a train manufacturer and therefore do not have a direct contractual relationship with […] in relation to the manufacture of the trains of which they form part. Without such IPR rights, it can be difficult to procure an alternative system or sub-system. Additionally, for safety-critical components of this nature, a lengthy, detailed*

relationship with the train operator represents 95% of the IAM sales, whereas the relationship via the brake systems manufacturer represents 5% of the IAM sales.[200]

(293) As regards dual-sourcing, the Commission notes the following. The market investigation indicated that while dual-sourcing is a trend, railways operators seem to be differently successful with this strategy. As a friction material producer pointed out '*the fact that train operators can homologate two friction material suppliers does not however necessarily mean that they will dual-homologate*'.[201] Dual-sourcing is more likely to succeed where the technical requirements of the friction material are relatively low, namely in relation to organic friction materials.[202]

(294) Dual-sourcing appears indeed particularly difficult in relation to sintered friction materials, due to lack of sufficient competitors and higher technical requirements.[203] As a friction material supplier pointed out '*[w]hile it [dual-qualification] will work in the area of organic friction material, in particular for sinter there is – besides the fact of missing competition – the problem of highly difficult interchangeability between different materials*'[204] Due to complex technical requirements, friction material suppliers and car builders replied that it is difficult to find two identical performing sintered materials from two different suppliers.[205] In addition, despite the Notifying Party's submission to the contrary, a majority of car builders responding to the Commission questionnaire indicated that they have not recently dual-qualified any supplier of friction material.[206] As pointed out by a supplier of friction material: '*dual-homologation in general is costly and technically challenging. For technologically demanding projects, it is highly unlikely that two competing friction material suppliers are able to manufacture two sets of friction materials that are entirely interchangeable. Dual-homologation can also be problematic as it requires the exchange of business confidential data with a competitor*'.[207] This would apply both to the OEM and the IAM stages, since introducing dual-sourcing during the life of a rolling stock appears an equally burdensome process which lasts more or less

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and costly programme of assurance and approval is necessary before […] could utilise them on its network. Such a requirement will often deter suppliers other than the OEM from developing an alternative system or sub-system'.

200 Confirmed minutes of a call with a market participant on 23 June 2016.

201 Confirmed minutes of a call with a market participant on 23 June 2016. The market participant also indicated that sometimes dual-sourcing can involve two companies belonging to the same group such as Wabtec's subsidiaries Becorit and Cofren.

202 Replies to question 51 of Q5 – Questionnaire to friction material suppliers.

203 Replies to questions 49 to 51 of Q5 – Questionnaire to friction material manufacturers; replies to questions 52 to 54 and 56 of Q3 – Questionnaire on friction materials and brake systems; replies to questions 122 to 125 of Q1 – questionnaire to rolling stock manufacturers and replies to questions 103 to 105 of Q2 – Questionnaire to rail operators.

204 A friction material supplier's reply to question 49.1 of Q3 – Questionnaire to friction material suppliers.

205 Replies to questions 49 and 51 of Q5 – Questionnaire to friction material manufacturers; replies to questions 52 and 54 of Q3 – Questionnaire on friction materials and brake systems; replies to questions 122 and 125 of Q1 – Questionnaire to rolling stock manufacturers and replies to questions 103 and 105 of Q2 – Questionnaire to rail operators.

206 Replies to questions 122, 123 and 125 of Q1 – Questionnaire to rolling stock manufacturers. The only exceptions are Alstom, which referred to the Regiolis project, where both Faiveley and Wabtec have been qualified; the Greenbrier Companies Inc., which dual-qualified Wabtec, Frenoplast and Federal Mogul for organic material; and Bombardier, which referred to dual-qualification in brake discs and to an ongoing project with SNCB, for which, however, friction materials have not been discussed yet.

207 Confirmed minutes of a call with a market participant on 10 June 2016.

three years.[208] However, as illustrated in recital (291) above, it is also true that […]% of Wabtec's sales in the IAM relate to products where it was not the OEM supplier. Similarly, for Faiveley, […]% of its IAM sales relate to products where it was not the OEM supplier.[209] This illustrates that dual-homologation takes place in several instances in the aftermarket and shows also that the aftermarket is not completely tied to the OEM and it is contestable by friction material suppliers even though they were not the originally installed material suppliers.

(295) Therefore, it seems that due to technical requirements, dual-sourcing appears to be more common and feasible in respect of organic materials than in respect of sintered materials. This seems also to be reflected in the examples of dual-qualification referred to by the Notifying Party, which mostly refer to organic friction material. Dual-qualification in organic friction material also seems easier because the competitive landscape is characterised by several suppliers with sufficient product range, which does not seem to be the case in sintered material.

(296) Fifth, new entry into sintered friction materials seems unlikely post-Transaction. Market participants in general do not expect entry into sintered pads or blocks in the next five years.[210] A few respondents to the market investigation stated that they could potentially start producing sintered friction materials, but they did not seem to have concrete plans.[211] Given the high barriers to entry identified for sintered friction materials and the low degree of substitutability between sintered and organic materials, it appears unlikely, at this stage, that organic material suppliers can effectively enter the sintered market and constrain the merged entity. Among the potential organic material entrants identified by the Notifying Party, none apart from possibly ICER Rail, would be able to start the production of sintered pucks. ICER's development is also likely to be limited and slow.[212]

(297) Sixth, several market participants (friction material suppliers, rolling stock manufacturers, train operators) are concerned that the Transaction would reduce competition in the market for the manufacture and supply of sintered friction materials, leading to less competition in sintered materials and price increases (as well as foreclosure of the markets).[213]

(298) The majority of rolling stock manufacturers responding to the market investigation stated that they would not have adequate alternative suppliers of sintered pads and

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208 Confirmed minutes of a call with a market participant on 28 January 2016; and confirmed minutes of a meeting with a market participant on 1 March 2016.

209 Notifying Party's response to the Commission RFIs of 26 August 2016 and of 29 August 2016.

210 Replies to questions 57 and 61of Q5 – Questionnaire to friction material manufacturers; replies to questions 61 and 64 of Q3 – Questionnaire on friction materials and brake systems; replies to questions 128 and 131 of Q1 – Questionnaire to rolling stock manufacturers and replies to question 109 of Q2 – Questionnaire to rail operators.

211 Replies to question 61 of Q5 – Questionnaire to friction material manufacturers.

212 A market participant's response to question 61 of Q5 – Questionnaire on friction material suppliers.

213 Replies to questions 64, 65 and 67of Q5 – Questionnaire to friction material manufacturers; replies to questions 125, 126 and 129 of Q3 – Questionnaire on friction materials and brake systems; replies to questions 161 and 166 of Q1 – Questionnaire to rolling stock manufacturers and replies to question 134 of Q2 – Questionnaire to rail operators. A rolling stock manufacturer stated that '*[r]isk of price increase on brake systems, especially those using sintered pads as Faiveley and Wabtec would be too strong vs Knorr-Bremse'*. See replies to question 158 to Q1 – questionnaire to rolling stock manufacturers.

pucks should the merged entity stop supplying sintered friction materials to them.[214] For example, Alstom said that '*[…] the Transaction would have a negative impact on the market for the supply of friction materials. There would be no adequate alternatives left and it could lead to a duopoly between Federal Mogul and the merged entity. Dual-sourcing would become even more difficult (with only two suppliers left) and, as a result, car builders and train operators would become even more reliant on brake suppliers for the procurement of spare parts of friction materials. The Transaction would effectively deliver a duopoly, with the Faiveley/Wabtec combination owning 90% market shares'.*[215] Replies of rolling stock manufacturers concerning the supply of sintered blocks are mixed in this respect. However, rolling stock manufacturers were not able to identify any alternative suppliers of sintered blocks.[216] Some train operators also raised concerns stating that they would not have adequate alternative suppliers of sintered pads and blocks other than the merged entity post-Transaction. Those who indicated that they would have sufficient alternative suppliers were, however, unable to mention any.[217]

(299) As a result, of the Transaction the Commission considers that Faiveley would disappear as a separate entity from the market for the IAM supply of sintered friction materials. Apart from the merged entity, the only available competitor would be Federal Mogul with a much smaller market share. The Transaction would therefore remove an important source of competition in the IAM market for the supply of sintered friction materials (both pads and blocks) leading to a three-to-two merger. In light of the foregoing, the Transaction would lead to a significant impediment to effective competition, in particular through the creation or strengthening of a dominant position in the production and the supply of sintered brake pads and blocks in the IAM in the EEA.

6.7.4.4. Conclusion

(300) In light of the above, and considering all evidence available to the Commission, the Commission considers that the Transaction would lead to a significant impediment to effective competition, in particular, through the creation or strengthening of a dominant position, in the production and the supply of sintered brake pads and blocks in the IAM in the EEA.

6.7.5. Vertical effects

(301) The Transaction would lead to a vertically affected market between Wabtec's and Faiveley's activities in (i) the upstream market for the supply of sintered pads (including pucks)[218] as well as of organic pads and blocks and (ii) the downstream market for the manufacture and supply of brake systems.

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214 Replies to questions 121.4 and 121.6 of Q1 – Questionnaire to rolling stock manufacturers.

215 Confirmed minutes of a meeting with a market participant on 1 March 2016.

216 Replies to question 121.5 of Q1 – Questionnaire to rolling stock manufacturers.

217 Replies to questions 102.4 and 102.5 of Q2 – Questionnaire to rail operators.

218 None of the Parties are engaged upstream or downstream of each other in relation to the sale or purchase of sintered blocks, since sintered blocks are sold directly to freight car builders and operators and not to brake systems manufacturers. This is confirmed by the sales and purchases of the Parties: over the past three years, Faiveley has never purchased sintered blocks, whereas Wabtec's clients for sintered blocks are exclusively freight and special vehicles car builders and operators, both on the OEM and IAM. See Form CO, paragraphs 908–909.

(302) The Parties' vertical integration is relevant in relation to the OEM markets, in which sales are made to brake system manufacturers (such as Knorr-Bremse and Faiveley).

(303) The vertical relationship between the Parties' activities in the upstream market for the supply of friction material and in the downstream market for the manufacture and supply of brake systems could lead to a risk of input and customer foreclosure.

(304) In the sections 6.7.5.1 and 6.7.5.5 below, the Commission will assess these foreclosure effects, pursuant to paragraph 94 of the Guidelines on the assessment of non-horizontal mergers ('Non-Horizontal Merger Guidelines')[219], according to which '*[i]n assessing the likelihood of such a scenario [foreclosure], the Commission examines, first, whether the merged firm would have the ability to foreclose its rivals, second, whether it would have the economic incentive to do so and, third, whether a foreclosure strategy would have a significant detrimental effect on competition, thus causing harm to consumers. In practice, these factors are often examined together as they are closely intertwined*'.[220]

6.7.5.1. Input foreclosure

(305) According to paragraph 31 of the Non-Horizontal Merger Guidelines input foreclosure may occur '*where, post-merger, the new entity would be likely to restrict access to the products or services that it would have otherwise supplied absent the merger, thereby raising its downstream rivals' costs by making it harder for them to obtain supplies of the input under similar prices and conditions as absent the merger. This may lead the merged entity to profitably increase the price charged to consumers, resulting in a significant impediment to effective competition.*'[221]

(306) As indicated in recital (249) above, Knorr-Bremse currently sources a part of its sintered friction material requirements (mainly sintered pucks and to a lesser extent pads) from Wabtec.[222] From Wabtec, Knorr-Bremse purchases mostly sintered pucks for integration in its flexible sintered pads. Knorr-Bremse is also Faiveley's main rival in the downstream market for the manufacture and supply of brake systems.

(307) In that respect, if the assessment of horizontal unilateral effects focuses on the impact of the Transaction on the IAM markets for sintered friction materials for rolling stock manufacturers and train operators, the assessment of input foreclosure focuses on the impact of the Transaction on Knorr-Bremse as regards the OEM and IAM market for the supply of sintered friction material, in particular of pucks.

(308) In the Section 6.7.5.3, the Commission assesses whether post-Transaction the merged entity is likely to have the ability and incentive to raise prices and/or restrict supply of sintered friction materials (especially pucks) vis-à-vis the main supplier of

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219 Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, OJ C 265, 18.10.2008, p.6.

220 Non-Horizontal Merger Guidelines, paragraph 94.

221 Non-Horizontal Merger Guidelines, paragraph 31.

222 Knorr-Bremse procures organic pads and blocks from Wabtec, Federal Mogul, from its joint-venture ICER Rail as well as from its subsidiary TMD. Therefore, as regards organic friction material there is no risk of input foreclosure, since Knorr-Bremse has already adopted a diversified purchasing strategy. For that reasons, the assessment on the risk of input foreclosure will only focus on sintered friction material and in particular, on the supply of pucks. Knorr-Bremse partly purchases pucks for flexible pads from Wabtec. As regards sintered pads, Knorr-Bremse has already adoped a double-sourcing strategy and procures them from Wabtec and Federal Mogul, leaving little scope for any input foreclosure strategy by the merged entity. See, Knorr-Bremse's response to the Commission's RFI of 11 March 2016.

brake systems, Knorr-Bremse, in order to prevent it from effectively competing with the merged entity for the supply of brake systems to rolling stock manufacturers.

6.7.5.2. The Notifying Party's position

(309) The Notifying Party claims that the merged entity would lack both the ability and incentive to foreclose rival brake system suppliers from having access to friction materials for the following reasons.

(310) First, Wabtec's market shares in the OEM markets for sintered pads (but also organic blocks and pads) have decreased since 2012, due to competition from strong competitors such as ICER and Federal Mogul.[223]

(311) Second, Knorr-Bremse is the largest competitor in the downstream market for the manufacture and supply of brake systems and cannot be easily foreclosed because it is vertically integrated (through its joint venture ICER/Rail) and capable of starting to produce new products itself or switching to alternative friction materials suppliers, if needed.[224] Furthermore, even if pre-Transaction Knorr-Bremse were dependent on Wabtec for a specific type of puck or pad, this would not mean that it would continue to be dependent post-Transaction for new projects, for which Knorr-Bremse may have the choice of the friction material to install in its brakes. In addition, the Notifying Party claims that confronted with an input foreclosure strategy, Knorr-Bremse would be able to divert its demand to products of other friction material manufacturers.[225]

(312) In addition, […], Wabtec and Knorr-Bremse entered into a long-term supply agreement […].[226] The supply agreement will provide Knorr-Bremse with the security of supply for sintered pucks until at least […] and Knorr-Bremse would likely self-supply to a large extent, if not exclusively, by that date.

(313) Third, since the cost of friction materials is only a small fraction (on average 2%)[227] of the production costs of brake systems, any increase in the cost of friction material would not result in a material increase in the total cost of supplying brake systems and would have no impact on a rival brake system supplier's ability to compete downstream for the supply of brake systems nor on end-customers. The Notifying Party argues that the Non-Horizontal Merger Guidelines[228] state that input foreclosure is not a concern where the input represents such a modest cost factor in the final product or where the input product is not a critical component. The Notifying Party argues that its friction materials are not a critical component in a complete brake system and is not a significant source of differentiation for brake systems.

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223 Sintered blocks are not relevant for any vertical foreclosure theory since these are sold directly to freight car builders and operators rather than brake system manufacturers.

224 Notifying Party's response to the Article 6(1)(c) Decision, paragraphs 320-325. See also Notifying Party's reply to the Commission RFI of 29 June 2016.

225 Notifying Party's response to question 13 of the Commission RFI on friction materials of 29 June 2016.

226 […] See Form CO, paragraphs, 260, 338–340 and 922.

227 This is also confirmed by comparing the average size of the OEM market for friction materials over 2012-2014 with the average size of the market for brake systems for all types of rolling stock over 2011-2013, which yields a ratio of 2.4% (EUR […] million / EUR […] million). See Form CO, paragraph 924.

228 Non-Horizontal Merger Guidelines, paragraph 34.

(314) Fourth, the merged entity would lack any incentive to foreclose access to inputs to Knorr-Bremse (or any other brake systems manufacturer) because the merged entity's gains on the brake systems market would be highly hypothetical, given Knorr-Bremse's strong position in this market. According to the Notifying Party, Knorr-Bremse (i) could source from alternative suppliers, such as Federal Mogul; (ii) could increase in-house production via its joint venture ICER Rail; and (iii) is protected by the long-term supply agreement. Moreover, revenue from sales to Knorr-Bremse is a crucial element in Wabtec's business plan as evidenced by its internal documents.[229] Finally, customers would retaliate in relation to friction materials that can be supplied by others if Wabtec tried to foreclose on the materials that only it can provide.

(315) Finally, any input foreclosure strategy would have no effect on the market for the manufacture and supply of brake systems since (i) Knorr-Bremse has a strong position in the OEM markets for brake systems; (ii) the pads installed on Knorr-Bremse's brake systems are by no means a determinant factor of its success on the market for brake systems and (iii) only a limited part of Knorr-Bremse's purchases of sintered pucks from Wabtec seems to be for use in the EEA OEM markets.[230]

6.7.5.3. The results of the market investigation and the Commission's assessment

(316) In order for anticompetitive input foreclosure to arise, three conditions must be met: first, that the merged firm would have the ability to foreclose its rivals, second, that it would have the economic incentive to do so and, third, that a foreclosure strategy would have a significant detrimental effect on competition, thus causing harm to consumers.[231]

(317) The Commission will assess these three elements in recitals (318) to (341) below.

Ability to foreclose

(318) Wabtec is currently the only supplier of sintered pucks that are integrated into Knorr-Bremse's sintered pads for use on EEA trains.[232]

(319) For a company to have the ability to foreclose, it must have a significant degree of market power in the upstream market.[233] As indicated in section 6.7.4.3 above, Wabtec has an outstanding position in the supply of sintered friction materials, as it has high-end products and the largest portfolio. In addition, most of its sintered materials possess the necessary homologations. Currently, the only alternative supplier of sintered pads is Faiveley, followed by Federal Mogul.[234] In Knorr-Bremse's view, Wabtec '*[...] is therefore difficult to be replaced'*.[235]

(320) Post-Transaction, the only credible alternative supplier for sintered friction material for Knorr-Bremse would be Federal Mogul, which however does not produce the

229 Annex 5.4 (iii) – 60 to the Form CO.

230 Form CO, paragraph 936 and the Notifying Party's response to the Article 6(1)(c) Decision, paragraphs 330-336.

231 Paragraph 32 of the Non-Horizontal Merger Guidelines.

232 A market participant's non-confidential response to question 1 of request for information of 11 March 2016.

233 Non-Horizontal Merger Guidelines, paragraph 35.

234 Replies to questions 41, 42 and 129 of Q3 – Questionnaire on friction materials and brake systems.

235 Replies to question 36.1.1 of Q3 – Questionnaire on friction materials and brake systems.

required pucks.[236] A majority of friction materials suppliers indicated only Wabtec as a supplier of sintered pucks.[237]

(321) The Commission's investigation, however, revealed that Wabtec does not produce all the pucks that it supplies to Knorr-Bremse.[238] As explained in recital (252) above, Miba produces pucks suited for Knorr-Bremse's ISOBAR system[239] and […]. The supply of the pucks destined to […].[240] According to […].[241][…].[242] In addition, […].[243] Therefore, […]. In addition, […].[244] This means that […], Miba may become an independent third supplier of sintered friction material for railway applications that may satisfy a part of Knorr-Bremse's needs.[245] In particular, Knorr-Bremse's ISOBAR pucks will […].

(322) In addition, and more importantly, […], Wabtec and Knorr-Bremse entered into a supply agreement […].[246] […]

(323) The Commission considers that the supply agreement secures Knorr-Bremse's supply for pucks for past and current projects until at least […], since it covers all products currently supplied to Knorr-Bremse.

(324) As regards future projects, which may require changes to existing sintered material and that do not to fall within the scope of the supply agreement, the Commission considers that Knorr-Bremse would have the ability and incentives to adapt its existing products, to start developing a new product itself or via its joint venture ICER Rail and/or to switch supplier.

(325) During the market investigation both ICER Rail and Knorr-Bremse stated that if prices for friction materials increased permanently or there were a business case for it, they could start the production of sintered pucks.[247] In addition, ICER Rail also indicated that it '*[…] is conducting R&D into new shapes and new materials. Research staff is working to further develop the sintered product line*'[248]. This seems to be confirmed by the fact that ICER Rail has also recently installed a new production line for sintered products, in particular for sintered brake pads for high-speed traffic.[249] As regards the timing required to develop and produce a completely

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236 As stated by Knorr-Bremse, '*[t]here is no substitution for Wabtec products available on the market, apart from one product which Knorr-Bremse designed together with ICER Rail. Changes to different products are usually not possible due to the high performance demands for sintered material'*. See replies to questions 45.4 and 45.4.2 and 45.6 and 45.6.2 of Q3 – Questionnaire on friction materials and brake systems.

237 Replies to question 42 of Q5 – Questionnaire to friction material manufacturers.

238 […] See Form CO, paragraph 922.

239 […] See Notifying Party's reply to the Commission RFI of 15 April 2016.

240 […].

241 […].

242 Confirmed minutes of a call with a market participant on 21 June 2016.

243 The Notifying Party's response to the Commission RFI of 15 April 2016.

244 The Notifying Party's response to the Commission RFI of 15 April 2016.

245 Miba has already declared that '*it is capable and ready to develop new sintered materials on its own.'* Confirmed minutes of a call with a market participant on 21 June 2016.

246 […] Form CO, paragraph 338.

247 Replies to question 61 of Q5 – Questionnaire to friction material suppliers and replies to question 64 of Q3 – Questionnaire on friction materials and brake systems.

248 Confirmed minutes of a call with a market participant on 3 February 2016.

249 Form CO, paragraph 313.

new sintered material, ICER Rail indicated that '*it would take at least two years to develop a new sintered material/product, another 1-2 years to build up production, and another two years for testing and homologation. In total 5-6 years*'[250], which seems a reasonable timeframe to consider entry likely and timely in the brake railway industry.

(326) It should also be noted that Knorr-Bremse has been pursuing a growth strategy in the area of friction material, by acquiring Anchor Brake Shoes (2008), the leading North American brake blocks manufacturer for locomotives and freight cars; ICER Rail (2010), at that time active in organic brake pads and shoes but now expanding into sintered materials; and TMD Friction (2016), also focusing on organic material for the railway industry. By these strategic acquisitions, Knorr-Bremse intended to reduce its dependency for organic friction material on third party suppliers and has been quite successful in doing so.[251] There is no reason to believe that Knorr-Bremse with its significant financial resources and technical expertise would not be able to progressively reduce its dependency from Wabtec also as regards sintered material for future projects and in any event by the time the supply-agreement expires.

(327) In addition, for new projects requiring the development of new sintered material or the adaptation of existing sintered material, despite Knorr-Bremse's submission to the contrary, the need for homologation cannot play a differentiating role as to establish likelihood of entry, since new Wabtec products would also require homologation exactly in the same way as products manufactured by competing suppliers (including Knorr-Bremse/ICER Rail).

(328) Moreover, Knorr-Bremse has already sponsored entry of friction material suppliers in the past and has indicated that it would be ready to sponsor a third-party entry in sintered friction material if necessary.[252] Although entry barriers appear high (see recital (290) above), in addition to ICER Rail, some third-party friction material suppliers such as Flertex, Ecobrake, Federal Mogul and Bremskerl indicated that they could enter or expand their presence in sintered friction materials (including pucks) if there was a business case for it.[253] Moreover, the divestiture of Faiveley's friction business as a remedy to the competition concerns raised in relation to unilateral non-coordinated effects as regards friction material will create a new independent non-vertically integrated supplier with the necessary infrastructure, production facilities, expertise and know-how, which may address Knorr-Bremse's needs.

(329) Therefore, the Commission considers that, despite the merged entity's strong position in the upstream market for the supply of sintered materials, it is unlikely that the merged entity would have the ability to foreclose the supply of sintered friction material to Knorr-Bremse because for existing projects (namely projects involving

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250 Replies to question 10 of Q3 – Questionnaire on friction materials and brake systems.

251 In case M. 7174 – *Federal Mogul Corporation / Honeywell Friction Materials*, the Commission acknowledged that: '*The market investigation shows that customers have already threatened to source in-house. Knorr-Bremse entered into a joint venture, ICER Rail, in order to reduce the dependency from its suppliers. A large majority of customers also state to already have threatened to switch suppliers. Moreover, two customers report to have actually switched supplier before the end of a contract'*. See M.7174 – *Federal-Mogul Corporation/Honeywell Friction Materials*, paragraph 130.

252 Replies to questions 62 and 63 of Q3 – Questionnaire on friction materials and brake systems.

253 Replies to question 61 of Q5 – Questionnaire to friction material suppliers; confirmed minutes of a call with a market participant on 23 June 2016.

existing friction materials): (i) until […], Wabtec committed to supply to Knorr-Bremse all friction materials needed by Knorr-Bremse for its past and current projects […]; (ii) beyond […], Knorr-Bremse is likely to have the ability and the incentive to reduce its dependency on Wabtec and start developing sintered friction materials in-house or […]; alternatively, Knorr-Bremse could procure them from other suppliers, such as […].

(330) In connection with future projects (namely projects involving new products that are not included in the supply agreement between Wabtec and Knorr-Bremse), despite Knorr-Bremse's submission to the contrary,[254] Knorr-Bremse is likely to have the financial resources, the expertise and the incentive to already start developing sintered materials in-house or in co-operation with another friction material supplier. This is also demonstrated by the fact that ICER Rail is already present in the sintered market (with one product) and it is already working on and willing to expand its production of sintered friction materials.[255]

(331) In light of the foregoing, and considering all evidence available to it, the Commission considers that it is unlikely that the merged entity would have the ability to foreclose competing brake system suppliers post-Transaction.

Incentives to foreclose

(332) The Commission considers that the merged entity would in any case lack the incentives to do so for the reasons set out from recitals (333) to (337).

(333) Incentives for vertical input foreclosure are driven by a trade-off between the cost of foregoing upstream sales to rivals of the merged entity and the potential benefits of making additional sales at downstream levels, at the expense of those rivals.[256] In the present case, this means that an input foreclosure strategy should limit Knorr-Bremse's ability to compete in the brake system market. Unless this happens, the merged entity will continue to be constrained by the overwhelming presence of Knorr-Bremse in the downstream market for the manufacture and supply of brake systems with the result that any input foreclosure strategy would be unprofitable.

(334) First, any input foreclosure strategy is unlikely to provide the merged entity with any advantage when competing against Knorr-Bremse in the market for brake systems for the reasons explained in recitals (322) to (327) above, notably: (i) for existing projects, the supply agreement between Wabtec and Knorr-Bremse will secure Knorr-Bremse's supply at least until […]; (ii) for new projects, in response to an input foreclosure strategy, Knorr-Bremse is likely to change its procurement strategy or try to adapt its brake systems to use a different type of friction material, so as to reduce its purchasing from the merged entity.

(335) Second, as regards brake systems in existing rolling stock, it is highly unlikely that any foreclosure strategy would lead train operators to switch brake systems on existing trains. While a disruption in the supply of friction material would lead to significant problems for train operators, it would probably still be cheaper and less time consuming to find and homologate a new friction material rather than for the

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254 Replies to question 44 of Q3 – Questionnaire on friction materials and brake systems. A market participant's non-confidential response to question 3.ii of request for information of 11 March 2016 and replies to questions 46 and 50.2 of Q3 – Questionnaire on friction materials and brake systems. Replies to question 61 of Q5 – Questionnaire to friction material manufacturers.

255 Confirmed minutes of a call with a market participant on 3 February 2016.

256 Non-Horizontal Merger Guidelines, paragraph 41.

train operator to switch brake system to Wabtec and retrofit affected existing trains with new brake systems. This is all the more likely if the brake system to be replaced was that of Knorr-Bremse, the market leader. In addition, Knorr-Bremse could counter-act any foreclosure attempt by the merged entity by severing the supply of organic material from Wabtec and switch to Federal Mogul or self-supply.

(336) Third, as regards brake systems for new projects, for the reasons stated above in recitals (318) to (331), Wabtec would lack the ability to completely foreclose Knorr-Bremse and it would therefore be unlikely to significantly affect Knorr-Bremse's ability to compete on brake systems. This in turn makes it unlikely that Wabtec would win enough additional new brake system projects to make a foreclosure strategy profitable for the merged entity. It is therefore unlikely that Wabtec would have the incentives to engage in an input foreclosure strategy.[257]

(337) In light of the foregoing, and considering all evidence available to it, the Commission considers that it is unlikely that the merged entity would have the incentive to foreclose competing brake system suppliers post-Transaction.

Significant detrimental effect on competition downstream

(338) In general, a merger raises competition concerns because of input foreclosure when it leads to increased prices in the downstream market, thereby significantly impeding effective competition.[258]

(339) This may occur for example when the merged entity would be able to raise the costs of downstream rivals leading to an upward pressure on their sales prices. This does not seem likely in the case at stake, since (i) friction material represent a small cost compared to the cost of a brake system (2% if input costs are considered); (ii) Knorr-Bremse is the leader in the market downstream for brake systems and even if Wabtec severed its sales of sintered material to Knorr-Bremse, the latter would find alternative products and even if those alternatives were somewhat inferior or more expensive this would be unlikely to prevent Knorr-Bremse from continuing to win projects in the EEA. In addition, as explained in recitals (322) and (323) above, Knorr-Bremse's supply of friction material appears to be secured in the short to medium term and by the time the supply agreement with Wabtec expires, it should have found, or be close to finding, alternative sources of supply.

(340) Finally, the remedy offered by the Notifying Party to dispel the competition concerns raised by the Transaction in connection with unilateral effects would also ensure the entry of a new independent and non-vertically integrated supplier of friction material in the EEA market for the supply of sintered friction materials.

(341) In light of the foregoing, and considering all evidence available to it, the Commission considers that it seems unlikely that any attempt by the merged entity to raise process or restrict supply of sintered friction materials to Knorr-Bremse would significantly impede effective competition in the downstream market for the manufacture and supply of brake systems.

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257 This view is also supported by a cost-benefit analysis for a hypothetical input foreclosure scenario submitted by the Notifying Party. See, Notifying Party's response to question 13 of the Commission RFI on friction materials of 29 June 2016.

258 Non-Horizontal Merger Guidelines, paragraph 47.

6.7.5.4. Conclusion

(342) In light of the above, and considering all evidence available to the Commission, the Commission considers that the Transaction would not lead to a significant impediment to effective competition due to input foreclosure.

6.7.5.5. Customer foreclosure

(343) According to paragraph 58 of the Non-Horizontal Merger Guidelines, customer foreclosure may occur '*when a supplier integrates with an important customer in the downstream market*' and because of this downstream presence, '*the merged entity may foreclose access to a sufficient customer base to its actual or potential rivals in the upstream market (the input market) and reduce their ability or incentive to compete*' which in turn, '*may raise downstream rivals' costs by making it harder for them to obtain supplies of the input under similar prices and conditions as absent the merger. This may allow the merged entity profitably to establish higher prices on the downstream market*.'

(344) Post-Transaction, Faiveley is likely to purchase the vast majority of its friction material needs internally from Wabtec (or at least likely to increase internal purchases). Faiveley is currently one of the main customers of Federal Mogul in respect of friction materials for railway applications (mainly organic material). Federal Mogul may therefore lose one of its main customers and compete less effectively in the upstream market for the supply of friction materials.

(345) In addition, several friction materials suppliers, almost exclusively active in the IAM supply of organic material, are concerned that the Transaction may significantly impede effective competition by restricting the access to the OEM market for the supply of organic material. According to these complainants, the vertical integration between the Parties' activities in the supply of organic friction material and the manufacture and supply of brake systems would render it even more difficult to gain OEM projects. Since being the supplier of the originally installed friction material would give more opportunities to supply the IAM market, the Transaction could eventually restrict also the access to the IAM market for the supply of organic materials.[259]

(346) In Section 6.7.5.7, the Commission assesses whether post-Transaction the merged entity is likely to have the ability and incentive to foreclose access to a sufficient customer base to friction material suppliers in order to prevent them from effectively competing with the merged entity for the supply of friction materials and, ultimately, to prevent brake system manufacturers, namely, Knorr-Bremse, from competing effectively in the downstream market for the manufacture and supply of brake systems.

6.7.5.6. The Notifying Party's position

(347) The Notifying Party claims that the merged entity would have neither the ability nor the incentive to engage in customer foreclosure.

(348) First, the merged entity would lack the ability to engage in any foreclosure strategy because it would lack market power in the downstream market, where it would only

[259] Replies to questions 64, 65 and 67 of Q5 – Questionnaire to friction material manufacturers.

account for [20-30]% of the market for brake systems for all types of rolling stock[260], far behind Knorr-Bremse.

(349) Second, Faiveley is not one of the main customers of Federal Mogul. Wabtec estimates that Federal Mogul sales to Faiveley on the OEM markets for organic material amount to […]% of the total estimated size of the OEM markets for organic material. In addition, Wabtec estimates that Federal Mogul sales to Faiveley on the OEM markets for organic material represent […]% of Federal Mogul's sales on the OEM markets for organic material.[261]

(350) Third, the Transaction would only affect the OEM markets, which only represent 5% of the total sales of friction materials. As a result, the merged entity could not successfully foreclose its rivals on the upstream market for the supply of friction materials, since the latter would still be able to access the IAM markets, representing 95% of the total sales of friction materials. According to the Notifying Party, although the ability to supply to the OEM markets may provide the OEM supplier with the opportunity to address the IAM markets, this is not meaningful, as evidenced by the fact that approximately […]% of Faiveley's sales in the IAM pertain to brake systems originally equipped with competitors' friction materials.[262]

(351) In addition, any attempt to foreclose the OEM market would be defeated because IAM customers (i.e. train operators) have effective counterstrategies such as dual-sourcing as part of the OEM selection process or subsequently during the lifespan of the rolling stock, thus influencing the conditions both at OEM and IAM level.

(352) Fourth, Federal Mogul could not be foreclosed, because it is an established player in friction material with strong sales both in the OEM and IAM markets at global level.

(353) Fifth, the Notifying Party submits that the merged entity would lack any incentive to implement a customer foreclosure strategy and increase prices on the friction material markets given that alternative friction material suppliers would be able to continue to supply the IAM markets. The loss of the merged entity as a potential customer would incentivise those suppliers to compete more aggressively for the remainder of the demand, including on the IAM market. This would risk significantly lowering the price of friction material on the IAM market, which would run against the merged entity's interest as an IAM friction material supplier.

(354) Finally, the merged entity would be unable to benefit from a customer foreclosure strategy on the downstream brake system market either. A customer foreclosure strategy would have almost no effect on Knorr-Bremse, who would be able to source a large part, if not all, of its demand internally and would be expected to do so. The

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260 For individual types of rolling stock, its highest market share is [30-40]% for metros. See Form CO, section 7.4.

261 Notifying Party's response to the Article 6.1.(c) Decision of 27 May 2016.

262 Notifying Party's response to the Commission RFIs of 26 August 2016 and of 29 August 2016. In particular, the […]% estimate excludes Faiveley's IAM sales which pertain to fleets for which Carbone Lorraine/FTG was the OEM supplier, except for TGV pads to SNCF in France. Carbone Lorraine/FTG was in fact the OEM supplier of certain TGV fleets, but not all. Faiveley does not know however whether the TGV pads it sells to SNCF are eventually installed on TGV train sets originally equipped with Carbone Lorraine/FTG pads or not. Therefore, the […]% estimate includes all FTG's IAM sales of TGV pads to SNCF, whether FTG/Carbone Lorraine was the OEM supplier or not. It excludes, however, all of FTG's IAM sales of friction materials on other fleets for which FTG/Carbone Lorraine was the OEM supplier (such as Eurostar, Renfe's AVE and ATPRD, SNCB's HLE18 locomotives).

Notifying Party does not expect that a customer foreclosure strategy would bring a material improvement in its ability to compete on the market for brake systems either.

6.7.5.7. The results of the market investigation and the Commission's assessment

(355) In order for customer foreclosure to arise, three conditions must be met. According to paragraph 59 of the Non-Horizontal Merger Guidelines '*[i]n assessing the likelihood of such a scenario [foreclosure], the Commission examines, first, whether the merged firm would have the ability to foreclose access to downstream markets by reducing its purchases from its upstream rivals, second, whether it would have the incentive to reduces its purchases upstream, and, third, whether a foreclosure strategy would have a significant detrimental effect on consumers in the downstream market'*.

(356) The Commission will assess these three elements below.

Ability to foreclose

(357) The Commission considers that it is unlikely that the merged entity would have the ability to foreclose friction material suppliers post-Transaction.

(358) First, for customer foreclosure to be a concern, it must be the case that the vertical merger involves a company '*which is an important customer with a significant degree of market power in the downstream market*'[263]. This is not the case here.

(359) Faiveley does not currently produce organic friction materials and sources all of its needs externally (it also procures some sintered materials from third-party suppliers). In particular, Faiveley purchases from both Federal Mogul and Wabtec organic pads and blocks as well as sintered pads.

(360) Faiveley is not Federal Mogul's largest customers of friction materials.[264] According to the Notifying Party's best estimates, Federal Mogul's sales of organic material to Faiveley on the OEM markets represent roughly […]% of the OEM markets for organic material. Federal Mogul's sales to Faiveley amounted to less than 15% of Federal Mogul's total sales of friction materials (namely, organic pads and blocks and sintered pads, both OEM and IAM) in the last three years.[265] In recent years, Federal Mogul has sold more friction material to Knorr-Bremse than to Faiveley.[266] A share of sales of less than 15% seems too low to find any foreclosure concerns in any product market.

(361) In addition, in 2014, Faiveley's purchases from Federal Mogul of organic pads and blocks as well as sintered pads for integration in its OEM brake system amounted respectively to […]%, […]% and […]% of Faiveley's total purchases of friction material.[267] Therefore, not only Faiveley is not Federal Mogul's largest customer, but also it has so far been largely dependent on Federal Mogul for its purchases of organic friction materials. Changing friction material for existing rolling stock is not straightforward due to homologation time and cost. In this respect, it seems unlikely that the merged entity would change immediately its purchasing strategy by

263 Non-Horizontal Merger Guidelines, paragraph 61.

264 Confirmed minutes of a call with a market participant on 28 January 2016.

265 A market participant's response to question 45 of Q5 – Questionnaire to friction material suppliers.

266 Confirmed minutes of a call with a market participant on 10 June 2016.

267 In 2014, Faiveley's purchases from Federal Mogul of organic pads and blocks as well as sintered pads for both integration in its OEM brake systems and resale in the IAM market amounted respectively to […]%, […]% and […]%. See Form CO, paragraph 1316.

internalising all its organic friction material needs following the integration with Wabtec.

(362) As regards other organic friction material suppliers, Faiveley is a small customer, representing less than 5% of the demand of organic friction material for each of Bremskerl, Flertex, Ecobrake and TMD.[268] [269]

(363) Furthermore, and more importantly, the merged entity will have a limited size in the downstream market for the manufacture and supply of brake systems, which is led by Knorr-Bremse (with [70-80]% market shares). In the OEM market for brake systems, Faiveley will have [10-20]% market share in a segment encompassing all rolling stock and [10-20]% in a segment for mainline and regional trains. As a result, it appears very unlikely that Faiveley could currently represent a majority of the demand in the OEM market for friction materials.[270] Knorr-Bremse self-supplies part of its needs of organic friction materials, but it is also seeking to progressively reduce procuring friction materials (including organic material) from the merged entity, as illustrated by the recent acquisition of TMD Friction. Post-Transaction, Knorr-Bremse will likely have all the incentives to purchase from alternative suppliers in the market and all the more from non-vertically integrated suppliers, such as Federal Mogul, Flertex, Bremskerl, and Ecobrakes in addition to increasing its internal self-supply.

(364) Second, contrary to what has been put forward by some market participants[271], any foreclosure effect would not have a material effect on the IAM for friction material. Even though the replies to the market investigation indicated that being able to supply friction materials on the OEM markets provides OEM suppliers with an opportunity to address IAM markets, there is also evidence supporting the fact that any friction material supplier (including Federal Mogul), can, at least to some extent, compete on the IAM market regardless of whether it was qualified at the OEM stage.

(365) For example, in the case of Faiveley, […]% of its IAM sales pertain to brake systems originally equipped with competitors' friction materials.[272] In particular, Faiveley has been qualified to supply the aftermarket for several TGV trains originally equipped with […] friction material. TGV trains represented […]% of Faiveley's sales of friction material for railway applications in the last fiscal year. Bremskerl also achieves a strong market share for IAM organic pads ([20-30]% to [20-30]% between 2012 and 2014), while only having a very small OEM focus ([0-5]% in the same period).[273] In the case of Wabtec, […]% of its IAM sales pertain to instances in

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268 In February 2016, Knorr-Bremse announced the acquisition of the rail transport activities of TMD Friction. http://www knorr-bremse.be/nl/press/pressreleases/press_detail_23232.jsp.

269 See responses to questions 45 and 46 to Q5 – Questionnaire to friction material suppliers.

270 The sales that Faiveley would derive from Metroflexx have no relevance in the assessment of the ability of the merged entity to foreclose Federal Mogul (or other friction material suppliers), since these sales would happen after the Transaction but not because of the Transaction. Currently these sales do not exist, so they are not lost to Federal Mogul.

271 Confirmed minutes of a call with a market participant on 28 January and 10 June 2016. Confirmed minutes of a call with a market participant on 23 June 2016.

272 Notifying Party's response to the Commission RFIs of 26 August 2016 and of 29 August 2016.

273 During the investigation, Bremskerl stated that '*Bremskerl is active both in the OEM and the IAM markets. However, 95% of its sales are made on the IAM market, as Bremskerl is homologated as a second source*', supporting the fact that the IAM markets are freely addressable irrespective of having a presence in the OEM market. See confirmed minutes of a call with a market participant on 23 June 2016.

which Wabtec was not the OEM supplier of the friction material. In most of these instances, the OEM supplier of friction material was Federal Mogul.[274]

(366) This demonstrates that the IAM markets can be contested by any friction material suppliers independently from their position on the OEM market. It follows that any customer foreclosure strategy on the OEM market, would not significantly affect the ability of rival suppliers of friction materials to access the aftermarket, representing around 95% of the sales of friction material.[275]

(367) In addition, for existing OEM projects Federal Mogul, but also other friction material suppliers for the extent to which they are already present in the OEM, will continue to be able to sell friction material. Given the long life cycle of rolling stock, OEM sales over the recent years will continue to yield sales opportunities in the IAM for these projects for the remainder of the lifetime of the trains. This means that a supplier such as Federal Mogul could not credibly be foreclosed from the friction materials markets in the short to mid-term as the initially installed friction material supplier has all the possibilities of supplying the aftermarket for many years to come. Any erosion due to reduced sales at the OEM level, if any, will be gradual over time and Federal Mogul is likely to be able to find alternative customers or different market strategies.

(368) Fourth, the market investigation results indicated that dual-sourcing of friction material appears to be less difficult in relation to organic friction material compared to sintered materials.[276] Therefore, train operators and rolling stock manufacturers can more easily put in place dual-homologation strategies already at the OEM level to avoid reliance on the merged entity, thus giving access to the OEM market to several organic friction material suppliers. Dual-homologation of organic materials would be also possible because the market is less concentrated than that of sintered materials.

(369) Fifth, insofar as Federal Mogul is concerned, Federal Mogul is a financially sound company, active worldwide, with a diversified portfolio. Federal Mogul could thus easily put in place counter-strategies to overcome any attempt by the merged entity to cut off its access to the OEM market for organic friction materials. In particular, it seems unlikely that Federal Mogul's variable costs would be significantly affected, since it would likely continue to achieve economies of scale in light of its activities in neighbouring markets.[277]

(370) Finally, as regards the concerns expressed by some independent organic friction material suppliers whereby the Transaction would lead to a further concentration at the OEM level and, as a result, opportunities to sell in the aftermarket would be reduced for non-integrated friction material competitors, the Commission observes

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274 Notifying Party's response to the Commission RFI of 26 August 2016.

275 In that respect, a friction material supplier stated that the Transaction would significantly narrow one of the two routes to the aftermarket, namely, that via the brake system manufacturer. However, the same friction material supplier stated that the other route to access the aftermarket, namely, a direct relationship with the train operator, represents 95% of the IAM sales of friction materials (see confirmed minutes of a call with a market participant on 23 June 2016).

276 Replies to questions 49 to 51 of Q5 – Questionnaire to friction material suppliers; replies to questions; replies to questions 52 to 54 of Q3 – Questionnaire on brake systems and friction materials; replies to questions to 122 to 125 of Q1 – Questionnaire to rolling stock manufacturers; and replies to questions 103 and 105 of Q2 – Questionnaire to rail operators.

277 Notifying Party's reply to the Article 6.(1)(c) Decision of 27 May 2016.

the following. First, with the exception of Federal Mogul, other suppliers of organic friction material have a very limited presence in the OEM already pre-Transaction. Nonetheless, they are able to access the IAM. Therefore, the effective impact of the Transaction on their business as a result of the consolidation of the Parties' activities at OEM level would be more limited. Second, Wabtec is not the strongest supplier of organic material, with an OEM market share of [30-40]% (the market leader in the OEM market being Federal Mogul, with a [50-60]% market share). Faiveley may well need to continue to procure organic friction materials from third-party suppliers at least in the short to medium term. Replacing friction material takes several years and it is costly, due to homologation requirements. Third, evidence collected during the market investigation showed that the IAM market, especially as regards organic material, is contestable by independent friction material suppliers, even though they have not originally been qualified at the OEM level. The very existence of friction material suppliers which mainly serve the IAM market is illustrative. Faiveley is also an example that being vertically integrated does not necessarily mean to rely exclusively on internal supply for friction materials – internal supply is largely also related to the product portfolio of friction materials available. Therefore, the Commission considers that the Transaction would not lead to a significant impediment of effective competition as regards the access to the OEM and IAM market for the supply of organic friction materials.

Incentive to foreclose

(371) The Commission considers that it is unlikely that the merged entity would have the incentive to foreclose the access of friction material suppliers, including Federal Mogul, to an adequate customer base post-Transaction.

(372) First, it seems unlikely that the merged entity would be incentivised to immediately replace friction material supplied by third-parties, including Federal Mogul, by its own products on all its brake systems. This is illustrated by Faiveley's own strategy in previous years: in 2014-2015, Faiveley's internal sales of sintered pads for integration in its own OEM brake systems accounted for (i) less than a half of Federal Mogul's sales to Faiveley for integration in Faiveley's OEM brake systems and (ii) less than one third of Faiveley total supply of sintered pads for integration in Faiveley's OEM brake systems.[278] This shows that Faiveley, despite being vertically integrated as regards sintered pads, was not able nor incentivised to install (or develop) its own sintered pads on all its brake systems. Even for sintered pads, thus, Faiveley has mostly relied on competitors and there is no reason to believe that for organic material its strategy would change post-Transaction.

(373) Second, the merged entity would not benefit from a customer foreclosure strategy on either the upstream or downstream markets.

(374) On the upstream market, Federal Mogul is the leader on the OEM organic friction material markets, with [50-60]% and [30-40]% market shares in organic blocks and pads respectively. Should Federal Mogul be foreclosed from the OEM market, it would most likely continue to benefit from IAM sales derived from its installed base of friction material. As regards other friction material suppliers, any foreclosure effect would not be profitable, since they do not supply the OEM to a significant extent and they do not achieve most of their sales in both the OEM and IAM market

[278] Form CO, table at page 353 and Notifying Party's response to the Article 6(1)(c) Decision of 27 May 2016.

with Faiveley. In addition, given its position on the downstream market for the manufacture and supply of brakes, the merged entity would also have a limited sales base on which it could enjoy increased margins.

(375) On the downstream market, any customer foreclosure would have no material effect on Knorr-Bremse, due to its strong position on that market and also the fact that it partially self-supplies its demand of organic friction material.

Significant detrimental effect on competition downstream

(376) Finally, it is unlikely that a potential customer foreclosure strategy would result in any significant detrimental effect on competition in the downstream market for the manufacture and supply of brake systems.

(377) Foreclosing rivals on the upstream market may have an adverse impact in the downstream market and eventually harm consumers. By denying competitive access to a significant customer base for the foreclosed rival's upstream products, the merger may reduce their ability to compete in the foreseeable future. As a result, downstream rivals are likely to be put at a disadvantage, for example in the form of raised input costs. However, it is only when a sufficiently large fraction of the output is affected by the revenue decreases resulting from the vertical merger that the merger may significantly impede effective competition on the upstream market. Further, if there remain a number of upstream competitors that are not affected, competition from those firms may be sufficient to prevent price increases in the upstream market and, consequently, in the downstream market.[279]

(378) First, as illustrated in recital (360) above, Faiveley is not a significant customer of Federal Mogul or any other organic friction material suppliers. Federal Mogul's sales to Faiveley amounted to less than 15% of Federal Mogul's total sales of friction materials (namely, organic pads and blocks and sintered pads, both OEM and IAM) in the last three years.[280] According to the Notifying Party's best estimates, Federal Mogul's sales of organic material to Faiveley on the OEM markets represent roughly […]% of the OEM markets for organic material. So Faiveley seems to represent a small fraction of the total market demand. Faiveley also represent less than 5% of the demand for other organic friction material suppliers.

(379) Second, it seems unlikely that foreclosing Federal Mogul from a sufficient customer base would push its relative costs up due to lower production volumes. Federal Mogul is the market leader for the supply of organic pads ([30-40]%) and blocks ([50-60]%) and, as noted in recitals (360) to (369) above, it is likely to continue to sell friction materials on the IAM market for projects for which it is already a qualified supplier, irrespective of the merged entity behaviour after the implementation of the Transaction. The erosion of OEM opportunities as a possible consequence of the vertical integration between the activities of Wabtec and Faiveley would in any case affect only Federal Mogul's sales of friction materials on rolling stock equipped with Faiveley's brakes, which do not represent the majority of the demand downstream. Finally, Federal Mogul's existing OEM projects are not only likely to secure aftermarket sales for several years to come, but may also lead to new

279 Non-Horizontal Merger Guidelines, paragraphs 72 and 74.

280 A market participant's response to question 45 of Q5 – Questionnaire to friction material suppliers.

OEM businesses, since after the first delivery of rolling stock, operators can exercise options to order other trains at a later stage.

(380) Third, there are several credible suppliers of organic materials, such as Bremskerl, Frenoplast and Ecobrake which would not be affected by the Transaction, since (i) Faiveley is not an important customer to them; (ii) for the reasons set out in recital (370) above, the vertical integration between the Parties' activities at OEM level is not likely to affect their businesses at IAM level. Although these competitors serve mainly the aftermarket, their presence may also constrain suppliers in the OEM market and is likely to be sufficient to prevent prices from rising in the upstream and eventually in the downstream markets.

(381) Fourth, even if the Transaction would lead to higher prices for organic materials charged for example by Federal Mogul to Knorr-Bremse, given Knorr-Bremse's strong position in the downstream market, it seems very unlikely that it would be put at a competitive disadvantage due to higher prices for organic materials, thus rendering any customer foreclosure strategy ineffective.

(382) Fifth, friction material purchases represent a very minor share of the costs of producing a brake system (roughly 1 to 2%). Even an overall increase in the prices charged for friction materials is unlikely to translate into material increase in brake system prices.

(383) In light of the foregoing, and considering all evidence available to it, the Commission considers that it seems unlikely that any attempt by the merged entity to foreclose access to a sufficient customer base to its actual or potential rival friction material suppliers, would significantly impede effective competition in the upstream market for the supply of friction material as well in the downstream market for the manufacture and supply of brake systems.

6.7.5.8. Conclusion

(384) In light of the above, and considering all evidence available to the Commission, the Commission considers that the Transaction would not lead to a significant impediment to effective competition due to customer foreclosure.

6.7.6. Overall conclusion on vertical relationships

(385) In light of the above, and considering all evidence available to the Commission, the Commission considers that the Transaction would not lead to a significant impediment to effective competition due to the vertical relationship of the Parties' activities in the upstream market for the supply of friction materials to OEM brake systems manufacturers and in the downstream market for the manufacture and supply of brake systems, because it is not likely to lead to any input or customer foreclosure.

6.8. Brake discs

6.8.1. Relevant product and geographic markets

6.8.1.1. Background and previous cases

(386) Brake discs are components of the mechanical bogie brake of a friction brake system. In hydraulic and pneumatic brake systems the brake pads are pressed onto the brake discs where the kinetic energy is transformed into heat in order to slow or stop the train. The discs, similarly to the friction material, need to be robust and heat resistant. They are predominantly made of cast iron, cast steel or forged. According to the Notifying Party, they have to be homologated together with the brake pad friction material.

(387) According to the Notifying Party, a brake disc lasts usually at most 15 years depending on the usage. It therefore lasts longer than a brake pad, but is still more limited in lifetime compared to the bogie brake as such or the train.

(388) There are no Commission precedents involving brake discs for trains. However, in the early M.818 – *Cardo / Thyssen* case, the Commission discussed whether different spare parts would each constitute a distinct relevant product market but left the question ultimately open.[281]

6.8.1.2. The Notifying Party's position

(389) The Notifying Party submits that brake discs constitute a distinct market that is EEA wide in scope. The Notifying Party further submits that the competitive conditions vary between the OEM market and the IAM market and that assessing those markets separately is warranted. The Transaction only gives rise to affected markets if the IAM market is assessed separately.

6.8.1.3. Results of the market investigation and the Commission's assessment

(390) The results of the market investigation support the view that brake discs constitute a separate product market. Although it was noted that brake discs and friction materials together constitute 'friction pairs',[282] rail operators generally named different suppliers for brake discs and friction materials[283] and a market participant explained that *'[a]s these are totally different technologies there are different manufacturers'*[284].

(391) As to the distinction between the OEM and the IAM, a market participant put forward that while a supplier of brake discs strongly depends on the existing (OEM) technologies and intellectual property rights even in the IAM market, the OEM disc suppliers enjoy a smaller advantage compared to OEM friction material suppliers in the aftermarket.[285]

(392) Regarding the geographic scope of the market, the results of the market investigation purport that trade flows in brake discs are generally intra-EEA. In particular, train operators replied that they could only purchase brake discs from the EEA or that they purchased from within the EEA even if they could in principle purchase from outside the EEA.[286]

(393) Therefore, and in light of all the evidence available to the Commission, the Commission considers that the markets for brake discs are EEA wide. The Commission will also assess the effects of the transaction separately for the IAM market although it is not necessary to conclude on the exact product market definition in this respect as the outcome of the competitive assessment remains the same under all alternatives.

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281 M.818 – *Cardo / Thyssen*, paragraph 20.

282 See, for instance replies to questions 39 and 114 of Q1 – Questionnaire to rolling stock manufacturers.

283 See, for instance replies to question 101 of Q2 – Questionnaire to rail operators.

284 Reply to question 82 of Q3 – Questionnaire on friction materials and brake systems.

285 Replies to question 47 of Q3 – Questionnaire on friction materials and brake systems.

286 Replies to question 65 of Q2 – Questionnaire to rail operators.

6.8.2. Horizontal overlaps

6.8.2.1. Structure of the market

(394) Both Parties are active on the IAM market for brake discs and the horizontal overlap gives rise to an affected market. The Notifying Party estimates Faiveley's market share at [30-40]% and Wabtec's at [0-5]% for 2014. The Parties' combined market share would thus be [30-40]%.

(395) According to the Notifying Party, the market leader is Knorr-Bremse with a market share of [40-50]% (2014) in the EEA, followed by Faiveley. In addition, there are a number of other smaller competitors in the EEA, which specialise in bogie brake components and which also manufacture brake discs, such as Kovis ([5-10]%) and Ibre ([5-10]%).

6.8.2.2. The Notifying Party's position

(396) The Notifying Party submits that the Transaction would not give rise to competition concerns. The market share increment brought by the Transaction is small and the merged entity will continue to face competition by other market participants, including Knorr-Bremse.

6.8.2.3. Results of the market investigation and the Commission's assessment

(397) The Commission observes that the Parties' combined market share remains in the low thirties and the market share increment brought by the Transaction is modest.

(398) In the market investigation, some market participants – including train operators – did refer to the Transaction having negative effects on competition in brake discs, referring to for instance a smaller number of competitors.[287] Nonetheless, a majority of train operators that took a position indicated that they would have adequate alternative suppliers of brake discs even if the merged entity totally stopped supplying them or only agreed to supply at inferior terms. A clear majority of rail operators also stated that they could qualify new brake disc suppliers without the help of the rolling stock manufacturer or the brake system manufacturer, such as Faiveley or Wabtec.[288]

(399) Therefore, on balance and considering all the evidence available to it, the Commission considers that the Transaction is not likely to give rise to a significant impediment to effective competition with respect to brake discs (IAM).

6.9. Pantographs

6.9.1. Relevant product markets

6.9.1.1. Background

(400) A pantograph is the equipment used to transfer electric current from an overhead wire (catenary) to a rail-operated vehicle, such as high-speed and very high-speed trains, electrical multiple units (EMUs) for intercity and regional transport, locomotives and light rail vehicles (LRVs). In practice, electric rolling stock typically always carries a pantograph except for many underground vehicles that often employ a third-rail solution for power supply.

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[287] Replies to questions 132, 134 and 139 of Q2 – Questionnaire to rail operators. See also replies to questions 158 and 161 of Q1 – Questionnaire to rolling stock manufacturers.

[288] See, for instance replies to questions 102 and 106 of Q2 – Questionnaire to rail operators.

(401) There are no Commission precedents involving pantographs.

(402) Wabtec manufactures pantographs through its subsidiaries Stemmann-Technik, based in Germany and Brecknell Willis, based in the United Kingdom. Stemmann-Technik, which also has a production facility in Poland, manufactures the complete range of pantographs for trains, for speeds up to 380 km/h. Brecknell Willis offers a wide range of customised pantograph solutions for trains, for speeds up to 260 km/h. Wabtec also manufactures contact shoes for third-rail solutions for undergrounds.

(403) Wabtec recently acquired Gerken, whose subsidiary PanTrac produces contact strips. A contact strip is placed on top of the pantograph head in order to lead electricity from the catenary into the train.

(404) Faiveley manufactures the full range of pantographs through its subsidiary Lekov a.s. (based in the Czech Republic) for trains for speeds up to 380 km/h. Part of the engineering and R&D for pantographs is done in Faiveley's Tour facility in France and spare parts are produced also in Spain. Faiveley supplies pantographs for the French TGV and Faiveley's pantographs were used for the speed world record at 574.8 km/h. Faiveley does not manufacture third-rail solutions or contact strips.

6.9.1.2. The Notifying Party's position

(405) The Notifying Party submits that a pantograph is always sold together as a unit for installation on new trains even though it consists of various parts, notably the head with the contact material, the arms, the base frame and the drive.

(406) The Notifying Party argues that that there is one market for all pantographs, with a possible segmentation according to the type of rolling stock (that is high-speed, mainline and regional EMUs, locomotives as well as LRVs).

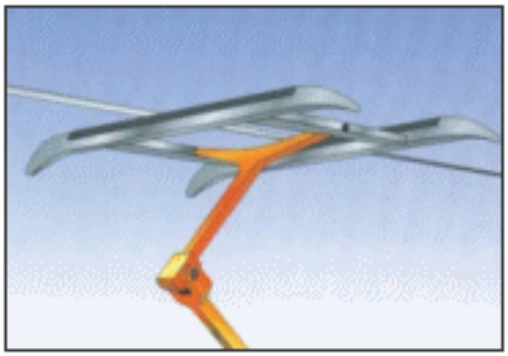
(407) The Notifying Party explains that there is a wide variety of pantograph designs. Pantographs can differ by material, size, efficiency, wear and tear, different drive systems, heads and pressure control on the catenary, the technical configuration of the diverse electric networks used all over Europe and the speed at which the train travels. A detailed adaptation of the pantograph to the specific characteristics of the train is always required; therefore, one pantograph tends not to be substitutable with another. However, the Notifying Party argues that customer requirements are broadly determined by the speed at which the trains travel and the power required.

(408) The Notifying Party submits that particular emphasis in the market definition should be put on supply-side substitution considerations. According to the Notifying Party, most suppliers can supply a wide range of pantographs, marketing their products according to the maximum speed and power for which they can be used. While pantographs tend to be customised, all suppliers have the ability to do this.

(409) Pantographs are supplied both to the train builders on the OEM market and to the train operators on the IAM market. However, the Notifying Party argues that OEM and IAM markets should not be differentiated as they are closely linked; the main

components of pantographs are not interchangeable and their replacement must be undertaken by the manufacturer of the original pantograph. The Notifying Party argues therefore that the Parties' positions on the IAM pantograph market correspond to their market shares on the OEM market.

(410) The only component that is traded separately on the IAM market and needs to be replaced regularly is the contact strip, also known as the carbon strip. The contact strip, covered with a specific contact material, carbon or other alloys, is placed on top of the pantograph head in order to lead electricity from the catenary into the train.



(411) According to the Notifying Party, contact strips are very diverse. They vary in terms of materials, current loads, shapes, designs and grades. As concerns materials, they are typically made of carbon, but can also be made using different materials and alloys, depending on the product requirements and end-use. Some contact strips are impregnated with copper with higher amperage capacity, some are glued or clamped to the carrier profile (typically aluminium profiles). The main differences between carbon grades relate to their conductive properties, heat and resistance to wear and tear in different weather conditions. Contact strips are sold to end customers either (i) as part of the OEM market in accordance with conditions defined at the time of selection of the pantograph manufacturer by the OEM, (ii) by the pantograph manufacturer to the IAM customer, or (iii) by the contact strip manufacturer directly to the IAM customer. Contact strips represent around 50-70% of the life-cycle cost of a pantograph. The Notifying Party submits that all contact strip manufacturers are capable of producing all types of contact strips.

6.9.1.3. Results of the market investigation and the Commission's assessment

(412) Replies to the market investigation support the view that pantographs have diverse technical characteristics and that speed is a significant defining factor as to the requirements put on a pantograph. Respondents have indicated, for instance, that the higher the speed, the more sturdier and aerodynamic the pantograph needs to be, and that the control mechanism of the pantograph will also need to reflect the speed. In addition, other factors such as the electrical network (alternate current / direct current) and the voltages of the catenaries that the trains are connected to affect the design of a pantograph.[289] As to speed in particular, a lower-speed pantograph cannot be used in higher-speed applications. While market participants note that the opposite (using a higher-speed pantograph in a slower-speed application) may technically be possible at least in some cases, they consider that this might not be economically competitive.[290]

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289 Replies to questions 4, 5 and 8 of Q6 – Questionnaire to pantograph manufacturers.

290 Replies to questions 6 and 7 of Q6 – Questionnaire to pantograph manufacturers.

(413) As regards supply-side substitutability, replies to the market investigation indicate that there are some market participants that can currently supply pantographs for all applications and speed ranges; market participants named Faiveley, Wabtec and Schunk as currently capable of doing so. The investigation showed that producing pantographs for high-speed and very high-speed trains is more complex.[291] However, a number of other pantograph producers such as Contact, EC Engineering and Sécheron considered themselves capable of producing high-speed pantographs even if not all[292] currently market them.

(414) As regards the question of whether the position of a pantograph manufacturer on the OEM market also reflects its position on the IAM market, respondents were largely of the view that spare parts were purchased from the original pantograph manufacturer[293] (with a possible exception for the contact strip that needs to be regularly replaced and can easily be sourced from third party suppliers)[294]. Additionally, both pantograph suppliers and rolling stock manufacturers considered that a pantograph on an existing platform (standardised train sets sold in series)[295] was changed only under rare circumstances, meaning that once a supplier wins a tender for a platform, it is likely to benefit from all future sales of trains built on that platform[296].

(415) In conclusion, taking into account the results of the market investigation, the Commission considers that the relevant product market should be either the OEM market for the manufacture and supply of pantographs for all types of rolling stock or the OEM market for the manufacture and supply of pantographs for each type of rolling stock, namely (i) high-speed, (ii) mainline and regional EMUs, (iii) LRVs, and (iv) locomotives, with strong indications that a separate market for high-speed and very high-speed may exist.

(416) Nonetheless, it is not necessary to conclude on the exact product market definition in respect of pantographs as the Transaction does not lead to a significant impediment to effective competition under any plausible definition.

(417) As regards contact strips, they appear in great variety. However, all contact strip manufacturers are able to adapt their product to any customer requirement and respondents to the market investigation did not indicate any necessity for sub segmenting the market for contact strips. Therefore, the Commission considers for the purpose of this Decision that market the relevant product market should be the market for all contact strips.

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291 Aerodynamic calculations, pressure control system and an automatic dropping device are needed.

292 EC Engineering and Sécheron do not market high-speed pantographs for the time being but indicated that they would have the capability of doing so.

293 Replies to question 33 of Q6 – Questionnaire to pantograph manufacturers, replies to question 141 Q1 – Questionnaire to rolling stock manufacturers and Replies to question 116 of Q2 – Questionnaire to rail operators.

294 Replies to question 119 of Q2 – Questionnaire to rail operators.

295 For a more detailed description of platforms see recital (442)

296 Replies to question 138 of Q1 - Questionnaire to rolling stock manufacturers; and replies to question 29 of Q6 – questionnaire to pantograph manufacturers.

6.9.2. Relevant geographic markets

6.9.2.1. The Notifying Party's position

(418) The Notifying Party submits that the relevant geographic market(s) for pantographs is EEA-wide. The main competitors all compete at the EEA-level and are all TSI[297] approved. Wabtec sells to most European countries from its three production sites in the EEA (UK, Germany and Poland), Faiveley has production sites in France, the Czech Republic and Spain and sells pantographs across the EEA. The Notifying Party recognises that some smaller competitors, such as EC Engineering and Contact, may currently have a more local presence and sales focus but there are no legal barriers preventing them from selling wider within the EEA, like major players. Marketing pantographs in this respect is similar to other train components and sub-systems.

6.9.2.2. Results of the market investigation and the Commission's assessment

(419) The largest pantograph producers Wabtec, Faiveley and Schunk[298] have production capacities and customers located in several European countries. As concerns smaller producers, such as Contact or EC Engineering, which have production capacities in one European country, their sales activities extend to several, although fewer European countries. Another smaller competitor, Sécheron, also has production locations in two countries and has customers worldwide. Although the smaller competitors, Sécheron, EC Engineering and Contact noted in the market investigation[299] that national certification requirements and the heterogeneous national catenary networks represent a barrier to expansion, all responding pantograph manufacturers nevertheless indicated that they have the intention to market pantographs across the EEA (or even worldwide) and the geographic presence seems mainly to be a function of a firm's financial capacity to expand.

(420) The Commission considers that taking into account (i) the ability of pantograph manufacturers to supply customers across the EEA from production facilities located anywhere in Europe; (ii) actual sales patterns of pantographs; (iii) the fact that pantographs are subject to the same type of certification and regulatory requirements as other sub-systems, for which an EEA-wide market was found[300]; and (iv) the replies to the market investigation, the relevant geographic market for pantographs is at least EEA-wide.

(421) As concerns contact strips, the Commission considers that taking into account that most manufacturers produce in several countries within the EEA or even worldwide and sell on an EEA or even worldwide scale, the relevant geographic market for contact strips is at least EEA-wide.

6.9.3. Horizontal overlaps

(422) The Parties' activities overlap in respect of overhead pantographs for every type of rolling stock. The Parties activities do not overlap in the manufacture of third-rail systems or contact strips.

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297 Technical Specifications of Interoperability are Union-level specifications aiming at interoperability within the Union's different rail systems.

298 Schunk's replies to questions 13 and 14 of Q6 – Questionnaire to pantograph manufacturers.

299 Replies to questions 16 of Q6 – Questionnaire to pantograph manufacturers.

300 M.7538 – *Knorr-Bremse / Vossloh*, paragraph 18.

6.9.3.1. Market share estimates

(423) There is no publicly available data as regards the total market size for pantographs or pantographs per type of rolling stock for the EEA. In the absence of comprehensive publicly available data, the Notifying Party has prepared a bottom up estimation of the market based on aggregate rolling stock figures from the bi-annual UNIFE[301] reports.

(424) The Notifying Party has provided the actual value of the Parties' yearly orders between 2005 and 2014. Given that the pantograph markets are bidding markets where order volumes and values greatly fluctuate year-on-year, the Notifying Party also provided the Parties' average annual order intakes for the following periods: 2005–2007, 2007–2009, 2009–2011 and 2011–2014.

(425) The Parties' order intakes and the Notifying Party's estimates of the Parties' and their competitors' market shares and annual average order values per type of rolling stock are set out in Table 10, Table 11 and Table 12.

Table 10 - Pantograph order intake in the EEA

Type of rolling stock	Estimate of the annual average total size of the EEA market (EUR million)				Annual average orders (EUR million)							
					Wabtec				Faiveley			
	2005-2007	2007-2009	2009-2011	2011-2013	2005-2007	2007-2009	2009-2011	2011-2014	2005-2007	2007-2009	2009-2011	2011-2014
All types of rolling stock	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]
High speed trains	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]
Mainline and regional trains	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]
Locomotives	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]
LRVs and trams	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]	[…]

Source: the Notifying Party, Form CO

301 UNIFE is an association for the European rail industry (Union des Industries Ferroviaires Européennes). The UNIFE World Rail Market Study contains data on annual rolling stock orders and the rolling stock installed base for 18 EEA countries. The Notifying Party provided a detailed explanation of the methodology used to estimate total EEA-wide market sizes for brakes, doors, pantographs, energy meters and event recorders.

Table 11 – The Parties' pantograph market share estimates by order intake in the EEA

Type of rolling stock	Market shares								Combined market shares			
	Wabtec				Faiveley							
	2005 - 2007	2007 - 2009	2009 - 2011	2011 - 2014	2005 - 2007	2007 - 2009	2009 - 2011	2011 - 2014	2005 - 2007	2007 - 2009	2009 - 2011	2011 - 2014
All types of rolling stock	[20-30]%	[30-40]%	[20-30]%	[20-30]%	[20-30]%	[20-30]%	[10-20]%	[10-20]%	[40-50]%	[50-60]%	[30-40]%	[30-40]%
High speed trains	[10-20]%	[10-20]%	[0-5]%	[10-20]%	[30-40]%	[40-50]%	[30-40]%	[30-40]%	[40-50]%	[50-60]%	[30-40]%	[40-50]%
Mainline and regional trains	[10-20]%	[20-30]%	[20-30]%	[20-30]%	[20-30]%	[20-30]%	[5-10]%	[5-10]%	[40-50]%	[40-50]%	[20-30]%	[20-30]%
Locomotives	[30-40]%	[40-50]%	[70-80]%	[60-70]%	[10-20]%	[5-10]%	[10-20]%	[5-10]%	[40-50]%	[50-60]%	[80-90]%	[60-70]%
LRVs and trams	[40-50]%	[50-60]%	[40-50]%	[40-50]%	[5-10]%	[30-40]%	[10-20]%	[0-5]%	[50-60]%	[80-90]%	[60-70]%	[50-60]%

Source: the Notifying Party, Form CO

Table 12 - Pantograph market share estimates by order intake in the EEA 2011–2014

Market segments	Wabtec	Faiveley	Schunk	EC Engineering	Melecs	Richard	Contact
All types of rolling stock	[20-30]%	[10-20]%	[30-40]%	[0-5]%	[10-20]%	[5-10]%	[5-10]%
High speed trains	[10-20]%	[30-40]%	[20-30]%	[0-5]%	[10-20]%	[0-5]%	[5-10]%
Mainline and regional trains	[20-30]%	[5-10]%	[40-50]%	[0-5]%	[10-20]%	[10-20]%	[5-10]%
Locomotives	[60-70]%	[5-10]%	[20-30]%	[0-5]%	[10-20]%	[0-5]%	[0-5]%
LRVs and trams	[40-50]%	[5-10]%	[30-40]%	[5-10]%	[5-10]%	[0-5]%	[0-5]%

Source: the Notifying Party, Form CO

(426) Market participants responding to the market investigation were not in the position to provide substantiated quantification or a breakdown of market shares. Based on their best estimates, however, Wabtec, Faiveley and Schunk are overall the largest players, competing on par, with similar market shares. Estimates attribute between [70-80]% to [90-100]% of the total pantograph market to these three players, while the rest is shared among the smaller competitors. The Parties' combined shares were estimated between [50-60]% and [60-70]%.

(427) The market investigation also revealed that Melecs is currently not active on the OEM merchant market for pantographs in the EEA but acts as the in house supplier of Siemens. Melecs was spun off from Siemens in 2009 and its pantograph business was re-acquired and integrated into Siemens in 2014.

(428) However, based on any estimation, affected markets arise in respect of pantographs destined for every type of rolling stock.

6.9.3.2. The Notifying Party's position

(429) The Notifying Party considers that no competition concerns arise in respect of pantographs in the EEA.

(430) First, the Notifying Party submits that the Parties' activities as regards pantographs are complementary. Faiveley is proportionately stronger in pantographs for high-speed trains, which represented […]% of its order intake during 2005-2014, while Wabtec focusses more on mainline and regional trains, LRVs and locomotives, constituting […]% of its order intake as opposed to […]% in high-speed. Furthermore, whilst the Parties compete on a European scale, they have, for historic reasons, focused their activities on different countries. Faiveley's main sales are […] whereas Wabtec has a strong presence in […]. Therefore, the Parties are not each other's closest competitors.

(431) The Notifying Party submitted bidding data from the Parties to evidence the statement that the Parties do not often meet in tenders and as such, are not close competitors overall or in any particular pantograph segment, including high-speed. Taking all pantograph segments together, out of the […] tenders where the Parties participated between 2013 and 2015[302] the Parties only met in […] tenders.

(432) As concerns the high-speed segment, Faiveley participated in only […] tenders between 2013 and 2015. Wabtec participated in […] of them, competing against Faiveley and Schunk. […] out of […] tenders were awarded to Faiveley. As such, Wabtec did not win any high-speed pantograph tender during the period 2013-2015. Furthermore, Wabtec has had only […] high-speed pantograph projects in the past 10 years, and […] high-speed project in the past three years.

(433) As concerns the segment of mainline and regional trains, the Notifying Party argues that this is the largest segment by far and where Wabtec's focus lies[303]. The Notifying Party submits that in this segment, Schunk is Wabtec's closest competitor and not Faiveley. Wabtec participated in […] tenders and Faiveley in […], but the Parties competed only in respect of […] tenders. Out of these […] were won by Wabtec and only […] by Faiveley.

(434) In the locomotive segment, both Wabtec and Faiveley participated in […] tenders. They, however, only met each other on […] occasions. The Notifying Party argues that the apparent higher degree of competition between the Parties in respect of pantographs for locomotives is due to the shrinking size of the locomotive segment: this segment has shrunk from EUR […] million in 2005 to EUR […] million in 2014, therefore the individual bids tend to get more relative importance and participation.

(435) As concerns the LRV segment, in the period 2013-2015, Wabtec participated in […] tenders and Faiveley in […]. They competed in respect of only […] tenders, […] of which were won by Wabtec and […] by Schunk.

(436) Second, post-Transaction, the market would remain characterised by the presence of five larger competitors, namely the Parties, Schunk, Melecs and Richard as well as additional smaller competitors namely Contact, EC Engineering and a new entrant, Sécheron.

(437) The Notifying Party considers that Wabtec's closest competitor is Schunk. This is in particular with regard to the largest mainline and regional trains segment where the Notifying Party considers Schunk to be the market leader.[304] Schunk is an

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302 The Parties provided bidding data for three years, the compilation was based on best recollection of the Parties.

303 Market size of the mainline and regional segment is estimated at EUR […] million out of a total market of EUR […] million.

304 The Parties' reply to the Article 6(1)(c) Decision– paragraphs 423-425.

established player with a strong track record. Schunk also produces contact strips, which allows Schunk, the Notifying Party believes, to offer more competitive prices. According to the Notifying Party, Schunk is also at the forefront of technology development, producing for instance pantographs for the Italian tilting 'Pendolino' and Bombardier's high-speed Zefiro train.

(438) As regards other competitors, Melecs is Siemens' in house pantograph producer, capable of producing all types of pantographs. The Notifying Party believes that Melecs works for third party car builders too, although not in the EEA. Richard is an established player in Switzerland for mainline and regional trains, with a production facility in Germany. Contact, which was established as a joint venture with AnsaldoBreda (now Hitachi Rail), is also capable of producing all kinds of pantographs. EC Engineering is a relatively new entrant in pantographs but has a strong relationship with the train builders through its train design activities and is TSI certified. Sécheron, the Swiss company, has developed a pantograph prototype which it presented at the Innotrans trade fair in 2014, indicating that it is ready to enter the market.

(439) Third, the Notifying Party considers entry barriers to be low. Typically, a new entrant would start by entering the LRV segment, which is technologically easier. Wabtec cites Sécheron and EC Engineering as examples of new entrants on the LRV pantograph market segment. Once a supplier enters the LRV segment, it could expand to heavier train applications within one to two years, although this would depend on the exact type of project, product design and customer specifications. The Notifying Party considers that suppliers with an established pantograph expertise outside the EEA could enter more quickly. Moreover, the fact that a number of competitors are already active in the market, is, in the Notifying Party's view, a sign of low barriers to entry.

(440) Fourth, the Notifying Party argues that large rolling stock manufacturers can sponsor entry. One notable example is […], which started inviting Wabtec to bid for pantographs[305], whereas historically it had been mainly working with […]. In respect of pantographs for LRVs, the Notifying Party estimates that it would be possible to develop and qualify a new product within six to twelve months with the support of a rolling stock manufacturer. The Notifying Party also expects new sponsored entry from Asia. It cites, as an example from a neighbouring market, the support of Alstom to the successful entry by Chinese door manufacturer Kangni. According to the Notifying Party, Nabtesco could also enter Europe with Siemens' support.

(441) Fifth, the Notifying Party adds that the significant countervailing buyer power that characterises the markets for train components and subsystems is also valid for the manufacture and sale of pantographs: OEM purchasers, which are large train builders, procure through organised competitive tenders for all subsystems and components including pantographs and enjoy considerable negotiating power.

(442) Sixth, as concerns particularly LRVs and locomotives where the Parties' combined market shares are highest, the Notifying Party argues that competition takes place on a platform basis and not for individual orders. The Notifying Party explains that designing an entirely new product for such small orders would be uneconomical; therefore the largest car builders have standardised their rolling stock offering by

305 […].

developing platforms which are then sold on a standardised base for individual orders. Thus, locomotives, LRVs and trams are typically part of platforms[306] involving limited customisation but sold for a large number of orders. Some platforms also exist for high-speed and mainline trains[307]. Purchases for pantographs are made through bidding for the platform so the winner of the original tender generally gets the 'repeat' business, in other words, the additional orders for further trains built on the same train platform given that the pantograph that won the original tender was specifically designed for that platform. Each tender represents a significant future volume of business for a potential supplier, even though the ultimate order volume will depend on the commercial success of the platform. According to the Notifying Party, strong price competition therefore exists even with only two bidders for a particular tender for a platform. In the Notifying Party's view it is therefore not relevant to look so much at actual market shares but at the number of bidders for each platform. The Notifying Party submits that Wabtec's high market share in this segment stems from its presence on the large […] tram platforms where it was selected on a competitive basis. The Notifying Party adds that Faiveley […].

(443) Finally, the Notifying Party argues that the market for pantographs is very small: the pantograph itself is a low value item compared to other sub-systems, prices reportedly ranging from EUR 5 000 to 16 000, and there is a limited number of pantographs that are necessary on a rolling stock. In addition, the life expectancy of the pantograph is very long, extended rather through overhaul procedures than through the replacement of the complete fleet. The only item that needs constant replacement is the contact strip on top of the pantograph. Therefore, any hypothetical price rise in the pantograph would not translate in a price rise for the products downstream and ultimately the consumer.

(444) As regards the recent acquisition of the contact strip supplier Gerken, the Notifying Party submits that Faiveley does not have any production of contact strips therefore no horizontal overlap is created by the transaction.

6.9.3.3. Results of the market investigation and the Commission's assessment

(445) A few competitors were concerned that the Parties could, as a result of the combined entity's size post-Transaction try to squeeze out competitors. During the Phase I investigation, five out of seven responding rolling stock manufacturers[308] also expressed a general concern about the potential reduction of competition on the pantographs market. Most of these concerns however remained general and were not further substantiated in the Commission's in-depth investigation. One customer specified that post-Transaction, the high-speed and very high-speed segments specifically would be left with only two competitors, the Parties and Schunk.

(446) Taking into account the responses to the market investigation, and for the reasons set out below in recitals (447) to (464), the Commission considers that the Transaction

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306 Examples of standardised platforms for locomotives include Bombardier's Traxx and Siemens' Vectron. According to the Notifying Party, these two platforms make up already 70% of new locomotive orders. For LRVs, the leading platforms are Alstom's Citadis and Bombardier's Flexity or Stadler's Variobahn.

307 Examples for high-speed are the ICE, manufactured by a consortium led by Siemens and Bombardier or the Velaro from Siemens. As concerns mainline platform, Stadler's FLIRT is widespread.

308 Responding rolling stock manufacturers were Siemens, Alstom, Bombardier, Hitachi, Stadler, CAF and Skoda.

does not lead to a significant impediment to effective competition in respect of pantographs in the EEA.

(447) First, given that the market for pantographs is a bidding market, market shares alone are not the best indicator of the competitive situation in the industry: the number of tenders per year is relatively low in every segment – ranging from a handful in the high-speed segment to 20 in the largest segment, that is to say the mainline and regional segment. That means that winning one tender significantly alters the market shares, which therefore strongly fluctuate year on year[309]. The existence of platforms (see recital (442)) further complicates the interpretation of the market shares, as the sold volumes ultimately depend on the success of the platform and not on the pantograph manufacturer. Orders for these are similarly unpredictable and fluctuate yearly.

(448) The presence of platform competition, typically in the LRV and locomotive segments was confirmed by the market investigation. Whilst a pantograph fleet on an existing platform could be changed and a new supplier homologated due to a better price offer or technical problems, this is very rare[310], although some examples exist. The Commission considers that the Notifying Party's argument that a pantograph supplier's market share may depend on the success of a particular platform is largely correct.

(449) Second, as regards the closeness of competition and the complementarity of the Parties activities, the Commission considers that the bidding and order intake per project data suggest that Wabtec is indeed much stronger on the mainline and regional segments and barely present in the high-speed segment, whereas the latter is Faiveley's stronghold. Moreover, Schunk does appear to be the closest competitor to Wabtec overall.

(450) As regards the high-speed segment, the bidding data submitted contains a very low number of calls for bids. In this segment Faiveley participated in only […] tenders between 2013 and 2015 with Wabtec competing against Faiveley in […] of them. This means that Wabtec and Faiveley met in […]% of the tenders in which Faiveley participated. This is a high percentage but the low number of calls for bids is too limited to allow the Commission to draw any conclusions one way or another.

(451) Respondents to the market investigation identified both Wabtec and Faiveley as capable of supplying high-speed pantographs.[311] The Commission, however, notes that Schunk competed in those tenders where Wabtec was present, although did not win any. Wabtec did not win either of the tenders in which it participated, Faiveley won […] out of the […].

(452) Order intake data per project for the past 10 years shows that Wabtec has had only three high-speed projects in the past, in […], while Faiveley had approximately […].

(453) As regards pantographs for mainline and regional rolling stock, the bidding data suggests that Wabtec's closest competitor is indeed Schunk. Wabtec participated in […] tenders during 2013-2015 and Schunk was present in […] of these tenders. Wabtec won […] tenders, while Faiveley won only […].[312]

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309 […].

310 Replies to question 138 of Q1 – Questionnaire to rolling stock manufacturers.

311 Reply to question 147 of Q1 – Questionnaire to rolling stock manufacturers.

312 […] of these […] tenders are still open.

(454) As concerns pantographs for locomotives, Wabtec participated in […] bids, winning five. Schunk was again a bidder […].

(455) In respect of pantographs for LRVs, Wabtec participated in […] tenders. Schunk also participated in all […] tenders whereas Faiveley participated in only […].

(456) As regards geographic complementarity, market participants noted that the Parties are for historic reasons particularly strong in certain countries, for instance Faiveley in France and Wabtec (through its subsidiary Stemmann) in Germany, noting that those countries are also home to some of the most important rolling stock manufacturers such as Alstom, Siemens and Bombardier[313]. However, the replies overall do not support the view that the Parties would not compete outside their historically strong areas.

(457) Second, as regards competitors, the Commission notes the following:

(a) Schunk is the largest competitor and present in all segments Schunk, in collaboration with Siemens, produces the Modell SSS 400+ (Schunk-Siemens-Stromabnehmer), the very high-speed pantograph for the ICE and also the pantograph for the 350 km/h Zefiro. Schunk pantographs also drive the Spanish high-speed train AVE Velaro. According to Schunk, they are capable of producing any kind of pantograph and are strong on technology. The majority of the car builders responding to the market investigation noted Schunk among the top competitors in most segments.[314]

(b) Richard is a Swiss-based manufacturer with a traditional focus on Switzerland although it also has some projects in the Netherlands and Germany. Richard appears to be able to supply all rolling stock segments with the exception of high-speed. Respondents to the market investigation[315] mentioned Richard as the number three or four player in the mainline and regional and LRV segments.

(c) Contact is based in Italy and produces pantographs for all segments, including for high-speed trains (for example, the pantograph for the ETR 500, and ETR 1000 (Zefiro V300)). Contact has a close relationship with Hitachi Rail (former AnsaldoBreda) and its focus is on Italy. However, Contact also provides pantographs to other rolling stock manufacturers than Hitachi Rail. Although Contact has to date relied on a licence from Schunk to produce the pantographs for high-speed trains it also has its independent development for high-speed[316].

(d) EC Engineering is a Polish train engineering and design firm, which started pantograph production five years ago. Although EC Engineering has been focused on Poland to date, with some sales to the Czech Republic and Slovakia, it has plans to expand both its capacity and geographic scope. EC Engineering currently has an installed base only on mainline and regional trains. It has, however, developed a prototype of a pantograph for high-speed trains that needs testing and certification. It holds that its competitive advantage lies in its fast reaction times and flexibility as compared to bigger producers and confirms that it has no capacity constraints as it can flexibly

313 Reply to question 23 of Q6 – Questionnaire to pantograph manufacturers.

314 Reply to question 147 of Q1 – Questionnaire to rolling stock manufacturers.

315 Reply to question 147 of Q1 – Questionnaire to rolling stock manufacturers.

316 For the high-speed train ETR 500, Contact has its own licence.

shift capacities. Also, capacity increase is planned in the form of a new factory and plans to expand also geographically.[317]

(e) Sécheron is based in France. It used to produce pantographs in the past and as a result of this past business, has an installed base of several hundred pantographs. Sécheron started to re-invest in pantographs about five years ago. It presented the first prototypes at the Innotrans 2014 fair and the new pantographs should be commercially released in 2017. According to Sécheron, it has the technical capability to produce pantographs for all types of rolling stock, including high-speed trains even if it does not currently have business in all segments.[318]

(f) Melecs is Siemens' pantograph division. Melecs was spun off from Siemens several years ago but re-integrated into Siemens two years ago following Melecs' financial trouble. According to Siemens, Melecs has the capability to produce some high-speed and very high-speed pantographs. Melecs currently only sells pantographs only captively to Siemens, but the Commission considers that Melecs could also sell also to third parties.[319]

(458) Third, although competitors responding to the market investigation[320] consider that, contrary to the Notifying Party's view, barriers to entry are not necessarily low, the Commission considers that the presence of the likes of Contact, EC Engineering and Sécheron shows that entry and expansion is possible although it may take some time. Competitors replying to the market investigation also noted that past experience and a long history in pantographs were important in order for a pantograph manufacturer to be considered a credible supplier since customers wish to ensure that the supplier has the ability to service and supply spare parts for the lifetime of the pantographs without the risk of that supplier exiting the market.

(459) In this context the Commission considers that existing competitors seem to have the credibility required by the industry to be adequate alternatives to the Parties: Schunk is already an established pantograph competitor. Sécheron is part of the financially strong Sécheron Hassler Group and has had a long history in the railway and pantograph market, which it is re-entering now. EC Engineering is familiar to rolling stock manufacturers through its core activity of rolling stock architectural designs and is encouraged by them to produce parts. Contact is the joint venture of Hitachi Rail[321].

(460) Fourth, responses to the market investigation suggest that rolling stock manufacturers play a strong role in the market. Every project is customised and requires the collaboration between the rolling stock manufacturer and the pantograph manufacturer. In this context, rolling stock manufacturers have the ability to assist pantograph manufacturers to develop new pantographs. For example, the very high-speed SSS 400+ pantograph was developed as a common project between Siemens and Schunk. The smaller Italian competitor Contact has a strong link to Hitachi Rail

317 Minutes of a call with EC Engineering on 31 May 2016.

318 Minutes of a call with Sécheron on 3 June 2016.

319 Minutes of a call with Siemens on 31 May 2016; replies to question 45 of Q6 – Questionnaire to pantograph manufacturers.

320 Replies to question 40 of Q6 – Questionnaire to pantograph manufacturers.

321 Hitachi Rail purchased the Italian AnsaldoBreda in 2015.

and produces high-speed pantographs in collaboration with them.[322] Through such collaboration, and the build-up of additional expertise and track record, a smaller player's long-term competitiveness is enhanced for future projects. Five of the seven responding rolling stock manufacturers have cooperated with a pantograph producer or would be ready to sponsor new entry through such collaboration, if needed[323].

(461) Fifth, four out of seven rolling stock manufacturers who responded to the market investigation, also considered that they could start in-house production, however not making the distinction between high-speed and other segments.[324]

(462) Sixth, responses to the market investigation suggest that customers have some buyer power. Customers consist of a small number of large rolling stock manufacturers with sophisticated procurement procedures. The procurement of components, including pantographs, is done through competitive tenders, sometimes including several rounds. In some instances, if the rolling stock manufacturer considers the choice insufficient it can explicitly invite additional bidders.

(463) As regards the Notifying Party's argument that no competition concerns arise given the low value of pantographs, the Commission considers that this argument is irrelevant. The Commission, independently of the value of the product and size of the market must examine the Transaction's impact on competition on the affected markets once the Transaction affects a significant part of the internal market. The Commission does not apply a *de minimis* rule to the markets examined, as in case of a significant price rise of a low value item customers are nevertheless affected and the aggregated effect of such occurrences over the years or over several such components may still be significant.

(464) Finally, the Notifying Party's acquisition of contact strip manufacturer Gerken will not result in any horizontal overlap given that Faiveley does not produce contact strips. Nor will this acquisition lead to a strengthening of the Parties' combined position in the market for pantographs given that contact strips do not need to be bought from the pantograph supplier and represent a very low proportion of the cost of a pantograph. Wabtec and Faiveley have to date fully competed in respect of pantographs without having produced contact strips. Moreover, all competitors replying to the market investigation agreed that it is not necessary to produce contact strips in order to be able to compete in the market for pantographs and contact strips were easily available on the market from a number of manufacturers.[325]

(465) In conclusion, the Commission considers that taking into account the replies to the market investigation and the factors described in recitals (445) to (464) above, the horizontal overlap resulting from the Transaction on the market for overhead pantographs overall or on any of its sub-segments does not lead to a significant impediment to effective competition.

6.9.4. Vertical relationships

(466) On 1 August 2016 Wabtec acquired Gerken Group S.A. ('Gerken'), which produces a number of carbon and graphite products, including contact strips through its

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322 For the high-speed train ETR 500, Contact has its own licence, while for the ETR 1000 (Zefiro V300) very high-speed train it uses a licence from Schunk in addition.

323 Question 154 of Q1 – Questionnaire to rolling stock manufacturers.

324 Question 155 of Q1 – Questionnaire to rolling stock manufacturers.

325 Reply to questions 34 and 38 of Q6 – Questionnaire to pantograph manufacturers.

PanTrac subsidiary.[326] The contact strip is the part of a pantograph that undergoes the most wear and tear and needs to be replaced regularly. Gerken's (now Wabtec's) activities in respect of contact strips are therefore potentially vertically related to Faiveley's manufacturing and sale of pantographs. This vertical relationship gives rise to affected markets.

6.9.4.1. The Notifying Party's position

(467) The Notifying Party submits that the vertical relationship does not lead to input foreclosure concerns, as PanTrac's market share on the contact strip market is relatively low, [20-30]% on the OEM and [10-20]% on the IAM market[327], with an estimated combined market share of [10-20]%[328]. Moreover, a number of larger competitors exist in this market such as Schunk with around [40-50]% market share and Morgan and Mersen, with around [10-20]% market share. The Notifying Party submits that another company, Electrocarbon is expected to enter the carbon strip market. According to the Notifying Party, Wabtec would therefore have neither the incentive nor the capability to foreclose its pantograph competitors. The Notifying Party also refers to Schunk as an example of a vertically integrated pantograph manufacturer selling contact strips to pantograph competitors. Additionally, the main purchasers of contact strips are the train operators, which would counter any attempt by the Parties to restrict the supply of contact strips and a consequent price-rise.

(468) The Notifying Party submits that the vertical relationship does not lead to customer foreclosure concerns either. The Parties already source around […]% of their demand of contact strips from PanTrac and […]% from Schunk, which is itself vertically integrated. Were the Parties to purchase only from PanTrac in the future, Morgan and Mersen would still be able to sell to pantograph competitors such as Siemens, EC Engineering, Contact, Sécheron or Richard. In addition, the Notifying Party submits that the OEM market that is concerned is a fraction of the contact strip market and the majority of sales is made on the IAM market to train operators. The Notifying Party submits that in the case of contact strips, unlike pantographs, the IAM market is less tied to the OEM market and contact strips suppliers are more easily replaced. Train operators tend to organise tenders for the procurement of the contact strips only.

6.9.4.2. Results of the market investigation and the Commission's assessment

(469) The Commission considers that no input or customer foreclosure concerns arise as a result of the Transaction in respect of pantographs and contact strips.

(470) Most train operators[329] responding to the market investigation consider that contact strips are easily available to purchase on the market and being vertically integrated as a pantograph and contact strip manufacturer does not represent a competitive advantage, as train operators purchase the contact strip replacements from the contact strip manufacturer and not from the pantograph manufacturer. As concerns rolling stock manufacturers[330], although the majority of respondents purchase contact strips together with the pantographs from the pantograph manufacturer, many were undecided whether the vertical integration gave the pantograph manufacturer a

326 Wabtec's acquisition of Gerken was approved by the German competition authority on 18 July 2016.

327 Market share estimated by Wabtec.

328 Market share estimated by Gerken: OEM and IAM market shares combined.

329 Replies to questions 119 to 122 of Q2 – Questionnaire to rail operators.

330 Replies to question 146 of Q 1 – Questionnaire to rolling stock manufacturers.

competitive advantage[331]. Pantograph producers saw a cost advantage of being vertically integrated, eliminating the double margin[332]. They confirmed the presence of other carbon strip competitors active on the market.[333]

(471) As concerns input foreclosure, the Commission considers that this is unlikely given that Schunk and Morgan and Mersen (and potentially Electrocarbon) will continue to supply those pantograph producers that are not vertically integrated. In this context, the Commission notes that, Schunk, although being vertically integrated, sells contact strips on the merchant market.

(472) As concerns customer foreclosure, the Commission considers that this is unlikely given that even if Wabtec were to source all its needs internally in future, a number of other customers would remain on the market. Moreover, the Parties already source around […]% of their contact strips from PanTrac. Finally, since most of contact strip sales are made directly to train operators in the aftermarket, independently of pantograph producers, no customer foreclosure can take place.

(473) In conclusion, the Commission considers that the vertical relationship between pantographs and contact strips created by the merger does not lead to a significant impediment to effective competition.

6.9.5. Conglomerate issues

6.9.5.1. Framework for assessment

(474) The Commission notes that conglomerate mergers can give rise to competition concerns due to, for instance bundling or tying.[334]

(475) Bundling usually refers to the way products are offered and priced by the merged entity. This can take the form of pure bundling or mixed bundling. In the case of pure bundling, the products are only sold jointly in fixed proportions. With mixed bundling the products are also available separately, but the sum of the stand-alone prices is higher than the bundled price. Rebates, when made dependent on the purchase of other goods, can be considered a form of bundling.[335]

(476) Tying usually refers to situations where customers that purchase one good are required to also purchase another good from the producer. [336]

(477) For bundling or tying to constitute a competition concern, the merged entity would need to have the ability and incentive to engage in them, and they must have a significant detrimental effect on competition.[337]

6.9.5.2. The Notifying Party's position

(478) The Notifying Party submits that the concentration does not raise conglomerate concerns for two reasons: First, the Parties do not have market power in any of the products concerned. Second, the train builders always tender individual products restricting the Parties' ability to create bundles.

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331 Replies to question 145 of Q 1 – Questionnaire to rolling stock manufacturers.

332 Reply to question 36 of Q6 – Questionnaire to pantograph manufacturers.

333 Reply to question 38 of Q6 – Questionnaire to pantograph manufacturers.

334 Non-Horizontal Merger Guidelines, paragraph 95.

335 Non-Horizontal Merger Guidelines, paragraph 96

336 Non-Horizontal Merger Guidelines, paragraph 97.

337 See, for instance Non-Horizontal Merger Guidelines, paragraph 94.

6.9.5.3. Results of the market investigation and the Commission's assessment

(479) Pantographs competitors raised concerns that since the merged entity will become the leader for pantographs for every type of rolling stock, it will be in a position to squeeze out smaller players through, for example, the ability to sell bundles of products (for example doors, brakes and pantographs) with the pantographs being sold at a loss as part of that bundle. The latter strategy could drive competitors that only produce pantographs out of the market.

(480) Nonetheless, for the reasons described in paragraphs (481) to (485), the Commission considers that the Transaction does not give rise to conglomerate competition concerns.

(481) First, the Commission notes that the Parties do not have any products that other suppliers do not offer. The Parties are therefore not in a position to completely deny their customers any products in an effort to force customers to purchase other products, such as pantographs, from the Parties.

(482) Second, Wabtec and Faiveley both had a broad product portfolio before the Transaction – in particular Faiveley's product portfolio is comprehensive in the EEA – but customers have not reported attempts by either of the Parties to force bundling or tying.

(483) Third, the Commission notes that in order for a bundling strategy to effectively foreclose competitors, the merged entity must have a significant degree of market power.[338] However, for the reasons stated in this decision, the Commission does not consider the Transaction to bring about significant market power for the merged entity, save for sintered friction materials. The commitments offered by the Notifying Party will remove all overlap between the Parties in this respect.

(484) Fourth, a majority of rolling stock manufacturers in the market investigation confirmed that they usually tender single products. Moreover, even if multi-product tenders are possible, the rolling stock manufacturers indicated that they can make their evaluations and choice on a product-by-product basis. Given that the rolling stock manufacturers enjoy some level of purchasing power, it is more likely than not that they can continue to exercise a product-by-product purchasing strategy if they consider that to be the most effective way for them.

(485) Fifth, in respect of the specific concern raised in relation to pantographs, as explained in Section 6.9.3.3, rolling stock manufacturers are in a position to sponsor entry or self-supply pantographs. Therefore, should the choice in pantographs diminish as result of bundling or tying, the effects on competition could be mitigated at least to some extent by the rolling stock manufacturers.

(486) Therefore, given in particular that the Transaction is not likely to significantly increase the Parties' ability to bundle and tie, and that the customers could likely counter attempted detrimental bundling and tying, the Commission considers that the Transaction does not give rise to a significant impediment to effective competition as a result of any conglomerate effects.

338 Non-Horizontal Merger Guidelines, paragraph 99.

7. CONCLUSION ON THE COMPATIBILITY WITH THE INTERNAL MARKET

(487) The Commission considers that the Transaction leads to a significant impediment to effective competition, in particular through the creation or strengthening of a dominant position, in the production and supply of sintered brake pads and blocks in the IAM in the EEA.

8. MODIFICATIONS TO THE TRANSACTION

8.1. Framework for the Commission's assessment of commitments

(488) As set out in the Commission's Notice on Remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004[339], the following principles apply where parties to a merger choose to offer commitments in order to restore effective competition.

(489) Where a concentration raises competition concerns in that it could significantly impede effective competition, the parties may seek to modify the concentration in order to resolve the competition concerns and thereby gain clearance of their merger.[340]

(490) Under Regulation (EC) No 139/2004, it is the responsibility of the Commission to show that a concentration would significantly impede effective competition. The Commission then communicates its competition concerns to the parties to allow them to formulate appropriate and corresponding remedies proposals.[341] It is then for the parties to the concentration to submit commitments.[342]

(491) The Commission only has power to accept commitments that are capable of rendering the concentration compatible with the internal market in that they will prevent a significant impediment to effective competition in all relevant markets where competition concerns were identified. To that end, the commitments have to eliminate the competition concerns entirely and have to be comprehensive and effective from all points of view.[343]

(492) In assessing whether proposed commitments are likely to eliminate its competition concerns, the Commission considers all relevant factors including *inter alia* the type, scale and scope of the commitments, judged by reference to the structure and particular characteristics of the market in which those concerns arise, including the position of the parties and other participants on the market.[344]

(493) Where a proposed concentration threatens to significantly impede effective competition the most effective way to maintain effective competition, apart from prohibition of the concentration, is to create the conditions for the emergence of a new competitive entity or for the strengthening of existing competitors via divestiture by the merging parties.[345]

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339 OJ C 267, 22.10.2008, page 1.

340 Remedies Notice, paragraph 5.

341 See Case T-209/01 Honeywell International, Inc. v. Commission [2005] II-5527, paragraph 99.

342 Remedies Notice, paragraph 6.

343 Remedies Notice, paragraph 9.

344 Remedies Notice, paragraph 12.

345 Remedies Notice, paragraph 21.

(494) The divested activities must consist of a viable business that, if operated by a suitable purchaser, can compete effectively with the merged entity on a lasting basis and that is divested as a going concern. The business has to include all the assets which contribute to its current operation or which are necessary to ensure its viability and competitiveness and all personnel which are currently employed or which are necessary to ensure the business' viability and competitiveness. For the business to be viable, it may also be necessary to include activities which are related to markets where the Commission did not identify competition concerns if this is required to create an effective competitor in the affected markets.[346]

(495) The intended effect of the divestiture will only be achieved if and once the business is transferred to a suitable purchaser in whose hands it will become an active competitive force in the market.[347] In addition to the standard purchaser requirements that are set out in paragraph 48 of the Remedies Notice, supplementary requirements may have to be included on a case-by-case basis. An example is the requirement, where appropriate, that the purchaser should be an industrial, rather than a financial buyer.[348]

(496) The commitments must be capable of being implemented effectively within a short period of time. In case of implementation risks and implementation uncertainties, for instance related to finding a suitable buyer, it is incumbent on the parties to remove such uncertainties.[349]

(497) In some situations, only the proposal of an up-front buyer will allow the Commission to conclude with the requisite degree of certainty that the business will be effectively divested to a suitable buyer. The parties therefore have to undertake in the commitments that they are not going to complete the notified operation before having entered into a binding agreement with a purchaser for the divested business, approved by the Commission.[350]

8.2. Process

(498) In order to address the competition concerns identified by the Commission, the Notifying Party submitted commitments on 25 July 2016 ('First Commitments'). The Commission launched a market test on the First Commitments on 25 July 2016.

(499) Having received feedback from the Commission on its assessment of the First Commitments, including the results of the market test, the Notifying Party submitted revised commitments on 16 August 2016 ('Final Commitments').

8.3. First Commitments

8.3.1. Description of the First Commitments

(500) The First Commitments would have consisted of the divestment of Faiveley's entire friction material business, Faiveley Transport Gennevilliers ('FTG'), to a suitable purchaser ('Divestment Business'). FTG is the previous Carbon Lorraine business that Faiveley acquired in 2008.

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346 Remedies Notice, paragraphs 23 and 25.

347 Remedies Notice, paragraph 47.

348 Remedies Notice, paragraph 49.

349 Remedies Notice, paragraphs 9 and 11.

350 Remedies Notice, paragraph 53.

(501) The Divestment Business would have included the following main elements:

(a) The legal entity FTG with all tangible assets (such as the production site of FTG in Gennevilliers, France) and intangible assets as well as its entire personnel.

(b) All contracts outside France that have been concluded by other Faiveley subsidiaries on behalf of FTG would be transferred to FTG (conditional on approval by the customers).

(c) For an interim period after the closing of the Transaction, Wabtec would have referred back to FTG all customer requests addressed to Faiveley but that concern friction material manufactured by FTG.

(d) At the suitable purchaser's option, Wabtec would have offered to continue providing to FTG, for an interim period, sales and after sales services support with respect to the train operators currently serviced through Faiveley Transport and FTG's subsidiaries.

(e) At the suitable purchaser's option, Wabtec would have offered to continue providing current IT systems support for an interim period.

(f) Wabtec would have committed to subcontract to FTG a portion of the volumes for the supply of TGV brake pads which SNCF awarded to Wabtec under the tender finally awarded to Wabtec on 27 June 2016, subject to SNCF's agreement.

(502) The First Commitments would have been subject to the requirement that the Parties do not implement the Transaction before a sale and purchase agreement concerning the Divestment Business has been entered into and the Commission has approved the purchaser as well as the terms of sale.

8.3.2. Assessment of the First Commitments

8.3.2.1. Results of the market test

(503) In order to assess the suitability of these First Commitments, on 25 July 2016 the Commission launched a market test. The market test was addressed to 88 market participants, among which direct customers, end-customers and competitors of the Parties. 48% of addressees submitted replies to the questionnaire, offering a representative sample of customers and competitors.

(504) Overall, more respondents considered that the proposed divestment was sufficient as opposed to those who did not. Respondents that doubted the suitability of the remedy invoked reasons such as the small size of the business or its current level of R&D advancement.[351]

(505) Most of the respondents indicated that they would be ready to purchase sintered friction materials from the Divestment Business. Most of the respondents that indicated that they were not ready to purchase sintered friction materials from the Divestment Business were either competitors or not current or potential customers for sintered friction material.[352]

(506) While a majority of respondents did not express an opinion as to the viability of the Divestment Business (mostly for lack of more in-depth information), the majority of

[351] See replies to question 1 of Q7 – Market Test.

[352] See replies to question 2 of Q7 – Market Test.

those expressing an opinion believed the Divestment Business would be a viable standalone business.[353] Some of the respondents that indicated doubts as to the viability of the Divestment Business on a standalone basis offered examples of how continued investments would remedy their concerns.

(507) The Commission also sought market participants' views as to the importance of vertical integration of a friction material supplier with either a brake disc or brake system manufacturer. As regards brake discs, although a majority of respondents indicated that the ability to also sell brake discs would be an advantage, only a small minority of respondents believed that the absence of vertical integration with a brake disc supplier[354] would affect the competitiveness or viability of the Divestment Business. As regards brake systems, again, a majority of respondents indicated that the ability to also sell brake systems would be an advantage, with a large minority of respondents believing that the absence of vertical integration with a brake systems supplier would affect the competitiveness or viability of the Divestment Business.[355] Moreover, several of these respondents indicated that they knew of competitors who did compete in the market for sintered friction materials without selling brake discs or brake systems.[356]

(508) As regards the ability of the divestment business to compete for sales on an international level once severed from the Faiveley group, a majority of respondents did not offer a clear reply to this question,[357] although a majority of respondents believed it would be very important, or important, for the purchaser of the Divestment Business to have an international sales network in place.[358]

(509) As regards a suitable purchaser, respondents offered a variety of replies ranging from existing customers to competitors in the neighbouring organic friction materials markets. Some respondents considered that also companies not currently active in the railway sector could be suitable purchasers for the Divestment Business.[359] Many respondents anticipated that the market for sintered friction materials for railway use will grow.[360] Several respondents pointed out that Knorr-Bremse would be a particularly unsuitable buyer as it would maintain concerns related to concentration in the sintered friction materials market.[361]

8.3.2.2. The Commission's assessment

(510) The Commission drew a number of important conclusions from the results of the market test described above. First, a large number of market players found the Divestment Business to be a suitable solution to the competition concerns raised in sintered friction materials and customers even expressed a willingness to keep purchasing from the Divestment Business.

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353 See replies to question 3 of Q7 – Market Test.

354 See replies to question 4 of Q7 – Market Test.

355 See replies to question 6 of Q7 – Market Test.

356 See replies to questions 5 and 6 of Q7 – Market Test.

357 See replies to question 7 of Q7 – Market Test.

358 See replies to question 7 of Q7 – Market Test.

359 See replies to question 15 of Q7 – Market Test.

360 See replies to question 12 of Q7 – Market Test.

361 See replies to question 16 of Q7 – Market Test.

(511) Second, when doubts were expressed about the viability of the Divestment Business, they were usually motivated by a fear that the buyer would not make the necessary investment in R&D or portfolio development to maintain the Divestment Business' competitiveness in the future.

(512) Third, respondents made clear that access to an international sales network would be very important for the Divestment Business going forward.

(513) Fourth, although respondents mostly conceded that the ability of the Divestment Business to vertically integrate with either a brake disc or brake systems supplier would be a competitive advantage, the majority of respondents did not state that a lack of vertical integration with a brake disc supplier would affect the viability of the Divestment Business. Although falling short of a majority, an important part of the respondents did however raise their concerns as to how the lack of vertical integration with a brake system supplier would affect the viability of the Divestment Business. It must be noted, however, that concerns linked to vertical integration with disc brakes or brake systems were not confirmed during the Phase II investigation. Moreover, several respondents acknowledged the existence of non-vertically integrated competitors in the sintered friction materials market.

(514) The Commission also performed its own analysis of the First Commitments, notably based on the review of a 'vendor assistance report' by auditors of the Divestment Business' financial statements, balance sheet and cash flow. Some observations of the report also led the Commission to have concerns as to the viability of the Divestment Business as a standalone business.

(515) First, the Divestment Business is loss-making, and its return to profitability in the future as alleged by the Notifying Party is only based on speculative future sales projections.

(516) Second, the Divestment Business owes a significant amount of current account debt to its parent company Faiveley. The current account debt owed to the Faiveley parent company amounts to EUR […] million, and is repayable over a period of […] years with rescheduling option. It is questionable whether the Divestment Business, which currently presents negative cash flow and EBITDA[362] could ensure its independence in the market while owing such a significant amount of debt to one of its competitors.

(517) Third, the auditors' report showed important R&D ties between the Divestment Business and its parent company Faiveley. Prior to the transaction, R&D at the Divestment Business was carried out […].

(518) Fourth, a significant portion of sales of OEM sintered friction materials is sold to the parent company Faiveley, which then in turn handles sales to the final end customers. The report highlighted the fact that a purchaser would need to assess the possibility in the future of such sales being made directly to end customers.

(519) Fifth, the report identified shared costs with the parent Faiveley company for administrative expenses and IT, as well as some personnel.

(520) The Commission therefore concluded that the First Commitments might not be suitable to remove the competition concerns identified in this Decision, and that they had various shortcomings in terms of viability.

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362 Earnings Before Interest, Taxes, Depreciation and Amortisation.

(521) The Commission shared these concerns with the Notifying Party. Based on this feedback, the Notifying Party submitted the Final Commitments.

8.4. Final Commitments

8.4.1. Description of the Final Commitments

(522) The Final Commitments include all the assets and requirements that were included in the First Commitments and are explained in Recitals (500) to (502).

(523) In addition, the Notifying Party has further committed to ensuring that: (i) at the purchaser's option, the purchaser will be able to acquire the intra-group debt of FTG at a set maximum price; (ii) the sale and purchase agreement will include an incentive scheme to incentivise the purchaser to make investments in the Divestment Business; and (iii) a suitable purchaser will have an ability to sell internationally to railway industry customers.

(524) The incentive scheme referred to in Recital (523) is to be approved by the Commission. Unless another kind of incentive scheme is negotiated with the purchaser and approved by the Commission, […], the use of which is limited to the improvement of the production assets of the Divestment Business and/or research and development projects carried out by the Divestment Business in the area of sintered railway friction materials. […].

8.4.2. Assessment of the Final Commitments

(525) The Commission considers that the Final Commitments are suitable because they address competitive concerns in the area of sintered friction materials by removing the entire horizontal overlap between Wabtec and Faiveley.

(526) They also address the shortcomings of the First Commitments as identified by the market test and the Commission's analysis, notably by:

(a) Ensuring that the current account debt owed to Faiveley does not hinder the future viability of the Divestment Business;

(b) Correctly incentivising the Purchaser to invest in R&D and broaden the Divestment Businesses' product portfolio in the area of sintered friction materials for railway applications;

(c) Addressing concerns regarding future access to an international sales network to railway customers via the Purchaser criteria.

(527) The Commission acknowledges that following the Transaction, the Divestment Business would no longer be vertically integrated with a train friction brake supplier and that the merged entity may attempt to primarily design its brake systems so that it would use the merged entity's own friction materials instead of those of the Divestment Business. However, for the main reasons set out in recitals (528) to (533), the Commission considers that the Divestment Business' viability is not called into question.

(528) First, the Commission notes that even if the Divestment Business would no longer have access to the merged entity's brake systems, it would continue to benefit from the relatively secure income streams it enjoys from the installed base. Rolling stock typically carry the same brake systems throughout their lifetimes and the loss in the installed base would only be gradual.

(529) Second, the Commission recalls that there are different ways to get access to the OEM level: (i) FTG's current business model based on vertical integration and (ii) the business model currently followed by Wabtec and Federal Mogul that have

cooperated with the brake systems manufacturers in order to supply them at the OEM level. To that effect, the Commission notes that also Carbon Lorraine was not vertically integrated prior to it being taken over by Faiveley.

(530) Third, the success of Wabtec and Federal Mogul as suppliers of sintered friction materials at the OEM level suggest a non-integrated business model is possible. Moreover, while it is understandable that the dominant brake system manufacturer Knorr-Bremse has not sourced friction material from its direct competitor Faiveley, it cannot be excluded that, following divestment, the Divestment Business would be able to develop new products to be marketed even to Knorr-Bremse. In particular, if train operators as final customers require dual homologation of sintered friction materials, brake systems suppliers such as Knorr-Bremse and the merged entity may be more incentivised to partner with the Divestment Business than with another integrated supplier.

(531) Fourth, even for sintered friction materials, it appears possible to access the IAM without being the OEM supplier.

(532) Fifth, FTG is currently in the process of co-developing with SNCF a new generation of high-end sintered pads for the French TGV. Additionally, it has a number of new homologations / qualifications pending for rolling stock fleets in Europe and worldwide.

(533) Sixth, the Final Commitments include an incentives scheme to increase and develop the Divestment Business' R&D and/or production capabilities and thereby strengthen its competitiveness.

8.4.3. Conclusion on commitments

(534) In light of the considerations in Section 8.4.2, the Commission considers that the Transaction, as modified by the Final Commitments submitted by the Notifying Party, the Transaction would not lead to significant impediment to effective competition with respect to the production and supply of sintered brake pads or blocks / shoes.

9. CONDITIONS AND OBLIGATIONS

(535) Pursuant to the second subparagraph of Article 8(2) of the Merger Regulation, the Commission may attach to its decision conditions and obligations intended to ensure that the undertakings concerned comply with the commitments they have entered into vis-à-vis the Commission with a view to rendering the concentration compatible with the internal market.

(536) The fulfilment of a measure that gives rise to a structural change of the market is a condition, whereas the implementing steps which are necessary to achieve that result are generally obligations on the parties. Where a condition is not fulfilled, the Commission's decision declaring the concentration compatible with the internal market is no longer applicable. Where the undertakings concerned commit a breach of an obligation, the Commission may revoke the clearance decision in accordance with Article 8(6)(b) of the Merger Regulation. The undertakings concerned may also be subject to fines and periodic penalty payments under Articles 14(2) and 15(1) of the Merger Regulation.

(537) In accordance with the basic distinction described in Recital (535) as regards conditions and obligations, this Decision should be made conditional on the full compliance by the notifying party with Section B (including the Schedule) of the commitments submitted by the Notifying Party on 16 August 2016 and all other

Sections should be obligations within the meaning of Article 8(2) of the Merger Regulation. The full text of the commitments is attached as an Annex to this Decision and forms an integral part thereof.

HAS ADOPTED THIS DECISION:

Article 1

The notified concentration whereby Westinghouse Air Brakes Technologies Corporation acquires sole control of Faiveley Transport S.A. within the meaning of Article 3(1)(b) of the Merger Regulation (EC) No 139/2004 is compatible with the internal market and the EEA Agreement.

Article 2

Article 1 is subject to compliance with the conditions set out in Section B (including the Schedule) of the Annex to this Decision.

Article 3

Westinghouse Air Brakes Technologies Corporation shall comply with the obligations set out in Sections A, C, D, E, F and G of the Annex to this Decision.

Article 4

This Decision is addressed to:

Westinghouse Air Brakes Technologies Corporation
1001 Air Brake Avenue
Wilmerding, PA 15148
United States of America

Done at Brussels, 4.10.2016

For the Commission

(Signed)
Margrethe VESTAGER
Member of the Commission

Case M.7801 – Wabtec / Faiveley Transport

COMMITMENTS TO THE EUROPEAN COMMISSION

16 August 2016

Pursuant to Articles 8(2) and 10(2) of Council Regulation (EC) No 139/2004 (the "***Merger Regulation***"), Westinghouse Air Brake Technologies Corporation, incorporated under the laws of Delaware, USA, ("**Wabtec**" or the "***Notifying Party***") and Faiveley Transport S.A., a *société anonyme à Directoire et Conseil de Surveillance* incorporated under the laws of France, whose registered office is located at 3, rue du 19 mars 1962, 92230 Gennevilliers, France, registered with the *Registre du Commerce et des Sociétés* (Companies Registry) of Nanterre under number 323 288 563 ("***Faiveley Transport***"; Wabtec and Faiveley Transport being jointly referred to as the "***Parties***"), hereby enter into the following Commitments (the "***Commitments***") vis-à-vis the European Commission (the "***Commission***") with a view to rendering the acquisition of Faiveley Transport by Wabtec (the "***Concentration***") compatible with the internal market and the functioning of the EEA Agreement.

This text shall be interpreted in light of the Commission's decision pursuant to Article 8(2) of the Merger Regulation to declare the Concentration compatible with the internal market and the functioning of the EEA Agreement (the "***Decision***"), in the general framework of European Union law, in particular in light of the Merger Regulation, and by reference to the Commission Notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004 (the "***Remedies Notice***").

SECTION A. DEFINITIONS

1. For the purpose of the Commitments, the following terms shall have the following meaning:

Affiliated Undertakings: undertakings controlled by the Parties and/or by the ultimate parents of the Parties, whereby the notion of control shall be interpreted pursuant to Article 3 of the Merger Regulation and in light of the Commission Consolidated Jurisdictional Notice under Council Regulation (EC) No 139/2004 on the control of concentrations between undertakings (the "***Consolidated Jurisdictional Notice***").

Assets: the assets that contribute to the current operation or are necessary to ensure the viability and competitiveness of the Divestment Business as indicated in Section B, paragraph 7 and described more in detail in the Schedule.

Closing: the transfer of the legal title to the Divestment Business to the Purchaser.

Closing Period: the period of […] from the approval of the Purchaser and the terms of sale by the Commission.

Confidential Information: any business secrets, know-how, commercial information, or any other information of a proprietary nature that is not in the public domain.

Conflict of Interest: any conflict of interest that impairs the Trustee's objectivity and independence in discharging its duties under the Commitments.

Divestment Business: the business as defined in Section B and in the Schedule which Wabtec commits to divest.

Divestiture Trustee: one or more natural or legal person(s) who is/are approved by the Commission and appointed by Wabtec and who has/have received from Wabtec the exclusive Trustee Mandate to sell the Divestment Business to a Purchaser at no minimum price.

Effective Date: the date of adoption of the Decision.

Financing Current Account Debt: means all money owed to Faiveley Transport S.A (and its subsidiaries) by FTG resulting from shareholders' financial loans made available to FTG by Faiveley Transport SA (or any subsidiary thereof) including all accrued interest and accessories, as of the date of Closing (it being specified for information purposes only, that […]

First Divestiture Period: the period of […] from the Effective Date.

FTG: Faiveley Transport Gennevilliers, a company incorporated under the laws of France, with its registered office at Immeuble Le Delage Hall Parc – Bâtiment 6A – 3, rue du 19 mars 1962, F-92230 Gennevilliers, and registered with the *Registre du Commerce et des Sociétés* (Companies Registry) of Nanterre under number 501 996 078.

Hold Separate Manager: the person that the Parties shall appoint for the day-to-day management of the Divestment Business under the supervision of the Monitoring Trustee.

Key Personnel: all personnel necessary to maintain the viability and competitiveness of the Divestment Business, as listed in the Schedule, including the Hold Separate Manager.

Monitoring Trustee: one or more natural or legal person(s) who is/are approved by the Commission and appointed by Wabtec, and who has/have the duty to monitor the Parties' compliance with the conditions and obligations attached to the Decision.

Personnel: all staff currently employed by the Divestment Business as listed in the Schedule.

Purchaser: the entity approved by the Commission as acquirer of the Divestment Business in accordance with the criteria set out in Section D.

Purchaser Criteria: the criteria laid down in paragraph 20 of these Commitments that the Purchaser must fulfil in order to be approved by the Commission.

Sale and Purchase Agreement: a final binding sale and purchase agreement for the sale of the Divestment Business, or the combination of (i) a binding offer letter signed by a potential purchaser (including a draft agreed share purchase agreement) for the acquisition of the Divestment Business and (ii) an exclusivity letter executed by Wabtec, its Affiliated Undertakings and/or Faiveley Transport, granting Wabtec, its Affiliated Undertakings and/or Faiveley Transport an irrevocable option to sell the Divestment Business to the potential purchaser once the opinion of Faiveley Transport's and/or FTG's relevant employee representative bodies has been delivered.

Schedule: the schedule to these Commitments describing more in detail the Divestment Business.

Trustee(s): the Monitoring Trustee and/or the Divestiture Trustee as the case may be.

Trustee Divestiture Period: the period of […] from the end of the First Divestiture Period.

SECTION B. THE COMMITMENT TO DIVEST AND THE DIVESTMENT BUSINESS

Commitment to divest

2. In order to maintain effective competition, Wabtec commits to divest, or procure the divestiture of the Divestment Business by the end of the Trustee Divestiture Period as a going concern to a purchaser and on terms of sale approved by the Commission in accordance with the procedure described in paragraph 21 of these Commitments. To carry out the divestiture,

Wabtec commits to find a purchaser and to enter into a Sale and Purchase Agreement for the sale of the Divestment Business within the First Divestiture Period. If, at the end of the First Divestiture Period, Wabtec has not entered into such an agreement and/or the French Minister of Economy has vetoed the sale of the Divestment Business pursuant to Articles L. 151-3, L. 151-4 and R. 153-1 and following of the French Monetary and Financial Code (to the extent such ministerial approval is required in view of the nationality of the purchaser), Wabtec shall grant the Divestiture Trustee an exclusive mandate to sell the Divestment Business in accordance with the procedure described in paragraph 33 in the Trustee Divestiture Period.

3. The Concentration shall not be implemented before (i) Wabtec or the Divestiture Trustee has entered into a Sale and Purchase Agreement for the sale of the Divestment Business and the Commission has approved the purchaser and the terms of sale in accordance with paragraph 21 and (ii) if applicable, the French Minister of Economy has approved the sale of the Divestment Business pursuant to Articles L. 151-3, L. 151-4 and R. 153-1 and following of the French Monetary and Financial Code.

4. Wabtec shall be deemed to have complied with this commitment if:

   (a) by the end of the Trustee Divestiture Period, Wabtec or the Divestiture Trustee have entered into a Sale and Purchase Agreement and the Commission approves the proposed purchaser and the terms of sale as being consistent with the Commitments in accordance with the procedure described in paragraph 21; and

   (b) the Closing of the sale of the Divestment Business to the Purchaser takes place within the Closing Period.

5. In order to maintain the structural effect of the Commitments, Wabtec shall, for a period of 10 years after Closing, not acquire, whether directly or indirectly, the possibility of exercising influence (as defined in paragraph 43 of the Remedies Notice, footnote 3) over the whole or part of the Divestment Business, unless, following the submission of a reasoned request from Wabtec showing good cause and accompanied by a report from the Monitoring Trustee (as provided in paragraph 47 of these Commitments), the Commission finds that the structure of the market has changed to such an extent that the absence of influence over the Divestment Business is no longer necessary to render the Concentration compatible with the internal market.

Structure and definition of the Divestment Business

6. The Divestment Business consists of FTG, which currently operates Faiveley Transport's entire production of friction materials. The legal and functional structure of the Divestment Business as operated to date is described in the Schedule.

7. The Divestment Business includes all assets and staff that contribute to the current operation or are necessary to ensure the viability and competitiveness of the Divestment Business, in particular:

   (a) all tangible and intangible assets (including intellectual property rights);

   (b) all licences, permits and authorisations issued by any governmental organisation for the benefit of the Divestment Business;

   (c) all contracts, leases, commitments and customer orders of the Divestment Business;

   (d) all customer, credit and other records of the Divestment Business; and

   (e) the Personnel.

8. In addition, the Divestment Business includes the benefit, for a transitional period of up to […] after Closing and on terms and conditions equivalent to those at present afforded to the

Divestment Business, of all current arrangements under which Faiveley Transport or its Affiliated Undertakings supply products or services to the Divestment Business, as detailed in the Schedule, unless otherwise agreed with the Purchaser. Strict firewall procedures will be adopted so as to ensure that any competitively sensitive information related to, or arising from such supply arrangements (for example, product roadmaps) will not be shared with, or passed on to, anyone outside the relevant operations.

SECTION C. RELATED COMMITMENTS

Preservation of viability, marketability and competitiveness

9. From the Effective Date until Closing, the Parties shall preserve or procure the preservation of the economic viability, marketability and competitiveness of the Divestment Business, in accordance with good business practice, and shall minimise as far as possible any risk of loss of competitive potential of the Divestment Business. In particular, the Parties undertake:

   (a) not to carry out any action that might have a significant adverse impact on the value, management or competitiveness of the Divestment Business or that might alter the nature and scope of activity, or the industrial or commercial strategy or the investment policy of the Divestment Business;

   (b) to make available, or procure to make available, sufficient resources for the development of the Divestment Business, on the basis and continuation of the existing business plans;

   (c) to take all reasonable steps, or procure that all reasonable steps are being taken, including appropriate incentive schemes (based on industry practice), to encourage all Key Personnel to remain with the Divestment Business, and not to solicit or move any Personnel to Wabtec's remaining business. Where, nevertheless, individual members of the Key Personnel exceptionally leave the Divestment Business, Wabtec shall provide a reasoned proposal to replace the person or persons concerned to the Commission and the Monitoring Trustee. Wabtec must be able to demonstrate to the Commission that the replacement is well suited to carry out the functions exercised by those individual members of the Key Personnel. The replacement shall take place under the supervision of the Monitoring Trustee, who shall report to the Commission.

10. The Parties commit to, at the Purchaser's option, sell to the Purchaser the Financing Current Account Debt of the Divestment Business for a maximum price of […], to be negotiated as part of the global price for the divestiture.

11. The Sale and Purchase Agreement will provide for an appropriate incentive scheme to ensure that the Purchaser will be able to invest in the competitiveness of the Divestment Business in the area of railway sintered friction materials. To this end, and unless another kind of incentive scheme is negotiated with the Purchaser and approved by the Commission, […], the use of which is exclusively limited to (i) the improvement of the production assets of the Divestment Business, and/or (ii) one or more research and development project(s) carried out by the Divestment Business in the area of railway sintered friction materials, as determined by the Purchaser. […]

Hold-separate obligations

12. The Parties commit, from the Effective Date until Closing, (i) to procure that the Divestment Business is kept separate from the businesses that Wabtec will be retaining, (ii) after closing of the Concentration, to keep the Divestment Business separate from the business that Wabtec is retaining, and (iii) to ensure that unless explicitly permitted under these Commitments: (a) management and staff of the businesses retained by Wabtec have no involvement in the Divestment Business; (b) the Key Personnel and Personnel of the Divestment Business have

no involvement in any business retained by Wabtec and do not report to any individual outside the Divestment Business.

13. Until Closing, the Parties shall assist the Monitoring Trustee in ensuring that the Divestment Business is managed as a distinct and saleable entity separate from the businesses which Wabtec is retaining. Immediately after the adoption of the Decision, the Parties shall appoint a Hold Separate Manager. The Hold Separate Manager, who shall be part of the Key Personnel, shall manage the Divestment Business independently and in the best interest of the business with a view to ensuring its continued economic viability, marketability and competitiveness and its independence from the businesses retained by Wabtec. The Hold Separate Manager shall closely cooperate with and report to the Monitoring Trustee and, if applicable, the Divestiture Trustee. Any replacement of the Hold Separate Manager shall be subject to the procedure laid down in paragraph 9(c) of these Commitments. The Commission may, after having heard the Parties, require them to replace the Hold Separate Manager.

14. To ensure that the Divestment Business is held and managed as a separate entity, the Monitoring Trustee shall exercise Faiveley Transport's rights as shareholder in the legal entity or entities that constitute the Divestment Business (except for its rights in respect of dividends that are due before Closing), with the aim of acting in the best interest of the business, which shall be determined on a stand-alone basis, as an independent financial investor, and with a view to fulfilling the Parties' obligations under the Commitments. Furthermore, the Monitoring Trustee shall have the power to replace the President of FTG. Upon request of the Monitoring Trustee, Faiveley Transport shall cause the President of FTG to resign.

Ring-fencing

15. The Parties shall implement, or procure to implement, all necessary measures to ensure that they do not, after the Effective Date, obtain any Confidential Information relating to the Divestment Business and that any such Confidential Information obtained by the Parties before the Effective Date will be eliminated and not be used by the Parties. This includes measures vis-à-vis the President of FTG, up until he is replaced by the Monitoring Trustee in accordance with paragraph 14. In particular, the participation of the Divestment Business in any central information technology network shall be severed to the extent possible, without compromising the viability of the Divestment Business. The Parties may obtain or keep information relating to the Divestment Business which is reasonably necessary for the divestiture of the Divestment Business, the disclosure of which to the Parties is required by law.

Non-solicitation clause

16. Wabtec undertakes, subject to customary limitations, not to solicit, and to procure that Affiliated Undertakings do not solicit, the Key Personnel transferred with the Divestment Business for a period of […] after Closing.

Due diligence

17. In order to enable potential purchasers to carry out a reasonable due diligence of the Divestment Business, the Parties shall, subject to customary confidentiality assurances and dependent on the stage of the divestiture process:

    (a) provide to potential purchasers sufficient information as regards the Divestment Business;

    (b) provide to potential purchasers sufficient information relating to the Personnel and allow them reasonable access to the Personnel.

Reporting

18. Wabtec shall submit written reports in English on potential purchasers of the Divestment Business and developments in the negotiations with such potential purchasers to the Commission and the Monitoring Trustee no later than 10 days after the end of every month following the Effective Date (or otherwise at the Commission's request). Wabtec shall submit a list of all potential purchasers having expressed interest in acquiring the Divestment Business to the Commission at each and every stage of the divestiture process, as well as a copy of all the offers made by potential purchasers within five days of their receipt.
19. Wabtec shall inform the Commission and the Monitoring Trustee on the preparation of the data room documentation and the due diligence procedure and shall submit a copy of any information memorandum to the Commission and the Monitoring Trustee before sending the memorandum out to potential purchasers.

SECTION D. THE PURCHASER

20. In order to be approved by the Commission, the Purchaser must fulfil the following criteria:

    (a) The Purchaser shall be independent of and unconnected to the Parties and their Affiliated Undertakings (this being assessed having regard to the situation following the divestiture).

    (b) The Purchaser shall have the financial resources, an ability to sell internationally to railway industry customers, proven expertise and incentive to maintain and develop the Divestment Business as a viable and active competitive force in competition with the Parties and other competitors.

    (c) The acquisition of the Divestment Business by the Purchaser must neither be likely to create, in light of the information available to the Commission, *prima facie* competition concerns nor give rise to a risk that the implementation of the Commitments will be delayed. In particular, the Purchaser must reasonably be expected to obtain all necessary approvals from the relevant regulatory authorities for the acquisition of the Divestment Business.

21. The Sale and Purchase Agreement (as well as ancillary agreements) shall be conditional on the Commission's approval. When Wabtec has executed an agreement with a purchaser, it shall submit a fully documented and reasoned proposal, including a copy of the agreement(s), within one week to the Commission and the Monitoring Trustee. Wabtec must be able to demonstrate to the Commission that the purchaser fulfils the Purchaser Criteria and that the Divestment Business is being sold in a manner consistent with the Commission's Decision and the Commitments. For the approval, the Commission shall verify that the purchaser fulfils the Purchaser Criteria and that the Divestment Business is being sold in a manner consistent with the Commitments including their objective to bring about a lasting structural change in the market. The Commission may approve the sale of the Divestment Business without one or more Assets or parts of the Personnel, or by substituting one or more Assets or parts of the Personnel with one or more different assets or different personnel, if this does not affect the viability and competitiveness of the Divestment Business after the sale, taking account of the proposed purchaser.

SECTION E. TRUSTEE

Appointment procedure

22. Wabtec shall appoint a Monitoring Trustee to carry out the functions specified in these Commitments for a Monitoring Trustee. Wabtec commits not to close the Concentration before the appointment of a Monitoring Trustee.

23. If Wabtec has not entered into a Sale and Purchase Agreement one month before the end of the First Divestiture Period or if the Commission has rejected a purchaser proposed by the Parties at that time or thereafter, Wabtec shall appoint a Divestiture Trustee. The appointment of the Divestiture Trustee shall take effect upon the commencement of the Trustee Divestiture Period.

24. The Trustee shall:
    (a) at the time of appointment, be independent of the Parties and their Affiliated Undertakings;
    (b) possess the necessary qualifications to carry out its mandate, for example have sufficient relevant experience as an investment banker or consultant or auditor; and
    (c) neither have nor become exposed to a Conflict of Interest.

25. The Trustee shall be remunerated by the Parties in a way that does not impede the independent and effective fulfilment of its mandate. In particular, where the remuneration package of a Divestiture Trustee includes a success premium linked to the final sale value of the Divestment Business, such success premium may only be earned if the divestiture takes place within the Trustee Divestiture Period.

Proposal by Wabtec

26. No later than two weeks after the Effective Date, Wabtec shall submit the names of two natural or legal persons whom Wabtec proposes to appoint as the Monitoring Trustee to the Commission for approval. No later than one month before the end of the First Divestiture Period or on request by the Commission, Wabtec shall submit a list of one or more persons whom the Parties propose to appoint as Divestiture Trustee to the Commission for approval. The proposal shall contain sufficient information for the Commission to verify that the person or persons proposed as Trustee fulfil the requirements set out in paragraph 24 and shall include:

    (a) the full terms of the proposed mandate, which shall include all provisions necessary to enable the Trustee to fulfil its duties under these Commitments;

    (b) the outline of a work plan which describes how the Trustee intends to carry out its assigned tasks;

    (c) an indication whether the proposed Trustee is to act as both Monitoring Trustee and Divestiture Trustee or whether different trustees are proposed for the two functions.

Approval or rejection by the Commission

27. The Commission shall have the discretion to approve or reject the proposed Trustee(s) and to approve the proposed mandate subject to any modifications it deems necessary for the Trustee to fulfil its obligations. If only one name is approved, Wabtec shall appoint or cause to be appointed the person or persons concerned as Trustee, in accordance with the mandate approved by the Commission. If more than one name is approved, Wabtec shall be free to choose the Trustee to be appointed from among the names approved. The Trustee shall be appointed within one week of the Commission's approval, in accordance with the mandate approved by the Commission.

New proposal by Wabtec

28. If all the proposed Trustees are rejected, Wabtec shall submit the names of at least two more natural or legal persons within one week of being informed of the rejection, in accordance with paragraphs 22 and 27 of these Commitments.

Trustee nominated by the Commission

29. If all further proposed Trustees are rejected by the Commission, the Commission shall nominate a Trustee, whom Wabtec shall appoint, or cause to be appointed, in accordance with a trustee mandate approved by the Commission.

Functions of the Trustee

30. The Trustee shall assume its specified duties and obligations in order to ensure compliance with the Commitments. The Commission may, on its own initiative or at the request of the Trustee or the Parties, give any orders or instructions to the Trustee in order to ensure compliance with the conditions and obligations attached to the Decision.

Duties and obligations of the Monitoring Trustee

31. The Monitoring Trustee shall:
    (a) propose in its first report to the Commission a detailed work plan describing how it intends to monitor compliance with the obligations and conditions attached to the Decision.
    (b) oversee, in close co-operation with the Hold Separate Manager, the on-going management of the Divestment Business with a view to ensuring its continued economic viability, marketability and competitiveness and monitor compliance by the Parties with the conditions and obligations attached to the Decision. To that end the Monitoring Trustee shall:

        (i) monitor the preservation of the economic viability, marketability and competitiveness of the Divestment Business, and the keeping separate of the Divestment Business from the businesses retained by the Parties, in accordance with paragraphs 9 and 12 of these Commitments;

        (ii) supervise the management of the Divestment Business as a distinct and saleable entity, in accordance with paragraph 13 of these Commitments;

        (iii) with respect to Confidential Information:

            - determine all necessary measures to ensure that the Parties do not after the Effective Date obtain any Confidential Information relating to the Divestment Business;
            - in particular strive for the severing of the Divestment Business' participation in a central information technology network to the extent possible, without compromising the viability of the Divestment Business;
            - make sure that any Confidential Information relating to the Divestment Business obtained by the Parties before the Effective Date is eliminated and will not be used by the Parties;
            - decide whether such information may be disclosed to or kept by the Parties as the disclosure is reasonably necessary to allow the Parties to carry out the divestiture or as the disclosure is required by law; and
            - monitor the splitting of assets and the allocation of Personnel between the Divestment Business and the Parties.
    (c) propose to the Parties such measures as the Monitoring Trustee considers necessary to ensure the Parties' compliance with the conditions and obligations attached to the Decision, in particular the maintenance of the full economic viability, marketability or competitiveness of the Divestment Business, the holding separate of the Divestment Business and the non-disclosure of competitively sensitive information;
    (d) review and assess potential purchasers as well as the progress of the divestiture process and verify that, dependent on the stage of the divestiture process:

(i) potential purchasers receive sufficient and correct information relating to the Divestment Business and the Personnel in particular by reviewing, if available, the data room documentation, the information memorandum and the due diligence process, and

(ii) potential purchasers are granted reasonable access to the Personnel;

(e) act as a contact point for any requests by third parties, in particular potential purchasers, in relation to the Commitments;

(f) provide to the Commission, sending the Parties a non-confidential copy at the same time, a written report within 15 days after the end of every month that shall cover the operation and management of the Divestment Business as well as the splitting of assets and the allocation of Personnel so that the Commission can assess whether the business is held in a manner consistent with the Commitments and the progress of the divestiture process as well as potential purchasers;

(g) promptly report in writing to the Commission, sending the Parties a non-confidential copy at the same time, if it concludes on reasonable grounds that the Parties are failing to comply with these Commitments;

(h) within one week after receipt of the documented proposal referred to in paragraph 21 of these Commitments, submit to the Commission, sending the Parties a non-confidential copy at the same time, a reasoned opinion as to the suitability and independence of the proposed purchaser and the viability of the Divestment Business after the sale and as to whether the Divestment Business is sold in a manner consistent with the conditions and obligations attached to the Decision, in particular, if relevant, whether the sale of the Divestment Business without one or more Assets or not all of the Personnel affects the viability of the Divestment Business after the sale, taking account of the proposed purchaser;

(i) assume the other functions assigned to the Monitoring Trustee under the conditions and obligations attached to the Decision.

32. If the Monitoring and Divestiture Trustee are not the same legal or natural persons, the Monitoring Trustee and the Divestiture Trustee shall cooperate closely with each other during and for the purpose of the preparation of the Trustee Divestiture Period in order to facilitate each other's tasks.

Duties and obligations of the Divestiture Trustee

33. Within the Trustee Divestiture Period, the Divestiture Trustee shall sell at no minimum price the Divestment Business to a purchaser, provided that the Commission has approved both (i) the purchaser and (ii) the Sale and Purchase Agreement (and ancillary agreements) as in line with the Commission's Decision and the Commitments in accordance with paragraphs 20 and 21 of these Commitments. The Divestiture Trustee shall include in the Sale and Purchase Agreement (as well as in any ancillary agreements), such terms and conditions as it considers appropriate for an expedient sale in the Trustee Divestiture Period. In particular, the Divestiture Trustee may include in the Sale and Purchase Agreement such customary representations and warranties and indemnities as are reasonably required to effect the sale. The Divestiture Trustee shall protect the legitimate financial interests of the Parties, subject to the Parties' unconditional obligation to divest at no minimum price in the Trustee Divestiture Period.

34. In the Trustee Divestiture Period (or otherwise at the Commission's request), the Divestiture Trustee shall provide the Commission with a comprehensive monthly report written in English on the progress of the divestiture process. Such reports shall be submitted within 15 days after the end of every month with a simultaneous copy to the Monitoring Trustee and a non-confidential copy to the Parties.

Duties and obligations of the Parties

35. The Parties shall provide and shall cause their advisors to provide the Trustee with all such co-operation, assistance and information as the Trustee may reasonably require to perform its tasks. The Trustee shall have full and complete access to any of the Parties' or the Divestment Business' books, records, documents, management or other personnel, facilities, sites and technical information necessary for fulfilling its duties under the Commitments and the Parties and the Divestment Business shall provide the Trustee upon request with copies of any document. The Parties and the Divestment Business shall make available to the Trustee one or more offices on their premises and shall be available for meetings in order to provide the Trustee with all information necessary for the performance of its tasks.
36. The Parties shall provide the Monitoring Trustee with all managerial and administrative support that it may reasonably request on behalf of the management of the Divestment Business. This shall include all administrative support functions relating to the Divestment Business which are currently carried out at headquarters level. The Parties shall provide and shall cause their advisors to provide the Monitoring Trustee, on request, with the information submitted to potential purchasers, in particular give the Monitoring Trustee access to the data room documentation and all other information granted to potential purchasers in the due diligence procedure. The Parties shall inform the Monitoring Trustee on possible purchasers, submit lists of potential purchasers at each stage of the selection process, including the offers made by potential purchasers at those stages, and keep the Monitoring Trustee informed of all developments in the divestiture process.
37. The Parties shall grant or procure Affiliated Undertakings to grant comprehensive powers of attorney, duly executed, to the Divestiture Trustee to effect the sale (including ancillary agreements), the Closing and all actions and declarations which the Divestiture Trustee considers necessary or appropriate to achieve the sale and the Closing, including the appointment of advisors to assist with the sale process. Upon request of the Divestiture Trustee, the Parties shall cause the documents required for effecting the sale and the Closing to be duly executed.
38. Wabtec shall indemnify the Trustee and its employees and agents (each an "***Indemnified Party***") and hold each Indemnified Party harmless against, and hereby agrees that an Indemnified Party shall have no liability to the Parties for, any liabilities arising out of the performance of the Trustee's duties under the Commitments, except to the extent that such liabilities result from the wilful default, recklessness, gross negligence or bad faith of the Trustee, its employees, agents or advisors.
39. At the expense of Wabtec, the Trustee may appoint advisors (in particular for corporate finance or legal advice), subject to Wabtec's approval (this approval not to be unreasonably withheld or delayed) if the Trustee considers the appointment of such advisors necessary or appropriate for the performance of its duties and obligations under the Mandate, provided that any fees and other expenses incurred by the Trustee are reasonable. Should Wabtec refuse to approve the advisors proposed by the Trustee the Commission may approve the appointment of such advisors instead, after having heard Wabtec. Only the Trustee shall be entitled to issue instructions to the advisors. Paragraph 38 of these Commitments shall apply *mutatis mutandis*. In the Trustee Divestiture Period, the Divestiture Trustee may use advisors who served the Parties during the Divestiture Period if the Divestiture Trustee considers this in the best interest of an expedient sale.
40. The Parties agree that the Commission may share Confidential Information proprietary to the Parties and the Divestment Business with the Trustee. The Trustee shall not disclose such information and the principles contained in Article 17(1) and (2) of the Merger Regulation apply *mutatis mutandis*.
41. The Parties agree that the contact details of the Monitoring Trustee are published on the website of the Commission's Directorate-General for Competition and they shall inform

interested third parties, in particular any potential purchasers, of the identity and the tasks of the Monitoring Trustee.

42. For a period of ten years from the Effective Date the Commission may request all information from the Parties that is reasonably necessary to monitor the effective implementation of these Commitments.

Replacement, discharge and reappointment of the Trustee

43. If the Trustee ceases to perform its functions under the Commitments or for any other good cause, including the exposure of the Trustee to a Conflict of Interest:

    (a) the Commission may, after hearing the Trustee and Wabtec, require Wabtec to replace the Trustee; or

    (b) Wabtec may, with the prior approval of the Commission, replace the Trustee.

44. If the Trustee is removed according to paragraph 43 of these Commitments, the Trustee may be required to continue in its function until a new Trustee is in place to whom the Trustee has effected a full hand over of all relevant information. The new Trustee shall be appointed in accordance with the procedure referred to in paragraphs 22 to 29 of these Commitments.

45. Unless removed according to paragraph 43 of these Commitments, the Trustee shall cease to act as Trustee only after the Commission has discharged it from its duties after all the Commitments with which the Trustee has been entrusted have been implemented. However, the Commission may at any time require the reappointment of the Monitoring Trustee if it subsequently appears that the relevant remedies might not have been fully and properly implemented.

SECTION F. THE REVIEW CLAUSE

46. The Commission may extend the time periods foreseen in the Commitments in response to a request from Wabtec or, in appropriate cases, on its own initiative. Where Wabtec requests an extension of a time period, it shall submit a reasoned request to the Commission no later than one month before the expiry of that period (or at any time during the relevant time period if the extension is justified by the failure to obtain the approval of the French Minister of

Economy pursuant to Articles L. 151-3, L. 151-4 and R. 153-1 and following of the French Monetary and Financial Code and the Commission has approved the purchaser and the terms of sale when such request is made), showing good cause. This request shall be accompanied by a report from the Monitoring Trustee, who shall, at the same time send a non-confidential copy of the report to Wabtec. Only in exceptional circumstances shall Wabtec be entitled to request an extension within the last month of any period.

47. The Commission may further, in response to a reasoned request from the Parties showing good cause waive, modify or substitute, in exceptional circumstances, one or more of the undertakings in these Commitments. This request shall be accompanied by a report from the Monitoring Trustee, who shall, at the same time send a non-confidential copy of the report to the Parties. The request shall not have the effect of suspending the application of the undertaking and, in particular, of suspending the expiry of any time period in which the undertaking has to be complied with.

SECTION G. ENTRY INTO FORCE

48. The Commitments shall take effect upon the date of adoption of the Decision.

…… ……

duly authorised for and on behalf of Wabtec duly authorised for and on behalf of Faiveley Transport

SCHEDULE

Legal and functional structure of the Divestment Business

1. The Divestment Business is currently operated as a separate legal entity. It consists of Faiveley Transport Gennevilliers ("**FTG**"), Faiveley Transport's subsidiary which currently operates Faiveley Transport's entire production of friction material.

2. FTG is specialized in the design and manufacturing of sintered friction materials, as opposed to organic and cast iron friction materials. FTG's friction materials are integrated in brake systems of various applications: rail vehicles, motorsports cars, motorcycles, scooters and mountain bikes, airplanes or industrial applications such as wind turbines.

3. FTG operates from a single site, located at 41, rue Jean Jaures, F-92230 Gennevilliers.

4. FTG has no subsidiaries.

5. FTG is organized along the following divisions:

   - Production methods;
   - R&D and Engineering;
   - Railway test laboratory;
   - Cars-Motorbikes-Moutain Bikes Production;
   - Railway-Industrial Production;
   - Maintenance;
   - Purchasing;
   - Supply Chain;
   - Railway Sales;
   - Cars-Motorbikes-Moutain Bikes Sales & Marketing;
   - Quality Environment;
   - Human Resources – Safety;
   - Finance – Accounting.

6. An organizational chart of FTG is attached as **Annex 1**.

In accordance with paragraph 7 of these Commitments, the Divestment Business includes, but is not limited to:

(a) a lease for the buildings of the production site and offices located at 41, rue Jean Jaures, F-92230 Gennevilliers, which consist of two production units (one for motorbikes pads and the other for motorsports, aircrafts, industrial and railways

friction), one blending unit (where the various ingredients composing the sintered material are mixed together), one test laboratory, a shipping and receiving bay and storage spaces;

(b) **the machinery used in the production site**, among which hydraulic molding presses, five sintering furnaces, grinding machines, two mixers, four braking test benches composing the test laboratory (two for railways friction, one for cars and one for motorbikes pads), marking and packaging machines, storage racks

(c) **all intangible assets of FTG, among which:**

- FTG's know-how with respect in particular to the various formulations used for the production of friction materials;
- one patent for a half flexible railway pad and one patent for motorsports pads;
- the "CL Brakes" trademark, used for pads for cars, motorbikes and bikes;
- the following domain name owned by FTG: cl-brakes.com.

(d) **all raw materials, stocks built up in the ordinary course of business, work in progress and semi-finished and finished goods held by FTG at the date of Closing;**

(e) **all licences, permits and authorisations currently used by FTG for the development, production, marketing and sales of its products;**

(f) **all of FTG's contracts, among which:**

- the following agreements for the sale of railway friction materials:

Client	Country	Fleet of trains	Type of friction	Contract duration
[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]

- a contract entered into with SNCF for the co-development of a new generation of more ecological and more efficient pads for high speed trains (the Garnitures de frein Ligne à Grande Vitesse project, or "GLGV" project);
- […]
- distribution contracts for the export outside of France of motorbikes and mountain bikes pads; and
- all contracts with suppliers.

(g) the following agreements entered into by other Faiveley Transport's subsidiaries for the sale of FTG's friction materials, subject, where necessary, to client's consent, which Faiveley Transport will use its best endeavors to obtain;

Agreements entered into by other Faiveley Transport's subsidiaries for the sale of FTG's friction materials					
Faiveley Transport's subsidiary	**Client**	**Country**	**Fleet of trains**	**Type of friction**	**Contract duration**
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]
[…]	[…]	[…]	[…]	[…]	[…]

(h) the entirety of FTG's customer portfolio, orders and records, as well as historic customer orders and records. A list of all customers served by FTG in fiscal years 2014/15 and 2015/16, including the value of sales generated by FTG for each category of product sold to each of them, is attached as **Annex 2**;

(i) the Personnel listed in the organizational chart attached as Annex 1;

The two following individuals listed in this organizational chart attached shall not be included in the Divestment Business:

[…]

The following table shows, by function, the number of FTG employees to be transferred as part of the Divestment business.

Number of employees to be transferred		
Function		**Number of employees**
Site Direction		[…]
Production methods		[…]
R&D and Engineering		[…]
Railway test laboratory		[…]
Production	Cars-Motorbikes-Moutain Bikes	[…]
	Railway-Industrial	[…]

Maintenance		[…]
Purchasing		[…]
Supply Chain		[…]
Sales & Marketing	Railway	[…]
	Cars-Motorbikes-Moutain Bikes	[…]
Quality Environment		[…]
Human Resources – Safety		[…]
Finance – Accounting		[…]

(j) the following Key Personnel:

FTG's key employees	
Name	**Function**
[…]	[…]
[…]	[…]
[…]	[…]
[…]	[…]
[…]	[…]
[…]	[…]
[…]	[…]
[…]	[…]
[…]	[…]

Transitional activities/agreements:

7. **Sales activities**. Before Closing, Faiveley Transport will finalize the transfer to FTG of:

(i) ongoing contracts entered into by other Affiliated Undertakings of Faiveley Transport for the sale of FTG's products as described under point (g) above, […]; and

(ii) orders for FTG's products not entirely delivered by other Affiliated Undertakings of Faiveley Transport,

in both cases subject, where necessary, to the agreement of the customer concerned.

In the event the customer does not agree to the transfer of the contract or the order to FTG, the Parties commit to provide the customer with the option of having, until the termination or expiry of such agreement(s), the products and volumes concerned by such agreement(s) supplied by the other Affiliated Undertaking(s) of Faiveley Transport under the conditions provided in such agreement(s) and, for the implementation of this obligation, to buy such products and volumes from FTG under conditions similar to those currently applicable between those Affiliated Undertaking(s) of Faiveley Transport and FTG.

8. **Financial arrangements.** The Parties commit to:

   (i) At the Purchaser's option, sell to the Purchaser the Financing Current Account Debt of the Divestment Business for a maximum price of […], to be negotiated as part of the global price for the divestiture; and

   (ii) unless another kind of incentive scheme is negotiated with the Purchaser and approved by the Commission, […], the use of which is exclusively limited to (i) the improvement of the production assets of the Divestment Business, and/or (ii) one or more research and development project(s) carried out by the Divestment Business in the area of railway sintered friction materials, as determined by the Purchaser […].

9. **Customer referral**. The Parties commit:

   (i) as soon as possible after the adoption of the Decision, to inform all external customers having purchased FTG's products over the past two years that any future orders of FTG's products should be sent directly to FTG; and

   (ii) for a […] period following the closing of the Concentration, to refer to FTG all customer requests addressed to Faiveley Transport and its Affiliated Undertakings for the supply of sintered friction materials manufactured by FTG.

10. **Sale and after-sale services**. At the Purchaser's option, Wabtec will continue, for […], to provide to FTG sales and after sales services support with respect to train operators currently serviced through Faiveley Transport or its Affiliated Undertakings other than FTG.

11. **Services contracts.** At the purchaser's option, FTG will continue benefiting from all agreements, concluded at Faiveley group level, from which it currently benefits for the provision of general services such as travel agency, transportation, cleaning, car leasing, *etc*, until termination of the agreements concerned and for a maximum of […].

12. **IT services**. At the Purchaser's option, Wabtec will continue, […], to provide current IT systems support to FTG.

Termination of discs trading

13. Sales of brakes discs from Faiveley or Affilated Undertakings to FTG will be terminated before the Closing and are thus excluded from the transitional arrangements referred to in paragraph 8 of these Commitments.

(5) ***Subcontracting***

14. ***SNCF contract***. Wabtec commits to subcontract to FTG […] of the volumes (the "Subcontracted Volume") for the supply of TGV pads which SNCF awarded to Wabtec under the tender finally awarded to Wabtec on 27 June 2016 […].

If there is any asset or personnel which is not be covered by paragraph 2 of this Schedule but which is both used (exclusively or not) in the Divestment Business and necessary for the continued viability and competitiveness of the Divestment Business, that asset or adequate substitute will be offered to potential purchasers.

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LIST OF ANNEXES TO COMMITMENTS OF 25 JULY 2016

Annex 1 FTG organization chart

Annex 2 FTG sales by products and customers for FY 2014-2015 and FY 2015-2016