EUROPEAN COMMISSION
DG Competition

CASE M.7429 - SIEMENS/ DRESSER-RAND

(Only the English text is authentic)

MERGER PROCEDURE
REGULATION (EC) 139/2004

Article 8(1) Regulation (EC) 139/2004

Date: 29/06/2015

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EUROPEAN
COMMISSION

Brussels, 29.6.2015
C(2015) 4355 final

PUBLIC VERSION

COMMISSION DECISION

of 29.6.2015

declaring a concentration to be compatible with the internal market and the functioning of the EEA Agreement
(Case M.7429 - SIEMENS/ DRESSER-RAND)

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COMMISSION DECISION

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declaring a concentration to be compatible with the internal market and the functioning of the EEA Agreement (Case M.7429 - SIEMENS/ DRESSER-RAND)

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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(1) thereof,

Having regard to the Commission's decision of 13 February 2015 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. INTRODUCTION

(1) On 9 January 2015 the Commission received a notification of a proposed concentration pursuant to Article 4 of the Merger Regulation by which Siemens AG ("Siemens" or "the Notifying Party") would acquire sole control over Dresser Rand Group, Inc. ("DR"). The Transaction entails the acquisition by Siemens of all the issued shares of DR (the "Transaction"). As a result, Siemens would acquire sole control over DR.[4] Siemens and DR are collectively designated hereinafter as "the Parties".

2. THE OPERATION AND THE CONCENTRATION

(2) **Siemens** is a German stock corporation headquartered in Munich, Germany. Siemens offers a wide range of products and services to customers including energy management, power and gas, power generation services, process industries and drives, wind power and renewables.

(3) **DR** is a U.S. company headquartered in Houston, Texas. DR focuses on servicing customers in the oil and gas ("O&G") industry with products (mostly compressors

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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") has 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 Publication in the Official Journal of the European Union No C 17, 20.1.2015, p.30.

gas turbines and steam turbines) designed for applications along the O&G value chain: upstream exploration and production, midstream transportation, LNG and storage and downstream processing, and distribution of O&G and related by-products.

(4) Since Siemens intends to buy all the outstanding shares of DR and will acquire sole control over DR, the Transaction is a concentration within the meaning of Article 3(1)(b) of the Merger Regulation.

3. UNION DIMENSION

(5) The Parties have a combined aggregated world-wide turnover of more than EUR 5 000 million[5], which in 2013 amounted to EUR 78 165 million (Siemens: EUR 75 882 million; DR: EUR 2 283 million). Each of them has an EU-wide turnover in excess of EUR 250 million (Siemens: EUR […] million, DR: EUR […] million), but they do not achieve more than two-thirds of their aggregate EU-wide turnover within one and the same Member State. The Transaction therefore has an Union dimension according to Article 1(2) of the Merger Regulation.

4. THE PROCEDURE

(6) On 13 February 2015, the Commission found that the Transaction raised serious doubts as to its compatibility with the internal market and the EEA Agreement. It therefore adopted a decision to initiate proceedings pursuant to Article 6(1)(c) of the Merger Regulation ("the Article 6(1)(c) decision").

(7) On 20 February 2015, and following a request of the Notifying Party, the Commission provided access to non-confidential versions of certain key documents collected in the course of the first phase investigation. These key documents included redacted minutes of conference calls as well as extracts of replies to the market investigation.

(8) On 24 February 2015, and following a further request of the Notifying Party, the Commission provided access to additional documents and more extended access to those already received.

(9) On 27 February 2015, the Notifying Party submitted its written comments to the Article 6(1)(c) decision.

(10) On 5 March 2015, the Notifying Party agreed with the Commission to extend the periods previously set pursuant to Article 10(3) second subparagraph, third sentence of the Merger Regulation by ten working days.

(11) On 23 March 2015, the Commission adopted two decisions pursuant to Article 11(3) of Regulation (EC) No 139/2004 whereby it required Siemens and DR to supply information that they had previously been requested by simple requests for information pursuant to Article 11(2) of Regulation (EC) No 139/2004. The time limit fixed by the simple requests for information expired on 18 March 2015. The Commission received the complete and correct information required by the decisions on 27 March 2015. Consequently, pursuant to Article 10(4) of Regulation (EC) No

[5] Turnover calculated in accordance with Article 5 of the Merger Regulation and the Commission Consolidated Jurisdictional Notice (OJ C95, 16.04.2008, p.1).

139/2004 and Article 9 of Commission Regulation (EC) No 802/2004[6], the time limits referred to in Article 10 of Regulation (EC) No 139/2004 were suspended from 19 March 2015 until 27 March 2015 inclusive.

(12) The meeting of the Advisory Committee took place on 25 June 2015.

5. OVERVIEW OF THE O&G INDUSTRY AND TURBO COMPRESSOR TRAINS

(13) The Transaction concerns compressors and gas turbines that are used for various applications in the O&G industry. In order to be used in the O&G industry, compressors and gas turbines are combined into a "compressor train" where the compressor does the required work and the gas turbine provides energy to drive the compressor.

5.1. The O&G industry

(14) The O&G industry can be broadly partitioned into the three main segments: **upstream**, **midstream** and **downstream**.[7]

(15) The **upstream O&G** segment is commonly known as the exploration and production sector. It involves searching for underground and underwater crude oil and natural gas fields, the drilling of exploratory wells, and subsequently drilling and operating the wells that recover and bring crude oil and/or raw natural gas to the surface. It includes both on-shore and off-shore production.

(16) Off-shore platforms these are built in the open sea and the equipment used is therefore subject to limitations in terms of the space and weight that it can support. For this reason, when purchasing a compressor train, customers usually have specific requirements as to the weight and size of the compressor and the engine that drives the compressor. Customers also take account of the lifecycle of the equipment and the most convenient maintenance options.

(17) Key applications, among others, for upstream O&G off-shore and on-shore production are:

(a) Oil and gas separation, where the gas contained in a crude oil is separated from the liquid;

(b) Gas lift, where gas is injected into the production tubing at several levels in order to produce a foaming gas/oil mixture which facilitates the extraction; and,

(c) High pressure gas re-injection, where the remaining oil in the reservoir can be extracted only by increasing reservoir pressure. This is typically achieved by high pressure injections of gas.[8]

(18) The **midstream O&G** segment involves the transportation and storage of gas and crude oil. Crude oil is mostly transported through pipelines. Natural gas is also transported through pipelines but, in addition, after being cooled and condensed, can be transported in liquefied form by sea. Liquefied natural gas (LNG) is natural gas that has been converted temporarily to liquid form for ease of storage and transport. LNG takes up about 1/600th of the volume of natural gas in the gaseous state.

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6 Commission Regulation (EC) No 802/2004 of 7 April 2004 implementing Council Regulation (EC) No 139/2004 on the control of concentrations between undertakings (OJ L 133, 30.4.2008, p. 1)

7 ID 113 Form CO, paragraph 46.

8 ID 113 Form CO, paragraphs 30-31.

Natural gas is liquefied by cooling it to approximately -162 degrees Celsius. Compressors are used in the refrigeration process.

(19) The transportation of natural gas from the upstream processing facilities to downstream for processing, feedstock, fuel or distribution requires an extensive and elaborate transport system consisting of a complex network of pipelines. During the transportation, the pressure of the gas decreases due to the internal friction of the pipe. Compressors are thus required to boost the gas to reach its final destination in each of the following processes:

(a) *Export gas.* In this process, the gas is effectively moved from the offshore production facility to onshore installations;

(b) *Gas pipeline boosting.* In this process, before being sent through the pipelines, the gas is compressed to provide propellant force to move the natural gas through the pipelines;

(c) *High pressure gas transmission.* This process maintains pipeline pressure, overcomes pipe friction losses, and follows the system resistance curve; and,

(d) *Gas distribution.* In this process, the gas is distributed onshore in small pipelines of an average length of approximately 1 000 km.[9]

(20) The **downstream O&G** segment involves refining and production of various oil and gas products such as petrochemicals.

(21) An oil refinery is an industrial process plant where crude oil is processed and refined into more valuable petroleum products, such as gasoline, diesel fuel, asphalt base, heating oil, kerosene, and liquefied petroleum gas. These petroleum products are obtained through various stages of distillation and cracking. Compressors are used in hydrogen enrichment processes (hydro-treating, hydro-cracking) to provide a steady flow of process gas through a closed circuit in order to maintain the required process parameters in the plant units. They are also used in cracking processes (fluid catalytic cracking) to compress crack gas to facilitate the separation of light gases in the recovery train.

(22) In petrochemical plants, compressors are used in the production process of methanol synthesis gas from the methane contained in natural gas. They are also commonly employed for refrigeration in the production process of olefins, a synthetic fibre which is created through the polymerization of ethylene and/or propylene. Compressors are also key to the dehydrogenation process for the production of methyl tertiary butyl ether (MTBE).[10]

5.2. Compressors and drivers

(23) Generally, compressors are designed to compress or squeeze air and other gases into a more pressurised state than that in which they exist under normal atmospheric conditions. Compressors require a so-called driver to drive the compressor. For turbo compressors, the driver can be a gas turbine or a steam turbine or an electric motor. The choice of the driver used depends to a large extent on the availability and the cost of the fuel source (e.g. natural gas for a gas turbine, electricity for an electric motor and steam for a steam turbine), which in turn is influenced by the end-application the compressor train is used in.

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[9] ID 113 Form CO, paragraphs 31-32.

[10] ID 113 Form CO, paragraphs 32-33.

5.2.1 Compressors

(24) From a technical point of view, there are two main types of compressors: (i) positive displacement compressors and (ii) turbo compressors (also called dynamic compressors).

(25) *Positive displacement compressors* function by first trapping a defined volume of gas and then reducing that volume (for example, like a bicycle pump). Positive displacement compressors include reciprocating and rotary/screw compressors. Both types of positive displacement compressors are particularly suited for applications that require high pressure and low volume.

(26) *Turbo compressors* use the motion of blades or impellers rotating around a shaft to compress gas. Within turbo compressors *centrifugal* and *axial compressors* can be distinguished:

(a) Centrifugal compressors use a rotating impeller in a shaped housing to force the gas to the rim of the impeller. That increases the velocity of the gas and compresses it to the desired pressure level;

(b) Axial compressors use an array of air foils – instead of impellers – to progressively compress the gas.

(27) Centrifugal compressors can either be *single-stage* (having only one impeller) or *multi-stage* (having several impellers increasing the pressure of the gas in several stages). Multi-stage compressors are typically used for higher pressure applications. Axial compressors are usually multi-stage as they have several rotating blades. While centrifugal compressors are used for a wide range of applications, axial compressors are designed for high volumes and comparably lower pressure applications.

(28) Furthermore, turbo compressors can be *single shaft* or *integrally geared*. Single shaft turbo compressors have only one rotating shaft. Integrally geared turbo compressors have several rotating shafts (and are thus also referred to as multi shaft) which are interconnected by a gear. The gear is located inside the sealing of the compressor. For single shaft turbo compressors the gearbox connecting the compressor with the driver is located outside the sealing in front of the machine. Single shaft turbo compressors are smaller in size and – as they do not include a gear – have less exposure to leakage, which is crucial in the O&G sector. Therefore, they are the preferred option of customers in the O&G industry. Integrally-geared turbo compressors are mainly used outside the O&G sector, e.g. for air separation applications.

(29) Within single shaft turbo compressors, two types of design can be distinguished: *horizontal split* and *vertical split compressors* (also known as barrel type). Horizontal split compressors allow the opening of the compressor's casing horizontally for easy servicing and maintenance. However, because of the easy horizontal opening the seal between the casing halves cannot be maintained. Therefore, horizontal split compressors cannot be used for high pressure applications. Vertical split compressors, by contrast, are not as easy to service but can be used up to higher pressure levels (when equipped with a thicker casing).

(30) Turbo compressors are highly differentiated and engineered products that can differ by a number of technical parameters. One and the same design type of turbo compressor – e.g. a single shaft vertical split turbo compressor – can among others differ according to;

(a) flow rate;

(b) discharge pressure;

(c) running speed;

(d) discharge temperature;

(e) number of impellers;

(f) compression ratio;

(g) frame size;

(h) resistance to hazardous materials and conditions;

(i) efficiency;

(j) power requirement.

All these technical characteristics determine whether a compressor is suitable for a specific end-application.

(31) A compressor is customised to meet a customer's technical requirements. For that purpose, compressor suppliers have a set of pre-designed compressor base models and components which are produced on order and in accordance with a customer's specifications. The engineering and customization includes adapting the design or the material of certain components of the compressor, reinforcing the sealing, adjusting of the gear box to modify the rotation speed of the compressors. The customization can also involve an adaption of the auxiliary equipment of the compressor.

(32) As a result, each compressor is adapted for each specific project and is thus different from other compressors.

5.2.2. Drivers

(33) The driver provides power to the compressor. For turbo compressors, the driver can be a gas turbine, steam turbine or an electric motor. Technically, most compressors can be combined with any type of driver.

(34) The choice of the technology of driver to be used in any given project is influenced by a number of technical and environmental factors.

(35) First, it depends on the availability and the cost of the fuel source (e.g. natural gas for a gas turbine, electricity for an electric motor and steam for a steam turbine), which in turn is influenced by the end-application the compressor train is used for. Second, for many applications customers prefer one type of driver over another because of specific requirements regarding output power, reliability, operating environment, size and weight as well as maintainability.

(36) As regards many O&G applications, production fields and pipelines are usually located in remote areas and / or are exposed to hazardous conditions. In these locations, usually neither a reliable electricity supply nor steam sources are available. Under these circumstances the customer's choice is restricted to gas turbines.

(37) Gas turbines or so called industrial gas turbines ("IGT") are internal combustion engines that use air as the working fluid. The engine extracts chemical energy from fuel and converts it into mechanical energy using the gaseous energy from the working fluid (air) to drive the engine, which, in turn, is used to drive a generator, pump or compressor.

(38) In its past decisions[11], the Commission identified three categories of gas turbines: (i) small, with a power output below 15 MW; (ii) medium with a power output comprised between 15 MW and 60 MW; and (iii) large with a power output exceeding 60 MW.

(39) There are three main types of gas turbines: Heavy Industrial Gas Turbines ("IGT"), light industrial gas turbine ("light IGT") and aero derivate gas turbine ("ADGT"). ADGTs are gas turbines that have initially been derived from jet engines used in aircraft. ADGTs are used in applications for generation of electricity or driving mechanical devices (including compressors and pumps). ADGTs are quick starters, are lighter in weight and their maintenance is more convenient compared to IGTs. For these reasons ADGTs are preferred by many customers in O&G offshore applications, some LNG vessels / platforms and similar applications that require special conditions.

(40) ADGTs are composed of two main elements: (i) a core engine directly derived from an airplane engines; and (ii) a power turbine that transforms the thrust in motion. In addition to these two main elements, a complete ADGT also contains control systems.

(41) Light IGTs are turbines based on the technology of an IGT but with a modular design that allows easy maintenance. The modular design of light IGTs makes them a hybrid solution that is situated between a pure IGT and an ADGT. Light IGTs typically have a power output below 23 MW, although a few models exist that exceed this capacity.[12]

5.2.3. Turbo compressor trains

(42) The combination of a compressor and a driver, as well as auxiliary equipment such as gear boxes, piping and instrumentation and control devices is a compressor train. The compressor, driver and all auxiliary equipment are installed on a base frame. Compressors are usually purchased together with drivers and auxiliary equipment.

(43) More than 95% of compressors are purchased by an end-customer as part of a compressor train.[13] The end-customer usually nominates the supplier of the compressor or the supplier of the driver as the prime contractor. The prime contractor will usually conclude a contract with the end-customer for the turbo compressor train and sources the other components of the compressor train either internally or from a third party. In addition, the prime contractor is responsible for the technical integration of the components, the required engineering work and the testing of the fully integrated compressor train.

(44) To integrate a driver and a compressor into a compressor train, the compressor model must be adjusted to the type of driver specified. Typically that involves physically connecting shafts, flanges, wiring and piping. It also includes providing lubrication oil to the rotating equipment and a gas seal to the compressor. In addition, the

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11 COMP/M.7284 *Siemens/John Wood/Rolls-Royce Combined ADGT Business/RWG*, 4.8.2014, recital 22.

12 The SGT product line from Siemens has a power range up to 50 MW with the SGT-800. Please see Siemens product site http://www.energy.siemens.com/hq/en/fossil-power-generation/gas-turbines/sgt-800 htm, consulted 8.6.2015.

13 COMP/M.7284, *Siemens/John Wood/Rolls-Royce Combined ADGT Business/RWG*,4.8.2014, recital 38.

software that controls the set will be integrated and tested. Finally, the complete train will be tested at the manufacturer's or end-customer's premises.

(45) Even though compressors and drivers are typically sourced together as a compressor train, end-customers establish technical requirements for both components. End-customers will only accept components that meet these technical requirements. Technical requirements of both main components are determined by the specificities of each project. For example, the required flow rate, which is the amount of fluid which passes in the compressor per unit of time, and discharge pressure, which is the output pressure level achieved by the compressor, for an upstream O&G application largely depend on the characteristics of the production field. However, the requirements can also depend on an end-customer's procurement policy and safety requirements. For example, if an end-customer already has an installed base of a specific ADGT model, it may have a preference for that ADGT model in a new project in order to pool spare parts and services.

(46) The relative value of the two main components of a compressor train depends on the type of driver used. In a compressor train driven by a gas turbine, the turbine approximately accounts for 50% to 70% of the value of the train. However, for ADGT driven compressor trains, the value of turbine can be up to 80% of the value of the train. For electric motor and steam turbine driven trains, the value of the driver is significantly lower. Particularly, for compressor trains driven by an electric motor the motor accounts for 15-45% of the value of the train, while for steam turbine it ranges from 20% to 40%.[14]

5.3. O&G sector-specific requirements

(47) O&G applications have special requirements in terms of: (i) operating environment; (ii) safety and continuous production; and (iii) compliance with specific standards.

(48) First, offshore and onshore O&G platforms have special requirements in terms of operating environment.

(49) On offshore O&G platforms space and weight are constrained and costly and access to repairs is also often limited. Accordingly, low weight and limited space of the installed equipment are key considerations. In addition, offshore O&G platforms are often floating structures with a mooring system to maintain them on location and therefore are subject to significant movement by wave action. The severe weather conditions in offshore applications also impose operational constraints. The rotating equipment used on these platforms is thus manufactured and engineered to meet the requirements of this challenging operating environment.

(50) Regarding onshore O&G platforms, production also frequently takes place in harsh weather conditions and remote locations with limited infrastructure.[15]

(51) Second, O&G companies have a strong focus on safety and uninterrupted production. They therefore seek to reduce equipment and product failure in order to maintain safety and increase operational reliability in O&G production and processing sites. In order to ensure operation of O&G processes, equipment must be of the highest standards and reliability.[16]

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15 ID 113 Form CO, paragraph 51.

16 ID 113 Form CO, paragraph 52.

(52) Third, given the harsh operating conditions and the aim of ensuring uninterrupted production, customers require the rotating equipment to be compliant with strict sector specific standards issued by the American Petroleum Institute ("API"). The API standards have become an essential requirement for equipment manufacturers at all levels of the O&G industry.[17] The API issues specific standards for both compressors (for example, API 617 Axial and Centrifugal Compressors) and drivers (for example API 611 General Purpose Steam Turbines for Petroleum; API 616 Gas Turbines for the Petroleum, Chemical and Gas Industry Services), depending on their type as well as the segment and application they are employed in. Both the compressor and the driver used in a specific project must comply with the applicable standards. However, certain API requirements apply to the whole compressor train.

(53) API standards are designed to enhance the safety of industry operations, assure quality, increase reliability, help keep costs down, reduce waste, and increase predictability. They help speed up acceptance and bring products to market more quickly.[18] Since compliance is not mandatory, O&G customers decide unilaterally on equipment specifications including the extent of compliance with and/or deviation from API specifications. O&G customers do accept deviation from the requirements in certain instances. For instance, an equipment supplier may be able to convince a customer that part of the applicable API specifications is not essential for a particular application or that a particular specification is not up to date and that the supplier offers a better alternative solution. [19]

5.4. Procurement process

(54) The procurement of turbo compressor trains take place by direct negotiations or by bidding procedures with potential suppliers/ bidders.

(55) Direct negotiations usually take place when the suppliers have existing frame agreements with the customers.

(56) Customers usually conclude frame agreements with their suppliers if they have long term trusted cooperation relationships. Frame agreements usually define the main contractual terms and conditions, or terms on quality and delivery. These agreements are aimed at reducing time and cost by facilitating future negotiations between customers and suppliers. Frame agreements are, however, not binding; customers can therefore always organise a competitive bidding process to buy the required equipment.[20]

(57) Bidding procedures involve several stages and can last up to 2 years. They involve a different level of customer-supplier contacts depending on whether customers organise and execute projects themselves or involve an engineering, procurement and construction contractor ("EPC") to execute a project on its behalf.

(58) Generally, a bidding procedure in the O&G industry comprises the following stages:

(1) **Pre-FEED[21] stage**: in this phase, customers decide on technical characteristics of a project and the type of rotating equipment – the compressor and its driver. The selection process of suppliers for the rotating equipment starts. The

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17 ID 113 Form CO, paragraph 53.

18 See http://www.api.org/publications-standards-andstatistics/standards/~/media/Files/Publications/FAQ/valueofstandards.ashx, consulted on 8.6.2015.

19 ID 113 Form CO, paragraph 55.

20 ID 113 Form CO, paragraphs 106-019.

21 FEED is an acronym for Front End Engineering Design.

duration of this stage depends on the individual customers but could last from 3 to 12 months.[22]

(2) **FEED stage**: in this phase, a more detailed engineering planning of the project takes place. Customers send to several suppliers requests for budgetary offers, which are rough price quotations submitted by the manufacturers of the rotating equipment and based solely on the set of technical characteristics available at the time. These offers are preliminary in nature, not binding and subject to adjustments once the precise technical characteristics are set out by the end customer. The duration of this stage depends on the individual customers but could last for up to 12 months.[23]

(3) **Firm bid stage**: in this phase, customers evaluate different budgetary offers and select suppliers to whom requests for quotation (RFQs) will be sent out. After the receipt of RFQs the suppliers start the preparation of the firm bid. These bids include highly detailed technical and commercial specifications of the required rotating equipment. The duration of this stage depends on the individual customers but could last up to 12 months.[24]

(4) **Final stage**: in this phase, based on the firm bid submission, the end customers select the winning supplier. Following the submission of the firm bid, the manufacturers and the end customer hold several technical and commercial meetings to finalise both the technical and commercial details of the bid. The outcome of these meetings leads to an award of a contract. The duration of this stage depends on the individual customers but could last for up to 12 months.[25]

(59) If EPCs are involved, the whole bidding process is subdivided into 2 major phases: 1) EPC selection procedure organised by the customer and 2) original equipment manufacturer (**OEM**) selection organised by the wining EPC.

(60) As a first step, customers organise a tender process where EPCs compete against each other to win an engineering and construction contract. The winning EPC then organises a second bidding process or directly negotiates with the preferred supplier on behalf of a customer.

(61) However, notwithstanding the fact that the rotating equipment is sourced at a later stage, OEMs get involved in the bidding process already at the EPC selection phase. This award procedure usually includes the following phases:

(a) **The pre-FEED/FEED** stage. In this phase EPCs start discussions with customers regarding required equipment. At this initial stage, EPCs also involve OEMs to find the best technical solution for a project. The duration of this stage depends on individual customers and can last from one to two months. [26]

(b) **Pre-bid stage**. In this phase OEMs prepare and submit budgetary bids to EPCs. Based on these bids, EPCs, then prepare a firm bid for the customer. OEMs at this stage try to negotiate with the customer for signing a pre-agreement which guarantees to OEMs a contract with the EPC in case it wins the tender. The

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22 ID 1378 Notifying Party's reply to RFI 17 re tender procedures for ADGT trains; ID 2418 and ID 2587 Competitors replies to the RFI's re tender procedures for ADGT trains.

23 Ibid.

24 Ibid.

25 Ibid.

26 Ibid.

duration of this stage depends on the individual customers and can last from 3 to 6 months. [27]

(c) **The final stage**. In this phase customers select the winning EPC and several meetings take place regarding the finalisation of the technical and commercial conditions of the offer. The OEMs provides their support to the EPC at all times. The duration of this stage depends on the individual customers and can last for up to 2 months. [28]

(62) After the winning EPC is selected, it either directly negotiates the contract for the supply of the rotating equipment with the favoured supplier or organises a new tender procedure. If a new tender procedure is organised, the process is as follows:

(a) OEMs provide updated firm bids compared to those that were already provided to the winning EPC contractor.[29]

(b) During the final award stage, the EPC selects the most favourable commercial bid and holds meetings with the selected OEM to finalise commercial and technical conditions for the project.[30]

(63) The amount of information shared by the customers/EPCs and the bidders varies from project to project. Certain customers discuss acceptable and unacceptable deviations from scope, specifications and testing. The identity of bidders is usually not disclosed.

5.5. Turbo compressors train customers and suppliers

(64) The main O&G end customers are oil companies such as BP, Total, Shell, Statoil, ExxonMobil, Chevron, Saudi Aramco, ENI, Repsol, Qatar Petroleum, ConocoPhillips, Petrobras, Pemex, PDVSA, Gazprom, CNPC, Sinopec and others.

(65) Typically, O&G customers buying rotating equipment for upstream and midstream application are conscious about the reliability of a product, its established track record and the reputation of its supplier. As a general rule, because they run highly sensitive production processes, O&G customers are very conservative. Thus, they prefer to have well-proven and reliable equipment and therefore maintain conservative purchasing habits.

(66) There are a limited number of suppliers that can provide O&G customers with a full turbo compressor and ADGT solution, as follows:

(a) General Electric (GE), Rolls Royce (RR), DR, Siemens, MAN Diesel and Turbo (MAN) and Mitsubishi Heavy Industries (MHI) are the only manufacturers of compressors for ADGT driven turbo compressor trains to O&G customers;

(b) GE, Siemens, RR and DR are the only manufacturers of ADGTs;[31]

(c) Caterpillar/Solar and Siemens are manufacturers of light IGT's.[32]

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27 Ibid.

28 Ibid.

29 Ibid.

30 Ibid.

31 Except for Zorya Mashproekt, a Ukrainian ADGT manufacturer that won only single tender for an O&G downstream project in China; project name: CHINA 2011 - SBW TEST BED.

32 ID 113 Form CO, footnote 86.

6. ADGT DRIVEN AND LIGHT IGT DRIVEN TURBO COMPRESSOR TRAINS – HORIZONTAL ASSESSMENT

(67) The Transaction gives rise to a horizontal overlap between the Parties' activity with regard to ADGT driven and light IGT driven turbo compressor trains with a power requirement above 23 MW for O&G applications.

(68) Both Siemens and DR supply ADGT driven and IGT driven compressor trains. Also, both Siemens and DR supply turbo compressors that are employed in compressor trains. As to the drivers, Siemens supplies both ADGT and light IGT whereas DR packages an ADGT relying on GE's core engine.

(69) In assessing the impact of the Transaction with regards to this overlap, the Commission has used a combined data set including bidding data collected in the course of the investigation from the Parties and other market participants, the "Turbo Compressor Trains Bidding Data". The methodology and sources used by the Commission in constructing this data set is explained in Annex 1 to this decision.

6.1. Product market definition

6.1.1. The Notifying Party's view

(70) The Notifying Party takes the view that compressors are mostly sold to end customers as part of a compressor train.[33] With reference to turbo compressor trains, the Notifying Party argues that the relevant product market comprises all turbo compressor trains, possibly segmented by end application as narrower plausible market definition. According to the Notifying Party ADGT driven turbo compressors trains constitute only a small subset of turbo compressor trains and do not constitute a separate product market. [34]

(71) The Notifying Party argues that there is no such market as ADGT-driven turbo compressor trains. In the view of the Notifying Party this merely lumps together a number of individual bidding opportunities across distinct applications in which customers finally end up choosing a technical solution that favours an ADGT to drive the turbo compressor over IGTs or other drivers.[35] Also, the Notifying Party submits that ADGTs are sometimes preferred as drivers of turbo compressor trains for high power requirements because they are often more efficient, smaller, and lighter than equivalent industrial IGTs. However, IGTs are increasingly competing with ADGTs in that respect, as newly launched IGT models are lighter, more compact and more efficient.[36]

(72) Moreover, the Notifying Party submits that almost all turbo compressors can be combined with any type of driver to form a turbo compressor train and that the choice of the driver in large part depends on the availability and the cost of the fuel source which in turn is heavily influenced by the application.[37] The time and cost of integrating a turbo compressor and a driver do not depend on the type of driver used.[38] In upstream and midstream O&G applications, electric motors are primarily

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33 ID 113 Form CO, paragraphs 82 and 241.

34 ID 2795 Issue Paper ADGTs and ADGT-driven turbo compressor trains, of 27 January 2015, paragraphs 20-22, and restated in ID 881 Second Issue Paper turbo compressors driven by ADGTs.§ 1.

35 ID 881 Second Issue Paper turbo compressors driven by ADGTs.§ 1, paragraph 2.

36 ID 2795 Issue Paper ADGTs and ADGT-driven turbo compressor trains, of 27 January 2015, paragraph 20.

37 ID 113 Form CO, paragraph 72.

38 ID 113 Form CO, paragraph 83.

used when local electricity supply is available which is often (albeit not always) the case and there is a trend towards increasing use of electric motors as drivers.[39] Offshore, gas turbines are increasingly used to generate power centrally and supply electric power to motors driving compressors. Steam turbines are rarely used in the upstream O&G segment.[40] In downstream O&G applications, steam turbines and electric motors are typically used while gas turbines are used only rarely.[41]

(73) Furthermore, the Notifying Party submits that while ADGTs are the preferred driver for turbo compressor trains used in some applications, such as upstream offshore O&G applications, there is no application in which the use of ADGTs as a driver is the sole option. According to the Notifying Party, ADGTs can be substituted with electric motors as well as IGTs and – potentially – ADGTs for generator drive applications. [42] Hence, the Notifying Party submits that a segmentation of the product market for turbo compressor trains according to the driver used is inappropriate.

(74) Finally, the Notifying Party also claims that there is demand- and supply-side substitution regarding the power output of the ADGTs used in turbo compressor trains.[43] Thus, the Notifying Party claims that a segmentation of the product market according to the power output of the driver is inappropriate. [44]

(75) In conclusion, the Notifying Party submits that the relevant product market is the market for all turbo compressor trains, irrespective of the driver and its power output. The Notifying Party also argues that the only plausible segmentation of such product market would be according to the end application.

6.1.2. Past decisional practice

(76) In past decisions the Commission has not assessed any market for compressor trains. Rather it analysed compressors and drivers separately.

(77) With reference to gas turbines, the Commission found indications that IGTs and ADGTs could be part of two separate product markets.[45] The Commission distinguished between small gas turbines (below 15 MW), medium gas turbines (between 15 and 60 MW) and large gas turbines (above 60 MW).[46] With respect to end-applications, the Commission considered a distinction between gas turbines for O&G applications and for IPG (industrial power generation) applications. For the O&G industry, a further segmentation between on-shore O&G and off-shore O&G as well as a distinction between gas turbines that provide mechanical drive – for instance, for a compressor ("mechanical drive" or "MD") and those that drive a generator ("generator drive" or "GD") was considered.[47]

(78) With reference to compressors, the Commission has distinguished between air and gas compressors. Gas compressors were further segmented into standard and process

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39 ID 113 Form CO, paragraphs 75, 76.
40 ID 113 Form CO, paragraphs 75, 76.
41 ID 113 Form CO, paragraph 77.
42 ID 1317 Notifying Party's response to Art. 6(1)(c) Decision, 27.2. 2015, paragraph 4.
43 ID 1317 Notifying Party's response to Art. 6(1)(c) Decision, 27.2. 2015, paragraphs 59-62.
44 ID 1317 Notifying Party's response to Art. 6(1)(c) Decision, 27.2. 2015, paragraph 59.
45 COMP/M.7284 – *Siemens AG/John Wood Group/Rolls-Royce Combined ADGT Business/RWG* (2014), recitals 15-19.
46 Ibid
47 COMP/M.6350 Siemens/NEM Holding (2011), COMP/M.6039 GE/Dresser (2011), COMP/M.3148 Siemens/Alstom Gas and Steam Turbines (2003), COMP/M.3113 General Electric/Jenbacher (2003), COMP/M.2220 General Electric/Honeywell (2001), COMP/M.1484 Alstom/ABB (1999), COMP/M.731 Kvaerner/Trafalgar (1996), COMP/M.440 GE/ENI/Nuovo Pignone (1994).

compressors and the latter between positive displacement compressors and dynamic/turbo compressors.[48] However, the exact market definition was ultimately left open.

6.1.3. The Commission's assessment

(79) For the reasons set out below (see sections 6.1.3.2 to 6.1.3.5), the Commission considers that ADGT driven and light IGT driven turbo compressor trains constitute a distinct product market.

(80) Furthermore, the Commission considers that it may be appropriate to segment the market for ADGT driven and light IGT driven turbo compressor trains according to the power requirement between ADGT driven and light IGT driven turbo compressor trains with a power requirement above 23 MW and ADGT driven and light IGT driven turbo compressor trains with a power requirement below 23 MW (see section 6.1.3.6).

(81) Finally, the Commission takes the view that it may be appropriate to segment the market for ADGT and light IGT driven turbo compressor trains, as well as the segments for ADGT and light IGT driven turbo compressor trains with a power requirement above and below 23 MW, according to the end application in which the turbo compressor train will be used (see section 6.1.3.7).

(82) The Commission however considers that it can be left open whether the above segments of the product market constitute separate product markets themselves, as the Transaction would not lead to a significant impediment of effective competition in the internal market under any plausible market definition.

6.1.3.1. Introduction

(83) When an end customer intends to develop a new project in the upstream or midstream O&G sector and needs to purchase rotating equipment for MD applications,[49] it usually purchases a turbo compressor train as a whole rather than the driver and the turbo compressor separately.[50] Those two components are sourced separately only on rare occasions: all customers that responded to the market investigation but one[51] confirmed that they source turbo compressor trains rather than the individual components. The EPCs that responded to the market investigation also confirmed this.[52]

(84) Consequently, the Commission takes the view that from an O&G customer's perspective there is demand for an integrated solution –turbo compressor trains – rather than demand for its separate components – turbo compressors and drivers. Thus, for the purposes of the assessment of the Transaction, the Commission considers it appropriate to analyse the market for turbo compressor trains, rather than the hypothetical markets for the components thereof.

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48 COMP/M.6222 GE Energy/Converteam (2011), COMP/M.2834 Alchemy/Compare (2002), IV/M.1775 Ingersoll Rand/Dresser Rand/Ingersoll Dresser Pump (1999), IV/M.479 Ingersoll Rand/MAN (1994).

49 When a driver is used to drive a compressor, it performs MD applications. On the contrary, when it is coupled with a generator with the ultimate aim of producing electricity it performs GD applications.

50 See para 41 above.

51 ID 2567 Minutes of the call with a customer 24.10.2014.

52 ID 2503 Minutes of the call with EPC 20.2.2015.

6.1.3.2. Elements defining the technical specifications of turbo compressor trains

(85) When an end customer purchases a turbo compressor train, a number of considerations come into play in order to determine the exact technical specifications of the solution to be purchased regarding the driver as well as the turbo compressor.

(86) First, the application for which the turbo compressor train is purchased determines its specificities. For example, turbo compressor trains used in pipeline applications have designs which are essential for the correct execution of the compression job on the pipeline, and which cannot be performed by turbo compressor trains with different designs. Thus, depending on the application, a specific base design is selected.

(87) Second, the specific requirements of the compression job to be carried out are decisive for the technical specifications of the turbo compressor train to be purchased. The specific compression job determines characteristics such as flow rate, pressure output or pressure input, which, in turn, ultimately determine the type of turbo compressor that needs to be employed in the turbo compressor train used for the specific project.

(88) Third, and as a direct consequence of the above, the compression job to be carried out defines also the power output required by the driver to allow the turbo compressor to perform the job.

(89) Fourth, the location of the project plays an important role. A turbo compressor train might be installed on an offshore site or an onshore site.

(90) Offshore projects have different requirements in terms of size and the weight of the equipment to be installed compared to onshore projects. For offshore projects, space is often limited and weight limits must be respected. Therefore, turbo compressor trains installed in offshore applications must comply with strict size and weight restrictions.

(91) For onshore projects, the geographical location of the project is also an important factor in determining the technical characteristics. Projects located in remote areas, not easily accessible or with no connection to the electricity grid impose a number of limitations as to the choice of driver to be used. For projects in areas where there is no connection to the electricity grid, for example, the use of electric motors as driver is often not possible, save for cases where a gas turbine is used for power generation on site, which is very rare. Sites in remote areas – which usually are not connected to the grid – also impose constraints on the technical characteristics of the turbo compressor train. For projects located in those areas elements such as ease of maintenance of the equipment is paramount. Therefore, ADGTs and light IGTs are preferred compared to other types of drivers in light of the modularity of their design.

(92) All of the above factors define the technical specifications of each individual turbo compressor train. When sourcing the turbo compressor train for a project, end customers cannot deviate from the technical specifications required for that project and therefore will only purchase equipment which complies with those technical specifications. For example, for an upstream offshore gas reinjection project, a customer would usually specify a turbo compressor train with a high pressure turbo compressor that can deliver pressure levels of up to 800 bar and reach a specific flow rate. For a pipeline application, on the other hand, a customer could require a turbo compressor that has a sufficiently high flow rate and is compatible with the pipeline design. Thus, the technical characteristics of the compression job determine the technical specifications of the turbo compressor used in a turbo compressor train – in particular the pressure level and the flow – which in turn determine the power output

that the driver must have. For high pressure and high flow rate applications, a driver with a high output power is required.

(93) Thus, for a given project, a customer's choice regarding both the turbo compressor and the driver of which a turbo compressor train is composed is restricted to components that meet the specific requirements of the project. To meet those requirements, as explained above,[53] a turbo compressor train is manufactured based on a set of base design components with are in each case adjusted to the customer's specific requirements. In that respect, each turbo compressor train – as also explained by the Notifying Party[54] - is tailor-made and as such a highly differentiated product.

(94) Nevertheless, a number of subsets of projects exist for which customers have similar requirements regarding both the type of turbo compressor and the type of driver used in turbo compressor trains.

6.1.3.3. Framework of analysis of the relevant product market

(95) Since Siemens/RR sells both ADGT driven turbo compressor trains and light IGT driven turbo compressor trains in the O&G industry whereas DR only sells ADGT driven turbo compressor trains in the O&G industry, the Commission analysed whether, with regard to such turbo compressor trains:

(a) all types of turbo compressors can be used in all applications or not;

(b) there are turbo compressors regarded as substitutes to the ones employed in the application where there is an overlap;

(c) other types of drivers are substitutes to ADGTs; and

(d) certain applications for ADGT driven turbo compressor trains could constitute a distinct product market;

(96) That analysis indicates, as set out in recitals (98) to (173) below, that: (i) there is no demand-side and only very limited supply-side substitution regarding the types of compressors that can be used in turbo compressor trains, and (ii) there is limited demand-side and no supply-side substitution regarding the types of drivers that can be used for turbo compressor trains and their power requirements. Indeed only light IGTs are substitutable with ADGTs for some applications.

(97) Finally, with reference to specific O&G applications, that analysis indicated that there is no substitution between the different types of turbo compressor trains used in different applications. This is also supported by the analysis of the Turbo Compressor Trains Bidding Data, as set out in recitals (171) to (172). The analysis of the Turbo Compressor Trains Bidding Data enabled the Commission to identify homogenous sets of tenders encompassing the different O&G applications. The Parties' activities overlap in upstream offshore and midstream pipeline applications.

6.1.3.4. Only some base designs of compressors can be employed in compressor trains used in specific O&G applications

(98) Compressors are highly engineered to meet the specific technical requirements of each project for which a compressor train is used, whereas the driver requires less engineering compared to the compressor and is a more standardised product.[55]

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53 See paragraph 73.

54 ID 113 Form CO, paragraph 84.

55 ID 113 Form CO, paragraph 91

(99) When sourcing compressors for a compressor train for a specific project, customers define a set of technical specifications the compressor must comply with in order to carry out the requested compression job. The technical specifications depend on the specificity of the project. The customer has little, if any, possibility to deviate from the technical specifications required. In addition, each project requires a unique set of technical specifications which are almost impossible to replicate in a different project. Compressors are engineered to comply with the technical specification required for the specific project.[56]

(100) Notwithstanding the high degree of engineering involved in the manufacture of compressors, each individual piece of equipment is engineered from a "base design": a compressor base model with specific characteristics which can serve a subset of applications.[57]

(101) First, all competitors and the greater majority of customers responding to the market investigation indicated that positive displacement compressors and turbo compressors cannot be used interchangeably in compressor trains employed for O&G applications, and requiring a high power output.[58] Also the Notifying Party indicated that turbo and positive displacement compressors are not close substitutes in that regard[59].

(102) Second, both Parties offer a wide range of base design turbo compressors. When focussing the analysis on those types of turbo compressors where the Parties' activities overlap – namely turbo compressors employed in turbo compressor trains for O&G applications requiring a high input power – two different design concepts can be identified: single shaft turbo compressors and integrally geared turbo compressors.

(103) Single shaft turbo compressors have the distinct advantage of being smaller and easier to seal than integrally geared turbo compressors. As a result, single shaft turbo compressors tend to be preferred by the O&G industry whereas integrally geared turbo compressors are mainly used outside of the O&G industry.[60] This is because for the O&G industry compressors must be sealed to avoid leakage of gas and for a number of applications, such as all the off-shore applications, size and weight are key considerations for the customers.

(104) The fact that integrally-geared turbo compressors are not used in the O&G industry is proven by both the Turbo Compressor Trains Bidding Data and the market investigation carried out.

(105) First, in the Turbo Compressor Trains Bidding Data there is no single instance where the compressor train offered to the customer, irrespective of the driver used, included an integrally-geared turbo compressor for high-power upstream offshore and midstream pipeline applications.

(106) Second, customers responding to the market investigation indicated that integrally geared turbo compressors are not accepted by the O&G industry for upstream and midstream applications.[61] A majority of customers indicated that they do not

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56 ID 113 Form CO, paragraph 68

57 ID 2771 Minutes of the call with a competitor, paragraph 19.

58 ID 449 - Q1 Questionnaire to customers, replies to question 20 and ID 449 - Q1 Questionnaire to competitors, replies to question 30

59 ID 113 Form CO, paragraph 237.

60 ID 113 Form CO, paragraph 65.

61 ID 449 - Q1 Questionnaire to competitors, replies to question 32.1.

consider the two types of turbo compressors as interchangeable.[62] Moreover, competitors contacted in the course of the market investigation indicated that O&G customers do not accept integrally geared turbo compressors for upstream and midstream O&G application and that attempts to introduce this technology for those applications have proven unsuccessful.[63]

(107) Therefore the Commission takes the view that integrally geared turbo compressors cannot be a substitute for single shaft turbo compressors used in turbo compressor trains for O&G applications.

(108) Single shaft turbo compressors can be broadly subdivided in (i) horizontal split, and (ii) vertical split turbo compressors.

(109) Horizontal split single shaft turbo compressors have the advantage of being easier and faster to maintain as they can be easily opened. This ease of opening however means that horizontal split single shaft turbo compressors cannot be used in high pressure applications because the seal between the casing halves cannot be maintained.[64] Therefore, horizontal split single shaft turbo compressors are mainly used in lower pressure applications, such as in turbo compressor trains for the production of LNG.[65]

(110) Vertical split single shaft turbo compressors have a cylindrical casing which ensures good stress distribution and extremely good gas tightness. The inlet and the discharge nozzles are welded to the cylindrical casing or, where heavy wall thickness is involved, are integral with the casing; the pipe work is bolted to these nozzles. Vertical split single shaft turbo compressors are used for high pressure applications, such as offshore and pipeline applications,[66] and for applications with high hydrogen content.

(111) Further to these broad differentiations, manufacturers offer different "base designs" of turbo compressors which are selected according to the type of application and main technical characteristics of each project and then customised to exactly meet the customer's specifications for any given project.

(112) Competitors contacted in the course of the market investigation indicated that different base designs are used for different applications.[67] According to one competitor, there is a specific base design for each different application, the difference being, *inter alia*: pressure (low, high or super-high), output or volumetric requirements.[68]

(113) Customers responding to the market investigation also indicated that turbo compressor manufacturers cannot easily modify a base design to serve applications that the specific base design was not originally designed for.[69] According to one competitor, using a base model for an application it was not designed for would neither be possible and nor economical. Also, they indicated that if a base model was engineered to be used in an application for which it was not originally designed,

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62 ID 195 - Q2 Questionnaire to customers, replies question 22.
63 ID 2558 Minutes of the call with a competitor.
64 ID 113 Form CO, paragraph 67.
65 ID 2558 Minutes of the call with a competitor
66 ID 2558 Minutes of the call with a competitor 12.12.2014
67 ID 2763 Minutes of the call with a competitor 24.2.2015
68 ID 2771 Minutes of the call with a competitor 6.3.2015.
69 ID 2558 Minutes of the call with customer 12.12.2014

customers would not accept this. Customers will often not accept to use a compressor technology originally designed for different applications.[70]

(114) The analysis of the Turbo Compressor Trains Bidding Data also confirmed that, within the above sub groups of turbo compressors, for a subset of applications – such as upstream offshore applications, pipeline applications and to a certain extent LNG applications – only certain turbo compressor base models fulfil the customers' technical requirements and can be engineered for the specific project tendered out. With reference to turbo compressors for the above applications, the analysis of the Turbo Compressor Trains Bidding Data also indicated that they require a power input of above 23 MW.

(115) In light of the above, the Commission takes the view that, with regard to the compressor side of turbo compressor trains, only a specific subset of base designs are able to comply with the technical requirements of a specific O&G applications, in particular upstream offshore and midstream pipeline applications. Also, base models not originally designed for those applications cannot be upgraded or redesigned, as the case may be, in order to be able to be used in those applications.

6.1.3.5. Insufficient substitution regarding drivers for turbo compressor trains used in specific O&G applications.

(116) The Commission takes the view that for turbo compressor trains used for certain O&G applications, such as upstream offshore and midstream pipeline applications, only ADGTs or light IGTs can be used as a driver motor (see under (a) below, in recitals (117) to (128)). Those two types of driver cannot be substituted by any other type of driver, namely electric motors (see under (b) below, in recitals (129) to (142)), or heavy duty IGT (see under (c) below, in recitals (143) to (149)). Furthermore, there is no sufficient supply-side substitution from ADGTs used for generator drive applications ("GD ADGTs") which would allow manufacturers of GD ADGTs to become active in supplying their products for MD purposes (see under d) below, in recitals (150) to (158)). Moreover, given that the presence of suppliers and the competitive conditions differ in the power ranges above and below 23 MW, the Commission considers a possible distinction between drivers with a power output above and below 23 MW (see below in recitals (160) to (169) for trains below 23 MW, and in recitals (170) to (174) for trains above 23 MW).

(a) Both ADGTs and light IGTs can be employed as drivers for turbo compressor trains used in O&G applications, in particular for upstream offshore and midstream pipeline applications

(117) The Commission takes the view that ADGTs and light IGTs are substitutable as drivers used in turbo compressor trains for O&G applications requiring more than 23MW as input power.

(118) The Commission considers that ADGTs have a number of characteristics that make them most suitable for turbo compressor trains used for a number of O&G applications, including upstream offshore and midstream pipeline applications.

(119) Customers responding to the market investigation as well as the Notifying Party indicated that ADGTs meet the requirements of turbo compressor trains used for

[70] ID 2558 Minutes of a call with a customer 12.12.2014

several O&G applications, including upstream offshore and midstream pipeline applications.[71]

(120) First, relying on natural gas as a fuel source, which is available at most installation sites, they are universally employable. Second, ADGTs are available in a broad power range of up to 60 MW and thus can meet the power requirements of most O&G applications. Third, ADGTs have a comparably small size ("footprint") and are lighter than other types of drivers. This is an advantage especially for offshore applications where, due to the space and weight restrictions stemming from the very nature of the installation site, rotating equipment must not exceed a certain size and weight.[72] Fourth, due to their modular design, maintenance time and cost are limited as part of the turbine can be exchanged rather than be repaired at the customer's premises, thereby significantly reducing downtime for scheduled maintenance.[73]

(121) The analysis of the Turbo Compressor Trains Bidding Data as well as the indications of the market investigation also suggested that for O&G applications, and particularly for upstream offshore and midstream pipeline applications, light IGTs have similar characteristics to those of ADGTs and therefore both ADGTs and light IGTs can be used as driver of a turbo compressor train used for those applications. This is for the following reasons.

(122) First, they both rely on natural gas as a fuel source, which is available in most O&G installation sites. In that respect they are equally universally employable.

(123) Second, ADGTs and light IGTs cover a similar power range and thus meet the power requirements of most O&G applications. The SGT series from Siemens is a light IGT product range with a power output from 5 MW (SGT-100) to 51 MW (SGT-800). With particular reference to the power range above 23 MW, the SGT-700 has a power output starting at 24 MW.

(124) Third, like ADGTs, light IGTs have generally a smaller footprint and are lighter than most other types of drivers.[74]

(125) Fourth, both are constructed according to a modular design so that maintenance time and cost are limited as part of the turbine can be exchanged rather than be repaired at the customer's premises. When a major scheduled maintenance is carried out on an ADGT or light IGT, a core engine swap is carried out. This can be done within a 24 hours period if required. Typically an exchange is required every 25,000 hours of operation on an ADGT. Heavy IGTs, on the contrary, do not have a 'core swap' capability and require days, or even weeks, of downtime to replace parts.[75] As downtime is very costly, the possibility of performing a core swap in a short time is an advantage.

(126) Fifth, light IGTs and ADGTs are similarly efficient. As indicated by the Notifying Party in an internal document, "*Above 15MW, the aero-derivatives do currently have an open cycle efficiency advantage. However, [certain light IGT models are comparable with ADGTs in terms of efficiency]*.".[76]

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71 ID 195 Q2 Questionnaire to customers, replies to questions 12.1, 12.2, 12.3, 12.4 and ID 113 Form CO, paragraph 584.

72 ID 113 Form CO, paragraph 585.

73 ID 674 Minutes of the call with a competitor 16.12.2014.

74 ID 1381-5665, Industrial Gas Turbines: Perception and realities.

75 ID 1381-5665, Industrial Gas Turbines: Perception and realities.

76 Industrial Gas Turbines: Perception and realities, ID 1381-5665.

(127) Sixth, according to the Notifying Party, Rolls-Royce's ADGTs and Siemens' light IGTs are comparable in terms of price. According to the Notifying Party, "*for example, the price of Siemens' […] (USD […]) is comparable to that of Rolls-Royce's […] (USD […]). Similarly, the price of Siemens' […] ([…]) is almost identical to that of Rolls-Royce's […] ([…]).*"[77] If compared to other type of drivers, the price of light IGTs and ADGTs is significantly higher. According to the Notifying Party, while the price of an ADGT can constitute up to 80% of the value of a turbo compressor train, the price of an electric motor constitutes between 15% and 45% of the value of the whole turbo compressor train.[78]

(128) In the light of the above, the Commission takes the view that both ADGTs and light IGTs can be employed as drivers for turbo compressor trains used for O&G applications with a high power output, in particular for upstream offshore and midstream pipeline applications.

b) Electric motors are generally not a viable alternative to ADGTs and light IGTs employed as drivers for turbo compressor trains used for O&G applications, in particular for upstream offshore and midstream pipeline applications.

(129) The Commission takes the view that for upstream offshore and midstream pipeline O&G applications electric motors are not a viable alternative to ADGTs or light IGTs as a driver of a turbo compressor train.

(130) First, EPCs and competitors contacted in the course of the market investigation confirmed that a customer's decision as to whether to use a gas turbine or an electric motor as a driver for a project is usually taken during the pre-FEED stage and thus at a very early stage of the project.[79] Second, they indicated that electric motors as a driver for turbo compressor trains are usually less expensive, more efficient and reliable and require less maintenance than gas turbines.[80]

(131) However, for a number of reasons, EPCs and competitors responding to the market investigation indicated that electric motors are not a suitable driver for turbo compressor trains used in upstream offshore and pipeline applications.[81]

(132) First, and most importantly, using an electric motor to drive a turbo compressor train requires a reliable electricity supply source, particularly when the power required to drive the turbo compressor exceeds 20 MW. Therefore, electric motors are only a suitable option if the electricity supply comes from an electricity grid as high power electric motors could undermine the stability of the electric network on an offshore platform.[82] A connection to a sufficiently large electricity grid is required to guarantee a reliable and uninterrupted electricity supply.[83] The majority of customers contacted in the course of the investigation indicated that they consider electric motors as suitable drivers for turbo compressor trains used for high power applications only for sites that can be connected to the electricity grid. That is – with

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77 […].

78 […].

79 ID 2503 Minutes of the call with EPC 20.2.2015; ID 2771 Minutes of the call with a competitor 6.3.2015.

80 ID 2610 Minutes of the call with a customer 9.12.2014.

81 ID 674 Minutes of the call with a customer 16.12.2014.

82 ID 2804 Minutes of the call with EPC 23.2.2015.

83 ID 2610 Minutes of the call with a customer 9.12.2015; ID 674 Minutes of the call with a customer 16.12.2014, EM not for high power applications; ID 2634 Minutes of the call with a customer 19.12.2014, EM only for lower power applications.

very rare exceptions – not the case for upstream offshore projects.[84] However, even for onshore facilities, a connection to the electricity grid is often not available as gas pipelines are often located in remote geographic areas where no reliable electricity supplies are available.[85]

(133) Second, both customers and competitors responding to the market investigation indicated that even on sites that can be connected to the electricity grid, the connection to the grid is not always sufficiently reliable. The connection to a sufficiently large electricity grid is needed to balance power spikes, to accommodate resulting imbalances and to guarantee a reliable power supply.[86] Power spikes can occur when the operation mode of the electric motor changes and can cause imbalances of the electricity grid and damage to the equipment connected to the grid. To avoid such power spikes and resulting imbalances of the electricity network and to guarantee a sufficient power supply, either the network needs to have sufficiently large and flexible generation capacity or the motor requires a large frequency converter.[87] That is unlikely, for example, for onshore sites on small islands. Therefore, even on onshore sites where a connection to the electricity grid would be available, that connection is not necessarily sufficient to power an electric motor as a driver for a turbo compressor train. In addition, electric motor types that are less likely to cause imbalances of the electric network – so called "low rush induction motors" can only produce power outputs below 20 MW and are therefore not a suitable option for applications requiring a high power output.[88]

(134) Third, a number of market participants explained that for sites that cannot be connected to an electricity grid, it is often not a suitable option to install a power generation unit onsite which is used to generate electricity to power an electric motor.[89] For the reasons explained above,[90] given the risk of instabilities of the electric system and the lack of electric motors above 20 MW that are not prone to causing such instabilities, an onsite power generation solution is viable only for power applications below 20 MW.[91] However, even in the lower power range customers would only consider the installation of a power generation unit onsite as viable if the electric motor is only one of several electricity consuming pieces of equipment so that the installation of a larger power generation unit is justified. If a project requires generation capacity only or mainly for MD applications, end customers would consider as useful and efficient to install a mechanical drive gas turbine and a small power generation unit to cover the electricity consumption of the entire site.[92]

(135) Fourth, the sales data submitted by third party compressor OEMs for the years 2008 to 2014 confirm that in upstream offshore and midstream pipeline applications

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84 ID 2617 Annex to Competitor's reply to Questionnaire 5, dated 13.4.2015; ID 2804 Minutes of the call with EPC 23.2.2015.

85 ID 2617 Annex to Competitor's reply to Questionnaire 5, dated 13.4.2015.

86 ID 2617 Annex to Competitor's reply to Questionnaire 5, dated 13.4.2015; ID 2610 Minutes of the call with a customer 9.12.2014.

87 ID 1658 Minutes of the call with a competitor 24.2.2015.

88 ID 2617 Annex to Competitor's reply to Questionnaire 5, dated 13.4.2015; ID 2610 Minutes of the call with a customer 9.12.2014.

89 ID 940 Minutes of the call with a competitor 15.12.2014; ID 674 Minutes of the call with a customer 16.12.2014.

90 See recital (92) above.

91 ID 2821 Minutes of the call with a competitor 24.2.2015.

92 ID 2824 Minutes of the call with a customer 17.03.2015.

electric motors are predominantly employed at installations sites where a connection to the electricity grid is available. The Commission requested information on bids in relation to electric motor driven turbo compressor trains with an output of above 16 MW in upstream offshore, upstream onshore, LNG and pipeline applications. […]. Out of the total number of 21 bids for which the turbo compressor OEMs could provide information on whether the installation site was connected to an electricity grid, 18 projects were connected to a grid and only three projects with electricity from an on-site power generation unit were identified – one in an upstream onshore and two in midstream applications pipeline. All of those three projects have a power requirement of less than 23 MW.

(136) Regarding the 32 projects for which it was unknown to the turbo compressor OEM whether the installation site was connected to an electricity grid, only ten of those projects required an electric motor above 23 MW. The Commission considers it likely that in that cases the customer had a preference for an electric motor as a connection to a sufficiently large and reliable electricity grid was available and an ADGT was therefore not considered. The Commission reached this conclusion taking into account that:

(a) these projects are in the field of upstream onshore, LNG or pipeline applications for which is more likely the possibility of access to a sufficiently large electric grid is more likely**;** and**,**

(b) electric motors above 20MW are usually employed when a connection to the grid is in place in order to avoid risks of electrical instability.

(137) Fifth, the sales data provided by non-integrated manufacturers of electric motors strongly supports the finding that electric motors are only considered for applications requiring a power input above 20 MW if a connection to an electricity grid is available. Of all the respondents to the Commission's market investigation, only one manufacturer provided electric motors with a power output above 23 MW, selling two of such electric motors. Both of those sales were to offshore projects in Norway in which the installation site was connected to the electricity grid – as required by Norwegian environmental regulation.[93]

(138) Sixth, also data on sales of electric motors and turbo compressors provided by the Parties for the years 2008 to 2014 also confirm these findings. DR submitted that it sold turbo compressor trains driven by an electric motor in relation to 15 projects.[94] For nine of these projects it could provide information as to whether the installation site is connected to the electricity grid or electricity is provided from on-site power generation. In […]out of these […]projects, a connection to the grid was available[…]onsite power generation was used. […]the turbo compressor was used on an upstream offshore installation for gas injection. This strongly indicates that customers generally do not consider that onsite power generation units allow for the installation of an electric motor as driver of a compressor train.

(139) Similarly, RR only sold turbo compressor trains driven by an electric motor in relation to two projects. Only for one project the turbo compressor train had an electric motor with a power output of above 23 MW[…].[95]

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93 ID 560 Minutes of the call with a customer 11.12.2014.

94 ID 1992 Dresser-Rand's reply to RFI 9, question 3.

95 ID 1991 Siemens reply to RFI 9, question 3.

(140) With reference to Siemens, the analysis of the Turbo Compressor Trains Bidding Data shows that it sold electric motor driven turbo compressor trains composed of a Siemens electric motor and a Siemens turbo compressor in relation to 25 projects between 2008 and 2014. For 19 of those projects the turbo compressor train had an electric motor with a power output above 23 MW. 18 of those projects concerned midstream LNG applications, and one concerned upstream onshore applications. Siemens only recorded information on whether the installation site was connected to the grid in relation to two projects. […]. Siemens also sold electric motor driven turbo compressor trains with a third party turbo compressor in relation to 11 projects, […]. Moreover, in respect, of the […]projects for which Siemens submitted a firm bid with an electric motor driven turbo compressor train against an ADGT driven turbo compressor train, Siemens' bid were all unsuccessful.

(141) Seventh, customers responding to the market investigation indicated that electric motors are mostly not considered a suitable alternative for projects in upstream and midstream O&G applications for which the customer ultimately purchased an ADGT driven turbo compressor train. The majority of customers did not consider, at any stage of the tendering process, an electric motor as a suitable driver instead of an ADGT where there was no connection to the electricity grid available.[96] When asked whether customers would have opted for an electric motor instead of an ADGT as a driver of the turbo compressor train if the price of the ADGT had been 5-10% higher than the price actually paid, six out of nine responding customers explained that they would not have opted for an electric motor.[97] One customer replied that it would only consider switching its initial choice to an electric motor if a connection to the electricity grid were available. When asked, in relation to projects in which they purchased an electric motor driven turbo compressor train, what drove their choice towards an electric motor rather than an ADGT, some customers indicated that their choice was driven by an assessment of the whole economic implications of the project "*related to plant design, performance, efficiency and costs specifically looking towards availability of power, location and application*" and the fact that a connection to the electricity grid was available.[98]

(142) In light of the above, the Commission considers that electric motors do not exert a sufficient competitive constraint on ADGTs and light IGTs as drivers of turbo compressor trains for O&G applications, in particular upstream offshore and midstream pipeline applications.

(c) Heavy duty IGT are not a viable alternative to ADGTs and light IGTs as drivers for turbo compressor trains for O&G applications, in particular upstream offshore and midstream pipeline applications

(143) The Commission takes the view that for O&G applications, in particular upstream offshore and midstream pipeline applications, heavy duty IGTs are not a viable alternative to ADGTs and light IGTs as drivers for turbo compressor trains.

(144) First, customers responding to the market investigation indicated – […][99] – that even though heavy duty IGTs for a given power output are usually less expensive than ADGTs, they have several disadvantages that make them less suitable for projects in O&G applications, in particular upstream offshore and midstream pipeline

96 ID 1335 - Q 3 Questionnaire customers, replies to question 3.2.
97 ID 1335 - Q 3 Questionnaire to customers, replies to question 3.5.2.
98 ID 1335 - Q 3 Questionnaire to customers, replies to question 5.1.
99 […].

applications. The majority of customers responding to the market investigation confirmed […] that ADGTs and light IGTs are of lighter weight than heavy duty IGTs of the same output level[100] and have a smaller frame size. That is an important advantage in particular for any offshore application where weight and space of the equipment is a crucial factor.[101] Depending on the particular design, an offshore installation does not offer the necessary space and would require a stronger base construction to accommodate a heavy duty IGT. In addition, ADGTs – as they are technologically based on jet engines – are designed to operate in an environment characterised by movement which is inherent to offshore installations. Thus, for high power offshore applications, ADGTs and light IGTs are usually the only type of driver available for turbo compressor trains.

(145) Second, customers contacted in the course of the market investigation indicated that also for such upstream offshore and midstream pipeline applications where weight and space requirements are less restrictive, ADGTs and light IGTs are often preferred over heavy duty IGTs because they operate more efficiently than heavy duty IGTs – […].[102] Given the long lifetime of the installed equipment, operation efficiency is a key characteristic for a customer.[103]

(146) Third, ADGTs as well as light IGTs have a modular design. That allows for an easy replacement of individual modules of the turbines for maintenance or repair. Heavy duty IGTs, in contrast, do not have a modular design and maintenance services must therefore be carried out at the customer's premises. Therefore, heavy duty IGTs have to be maintained and repaired onsite or removed to a repair shop as a whole[104] – resulting in significantly higher maintenance and repair costs and longer downtime of the customer's production process.

(147) Fourth, responses from customers to the market investigation indicate that heavy duty IGTs are mostly not considered a suitable alternative in many O&G projects where an ADGT driven turbo compressor train was ultimately selected by the customer. Four out of nine responding customers explained that they had considered a heavy duty IGT as a driver for turbo compressor trains for which the customer finally selected an ADGT as a driver.[105] However, two of those customers did so only at the FEED -stage and one customer considered heavy duty IGTs only for onshore projects. When asked whether they would have opted for a heavy duty IGT instead of an ADGT as a driver if the price of the ADGT had been 5-10% higher than the price actually paid, six out of nine responding customers replied negatively.[106] One customer replied that it would only consider switching its initial choice to a heavy duty IGT for onshore projects.

(148) Fifth, the responses of competitors in the market investigation are similar. All responding competitors indicated that heavy duty IGTs are not comparable with ADGTs in terms of product characteristics, such as weight, size, technical

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100 ID 940 Minutes of the call with a competitor 15.12.2014; ID 674 Minutes of the call with a customer 16.12.2014; ID 2436 Minutes of the call with a customer 10.12.2014; ID 2634 Minutes of the call with a customer 19.12.2014; […].

101 ID 2610 Minutes of the call with a customer 9.12.2014.

102 […].

103 ID 2610 Minutes of the call with a customer 19.12.2014; ID 1107 Minutes of the call with a customer 5.12.2014.

104 ID 940 Minutes of the call with a competitor 15.12.2014.

105 ID 1335 - Q 3 Questionnaire to customers, replies to question 3.3.

106 ID 1335 - Q 3 Questionnaire to customers, replies to question 3.5.1.

characteristics, performance efficiency, service requirements and modularity of the design).[107] Furthermore, the vast majority of responding competitors considered ADGTs and heavy duty IGTs not to be comparable in terms of price and total cost of ownership.[108] Moreover, none of the responding competitors expected customers to switch from an ADGT to a heavy duty IGT as a driver for turbo compressor trains if they initially intended to use an ADGT and prices of ADGTs were to increase by 5-10% on a permanent basis.

(149) In light of the above, the Commission takes the view that for turbo compressor trains for O&G applications, in particular upstream offshore and midstream pipeline applications, heavy duty IGTs cannot be regarded as a substitutable driver to ADGTs and light IGTs.

d) Insufficient substitution from GD ADGTs to become a viable supply alternative for ADGTs and light IGTs as drivers for turbo compressor trains for O&G applications, in particular upstream offshore and midstream pipeline applications

(150) The Notifying Party claims that ADGTs for MD applications do not differ from ADGTs for GD applications, and the same models could be used for both applications.[109] The Notifying Party refers to RR's sales of the RB211-GT61 model and DR's Vectra 40G, which were sold both for mechanical drive and generator drive applications.

(151) Contrary to the Notifying Party's claim, the results of the market investigation indicate that ADGTs for GD applications do not compete with ADGTs for MD applications as drivers for turbo compressor trains for O&G applications, in particular upstream offshore and midstream pipeline applications.

(152) First, only three undertakings manufacture ADGTs, that is ADGTs for MD applications or for GD applications: Siemens/RR, GE and PW Power Systems ("PWPS").

(153) Information submitted by the Notifying Party confirms that Siemens/RR, DR and GE are the only suppliers of ADGTs for MD applications.[110] PWPS, on the contrary, is not listed as a current supplier of ADGTs to O&G customers for MD applications. This suggests that PWPS' ADGTs are currently not suitable for MD applications. In addition, in its submission of 22 April 2015 the Notifying Party acknowledges that PWPS is active in ADGTs for GD applications and currently does not offer ADGTs for MD applications.[111] Therefore, the Commission considers that an analysis of PWPS' ability to compete with MD ADGTs is a good proxy to analyse substitution between MD and GD ADGTs.

(154) Second, the Turbo Compressor Trains Bidding Data submitted by the Parties shows that PWPS did not win nor participate in any tender procedure in which an ADGT for MD applications was involved.[112] Furthermore the bidding strategy documents

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107 ID 161 - Q1 Questionnaire to competitors, replies to question 6.

108 ID 161 - Q1 Questionnaire to competitors, replies to question 7.

109 ID 113 Form CO, paragraph 583; ID 1317 Notifying Party's response to Art. 6(1)(c) Decision, 27.2.2015, paragraph 26.

110 ID 113 Form CO, paragraphs 620, 622, 623.

111 ID 2659 Notifying Party's reply to the complaint by a customer 22.4.2015, section 3.1.

112 See Annex 1 to this Decision.

submitted by the Parties[113] did not give any indication that PWPS with its GD ADGTs portfolio was considered as a competitive force in any of the projects for which bidding strategy documents were submitted.

(155) Third, no respondent to the market investigation mentioned PWPS – or GD ADGTs in general – as a supply alternative to MD ADGTs as a driver for turbo compressor trains. Thus, customers do not consider PWPS' GD ADGTs as an alternative to Siemens/RR's, DR's and GE's ADGTs as a driver for turbo compressor trains with a power requirement above 23 MW for O&G applications. This indicates that there is no demand side substitution between GD ADGTs and MD ADGTs.

(156) Fourth, respondents to the market investigation further indicated that there is no sufficient supply side substitution between GD ADGTs and MD ADGTs. In particular, PWPS would not be able to start offering ADGTs for MD applications in the short term without incurring significant additional costs or risks in response to a small and permanent change in prices.

(157) The market investigation indicated that ADGTs for GD applications are not suitable for MD applications in the O&G industry, that is as drivers for turbo compressor trains with a power requirement of more than 23 MW for O&G applications, in particular upstream offshore and midstream pipeline applications. Competitors contacted in the course of the market investigation indicated that PWPS' GD ADGTs are not as technically advanced as the MD ADGTs of Siemens/RR and GE as PWPS did not invest into improvements of its technology in the past five to ten years.[114] Furthermore, PWPS' GD ADGTs do not have the size and the power range required for O&G applications. The highest output range they offer is 25 MW, which is below the requirements of many O&G customers. Even though PWPS offers their turbines as a so called "twin pack" – combining two 25 MW GD ADGTs to a 50 MW pack – such a solution is often not accepted by customers.[115] A competitor indicated that to adjust its GD ADGTs to customers' requirements for drivers for turbo compressor trains for O&G applications, in particular upstream offshore and midstream pipeline applications, would take PWPS around ten years.[116]

(158) For these reasons, the Commission considers that GD ADGTs are not substitutable with MD ADGTs and light IGTs as drivers for turbo compressor trains for O&G applications, in particular upstream offshore and midstream pipeline applications.

e) Conclusion

(159) In light of the above, the Commission takes the view that ADGT driven and light IGT driven turbo compressor trains constitute a separate product market.

6.1.3.6. Distinction between ADGTs and light IGTs with a power output above and below 23 MW

(160) The Commission considers that it may be appropriate to segment the market of ADGT and light IGT driven turbo compressor trains between (i) ADGT and light IGT driven turbo compressor trains with a power requirement above 23MW, and (ii)

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113 Bidding strategy documents are documents which the both Siemens/RR and DR create in advance of participating in tenders setting out the perceived competitive situation in that given tender. Among the information provided, they often include which are the perceived competitors for the project.

114 ID 2832 Minutes of the conference call with a competitor of 17/12.

115 ID 2832 Minutes of the conference call with a competitor of 17/12.

116 ID 2832 Minutes of the conference call with a competitor of 17/12.

the segment for ADGT and light IGT driven turbo compressor trains with a power requirement below 23MW.

(161) First, the analysis of the Turbo Compressor Trains Bidding Data indicated that the competitive conditions in the power ranges above and below 23 MW are different. Above 23 MW, Siemens/RR, Dresser-Rand and GE are the only manufacturers and suppliers of ADGTs and light IGTs for turbo compressor trains. Thus, a customers' choice is restricted to these three manufacturers.

(162) On the contrary, as regards the power range below 23 MW the competitive landscape is quite different. In that power range, Solar has a strong market position with its light IGTs; however, it does not manufacture light IGTs with a power output above 23 MW. [117] The analysis of the Turbo Compressor Trains Bidding Data indicated that in the power range below 23 MW, while there is only a limited number of projects in which ADGTs participated in tender procedures, for many projects only a light IGT was considered by the customer. For that reason, Solar with its light IGT product has a significant market position below 23 MW but is not present above 23 MW.[118] The Parties and GE with their ADGTs on the other hand only have a minor position below 23 MW.

(163) Third, a customer indicated that ADGTs and light IGTs cannot be easily upgraded in terms of power output. The competitors responding to the market investigation indicated that such an upgrade cannot be done in a short time frame and without incurring in significant costs.[119] Thus, the Commission considers that there is no insufficient supply-side substitution regarding ADGTs and light IGTs below and above 23 MW.

(164) Fourth, the majority of customers contacted in the course of the market investigation indicated that when a specific power output is required customers prefer to source a single turbo compressor train with the required power output rather than multiple compressor trains which together can meet the specified requirements. According to one customer, "*All the projects in energy sector have long pay-back time and switching the power segment is not an option*", and according to another one "*cost of two units shall be higher than one unit*".[120] Customers responding to the market investigation also indicated that installing several smaller ADGTs or light IGTs increases the space and weight requirements of the turbo compressor train. Two smaller ADGTs typically require more space than one more powerful ADGT. Moreover, customers consider the cost of installing two smaller units to be higher than the cost installing a single unit.[121]

(165) Fifth, customers responding to the market investigation and the Parties indicated that customers are unlikely to be willing to use a driver that exceeds the specific application's power requirement.[122] The Parties explained that the price of a driver closely correlates to its power output. The Parties consider power output as a proxy for the price or the value of a driver. That means that for instance an ADGT with a power output 50% higher than that of another ADGT is approximately 50% more expensive. In addition, the fact that the ADGT represents approximately 50-70% of

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117 Please see https://mysolar.cat.com/cda/layout?m=177601&x=7, accessed on 9.5. 2015.
118 See section 6.3.6. below.
119 ID 449 - Q1 Questionnaire to customers, replies to question 20.
120 ID 195 Q2 Questionnaire to customers, replies to questions 11.
121 ID 1335 - Q3 Questionnaire to O&G customers, replies to question 11.1.
122 Ibid.

the total value of a turbo compressor train[123] makes it unlikely that a customer would substitute an ADGT or a light IGT with the required power output with another ADGT or light IGT that significantly exceeds that power output.

(166) Customers responding to the market investigation explained that most customers of a turbo compressor train would not substitute two smaller turbines for an ADGT with the required power output. Around two thirds of the responding customers stated that switching demand from one power segment to another in case the price for the initially preferred segment were to increase by 5-10% on a permanent basis is not an option.[124] Only two out of 21 responding customers would consider switching easy, quick and economically profitable.

(167) Notwithstanding the above, the Notifying Party claims that in some instances customers use one ADGT to drive several turbo compressor trains.[125] However, that is an option only for such customers that have a need for several turbo compressor trains, for example because these trains are used for different applications. It does not indicate that customers would generally buy a driver that significantly exceeds the power requirement of an installation site. Similarly, some customers have a preference to opt for solutions with multiple units for specific reasons of redundancy which does not indicate that they would substitute between single and multiple unit solutions.

(168) Finally, the Parties claim that for any given turbo compressor power requirement, several combinations of drivers can be used to carry out a specific compression job.[126] Contrary to this claim, the majority of customers contacted in the course of the market investigation indicated that customers would not accept using multiple turbo compressor trains of lower output instead of one of higher output turbo compressor (such as two 15 MW turbo compressor trains instead of one 30 MW turbo compressor train), especially where size and weight restrictions are essential.[127]

(169) For these reasons the Commission considers that it may be appropriate to segment the market of ADGT driven and light IGT driven turbo compressor trains between ADGT driven and light IGT driven turbo compressor trains with a power requirement of above 23 MW and ADGT driven and light IGT driven turbo compressor trains with a power requirement below 23 MW.

6.1.3.7. ADGT driven and light IGT driven turbo compressor trains with a power requirement above 23 MW for O&G applications.

(170) In light of all the above considerations, the Commission analyses how the different findings with regards to drivers and turbo compressors influence substitution at the turbo compressor train level.

(171) ADGT-driven and light IGT driven turbo compressor trains are employed in a number of different O&G applications. As submitted by the Notifying Party[128] and as indicated by the majority of competitors responding to the market investigation,[129]

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123 […].

124 ID 1335 - Q3 Questionnaire to O&G customers, replies to question 11; ID 940 Minutes of the call with a competitor 15.12.2014.

125 ID 113 Form CO, paragraph 87.

126 ID 1317 Notifying Party's response to Art. 6(1)(c) Decision, 27.2. 2015, paragraph 49.

127 ID 195 Q2 Questionnaire to customers, replies to questions 11; ID 1764, DR submission 10.3.2015.

128 ID 113 Form CO, paragraph 584.

129 ID 449 - Q1 Questionnaire to competitors, replies to question 5.

they are predominantly used in upstream offshore, upstream onshore, midstream pipeline, midstream LNG, midstream storage, midstream gas processing, and downstream applications.

(172) However, the analysis of the Turbo Compressor Trains Bidding Data indicated that in the period 2008 to 2014 the Parties' activities in the field of ADGT driven and light IGT driven turbo compressor trains overlapped only with regards to upstream offshore and midstream pipeline applications. For all other applications, only one of the Parties sold turbo compressor trains. In particular:

(1) in upstream onshore applications, Siemens/RR sold ADGT driven turbo compressor trains and light IGT driven turbo compressor trains but DR did not;

(2) in LNG applications, Siemens/RR sold light IGT driven turbo compressor trains but DR neither sold any ADGT driven turbo compressor nor any light IGT driven turbo compressor; and,

(3) in downstream applications, Siemens/RR sold ADGT driven turbo compressor trains but DR neither sold any ADGT driven turbo compressor trains nor any light IGT driven turbo compressor trains.

(173) Furthermore, the Parties almost never competed in tender procedures for projects in O&G applications other than upstream offshore and midstream pipeline. Siemens/RR and DR competed only on […] upstream onshore projects[130] and […] midstream LNG projects[131], none of which was won by the Parties.

(174) In light of the above, it may be appropriate to segment the market for ADGT and light IGT driven turbo compressor trains, as well as the segments for ADGT and light IGT driven turbo compressor trains with a power requirement above and below 23 MW, according to the end application in which the turbo compressor train will be used.

6.1.3.8. Conclusion

(175) In light of the above and on the basis of all available evidence, the Commission considers that ADGT driven and light IGT driven turbo compressor trains constitute a distinct product market. Furthermore, the Commission considers that it may be appropriate to segment the market for ADGT driven and light IGT driven turbo compressor trains according to the power requirement between ADGT driven and light IGT driven turbo compressor trains with a power requirement above 23 MW and ADGT driven and light IGT driven turbo compressor trains with a power requirement below 23 MW.

(176) Finally, the Commission takes the view that it may be appropriate to segment the market for ADGT and light IGT driven turbo compressor trains, as well as the segments for ADGT and light IGT driven turbo compressor trains with a power requirement above and below 23 MW, according to the end application in which the turbo compressor train will be used.

(177) The Commission however considers that it can be left open whether the above segments of the product market constitute separate product markets themselves, as, the Transaction would not lead to a significant impediment of effective competition in the internal market under any plausible market definition.

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130 Project names: […]

131 Project names: […]

6.2. Geographic market definition

6.2.1. The Notifying Party's view

(178) The Notifying Party does not take a position as regards the geographic market definition in relation to turbo compressor trains.

(179) It does, however, submit that the "compressor industry" is global.[132] Its main customers have global activities and compressor manufacturer serve their customers worldwide from a limited number of manufacturing sites.

6.2.2. Past decisional practice

(180) In previous decisions, the Commission considered that if a product market for turbo compressor trains were to exist, the geographic scope of such market would likely be global. However, the delimitation of the geographic market was ultimately left open.[133]

(181) As for the two main components of a turbo compressor train –turbo compressors, on the one hand, and ADGTs and light IGTs on the other – the Commission previously considered that the markets of which those products formed part were likely to be global in scope, although it left that question open.[134]

6.2.3. The Commission's assessment

(182) For the reasons set out below (recitals (183) to (184)), the Commission considers that the market for ADGT driven and light IGT driven turbo compressor trains for O&G applications, irrespective of the exact power range and of the O&G application, is worldwide, but excludes projects taking place in ex-USSR countries.[135]

(183) First, suppliers of ADGT driven and light IGT driven turbo compressor trains are active worldwide.

(184) Second, the product offering of those suppliers is the same irrespective of the geographic location of the project for which the turbo compressor train is used. This applies to the components of turbo compressor trains, that is ADGTs, light IGTs and turbo compressors – irrespective of the specific base design and the power output – alike.[136]

6.3. Competitive assessment

(185) In line with the relevant markets considered above, the Commission has assessed whether the Transaction will significantly impede effective competition in the internal market with regard to the markets for turbo compressor trains driven by ADGT or light IGT (1) with a power output above 23MW (section 6.3.5.1.); and (2) with a power output below 23MW (section 6.3.5.2.).[137]

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132 See section 2.2.

133 COMP/M.7284 *Siemens/John Wood/Rolls-Royce Combined ADGT Business/RWG, 4.8.2014*, recital 42.

134 Ibid.

135 The Turbo Compressor Trains Bidding Data indicates that only Russian and Ukrainian companies submitted a firm bid in relation to these projects. Moreover, no evidence could be found that companies based outside Russia and Ukraine were actually invited to submit a bid for these projects.

136 ID 195 - Q2 Questionnaire to customers, replies to questions 37 and 38.

137 These market boundaries represent the worst case scenario for the competitive assessment of the Transaction. In a hypothetical market including turbo compressor trains driven by any type of drivers, the Parties market share would be diluted (none of the Parties produce heavy duty IGTs, and only Siemens produces electric motors in the relevant power range) and they would face competition from some additional smaller competitors. See ID 2487, ID 2146, ID 1992, ID 1991 for the Parties' sales of

6.3.1. Principles

(186) According to the Commission's Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (the "Horizontal Merger Guidelines"),[138] there are two main ways in which horizontal mergers may significantly impede effective competition, in particular by creating or strengthening a dominant position:

(a) by eliminating important competitive constraints on one or more firms, which consequently would have increased market power, without resorting to coordinated behaviour (non-coordinated effects);

(b) by changing the nature of competition in such a way that firms that previously were not coordinating their behaviour, are now significantly more likely to coordinate and raise prices or otherwise harm effective competition. A merger may also make coordination easier, more stable or more effective for firms which were coordinating prior to the merger (coordinated effects).[139]

(187) The Commission assesses whether the changes brought about by a merger may result in either or both of these effects.[140]

(188) A merger may significantly impede effective competition in a market by removing important competitive constraints on one or more sellers, who consequently have increased market power. The most direct effect of the merger will be the loss of competition between the merging firms. For example, if prior to the merger one of the merging firms had raised its price, it would have lost some sales to the other merging firm. The merger removes this particular constraint. The reduction in these competitive constraints could lead to significant price increases in the relevant market.[141]

(189) Generally, a merger giving rise to such non-coordinated effects would significantly impede effective competition by creating or strengthening the dominant position of a single firm, one which, typically, would have an appreciably larger market share than the next competitor post-merger. Furthermore, mergers in oligopolistic markets involving the elimination of important competitive constraints that the Parties previously exerted upon each other together with a reduction of competitive pressure 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 competition. The Merger Regulation clarifies that all mergers giving rise to such non-coordinated effects shall also be declared incompatible with the internal market.[142]

(190) In assessing the competitive effects of a merger, the Commission compares the competitive conditions that would result from a notified merger with the conditions that would have prevailed without the merger. In most cases the competitive conditions existing at the time of the merger constitute the relevant comparison for

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electric motor driven and IGT driven turbo compressor trains. See ID 2408, ID 2156, ID2157, ID 1856, ID 1857, ID 2015, ID 2017, ID 1846, ID 1847, ID 1890, ID 1891 for the Parties' competitors' sales of electric motor driven and IGT driven turbo compressor trains (all of those files contain confidential information).

138 Official Journal C 31, 5.2.2004, p. 5-18.

139 Horizontal Merger Guidelines, paragraph 22.

140 Horizontal Merger Guidelines, paragraph 23.

141 Horizontal Merger Guidelines, paragraph 24.

142 Horizontal Merger Guidelines, paragraph 25.

evaluating the effects of a merger. However, in some circumstances, the Commission may take into account future changes to the market that can reasonably be predicted.

6.3.2. The Notifying Party's arguments

(191) The Notifying Party submits that even on a market that would be limited to ADGT driven turbo compressor trains, the Transaction will not significantly impede effective competition. Their main arguments can be summarised as follows.

(192) First, the Transaction will not create a market leader. GE is and will remain the market leader regardless of the application.[143]

(193) Second, Siemens/RR and DR are not close competitors.[144] In the first place, the Parties only rarely bid against each other. In the second place, the Transaction would either have no effect or be pro-competitive in relation to projects won by GE. In the third place GE had exerted the relevant competitive constraint on the Parties' bids in relation to the projects that were won by either Siemens/RR or DR.

6.3.3. The main market players

6.3.3.1. Siemens / Rolls Royce

(194) Siemens manufactures a full range of drivers and turbo compressors.

(195) On the driver side, Siemens has traditionally offered a full range of IGTs, both heavy duty and light industrial turbines and steam turbines. Following the recent acquisition of RR's ADGT business, Siemens is now also able to offer ADGTs. With the acquisition of RR's ADGT business, Siemens also acquired track record – on the ADGT side – in the upstream and midstream O&G industry where it was not historically strong.[145]

(196) On the compressor side, Siemens manufactures a full line of integrally geared and single shaft turbo compressors. The analysis of the Turbo Compressor Trains Bidding Data indicates that Siemens has, however, not been particularly successful in doing so. Siemens appears to be stronger in downstream and non-O&G applications. Siemens, however, does not sell reciprocating compressors.[146] As a result, Siemens also lacks references for its turbo compressors in the midstream and upstream O&G applications.

6.3.3.2. Dresser Rand

(197) DR is primarily a compressor manufacturer for the O&G industry. It has a full line of turbo compressors used in upstream, midstream and to a certain extent downstream applications. DR is stronger on the upstream offshore segment and to a lesser extent in midstream pipeline and LNG applications. DR's compressors are regarded by the industry as very reliable and have significant track record.

(198) Currently, when DR acts as prime contractor in a tender for an ADGT driven compressor train, it has to source the driver from either GE or Siemens/RR. With reference to GE's driver, DR is also the only compressor manufacturer with whom GE has a supply contract for ADGTs or ADGTs core gas turbines in place. Also, DR

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143 ID 881 Second Issue Paper turbo compressors driven by ADGTs, paragraph 17.

144 ID 1317 Notifying Party's response to Art. 6(1)(c) Decision, 27 February 2015, paragraphs 87-93, as well as the Notifying Party's submission of 10 April 2015 entitled "The Parties are not close competitors in ADGT-driven compressor trains (firm & budget bid analysis)".

145 ID 113 Form CO, paragraphs 4, 5, 42 et al.

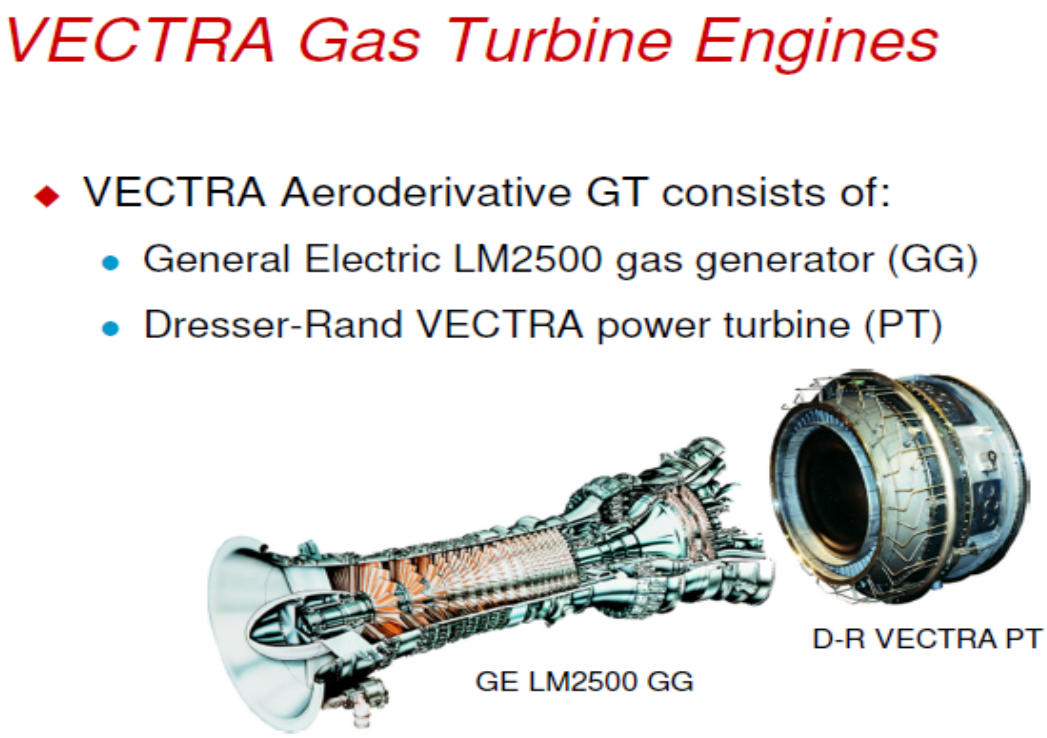
146 ID 113 Form CO, paragraph 42.

is the only independent compressor manufacturer that has developed a power turbine for GE's core engines and has access to them on a standalone basis and not as part of a fully packaged ADGT.[147]

(199) When using a GE driver, DR can offer three different solutions: (a) a Vectra ADGT; (b) a GE ADGT packaged by DR itself; or (c) a fully packaged GE ADGT.

(a) With reference to the "VECTRA", DR manufactures a power turbine that is packaged with the GE's LM2500 core gas turbine. DR markets the package comprising the GE gas turbine core and its power turbine under its Vectra brand. The Figure 1 explains what the Vectra is:

Figure 1.



As indicated by the above picture, an internal document from DR, the Vectra is the power turbine and the ADGT is a package of a GE core gas turbine with a DR power turbine. There is no full ADGT from DR: DR lacks access to jet engine technology that would enable it to manufacture a core gas turbine. In the context of the agreement with GE, DR purchases from GE the gas turbine core (consisting of the compressor system, combustion chamber and compressor turbine system) and couples the GE core gas turbine with its own developed power turbine system. As the two assemblies are bolted together, there is no mechanical link between the core and the power turbine; the core's exhaust gas is directed into the power turbine and expands through it, thereby generating mechanical energy.[148]

(b) With reference to the GE ADGT packaged by DR itself, DR offers an ADGT composed of both the core turbine and the power turbine manufactured by GE but packaged by DR itself. This solution slightly differs from a fully packaged GE ADGT, in terms of dimension and weight of the package.

147 Turbo Compressor Trains Bidding Data.

148 ID 113 Form CO, paragraphs 607 and 608.

(c) Finally, DR offers a fully packaged GE ADGT as driver for its ADGT driven compressor trains. In these cases, DR does not add any value to the ADGTs, but limits itself to package it with its compressors.

(200) The commercial relationship in place between GE and DR (irrespective of the exact scope of the input sourced from GE) is governed by an agreement, the "OEM Agreement" setting out the details of the cooperation. Pursuant to the OEM agreement, DR is contractually […].[149] […].

6.3.3.3. General Electric

(201) GE offers a full range of compressors and drivers. It is the strongest player on any plausible market.[150]

(202) Regarding compressors, GE offers base design which can serve all applications. GE compressors are consistently the most sold compressors in the industry, regardless of the application.[151]

(203) As to the driver side, GE offers a wide range of turbines and electric motors. In particular, GE has the largest installed fleet of ADGTs and covers the entire spectrum of power output.[152]

(204) The analysis of Turbo Compressors Bidding Data submitted by the Parties indicates that GE rarely supplies its ADGTs to third parties compressor manufacturers, save for DR (see recitals (197) to (198) for more details on the supply arrangement between GE and DR).

6.3.3.4. MAN Diesel & Turbo

(205) MAN sells compressors to O&G and industrial customers. It offers a full line of compressors, including axial, centrifugal and integrally geared compressors.

(206) The analysis of the Turbo Compressor Trains Bidding Data indicates that on upstream (offshore and onshore) and midstream applications, MAN is sometimes present in bids as prime contractor but rarely wins. This is the case for both ADGT driven compressor trains and light IGTs driven compressor trains.

(207) MAN is stronger in midstream and O&G related applications, such as air separation and chemicals. MAN is also strong and has a significant number of references in seal-less compressors with its "MOPICO" product line.[153]

(208) MAN does not have drivers suitable for high power compression applications and therefore when bidding for such applications it relies on third parties, such as Solar, for the supply of drivers.[154]

6.3.3.5. Mitsubishi Heavy Industries

(209) MHI is a manufacturer of turbo machinery for the O&G industry. MHI manufactures both integrally geared and single shaft turbo compressors.[155] MHI has particular strength in downstream and O&G related applications, such as petrochemicals and

149 […]
150 ID 113 Form CO, paragraph 292.
151 Ibid.
152 ID 113 Form CO, paragraph 620.
153 ID 113 Form CO, paragraph 292.
154 Ibid.
155 Ibid.

fertilizers. MHI is strong in O&G-related applications, in particular air separation and O&G downstream (petrochemicals).[156]

(210) While MHI's compressors are qualified to serve in the vast majority of O&G applications, including upstream offshore and pipeline, the analysis of the Turbo Compressors Trains Bidding Data indicates that they do not often compete and rarely win.

(211) MHI recently acquired PWPS, a subsidiary of United Technologies Corporation, which makes small- and medium-sized gas turbines, including ADGTs. While PWPS has won tenders for GD ADGTs in the last 5 years, it has not won any tenders for MD ADGTs.

6.3.3.6. Elliot Ebara

(212) Elliott Ebara offers a comprehensive line of centrifugal (single stage and multi-stage) and axial compressors.[157]

(213) Elliot Ebara is particularly present in downstream applications, such as petrochemicals and refineries where it holds a strong market position.

6.3.4. Framework for the assessment of the Transaction

6.3.4.1. Framework of analysis

(214) While the competitive conditions prior to a merger are generally a reliable proxy for the conditions that would have prevailed without the merger, in the case at hand, the competitive conditions existing at the time of the Transaction do not necessarily constitute the relevant comparison.

(215) This is because, the data used to assess the Transaction stems from the time period prior to the completion of the Siemens/RR transaction[158], which occurred in December 2014.

(216) The integration of RR's ADGT business may have changed Siemens' market position and the constraints it exerts on its competitors to a certain extent. Following the integration of RR, Siemens announced […].[159] […]."[160] […].

(217) Two potential scenarios therefore need to be considered.

(a) […]. In this scenario, the current competitive situation will not substantially change. It is also unlikely that Siemens will be able to leverage RR to gain references for its compressors.

(b) […]. In this scenario, the current competitive situation may substantially change. Absent the Transaction, it is likely that Siemens/RR would have competed more often against DR (relying on an input from GE) than in the past. Under this scenario, there are two further possibilities:

(1) […] to gain references for its compressors. In this situation, the impact of […] on the competitive position of Siemens/RR would be limited to pipeline applications, […]

156 Ibid.
157 Ibid.
158 COMP/M.7284 – *Siemens/John Wood/Rolls-Royce Combined ADGT Business/RWG, 4.8.2014*
159 […].
160 […]5.

(2) […] to gain reference for its compressors. In this scenario, Siemens/RR may be able to compete more often in all applications, including those where Siemens/RR is currently weak.

(218) Absent the Transaction, the competitive constraint that DR and Siemens/RR would exert on each other will be anywhere between the current situation and the situation in which Siemens manages to […] to leverage the […] to gain reference for its compressors.

(219) The Commission considers that ultimately it can be left open which of the two potential scenarios is more likely as under both scenarios, the Transaction will not lead to a significant impediment of effective competition.

6.3.4.2. Characteristics of the market for ADGT driven and light IGT driven turbo compressor trains with a power requirement above 23 MW for O&G applications and implications for the Commission's assessment of non-coordinated effects

(220) In a market for ADGT driven and light IGT driven turbo compressor trains with a power requirement above 23 MW for O&G applications, the vast majority of sales are made following a tender process.[161] The assessment of potential non-coordinated effects of the Transaction therefore needs to be carried out in a "bidding market" framework.

(221) Furthermore, as explained in section 5.2.1, turbo compressors (and therefore turbo compressor trains) are highly differentiated and engineered products that can differ by a number of technical parameters. As a result, the assessment of the expected non-coordinated effects of the Transaction needs to take into account both the "bidding market" and the differentiated features of the products.

(222) In relation to the bidding market framework, the Notifying Party argues that an open-bid second price auction framework is appropriate for analysing the likely effects on price of the Transaction.[162,163] This is because a number of tenders were allegedly organised as open bids and that, more generally, potential suppliers often receive feedback from customers during the tender process and therefore know whom they bid against (and sometimes even the bids of their competitors).

(223) The Commission disagrees and considers that a seal-bid first price auction framework is more appropriate to analyse the likely effects of the Transaction. However, the Commission acknowledges that for certain projects, market participants can anticipate who else is participating and have reasonably good expectations as to their respective bids and their valuation by customers. Overall therefore, the Commission will assess the Transaction under a seal-bid first price

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161 ID 113 Form CO, paragraph 112.

162 Appendix A of the Notifying Party's economic submission of 27 February 2015 entitled "ADGT-Driven Compressor Trains: Response to Criticism of the CL Bidding Study in the 6(1)(c)-Decision" quotes 9 examples where RR's "Win-Loss Sheets" indicate that RR had certain information about its competitors' bids. No such details are provided for […]projects where one of the merging parties submitted a bid in 2008-2014.
The differentiated nature of the products specified in different tenders and its implications for competition analysis are not discussed in these economic submissions.

163 In a second price auction, the price is lowered until only one competitor is left. He is then paid at the last price that he bid. Typically, a second price auction is a good framework of analysis for tenders characterised by multiple rounds in which competitors have good information on the bids offered by their rivals (including price and quality of the product offered) as well as on the valuation of such bids by customers.

auction framework, but at the same time, it will consider on a project by project basis, the information that the market participants may have on the other bidders. The Commission's view is based on the following factors.

(a) On the one hand, the tender procedures organised by O&G customers are most of the time private tenders, which are not transparent. As a result, participants in tenders generally do not know for sure who else is participating, let alone how their own bids compare to those of their competitors. MHI for instance explained that given the small number of players, vendors can generally roughly guess the identity of the other bidders. However, MHI explained that "*during the tender procedure vendors are never neither made aware of the identity of other bidders (if any) nor of the details (technical and financial) of the respective bids*".[164] The bidding data submitted by the various manufacturers confirms this view. In a significant number of tenders, bidders were unable to correctly identify whether each of their rivals had submitted a binding offer as well. These discrepancies between the perceived presence of competitors and their actual presence are consistent with a seal-bid first price auction design.

(b) On the other hand, as indicated by the Notifying Party, some tenders are organised as open bids.[165] In these specific tenders, market players know the identity of their rivals and have good information on the bids offered by them. For these specific tenders, an open-bid second price auction design is a better framework of analysis. Moreover, the three main players (GE, Siemens/RR and DR) know the strengths and weaknesses of their respective competitors. For instance GE and DR know that Siemens/RR is strong in midstream pipelines but weak in upstream offshore applications. Therefore, the Commission believes that in some tender procedures, bidders are at the very least able to form good expectations as to the identity of the other bidders and their chances to win.

(224) In a sealed-bid first price auction framework, mergers can generate non-coordinated effects in a similar way as in ordinary markets with differentiated goods. Assuming that both products continue to be offered post-merger, the extent of the effect will depend on the degree of closeness of competition between the merging parties' products, as well as on their respective margins. The only difference with ordinary markets with differentiated goods is that the diversion of sales between competing firms should be understood in terms of the expected sales (i.e. the probability of winning the tender) rather than actual sales. That is, each firm knows that if it bids less aggressively, its probability of winning the tender will decrease, and the probability of winning the tender enjoyed by each of its competitors in that tender will increase. The diversion ratio between Firm A and Firm B is therefore determined by the fraction of the reduction in Firm A's winning probability that is captured by Firm B (and vice versa for the diversion ratio from Firm B to Firm A). A merger between Firm A and Firm B will induce each firm to bid less aggressively since a higher bid by Firm A will increase the probability of winning of Firm B, and thus increase its profits (in proportion to its pre-merger margin).

(225) The Commission therefore considers that in the case at hand, unlike in the theoretical framework of an open-bid second price auction in which a merger could only affect

164 ID02771, para 10-11. This is also confirmed by some of the market participants' bidding data.

165 ID01316, para 2.7

the price in relation to tenders in which the merging parties are the two preferred bidders, the Transaction could potentially have an impact on the price in all tenders in which both Parties are credible competitors, or in other words are close competitors rather than the closest competitors. Even in tenders that are not won by either of the Parties, the Transaction could theoretically have an effect on the price offered by the winner, if the Transaction induces the Parties to bid less aggressively, thereby reducing the competitive constraint on the winner. Only in open bids where the Parties are not winner and runner-up as well as in private tenders in which one of the Parties is either not bidding or not considered a credible competitor (i.e. its probability of winning does not increase if the price offered by the other merging party increases), will the Transaction not be apt to have an impact on prices.

(226) Against this background, the Commission will not – as suggested by the Notifying Party – restrict the assessment to tendered projects in which the Parties were winner and runner-up but will consider all projects in which the Parties were competing. For that purpose the Commission will assess whether DR and Siemens/RR are close competitors and whether the elimination of competition between them would result in the Parties charging higher prices and whether the presence of only two players (GE and the Parties) is likely to result in a higher price than when three players (GE, Siemens/RR and DR) are present.

(227) For the reasons set out below, the Commission has concluded that the Transaction will not significantly impede effective competition in the internal market with regard to the market for turbo compressor trains driven by ADGT or light IGT (1) with a power output above 23MW (see section 6.3.5.1), (2) with a power output below 23MW (see section 6.3.5.2), but also in a market comprising both power output segments (see section 6.3.5.3)

6.3.5. The Commission's assessment

6.3.5.1. The Transaction will not eliminate a significant competitive force from the market for turbo compressor trains driven by ADGT or light IGT with a power output above 23MW for O&G applications.

(228) The Commission considers that the Transaction will not eliminate an important competitive force in the market ADGT driven and light IGT driven turbo compressor trains with a power requirement above 23 MW for O&G applications – considering all applications, in particular upstream offshore and midstream pipeline.

(229) First, the combined market shares of the Parties are moderate, and in all markets they will face competition from GE which has a comparable or higher market share. Second, Siemens/RR and DR are not close competitors. Third, the Transaction is unlikely to reduce significantly the competitive constraints on GE. Fourth, the integration of RR's ADGT business into Siemens will not increase significantly the competitive constraint that Siemens/RR would have exerted on DR absent the Transaction. Fifth, the possible disappearance of the mixed GE-DR offer will not reduce significantly the competitive constraints exerted by Parties on GE.

Market shares and market structure

(230) The market shares of the Parties and their main competitors in the supply of turbo compressor trains driven by ADGTs or light IGTs with power output above 23 MW are set out in the Tables 1 to 9.

(231) The market shares are calculated on the basis of all projects awarded between 2008 and 2014 which: (i) involved turbo compressor trains driven by ADGTs or light IGTs above 23 MW and (ii) in which at least one of the bidders – not necessarily the

winning bidder – offered an ADGT driven turbo compressor train at the firm bid level. In total, the Commission identified 121 such projects. Annex 1 provides more information on the data used to compute these market shares.

(232) The market shares are calculated on three different bases: (i) the number of projects won; (ii) the number of gas turbine units sold; and (iii) the aggregated power output in MW of the gas turbines sold. While the number of projects won and the number of gas turbine units sold are a proxy for market shares in terms of quantities, the aggregated output in MW is a proxy for market shares in terms of value. This is because the price of turbo compressor trains increases with the power output of the turbine used to drive the train.

(233) Furthermore, as a compressor train comprises two main components – gas turbine and compressor – which are in some instances supplied by different manufacturers one of which is the prime contractor for the project, market shares were calculated under three different perspectives based on the identity of (i) the prime contractor, (ii) the gas turbine manufacturer, and (iii) the compressor manufacturer.

(234) For all putative markets, market shares differ only slightly depending on whether they are calculated based on the identity of the prime contractor, the gas turbine or the compressor manufacturer. Market shares differ to some extent depending on whether the market shares are calculated based on the number of projects, the number of gas turbines sold or the total MW. For all putative markets, the combined market shares of the Parties are lower in terms of number of units sold (and total MW) than in terms of the number of projects. This indicates that, on average, the tender procedures won by the Parties relate to smaller projects involving a smaller number of turbo compressor trains whereas GE tends to win the tenders in relation to larger projects.

(235) Regarding a putative market for ADGT driven and light IGT driven turbo compressor trains with a power requirement above 23 MW for O&G applications comprising all applications (see Tables 1 to 3 below), the Parties' combined market shares ranged from [30-40]% to [40-50]%. GE is the main competitor and the clear market leader with a market share ranging from [50-60]% to [60-70]%. Zorya Mashproekt, a Ukrainian ADGT manufacturer, and MAN, a compressor manufacturer, are the only competitors of the Parties that won projects. Their market presence, however, is limited:

(a) Zorya Mashproekt won one single project for a downstream application in China – an application in which the Parties' activities do not overlap. Its market share ranged from [0-10]% to [0-10]%.

(b) MAN won only three projects (one upstream offshore, one upstream onshore and one downstream) in combination with RR as the ADGT manufacturer. Its market share ranged from [0-10]% to [0-10]%.

Table 1 – Market shares of prime contractors in the worldwide market for turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output above 23MW, all O&G applications

Prime contractor	Number of projects	GT units	MW
DR	[10-20]%	[0-10]%	[0-10%
RR	[20-30]%	[20-30]%	[20-30]%
Siemens	[0-10]%	[0-10]%	[0-10]%
Combined	***[40-50]%***	***[30-40]%***	***[30-40]%***
GE	[50-60]%	[60-70]%	[60-70]%

Split offers	[0-10]%	[0-10]%	[0-10]%
Zorya Mashproekt	[0-10]%	[0-10]%	[0-10]%
Total size	**[…]**	**[…]**	**[…]**

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

Table 2 – Market shares of gas turbine suppliers in the worldwide market for turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output above 23MW, all O&G applications

GT supplier	Number of projects	GT units	MW
DR (Vectra)	[0-10]%	[0-10]%	[0-10]%
DR (packaged GE turbine)	[0-10]%	[0-10]%	[0-10]%
RR	[20-30]%	[20-30]%	[20-30]%
Siemens (IGT)	[0-10]%	[0-10]%	[0-10]%
Combined	***[40-50]%***	***[30-40]%***	***[30-40]%***
GE	[50-60]%	[60-70]%	[60-70]%
GE (IGT)	[0-10]%	[0-10]%	[0-10]%
Zorya Mashproekt	[0-10]%	[0-10]%	[0-10]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

Table 3 – Market shares of turbo compressor suppliers in the worldwide market for turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output above 23MW, all O&G applications

TC supplier	Number of projects	GT units	MW
DR	[10-20]%	[10-20]%	[10-20]%
RR	[10-20]%	[10-20]%	[10-20]%
Siemens	[0-10]%	[0-10]%	[0-10]%
Combined	***[40-50]%***	***[30-40]%***	***[30-40]%***
GE	[50-60]%	[60-70]%	[60-70]%
Man	[0-10]%	[0-10]%	[0-10]%
Zorya Mashproekt	[0-10]%	[0-10]%	[0-10]%
Total size	**[…]**	**[…]**	**[…]**

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

(236) Looking at specific applications, the activities of the Parties overlap only in upstream offshore applications and midstream pipeline applications. Only Siemens/RR won projects in the upstream onshore, the midstream LNG and the downstream segments.

(237) Regarding a putative market for turbo compressor trains driven by ADGTs or light IGTs with power output above 23 MW for upstream offshore applications (see Tables 4 to 6 below), the combined market shares of the Parties ranged from [30-40]% to [40-50]%. Again, GE is the market leader with market shares ranging from [50-60]% to [60-70]%. Except for one project won with a compressor supplied by MAN – combined with an ADGT of RR – no other manufacturer won projects.

Table 4 – Market shares of prime contractors in the worldwide market for turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output above 23MW, upstream offshore

Prime contractor	Number of projects	GT units	MW
DR	[20-30]%	[20-30]%	[10-20]%
RR	[10-20]%	[10-20]%	[10-20]%
Siemens	[0-10]%	[0-10]%	[0-10]%
Combined	***[40-50]%***	***[30-40]%***	***[30-40]%***
GE	[50-60]%	[60-70]%	[60-70]%
Split offers	[0-10]%	[0-10]%	[0-10]%
Total size	**[…]**	**[…]**	**[…]**

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

Table 5 – Market shares of gas turbine suppliers in the worldwide market for turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output above 23MW, upstream offshore

GT supplier	Number of projects	GT units	MW
GE-DR (Vectra)	[10-20]%	[0-10]%	[0-10]%
GE-GE (packaged DR)	[10-20]%	[10-20]%	[0-10]%
RR	[20-30]%	[10-20]%	[10-20]%
Combined	***[40-50]%***	***[30-40]%***	***[30-40]%***
GE	[50-60]%	[60-70]%	[60-70]%
Total size	**[…]**	**[…]**	**[…]**

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

Table 6 – Market shares of turbo compressor suppliers in turbo compressor trains driven by ADGTs or light IGTs above 23MW (2008-2014) – upstream offshore

TC supplier	Number of projects	GT units	MW
DR	[20-30]%	[20-30]%	[20-30]%
RR	[10-20]%	[0-10]%	[0-10]%
Siemens	[0-10]%	[0-10]%	[0-10]%
Combined	***[40-50]%***	***[30-40]%***	***[30-40]%***
GE	[50-60]%	[60-70]%	[60-70]%
Man	[0-10]%	[0-10]%	[0-10]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

(238) Regarding a putative market for ADGT driven and light IGT driven turbo compressor trains with a power requirement above 23 MW for O&G applications for midstream pipeline applications (see tables 7 to 9 below), the combined market shares of the Parties ranged from [40-50]% to [50-60]%. DR's market share and thus the increment ranges from [0-10]% to [10-20]%. GE's market share is in the same range as the Parties' combined market share, ranging from [40-50]% to [50-60]%. No other manufacturer won projects.

Table 7 – Market shares of prime contractors in the worldwide market for turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output above 23MW, midstream pipeline

Prime contractor	Number of projects	GT units	MW
DR	[10-20]%	[0-10]%	[0-10]%
RR	[30-40]%	[30-40]%	[40-50]%
Siemens	[0-10]%	[0-10]%	[0-10]%
Combined	***[50-60]%***	***[40-50]%***	***[50-60]%***
GE	[40-50]%	[50-60]%	[40-50]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

Table 8 – Market shares of gas turbine suppliers in the worldwide market for turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output above 23MW, midstream pipeline

GT supplier	Number of projects	GT units	MW
GE-DR (Vectra)	[10-20]%	[0-10]%	[0-10]%
RR	[30-40]%	[30-40]%	[40-50]%
Siemens (IGT)	[0-10]%	[0-10]%	[0-10]%
Combined	***[50-60]%***	***[40-50]%***	***[50-60]%***
GE	[40-50]%	[40-50]%	[40-50]%
GE (IGT)	[0-10]%	[0-10]%	[0-10]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

Table 9 – Market shares of turbo compressor suppliers in the worldwide market for turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output above 23MW, midstream pipeline

TC supplier	Number of projects	GT units	MW
DR	[10-20]%	[10-20]%	[10-20]%
RR	[30-40]%	[30-40]%	[30-40]%
Siemens	[0-10]%	[0-10]%	[0-10]%
Combined	***[50-60]%***	***[40-50]%***	***[50-60]%***
GE	[40-50]%	[50-60]%	[40-50]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

(239) With respect to the two application segments in which the Parties' activities overlap – i.e. upstream offshore applications and midstream pipeline applications – it appears from tables 4 to 9 above that MAN is the only compressor manufacturer that is competing with the Parties and GE. MAN has done so, however, with only limited success. It won only one upstream offshore project (in combination with a RR ADGT on a project awarded in 2008) and not a single pipeline project.

(240) Given its limited market presence, it is therefore unlikely that MAN has the track record required to become a credible competitor in upstream offshore applications in the near future.

Siemens/RR and DR are not close competitors

(241) For the reasons set out below (recitals (242) to (254)), the Commission considers that Siemens/RR and DR are not close competitors.

(242) First, the Parties' portfolio of turbo compressors trains is focused on different applications.[166] DR has a strong focus and a strong market position in upstream offshore applications, while Siemens/RR is strong in midstream and in particular midstream pipeline applications where DR is comparably weak.[167] For example, Siemens/RR's market share in midstream pipeline applications is more than […] higher than the market share of DR based on the identity of the prime contractor and the identity of the turbine manufacturer – based on the identity of the compressor manufacturer it is at least […] as high.[168] Similarly, in upstream offshore applications, DR's market share exceeds Siemens/RR's market share by more than [10-20] percentage points – based on the identity of the compressor manufacturer.

(243) The Parties' focus on different applications is supported by the respondents to the market investigation. One customer explained that "*substitutability between the [a DR] and an RR solution […] will depend of the final application*".[169] Another customer active in upstream offshore applications explained, "*[w]ith regard to upstream offshore applications DR offers more specific designs of high pressure compressors which better fit demand for offshore applications. Thus, in this field Siemens is not able to compete with DR and the later remains the main option as OEM for upstream offshore applications*".[170]

166 ID 113 Form CO, paragraph 43.
167 ID 113 Form CO, paragraph 268.
168 See Table 9.
169 ID 674 Minutes of the call with a customer 16.12.2015.
170 ID 2610 Minutes of the call with a customer 9.12.2015.

(244) Second, an analysis of the Turbo Compressor Trains Bidding Data indicates that Siemens and DR competed against each other in a limited number of projects. The number of projects where one of them won and the other one also submitted a firm bid is even more limited.

(245) Based on the Turbo Compressor Trains Bidding Data, the Commission identified […] projects that involved an ADGT-driven turbo compressor train above 23MW at the firm bid stage.[171] For these […] projects, the Commission analysed the various bidding situations, i.e. the identity of the various firm bidders (at a prime contractor level) and the identity of the winner. A summary of these bidding situations is presented in table 10 below.

Table 10 – Overview of bidding situations by prime contractors in tenders involving turbo compressor trains driven by ADGTs or light IGTs above 23MW (2008-2014) – all applications

Meeting in tenders	Prime winner	Number of projects
Siemens/RR - DR - (others)	GE	[10-20%]
	DR	[5-10%]
	RR	[0-5%]
Siemens/RR without DR		[40-50%]
DR without Siemens/RR		[10-20%]
Other		[20-30%]
Total		[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

(246) Out of the […] projects that involved an ADGT-driven turbo compressor train above 23MW at the firm bid stage, Siemens/RR and DR competed against each other on […] projects, equalling around [20-30]% of all these projects. Assuming that the integration of RR into Siemens will not change the competitive position of the Parties, this means that close to [70-80]% of the projects would not have been affected by the Transaction.

(247) Moreover, of the […] projects in which Siemens/RR and DR competed against each other, there were only […] in which one of the Parties won and the other also submitted a firm bid. […] were won by DR and […] by RR.

(248) Looking first at the […] projects won by DR, Siemens/RR is unlikely to have exerted a significant competitive constraint on DR for the following reasons:

(a) […] of those […] projects were pipeline projects in […] involving the same end customer (i.e. […]) and the same EPC (i.e. […]),[172] the latter with whom DR has an […]. The […] implies that in principle, on projects for which […] wins the engineering and construction contract against other EPCs, DR is […]. In each of those […] projects, DR was competing with a […] ADGT and a […] compressor against Siemens (not RR) who was participating with […] driven

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171 This is one project less than for the market share calculation. This is because in order to carry out the bidding analysis, the Commission excluded from bidding data those projects for which one of the market participants claimed to have won the project with an IGT driven turbo compressor train in competition with at least one offer for an ADGT driven turbo compressor train, but for which the Commission had no confirmation that a manufacturer actually submitted a firm bid for an ADGT driven turbo compressor train. In total, the Commission excluded one such project in relation to turbo compressor trains driven by gas turbines above 23MW. Annex 1 provides more information on the bidding data used to carry out the bidding analysis.

172 […]is an EPC company active in […].

turbo compressor trains. For […] of those […] projects, a DR internal document discussing the bidding strategy indicates that DR did not anticipate any competition "*due to* […]".[173] It is therefore likely that the same applied in relation to the other […] projects.

The integration of RR's ADGT business into Siemens will not change the competitive constraint that Siemens/RR would have exerted on DR in relation to these […] projects. This is for two reasons. First, if DR was preferred because […], this would not change following the integration Siemens/RR. Second, RR's compressors are already competitive in the pipeline segment. As a result, even assuming that Siemens manages to […], any new […] will not render RR's ADGT significantly more competitive in this market segment.

(b) The […] other projects were upstream offshore projects. Siemens/RR is unlikely to have exerted a significant competitive constraint on DR in upstream offshore projects. This is because, out of the […] upstream offshore projects in which both Siemens/RR and DR submitted a firm bid, […]. In comparison, DR won […] of them and GE […]. Moreover, in […] of those […] projects, RR was competing against DR with a […] turbo compressor driven by a […] ADGT. In that specific tender, RR could most likely only exert a limited competitive constraint on DR.

The integration of RR's ADGT business into Siemens will not change significantly the competitive constraint that Siemens/RR would have exerted on DR in upstream offshore projects in the foreseeable future. This is for three reasons. First, […], Siemens would need to gain references for […]. Second, given the lack of success of Siemens/RR's compressors in the upstream offshore segment, even if Siemens manages to […], it would also need to be successful in leveraging the improved competitive position of the […]to gain references for its compressors. Third, even if absent the Transaction, Siemens were successful in […] as well as in leveraging a possibly improved competitive position of the […] to gain reference for its compressors, it would take Siemens several years to be able to exert a stronger competitive constraint on DR.

(249) As for the […] projects won by RR (all in the midstream pipeline segment), DR is unlikely to have exerted a significant competitive constraint on RR. This is because, according to RR's internal documents RR did not consider DR as an important competitive constraint in relation to […] of these […] projects.[174]

(250) Third, the analysis does not significantly change if data relating to so-called budgetary bids is taken into account (see section 5.4 for a description of each step of a typical tender procedure).[175] Including budgetary bids adds only […] additional projects in which the Parties competed at the budget bid level but not at the firm bid level. In […] of these projects, one of the Parties won while the other Party did not submit a firm bid. In […] instances, both Parties submitted a budget bid and neither

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173 Report prepared for Dresser-Rand's Regional Review Board (RRB) "[…]" and submitted by DR on 28 March 2015 in response to RFI 14. ID2527.

174 A Rolls-Royce presentation on […], provides that "[…]… *is the main competitor* […]*will also bid for the first time*, […]". See "[…]", included in Annex 2 to the response of the Parties to RFI 14 (submitted on 25 March 2015). As regards the […] (2013), Rolls-Royce's win/loss analysis identifies GE's ADGT and compressor solutions as its closest competitors and adds: "[…]". See "[…]", included in Annex 4 to the response of the Parties to RFI 14 (submitted on 25 March 2015). See ID 2615.

175 ID 2488 Parties reply to RFI 16, 26.3.2015.

Party won the project. In the vast majority of projects the Parties did not compete at the budget bid level.

(251) Fourth, the analysis does not significantly change on a putative market for ADGT-driven compressor trains for upstream offshore applications. Out of the […] tender procedures involving ADGT-driven compressor trains above 23 MW, […] tenders were for upstream offshore projects.

Table 11 – Overview of bidding situations by prime contractors in tenders involving turbo compressor trains driven by ADGTs or light IGTs above 23MW (2008-2014) – upstream offshore

Meeting in tenders	Prime winner	Number of projects
Siemens/RR - DR - (others)	GE	[10-20%]
	DR	[10-20%]
Siemens/RR without DR		[20-30%]
DR without Siemens/RR		[20-30%]
Other		[20-30%]
Total		[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

(252) Out of those […] upstream offshore projects, the Parties competed against each other only in […] projects, and only in […] of those […] projects did one of the Parties win. The competitive situation in these […] projects has been analysed above already. In brief, DR won each of those […] upstream offshore projects, and Siemens/RR is unlikely to have exerted a significant competitive constraint on DR in any of them because of its limited presence in upstream offshore projects and the lack of competitiveness of its solutions in this segment compared to DR's and GE's solutions. In addition, for the reasons explained in recital 248 above, the integration of RR's ADGT business into Siemens would in all likelihood not change significantly the competitive constraint that Siemens/RR would have exerted on DR in upstream offshore projects in the foreseeable future.

(253) Fifth, the analysis also does not significantly change on a putative market for ADGT-driven compressor trains for midstream pipeline applications. Out of the 120 tender procedures involving ADGT-driven compressor trains above 23 MW, 54 tenders were for midstream pipeline projects.

Table 12 – Overview of bidding situations by prime contractors in tenders involving turbo compressor trains driven by ADGTs or light IGTs above 23MW (2008-2014) – Midstream pipeline

Meeting in tenders	Prime winner	Number of projects
Siemens/RR - DR - (others)	GE	[5-10%]
	DR	[5-10%]
	RR	[5-10%]
Siemens/RR without DR		[50-60%]
DR without Siemens/RR		[0-5%]
Other		[10-20%]
Total		[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

(254) Out of those 54 midstream pipeline projects, the Parties competed against each other only in […] projects. In […] of those […] projects, one of the Parties won ([…]and […]). The competitive situation in these […] projects has been analysed above (see recitals (248) (a) and (249)). In brief, DR won […]of these […] projects. However, Siemens/RR is unlikely to have exerted a significant competitive constraint on DR in those tenders because, as suggested by internal documents, the customer/EPC had a strong preference for DR's solution. As for the […] projects won by RR, RR's internal documents indicate that it did not consider DR as an important competitive constraint in relation to […] of these […] projects.

The Transaction will not reduce significantly the competitive constraints on GE

(255) As indicated in Table 10 above, GE won […] projects in which both Parties also submitted a firm bid. For those […] projects it has to be assessed whether the elimination of competition between Siemens/RR and DR would reduce significantly the competitive constraints on GE.

(256) For the reasons set out below (recitals (257) to (261)), the Commission considers that the Transaction will not reduce significantly the competitive constraints on GE.

(257) First, […] of these […] projects were upstream offshore projects. For the reasons explained in recital (248) Siemens/RR is unlikely to have exerted a significant competitive constraint on DR in upstream offshore projects. Any elimination of competition between Siemens/RR and DR is therefore unlikely to reduce significantly the competitive constraint that the Parties will exert on GE post-Transaction.

(258) Second, […] of the […] projects were midstream LNG projects, in which DR is unlikely to have exerted a credible competitive constraint. This is because DR participated in […] tenders in relation to midstream LNG applications but […].

(259) Third, […] of the […] projects […] upstream onshore […] won by GE with an IGT driven turbo compressor train […]. Since DR does not offer any IGT driven compressor trains and […], it is unlikely that […]exerted a competitive constraint.

(260) Fourth, the remaining […] of the […] projects were in midstream pipeline projects. Given Siemens/RR's strength in pipeline applications, it is unlikely that the presence of DR in these tender procedures added an additional competitive constraint on GE.

(261) Fifth, and for the reasons explained in recital (248), absent the Transaction, the integration of RR's ADGT business into Siemens will not change significantly the competitive constraint that Siemens/RR would have exerted on DR in relation to pipeline ad upstream offshore projects in the foreseeable future. For the LNG and the

upstream onshore projects, the integration of RR into Siemens does not alter the fact that DR would absent the Transaction not have exerted a significant constraint on either of GE or Siemens/RR, as DR has not won a single LNG project.

The integration of RR's ADGT business into Siemens is unlikely to increase significantly the competitive constraints that Siemens/RR would have exerted on DR absent the Transaction

(262) For the reasons set out below (recitals (263) to (267)), the integration of RR's ADGT business into Siemens will not increase significantly the competitive constraints that Siemens/RR would have exerted on DR absent the Transaction.

(263) First, as explained in the two sub-sections above, the integration of RR's ADGT business will not increase significantly the competitive constraint that Siemens/RR would have exerted on DR absent the merger in relation to the tenders in which DR and Siemens/RR were both participating ([…] out of 120 in total over the period 2008-2014).

(264) Second, there are only […] projects out of 120 in which only DR and not Siemens/RR submitted a firm bid. This implies that, absent the Transaction, and in the most optimistic scenario regarding the impact of Siemens/RR's integration on the Parties' competitive position, the Parties would have competed against each other in maximum […] projects ([…]) out of 120.

(265) Third, […] out of the […] projects in which only DR and not Siemens/RR submitted a firm bid were upstream offshore projects. As explained above in recital (248), the integration of RR's ADGT business into Siemens will in all likelihood not change significantly the competitive constraint that Siemens/RR would have exerted on DR in upstream offshore projects in the foreseeable future. As a result, absent the Transaction, even if Siemens […]decide to participate in […] upstream offshore projects, it is unlikely that this participation will exert a significant competitive constraint on DR in the foreseeable future.

(266) Fourth, […] of the […] projects in which only DR and not Siemens/RR submitted a firm bid was a midstream pipeline project. It is unlikely that the integration would, absent the Transaction, induce Siemens/RR to participate in more tenders in relation to pipeline projects, as weight is not a crucial factor in pipeline applications and RR's compressors are already well accepted in the pipeline segment.

(267) Fifth, […] of the […] projects in which only DR and not Siemens/RR submitted a firm bid took place in the midstream LNG segment and were won by GE. As explained above, DR is unlikely to have exerted a credible competitive constraint in the LNG segment. Therefore, if absent the Transaction Siemens/RR would have participated in more LNG projects, the Transaction would not reduce significantly the competitive constraint on GE.

A possible disappearance of the mixed GE-DR offer is unlikely to reduce significantly the competitive constraints that the Parties exert on GE

(268) The Commission considers that even if, post-Transaction, the Parties or GE will have an interest to terminate or no longer use the OEM agreement currently in place between DR and GE governing the supply of core engines, core engines and power turbines and fully packaged ADGTs (hereafter all referred as GE ADGT) by GE to

DR (see recitals (197) to (198))[176], this would not significantly reduce the competitive constraints that the Parties exert on GE.

(269) This is because GE can already, to a certain extent, limit the competitive constraint that DR exerts on it by choosing the price it charges to DR according to the bidding situation.[177] The level at which GE can increase its price depends on the end-customer's preference. There is therefore a spectrum of possibilities to be considered.

(270) On one end of the spectrum are the projects for which the customer is indifferent between a DR turbo compressor train driven by a GE-based ADGT and a DR turbo compressor train driven by a RR ADGT. In relation to these projects, GE can offer its ADGT at the same price as (or just below) the one offered by RR. At that input price, DR is therefore able to exert the same competitive constraint on GE irrespective of whether DR opts for a GE-based ADGT or a RR ADGT.

(271) On the other end of this spectrum are the projects in which the end-customer considers RR's ADGT not to be a suitable alternative to GE-based ADGT (e.g. because of the lower speed of RR's power turbine). In relation to these projects, DR is unable to switch to RR if GE increases its price. GE can therefore increase its price up to the level at which a GE-DR offer cannot exert any competitive constraint on its own integrated GE-GE offer. At that input price, DR is able to exert the same competitive constraint (i.e. none) on GE irrespective of whether DR opts for a GE-based ADGT or a RR ADGT.

(272) Therefore, irrespective of the end-customer's preference (even at both ends of the spectrum of possibilities), at the price charged by GE for its ADGT, DR is capable of exerting the same competitive constraint on GE whether it combines its compressor with a GE-based ADGT or with a RR ADGT. Therefore, if following the Transaction, DR compressors driven by a GE-based ADGT are no longer available, the Parties would still be able to exert (at least) the same competitive constraint on GE by submitting offers combining DR compressors with RR ADGTs.[178]

6.3.5.2. The Transaction will not eliminate a significant competitive force from the market for turbo compressor trains driven by ADGT or light IGT with power output below 23MW

(273) For the reasons set out below (recitals (274) to (280)), the Commission considers that the Transaction will not eliminate an important competitive force in the market for turbo compressor trains driven by ADGT or light IGT with power output below 23 MW – considering all applications, in particular upstream offshore and midstream pipeline.

(274) First, the combined market shares of the Parties are moderate and the increment brought about by the Transaction is small. The market shares are presented in Table 13 below.[179]

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176 See section 6.3.3.2. for more details about the contractual relationship in place between GE and DR and the product offering of DR

177 […].

178 If, following the Transaction, and consistently with an argument of elimination of double marginalization, RR lowers the price it charges for its ADGT to DR, the Parties may even be able to exert a stronger competitive constraint on GE in all projects in which RR's ADGT is considered an acceptable alternative by the customer.

179 The market shares provided cover all projects awarded between 2008 and 2014 which (a) involved turbo compressor trains driven by ADGTs or light IGTs below 23MW and (b) in which at least one of the bidders – not necessarily the winning bidder – offered an ADGT driven turbo compressor train at

(275) Based on the identity of the prime bidder and the identity of the turbine supplier the Parties' combined market share is between [30-40]% (based on the number of projects) and [40-50]% (based on total MW). DR's market share is between [20-30]% and [30-40]%, while Siemens' market share is between [0-10]% and [0-10]%. Thus, Siemens' market share is only around one fifth of DR's market share and the increment brought about by the Transaction is limited.

Table 13 – Market shares of prime contractors in the worldwide market for turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output below 23MW, all O&G applications

Prime contractor	Number of projects	GT units	MW
DR	[20-30]%	[30-40]%	[30-40]%
Siemens	[0-10]%	[0-10]%	[0-10]%
Combined	***[30-40]%***	***[30-40]%***	***[40-50]%***
GE	[30-40]%	[30-40]%	[30-40]%
Solar	[30-40]%	[20-30]%	[20-30]%
Man	[0-10]%	[0-10]%	[0-10]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

Table 14 – Market shares of gas turbine suppliers in the worldwide market for turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output below 23MW, all O&G applications

GT supplier	Number of projects	GT units	MW
GE-GE (packaged DR)	[20-30]%	[30-40]%	[30-40]%
Siemens (IGT)	[0-10]%	[0-10]%	[0-10]%
Combined	***[30-40]%***	***[30-40]%***	***[40-50]%***
GE	[20-30]%	[20-30]%	[30-40]%
Solar (IGT)	[40-50]%	[30-40]%	[20-30]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

the firm bid level. In total, the Commission identified […] such projects. Annex 1 provides more information on the data used to compute the market shares.

Table 15 – Market shares of turbo compressor suppliers in turbo compressor trains driven by ADGTs or light IGTs (2008-2014), power output below 23MW, all O&G applications

TC supplier	Number of projects	GT units	MW
DR	[40-50]%	[50-60]%	[40-50]%
GE	[30-40]%	[30-40]%	[30-40]%
Solar	[20-30]%	[10-20]%	[10-20]%
Man	[0-10]%	[0-10]%	[0-10]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, MAN, MHI, Solar and Elliott.

(276) Second, based on the identity of the compressor manufacturer, the Transaction does not give rise to any overlap. Siemens did not sell any compressor as part of a compressor train below 23 MW.

(277) Third, based on the identity of the prime contractor / the turbine supplier and in terms of projects won, both Solar ([30-40]% - […] projects won), and GE ([30-40]% - […] projects won) have market shares that are higher than those of the Parties.

(278) Fourth, the situation does not change taking into account putative markets for the different applications. DR is only active in upstream offshore applications while Siemens/RR is active only in midstream pipeline applications. Neither of the Parties is active in upstream onshore applications and there are no sales of turbo compressor trains below 23MW in midstream LNG.

(279) Fifth, if anything, the market shares presented above overstate the Parties' market position and understate Solar's market position. This because those market shares are based on all projects in which at least one supplier participated with an ADGT driven compressor train. ADGTs, however, are predominantly used for applications requiring higher output levels. In the power range below 23 MW they only play a minor role. For the majority of compressor trains in the range of below 23 MW, customers would not consider an ADGT but rather a (light) IGT as a driver. Projects in which only IGT driven turbo compressor train participated in the tender procedure are not included in the analysis as the Parties' activities do overlap with respect to IGT driven compressor trains. The fact that IGT driven compressor trains impose a competitive constraint on the Parties offer of ADGT driven compressor trains below 23 MW is thus not reflected in the market shares.

(280) Sixth, the analysis of the Turbo Compressor Trains Bidding Data indicates that the Parties are not close competitors in the power range below 23 MW. Siemens/RR and DR competed against each other only in […] project – […].[180]

6.3.5.3. The Transaction will not eliminate a significant competitive force from the market for turbo compressor trains driven by ADGT or light IGT both above and below 23 MW

(281) For the reasons set out below (recitals (282) to (284)), the Commission considers that the Transaction will not eliminate an important competitive force in the market for turbo compressor trains driven by ADGT or light IGT used for O&G applications, when both power ranges (below and above 23 MW) are considered as part of the same market.

180 […].

(282) First, the combined market shares of the Parties and the increment brought about by the Transaction would be slightly lower than for ADGT and light IGT driven turbo compressor trains with a power requirement above 23 MW.

(283) Second, all the arguments developed with respect to ADGT and light IGT driven turbo compressor trains above 23 MW (see section 6.3.5.1.) hold similarly on a broader market.

(284) Third, if both segments were part of the same market, customers could also switch to Solar, which is the leader on the segment below 23 MW (recital (277)).

7. ADGT DRIVEN AND LIGHT IGT DRIVEN TURBO COMPRESSOR TRAINS – NON-HORIZONTAL EFFECTS

(285) A respondent to the market investigation voiced concerns regarding the ability and incentive of the Parties to restrict access of non-vertically integrated compressor manufacturers to RR's ADGTs. According to that respondent, "*the new entity will have no incentive to sell their ADGT to such independent compressor OEMs since they will have a portfolio allowing them to offer aeroderivative turbo compressor trains for all O&G applications*".[181]

(286) For the reasons set out below, however, the Commission considers that while the Parties will have the ability to foreclose the access of non-vertically integrated compressor manufacturers to RR's ADGTs (section 7.1), it will have no incentive to do so (section 7.2). Moreover, should the Parties engage in such behaviour, the impact on effective competition will be minimal (section 7.3).

7.1. Ability to foreclose

(287) The Commission considers that the Parties will have the ability to restrict the access of non-vertically integrated compressor manufacturers to RR's ADGTs.

(288) First, the analysis of the Turbo Compressor Trains Bidding Data indicates that non-vertically integrated compressor manufacturers, when packaging compressor trains, use a GE ADGT only in a minority of instances. If the Parties were to restrict access to RR's ADGTs, this would therefore substantially reduce the availability of inputs for compressor manufacturers.

(289) Second, non-vertically integrated compressor manufacturers would be unable to deploy any counter strategy. This because when an ADGT driven compressor train is demanded by the customer, the prime contractor has no possibility to convince the customer to reconsider its choice of driver. Moreover, if such an attempt was successful, the alternative driver could be only a light IGT which – in the power range under analysis – is manufactured solely by Siemens.

7.2. Incentive to foreclose

(290) For the reasons set out below (recitals (291) to (294)), the Commission considers the Parties will not have the incentive to foreclose access to RR's ADGTs.

(291) First, it would not be profitable for the Parties to cease supplying RR's ADGTs because they would lose substantially more from refusing to sell ADGTs on a standalone basis than they might gain from selling additional compressors as part of all-Siemens compressor trains.

[181] ID 2653 Market participant position regarding the impact of the Transaction 9.4.2015.

(292) As mentioned in recital 46 above, the ADGT accounts for the largest proportion of the value of an ADGT driven turbo compressor trains (up to 80%). Therefore the Parties will have all the incentive to sell an additional ADGT instead of running the risk of losing such a sale for the possibility of selling an additional turbo compressor. The Notifying Party calculated that such a strategy would prove profitable only if in a very significant number of cases the customers would then switch from the desired mix-and-match solution to an integrated all-Siemens solution.[182]

(293) Second, ADGTs manufacturers extract a relevant proportion, up to 50%, of their overall profits from after-sales servicing of the turbines they sell. The life cycle of a turbo compressor train – and therefore of each of the components – is estimated at 35 to 45 years[183] and ADGT manufacturers tend to have a strong position in servicing their own turbines.[184] The Parties will therefore continue to have the incentive to sell as many ADGTs as possible so to maximise the profit from the servicing.

(294) Third, a positive effect on the sales of compressors of a foreclosure strategy by the Parties is unlikely because if the Parties were to act in this way, they would still face competition from GE which is the strongest player on the market. Moreover, as the ADGT is the most expensive component of the train, for a foreclosure strategy to be successful this would require the Parties to significantly increase the number of projects won.

7.3. No significant impediment of effective competition by a potential foreclosure strategy

(295) The Commission considers that, in any event, a potential foreclosure strategy would not have any significant impact on effective competition as it would affect only the fringe players on the market.

(296) First, the analysis of the Turbo Compressors Trains Bidding Data indicates that non-vertically integrated compressor manufacturers rarely participate in tenders, and manage to win on even rarer occasions.

(297) Second, customers and competitors that responded to the market investigation indicated that customers perceive GE, Siemens/RR and DR as the main players on the market with the other market participants, MAN and MHI being considered to exert only a minor competitive constraint to the Parties and GE.

8. ADGT DRIVEN AND LIGHT IGT DRIVEN GENERATOR SETS

(298) The Transaction gives rise to a horizontal overlap between the Parties' activities with regard to ADGT driven and light IGT driven generator sets for O&G applications.

(299) In its assessment of the overlap, the Commission has used bidding data collected in the course of the market investigation from the Parties and their competitors, the "Generator Set Bidding Data". The methodology and sources used by the Commission in constructing this data set is explained in Annex 2 to this Decision.

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182 ID 2659, Response To Complaint Received On 17.4. 2015, paragraph 31

183 ID 113 Form CO, paragraph 409

184 COMP/M.7083 – *John Wood Group/Siemens/JV*, 24.4.2014, paragraph 55.

8.1. Product market definition

8.1.1. The Notifying Party's view

(300) The Notifying Party considers that ADGT driven generator sets do not constitute a distinct product market. The Notifying Party claims that ADGT for mechanical drive applications do not differ from ADGT for generator drive application and the same models can be used interchangeably for both applications.[185]

8.1.2. Past decisional practice

(301) In a past case, the Commission considered a possible distinct product market for generator sets driven by gas turbines, without further specifying the type of turbine employed and without reaching a final conclusion on the exact product market definition.[186]

(302) Similarly, in a recent case the Commission contemplated, but left open, a possible distinction between O&G (i.e. mechanical drive) applications and industrial power generation.[187]

8.1.3. The Commission's assessment

(303) There are a number of indications that ADGT driven and light IGT driven generator sets for O&G applications constitute a distinct product market.

(304) First, while a turbo compressor train is a combination of a driver and a turbo compressor that a customer uses to perform a compression job, a generator set is a combination of a driver and a generator that is used to generate electricity.[188] On an O&G installation site, electricity generated by a generator set is used to satisfy the electricity needs of the production. Thus, generator sets and compressor trains serve two different purposes and are not substitutable from a demand-side perspective.

(305) Second, respondents to the market investigation indicated that supply-side substitution between turbo compressor trains and generator sets is limited. Being able to offer a turbo compressor train for a specific solution does not necessarily imply that a supplier is able to offer, or start producing, generator sets profitably in a short timeframe. While, as explained above,[189] supply-side substitution from generator drive ADGT to mechanical drive ADGT is limited, supply-side substitution from mechanical drive ADGT to generator drive ADGT is similarly limited. This is for a number of reasons. In the first place, for a supplier of turbo compressor trains to be able to offer generator sets it must have access to generator technology. In the second place, technical expertise is required to integrate the driver and the generator into a generator set and to adjust it to the customer's requirements. In the third place, customers in the O&G industry require a sufficient track record and operating hours before they purchase a particular piece of equipment. All that suggests that a supplier of ADGT driven turbo compressor trains is not able to profitably offer ADGT driven generator sets within a short timeframe.

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185 ID 113 Form CO, paragraph 583; ID 1317 COMP/M.7284 – *Siemens AG/John Wood Group/Rolls-Royce Combined ADGT Business/RWG,* 4.8.2014, paragraph 26.

186 COMP/M.1334 – *Volvo Aero / ABB / Turbogen,* 17.11.1998, paragraphs 10-13.

187 COMP/M.7284 – *Siemens AG / John Wood Group / Rolls-Royce Combined ADGT Business / RWG,* 4.8.2014, paragraph 31.

188 ID 113 Form CO, paragraph 591.

189 See section above 6.1.2.2.

(306) Third, the analysis of the Generator Set Bidding Data indicates that ADGT driven and light IGT driven generator sets are likely substitutable, but ADGT driven and light IGT driven generator sets may constitute a distinct product market from heavy duty IGT driven generator sets. This is because while ADGT driven generator sets and light IGT driven generator sets often competed in the same projects, they hardly ever faced competition from heavy duty IGT driven generator sets. This indicates that ADGT and light IGT driven generator sets are not substitutable with heavy duty IGT driven generator sets and *a fortiori* with steam turbine driven generator sets which require steam to run them. This observation is further strengthened by the results of the market investigation. One customer indicated that ADGTs have no substitutes as drivers for both generator sets and turbo compressor trains: "*increased ADGT prices would not induce us to turn to electric motors or to industrial gas turbines if ADGT are the most suitable and efficient machines at the time of the conception of the architecture*".[190] The customer, however, did not analyse the substitutability of ADGTs with light IGTs.

(307) Further, given the different competitive conditions for ADGTs and light IGTs above and below 23 MW[191] as well as the limited supply-side and demand-side substitution regarding the power ranges[192], it may be appropriate to distinguish between generator sets driven by an ADGT or a light IGT above and below 23 MW.

(308) The exact market definition can, however, be left open as the Transaction does not lead to a significant impediment of effective competition under any conceivable market definition.

8.2. Geographic market definition

8.2.1. Notifying Party's view

(309) The Notifying Party does not take a position as regards the geographic market definition for ADGT driven and light IGT driven generator sets for O&G applications.

8.2.2. Past decisional practice

(310) In previous decisions, the Commission considered that the relevant geographic market for gas turbine driven generator sets could be at least EEA-wide if not worldwide in scope.[193] The exact geographic market definition was, however, left open.

8.2.3. The Commission's assessment

(311) The Commission considers that the market for ADGT-driven and light IGT-driven generator sets for O&G applications is worldwide, but excludes projects taking place in ex-USSR countries.[194]

(312) First, ADGTs, irrespective of whether GD or MD ADGTs, are sold globally

(313) Second, price and quality do not change in different geographic areas.

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190 ID 2653, conclusion of section 1.1.

191 See section above 6.1.2.2.

192 See section above 6.1.2.2.

193 COMP/M.1334 – *Volvo Aero / ABB / Turbogen (1998)*, paragraph 14.

194 The Turbo Compressor Trains Bidding Data indicates that only Russian and Ukrainian companies submitted a firm bid in relation to these projects. Moreover, no evidence could be found that companies based outside Russia and Ukraine were actually invited to submit a bid for these projects.

8.3. Competitive assessment

8.3.1. The Notifying Party view

(314) The Notifying Party claims that DR is not an independent competitor on the market and even less so an important competitive force.

(315) According to the Notifying Party, this is because DR does not manufacture ADGTs and the generators but rather it sources them from other manufacturers. In fact, DR sources ADGTs from GE pursuant to the OEM agreement[195] in place between GE and DR (see recital (200)) and generators from third parties such […].[196][…].

(316) In light of the above, the Notifying Party claims that DR is only a "channel to market" for GE ADGT-based gen-sets merely offering to the customer the choice as to from which channel purchase the ADGT driven gen-set. In this context, the Notifying Party claims that the share of sales should be attributed to GE at the supplier level. Therefore, the Transaction will not reduce the numbers of suppliers on the market for ADGT driven gen-sets.

(317) The Notifying Party claims that the Siemens and DR are not close competitors on the market for ADGT driven gen-sets as they rarely compete for the same projects.

8.3.2. The Transaction will not eliminate a significant competitive force from the market

(318) For the reasons set out below (recitals (319) to (339)), the Commission considers that the Transaction will not significantly impede effective competition as regards ADGT driven and light IGT driven generator sets for O&G applications irrespective of the exact market definition. This is because the Transaction will not eliminate an important competitive force in the market for ADGT driven and light IGT driven generator sets – considering all power ranges and all applications, including in relation to upstream offshore applications in the O&G industry.

(319) Tables 16 to 18 below present the market shares of the Parties and their competitors in various segments of the market for ADGT driven and light IGT driven generator sets. Annex 2 explains how these market shares were computed.

(320) In the segment above 23 MW, as indicated in Table 16 below, GE is currently the market leader with a market share of around [40-50]%. Siemens/RR's market share is between [30-40]% and [30-40]%, while DR's market share is around [10-20]%. The Parties' combined market share is between [50-60]% and [50-60]%. MHPS – which includes the PWPS ADGT business unit – is the fourth largest supplier with a market share between [0-10]% and [0-10]%. Thus, prior to the Transaction, Siemens/RR and DR were the second and third largest suppliers and the combined entity will become the largest supplier post Transaction. The Transaction will therefore lead to a reduction from four to three suppliers in the market for ADGT driven and light IGT driven generator sets above 23 MW for O&G applications.

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195 On 19 June 2015, the Notifying Party clarified that the OEM agreement allows […]. ID 2878, Notifying Party's reply to question 1 of the Commission's RFI of 18 June 2015.

196 ID 2659, paragraph 15.

Table 16 – Market shares of prime contractors in the worldwide market for ADGT driven and light IGT driven generator sets (2008-2014), power output above 23MW, all O&G applications

GT supplier	Number of projects	GT units	MW
DR	[10-20]%	[10-20]%	[10-20]%
RR	[0-10]%	[10-20]%	[10-20]%
Siemens	[20-30]%	[10-20]%	[20-30]%
Combined	***[50-60]%***	***[50-60]%***	***[50-60]%***
GE	[40-50]%	[40-50]%	[40-50]%
MHPS	[0-10]%	[0-10]%	[0-10]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, BHEL, MHPS (including MHI, Hitachi and Pratt) and Solar.

(321) Regarding the segment of ADGT driven and light IGT driven generator sets below 23 MW, as indicated in Table 17 below, Solar is the market leader with a market share between [70-80]% and [70-80]%. Siemens/RR and GE are the second and third largest suppliers (depending on the market share measure used) with market shares between [0-10]% and [10-20]%. DR is not active in that segment, so there is no overlap between the Parties' activities.

Table 17 – Market shares of prime contractors in the worldwide market for ADGT and light IGT driven generator sets (2008-2014), power output below 23MW, all O&G applications

GT supplier	Number of projects	GT units	MW
Siemens/RR	[10-20]%	[10-20]%	[10-20]%
DR	0.0%	0.0%	0.0%
GE	[10-20]%	[0-10]%	[10-20]%
Solar	[70-80]%	[70-80]%	[70-80]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, BHEL, MHPS (including MHI, Hitachi and Pratt) and Solar.

(322) Solar's strong market position indicates that light IGT driven generator sets pose a significant competitive constraint on ADGT driven generator sets even for projects in which an ADGT driven generator set participated. Similarly, Siemens/RR's and GE's low market shares support the notion that ADGTs play only a minor role as a driver for generator sets in O&G applications with a required power output of less than 23 MW.

(323) When combining the segment above and below 23 MW, the combined market shares of the Parties and the increment brought about by the Transaction would be lower than in the case of ADGT and light IGT driven generator sets with a power requirement above 23 MW. This is because (i) DR is not active in the segment below 23 MW, and (ii) Siemens/RR's market share is lower in the segment below 23 MW than in the segment above 23 MW. Moreover, if both segments were part of the same market, customers could also switch to Solar, which is the market leader on the segment below 23 MW (recital (277).

(324) When segmenting the market by O&G application, the Parties' sales of ADGT driven and light IGT driven generator sets above 23MW overlap only in the upstream offshore segment. As Table 18 below shows, in that segment, DR's market shares are between [20-30]% and [30-40]% while Siemens/RR market shares are between [10-

20]% and [20-30]%. The Parties' combined market share is [50-60]%, whereas GE's market share is [40-50]%.

Table 18 – Market shares of prime contractors in the worldwide market for ADGT driven and light IGT driven generator sets (2008-2014), power output above 23MW, upstream offshore O&G applications

GT supplier	Number of projects	GT units	MW
DR	[30-40]%	[20-30]%	[20-30]%
RR	[10-20]%	[20-30]%	[20-30]%
Siemens	[0-10]%	[0-10]%	[0-10]%
Combined	***[50-60]%***	***[50-60]%***	***[50-60]%***
GE	[40-50]%	[40-50]%	[40-50]%
Total size	[…]	[…]	[…]

Source: bidding data submitted by the Parties, GE, BHEL, MHPS (including MHI, Hitachi and Pratt) and Solar.

(325) Despite the Parties' [50-60]% combined market share in the market for ADGT driven and light IGT driven generator sets above 23 MW for O&G applications and the [50-60]% combined market share in the upstream offshore segment of that market, there are a number of reasons why the Transaction will not eliminate a significant competitive force from the market.

(326) First, the Parties' are not close competitors, as they are focusing on different O&G application segments. On the one hand, DR has a strong focus and a strong market position in upstream offshore applications ([30-40]% market share expressed in number of projects), where Siemens/RR has a comparatively weaker position ([10-20]% market share expressed in number of projects). Moreover, as further explained in the bidding analysis below (Tables 19 and 20), Siemens/RR hardly ever wins against DR in the upstream offshore segment. On the other hand, Siemens/RR is strong in upstream onshore, downstream and midstream applications, in particular pipeline applications. For example, Siemens/RR's market share (expressed in number of projects) is [80-90]% in upstream onshore applications, it is [50-60]% in downstream applications and [20-30]% in midstream applications. By contrast, DR has not won a single project outside the upstream offshore segment. […].

(327) Second, DR is not a strong competitive force on the market as it depends to a significant extent on GE with regard to its ADGT and on third party generator suppliers. DR manufactures neither ADGTs nor generators that are used with ADGTs. Rather, it needs to source all the main components of an ADGT-based gen-set from other OEMs. It sources generators from […], and most of the other packaging components from different third party suppliers. As for ADGTs, DR sources not only the ADGT core from GE but also in most cases, the power turbine. This is because gen-sets are typically driven by ADGTs with low speed power turbines. DR does not manufacture any low speed power turbine. It only produces the VECTRA which is a high-speed power turbine. Therefore, the vast majority of ADGT-based gen-sets that DR sold included a GE low speed power turbine (DR61G).[197] As the Generator Set Bidding Data indicates, approximately [80-90]% of the ADGT driven generator sets sold by DR in the O&G sector included a GE power turbine – not a Vectra.

197 ID 2659.

(328) In light of these dependencies, and particularly of DR's reliance on GE's ADGT core […] also on GE's power turbine, DR cannot be considered as a fully-fledged competitor and, even less so, as an important competitive force, but more as a channel to market for GE's products. GE can limit the competitive constraint that DR exerts […].[198]

(329) Third, the analysis of the Generator Set Bidding Data carried out by the Commission suggests that Siemens/RR and DR do not exert strong competitive constraints on each other. An overview of bidding situations in the O&G industry for ADGT driven and light IGT driven generator set projects with a power output above 23MW comprising all applications is provided in Table 19 below.

(330) In total, there were […] projects involving ADGT driven or light IGT driven generator sets in the power segment above 23 MW at the final stage.[199] Out of those […] projects, the Parties bid against each other in […] tenders, that is in [10-20]% of all tenders. In comparison, Siemens/RR and DR competed against GE significantly more often.

Table 19 – Overview of bidding situations in the worldwide market for ADGT driven and light IGT driven generator sets in O&G projects (2008-2014), power output above 23MW, all applications

Meeting in tenders	Prime winner	Number of projects
Siemens/RR - DR - (others)	GE	[5-10%]
	DR	[10-20%]
	RR	[0-5%]
Siemens/RR without DR		[30-40%]
DR without Siemens/RR		[10-20%]
Other		[…]
Total		**[…]**

Source: bidding data submitted by the Parties, GE, BHEL, MHPS (including MHI, Hitachi and Pratt) and Solar.

(331) The bidding analysis further shows that all tender procedures for ADGT driven and IGT driven generator sets in which both Parties participated related to upstream offshore projects. Table 20 below provides an overview of bidding situations for the upstream offshore segment.

198 […].

199 See section 5.4 above.

Table 20 – Overview of bidding situations in the worldwide market for ADGT driven and light IGT driven generator sets in O&G projects (2008-2014), power output above 23MW, upstream offshore

Meeting in tenders	Prime winner	Number of projects
Siemens/RR - DR - (others)	GE	[10-20%]
	DR	[10-20%]
	RR	[0-5%]
Siemens/RR without DR		[20-30%]
DR without Siemens/RR		[20-30%]
Other		[…]
Total		**[…]**

Source: bidding data submitted by the Parties, GE, BHEL, MHPS (including MHI, Hitachi and Pratt) and Solar.

(332) Out of the […] projects in which the Parties met, competitors were also present in most of them. GE actually won [30-40%] of them, whereas DR won [50-60%] of them and Siemens/RR only won [5-10%] of them.[200] Given GE's strong market position and the very low success rate of Siemens/RR when in competition with DR ([5-10%] project out of […]), it is unlikely that the presence of Siemens/RR in those […] tender procedures exerted a significant competitive constraint on DR. The bidding analysis carried out by the Commission shows that almost all the projects ([90-100%] out of […]) won by Siemens/RR were projects in which DR did not submit a firm bid.

(333) Also, the Generator Set Bidding Data show that in only a few projects the Parties were the only participating suppliers. In this context, the Transaction will not diminish customers' choice and in the majority of the cases they will retain the possibility to choose another supplier.

(334) Fourth, even if, post-Transaction, the Parties or GE will have an interest to terminate or no longer use the OEM agreement currently in place between DR and GE governing the supply of core engines, core engines and power turbines and fully packaged ADGTs (hereafter all referred as GE ADGT) by GE to DR (see recitals (197) to (198))[201], this would not significantly reduce the competitive constraints that the Parties exert on GE.

(335) This is because GE can already limit the competitive constraint that DR exerts on it by choosing the price it charges to DR according to the bidding situation.[202] The level at which GE can increase its price depends on the degree of substitutability between a GE ADGT and a RR ADGT from the end-customer's perspective. There is therefore a spectrum of possibilities to be considered.

(336) On one end of this spectrum are the projects for which, from the end-customer's perspective, a RR ADGT is equally good as a GE ADGT to drive the generator set. In these projects, GE can offer its ADGT at the same price as (or just below) the one offered by RR. At that input price, DR is therefore able to exert the same competitive constraint on GE irrespective of whether DR opts for a GE-based ADGT or a RR ADGT.

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200 Project name: Tupi Pre-Salt FPSO I-III.

201 See section 6.3.3.2. for more details about the contractual relationship in place between GE and DR and the product offering of DR

202 […].

(337) On the other end of this spectrum are the projects in which the end-customer considers RR's ADGT not to be a suitable alternative to GE ADGT. In relation to these projects, DR is unable to switch to RR if GE increases its price. GE can therefore increase its price up to the level at which a GE-DR offer cannot exert any competitive constraint on its own integrated GE-GE offer. At that input price, DR is able to exert the same competitive constraint (i.e. none) on GE irrespective of whether DR opts for a GE-based ADGT or a RR ADGT. In this situation, it can however not be excluded that GE would have an incentive to let DR win if the customer has a preference for DR over GE (for instance because DR also supplies the turbo compressor train in relation to the same project). In that case, GE would extract a high share of the total profits, as GE would sell its ADGT (most of the time power and core turbine – see recital (327) – and possibly its generator, and would also extract very substantial profits from after-sales servicing of the equipment sold (see recital (293)).

(338) Therefore, irrespective of the end-customer's preference (even at both ends of the spectrum of possibilities), at the price charged by GE for its ADGT, DR is capable of exerting the same competitive constraint on GE whether it supplies a generator set equipped with a GE ADGT or with a RR ADGT. Therefore, if following the Transaction, DR generator sets equipped with a GE ADGT are no longer available, the Parties would still be able to exert (at least) the same competitive constraint on GE by offering generator sets equipped with RR ADGTs.[203]

(339) Fifth, it is likely that the synergies between MHI and PWPS will allow the latter to increase the competitive constraint it currently exerts on the Parties and GE

(340) In the first place, PWPS is currently developing its GD product portfolio to meet the evolving market requirements.[204] In the second place, following the acquisition of PWPS, MHI clearly stated its intention to further develop PWPS capabilities.[205] As stated by MHI, "*Going forward, MHI intends to further strengthen its marketing activities for gas turbines, which offer clear benefits in terms of efficient energy usage and reduction of environmental burdens, leveraging the merits of both large-capacity and aero-derivative gas turbines as well as their synergy effects*".[206].

(341) Sixth, the majority of customers responding to the market investigation indicated that according to them the Transaction will not diminish the intensity of competition for ADGT driven generator set for offshore applications. According to one of them "*several companies compete with Siemens and Dresser-Rand*" and another one stated that it observes "*presence of sufficient alternatives on the market*".[207] Also, a customer responding to the market investigation indicated that in its opinion the Transaction would have beneficial effects for ADGT driven generator set for offshore applications as "*The combination of Siemens with Dresser Rand will increase competition with current dominant players, GE and Solar Turbines*".[208]

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203 If, following the Transaction, and consistently with an argument of elimination of double marginalization, RR lowers the price it charges for its ADGT to DR, the Parties may even be able to exert a stronger competitive constraint on GE in all projects in which RR's ADGT is considered an acceptable alternative by the customer.

204 ID 2598, conference call with a competitor 23.1.2015.

205 http://www.pwps.com/news.html?news=1, consulted on 19.6.2015 and http://www mhi.co.jp/en/m/news/story/1305201662.html, consulted on 19.06.2015.

206 http://www mhi-global.com/news/story/1212131605.html, consulted on 19.6.2015.

207 ID 195 - Q2 Questionnaire to customers replies to question 80.5.

208 ID 195 - Q2 Questionnaire to customers replies to question 82.7.1.

9. STEAM TURBINES

(342) The Transaction gives rise to a horizontal overlap with regard to steam turbines.

(343) In assessing this overlap, the Commission first considers whether a distinction ought to be drawn between steam turbines for mechanical drive applications and steam turbines for generator drive applications (section 9.1). It then assesses whether the Transaction will give rise to a significant impediment to effective competition on any possible market segment regarding steam turbines for mechanical drive applications (section 9.2) and steam turbines for generator drive applications (section 9.3).

9.1. Product market definition – Differentiation of steam turbines for mechanical drive applications and generator drive applications

9.1.1. Background

(344) Steam turbine technology has existed since the 19th century. The basic principles of the steam turbine functioning mechanism have not changed since then. Steam turbine technology can therefore be considered as mature.[209] Steam turbines can have multiple stages. A stage is defined as a set of blades combined into one stationary. Single stage steam turbine would have only one stationary and multi-stage steam turbine would have several stationaries. Single stage steam turbine is a rather standardized product while multi-stage steam turbines can be both standardized and customized according to specific customers' needs.[210]

(345) There are two main steam turbine applications. Steam turbines can be used as drivers of mechanical equipment ("mechanical drive steam turbines" or "MD steam turbines") or of power generators ("generator drive steam turbines" or "GD steam turbines"). Both types of steam turbines are used in industries where fuels are available to be burned in a boiler to produce steam.[211]

(346) MD steam turbines mostly achieve a power output of up to 45-60MW.[212] They are used for driving pumps, compressors, fans, ventilators or blowers. Smaller output mechanical drive steam turbines are usually used as pump drivers in a wide range of industries – the O&G industry in general, petrochemicals, chemicals, sugar, paper, food processing, metals, mining and also power plants (drivers of feed and cooling water pumps).

(347) O&G industry customers as a general rule require that MD steam turbine manufacturers comply with API standards (see section 5.3 above).[213] API standards facilitate availability of proven, sound engineering and operating practices and give recommendations for the design, materials, fabrications, inspection, testing and preparation for shipment. The specifications are focused on ensuring that the equipment is highly reliable and sized to meet performance requirements.

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209 ID 113 Form CO, paragraph 129.

210 ID 113 Form CO, paragraphs 130-132.

211 ID 113 Form CO, paragraph 135.

212 ID 113 Form CO, paragraph 155.

213 Since 1924, the American Petroleum Institute has been establishing and maintaining standards for the worldwide O&G industry. API standard is a requirement for equipment manufacturers at all levels within the O&G industry: upstream, midstream and downstream. The API has specific standards/specifications for particular O&G areas including: Drilling & Production Operations, Exploration & Production/Oilfield Equipment and Materials, Marketing, Measurement, Pipeline, Refining, and Safety and Fire Protection. API compliance is determined separately for each type of rotating equipment.

Compliance with API standards requires additional investment and increases steam turbine prices.

(348) The MD steam turbine distribution chain involves three steps: 1) steam turbine manufacturing, 2) packaging the steam turbine with rotating equipment, such as a pump, and 3) integration of the packaged steam turbine in the customer's facility.

(349) At the *manufacturing level*, steam turbines producers either combine the steam turbines themselves with the rotating equipment or sell bare MD steam turbines to manufacturers of rotating equipment.

(350) At the *packaging level*, manufacturers of rotating equipment, usually pumps, are selected as prime contractors by customers who place an order for the entire package. Instances where the customers place orders directly with the steam turbine manufacturer are rare because steam turbines are mature technology and, therefore, from a technological and commercial point of view the rotating equipment is more important for customers. Consequently, the customers are more likely to select the manufacturer of the rotating equipment as prime contractor. In some cases, packaging can be performed by an EPC contractor.

(351) At the *integration level*, the package installation can be performed by the customer itself or an EPC contactor. In most cases it is done by an EPC contractor who is responsible for planning and integrating different equipment into the overall project.

(352) GD steam turbines are packaged with generators for electricity generation ("gen-sets"). The GD steam turbine drives a generator. GD steam turbines are available in various power ranges from less than 1 MW to approximately 2 000 MW.[214]

(353) In lower output ranges, GD steam turbines are used by municipalities and independent power producers (IPP) operating smaller scale power plants or industrial customers that produce electricity for their own use. Some smaller output steam turbines could be sold into O&G industry to use waste heat in order to produce electricity in the refineries. Customers for larger output GD steam turbines include large IPP and utilities operating fossil or nuclear power plants.[215]

(354) Most of GD steam turbines are sold as "gen-sets" where the steam turbine manufacturer takes the prime contractor role and packages steam turbine with the generator by combining both elements together. The steam turbine manufacturer sources generators from a third party supplier or internally, if the steam turbine manufacturer also manufactures generators.[216]

9.1.2. The Notifying Party's view

(355) The Notifying Party claims that steam turbines could be segmented into MD and GD steam turbines, especially the ones at a higher output level. [217]

9.1.3. Previous decisional practise

(356) The Commission in its previous decisions did not consider distinguishing steam turbines for mechanical drive and generator drive applications. The Commission

214 ID 113 Form CO, paragraph 137.
215 ID 113 Form CO, paragraph 138.
216 ID 113 Form CO, paragraph 158.
217 ID 113 Form CO, paragraphs 447-453.

considered one relevant market for all types of steam turbines and further differentiated them according to different power output. [218]

9.1.4. The Commission's assessment

(357) A majority of the competitors that responded to the relevant section of the market investigation explained that while MD and GD steam turbines can be considered comparable from a purely technical point of view, there are several major differences between them.

(358) First, MD steam turbines usually have to comply with additional technical requirements, such as API and other special requirements defined by the customers.[219] By contrast, customers generally do not require GD steam turbines to comply with API standards.

(359) Second, customers of GD steam turbines have high requirements for efficiency whereas customers of MD steam turbines do not.[220]

(360) Third, customers generally buy GD steam turbines packaged with generators ("gen-sets"), therefore there is a demand for the whole package and not solely for GD steam turbines.[221]

(361) Fourth, MD steam turbines and GD steam turbines target different customer groups. MD steam turbines customers are active in various industries such as O&G, metals, pulp and paper, steel etc. GD steam turbines customers are usually involved in power generation.[222]

(362) Although this question can be ultimately left open as the Transaction will not significantly impede effective competition on the basis of any plausible market definition (see sections 9.2.3 and 9.3.3), the Commission proceeds in the rest of this section on the basis of a distinction between MD and GD steam turbines and assesses whether these markets should be further segmented.

9.2. Steam turbines for mechanical drive applications

9.2.1. Product market definition

9.2.1.1. The Notifying Party's view

(363) The Notifying Party claims that there is a separate market for MD steam turbines. As regards power output, the Notifying Party submits that it is not meaningful to define separate markets according to the power output.[223]

9.2.1.2. The Commission’s assessment

(364) The Commission has considered whether MD steam turbines could potentially be further segmented into different markets according to their power output and end applications.

(365) First, regarding a possible further segmentation according to the power output, competitors that responded to the market investigation expressed different views as

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218 Case IV/M.1484 – *Alstom/ABB*, 2.6.1999, paragraph 22.

219 See ID 2295 Minutes of the call with a competitor and ID 161 – Q1 Questionnaire to competitors, replies to question 37.

220 ID 161– Q1 Questionnaire to competitors, replies to question 37.

221 ID 265 Minutes of the call with a competitor, 8.12.2015.

222 ID 2295 Minutes of the call with a competitor 6.3.2015 and ID 177 Minutes of the call with a customer 10.12.2014.

223 ID 113 Form CO, paragraphs 462-464.

to what would be the appropriate segmentation. Some competitors indicated that a relevant dividing line could be set at 3 MW. Other respondents indicated as appropriate to distinguish between MD steam turbines with power output from 0 to 10 MW. Others indicated that suppliers of MD steam turbines usually manufacture the power output segment up to 20 MW without further delineation..[224]

(366) Second, regarding a possible segmentation according to the end application, the respondents to the market investigation pointed to a possible distinction between on the one hand MD steam turbines that are used in the O&G industry (mainly petrochemicals and chemicals) and on the other hand MD steam turbines that are used in other industries, such as metals, pulp and paper, steel, food processing and others.

(367) In particular, all the customers[225] interviewed during the market investigation and that are active in the O&G sector confirmed that they require MD steam turbines to be compliant with certain specifications such as API standards, which are the most commonly used standards in the O&G industry. They also stated that customers active in industries other than O&G usually do not have such strict and specific standard compliance requirements. These same customers further explained that in order to comply with a particular standard, manufacturers have to make additional investment which tends to push up the of MD steam turbines. Moreover, in order to address the O&G segment, MD steam turbines manufacturers are usually required to have a proven track record and references from O&G customers. These differences between MD steam turbines for O&G applications MD steam turbines for other types of applications were also confirmed by all the competitors interviewed during the market investigation.[226]

(368) As the Transaction will not significantly impede effective competition on the basis of any plausible segmentation (see section 9.2.3 below), the Commission considers that the question of the exact product market for mechanical drive steam turbines can be left open.

9.2.2. Geographic market definition

9.2.2.1. The Notifying Party's view

(369) The Notifying Party considers that the market for MD steam turbines is at least the EEA and possibly world-wide.[227]

9.2.2.2. The Commission’s assessment

(370) The majority of customers that responded to the market investigation indicated that they source MD steam turbines from outside the EEA. They noted that one of the major requirements for the suppliers is proven reputation for high quality and reliability of their products, as well as the ability to comply with EEA standards and specific customers' requirements.[228]

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224 ID 161 – Q1 Questionnaire to competitors, replies to question 44, 47.

225 ID 393 Minutes of the call with a customer 13.1.2015; ID 2610 Minutes of the call with a customer 9.12.2015; ID 2212 Minutes of the call with a customer 15.12.2014; ID 675 Minutes of the call with a customer.

226 ID 185 Minutes of the call with a competitor 5.2.2015; ID 265 Minutes of the call with a competitor 8.12.2014; ID 2791 Minutes of the call with a competitor 4.3.2015.

227 ID 113 Form CO, paragraph 464.

228 ID 1407 – Q4 Questionnaire to customers, replies to question 9.

(371) As the Transaction will not significantly impede effective competition on the basis of any plausible market definition (see section 9.2.3 below), the Commission considers that the question of the exact geographic market for MD steam turbine markets concerned can be left open.

9.2.3. Competitive assessment

(372) For the reasons set out below (recitals (373) to (383)), the Commission concludes that the Transaction will not significantly impede effective competition in relation to MD steam turbines, be it in relation to MD steam turbines with a power range of 5 MW to 45 MW or in relation to MD steam turbines with a power range of up to 5 MW.

(373) First, as regards MD steam turbines with a power range of 5 MW to 45 MW, the combined market share[229] of the Parties does not exceed [0-5] % at both the EEA and at the worldwide level. This is also what the market investigation indicated: the majority of customers that responded to the market investigation indicated that the Transaction will not have impact on competition in this market segment.[230]

(374) Second, as regards MD steam turbines with a power range of up to 5 MW, as indicated in Tables 21 and 22 below, a distinction can be drawn between the worldwide and EEA levels.

(375) At the worldwide level the combined market share of the Parties is [20-30] % with the increment being only [0-5] %. Other major players are Elliot Ebara (USA), Shin Nippon (Japan), TGM Kanis/Turbinas (Brazil), NG Metallurgica (Brazil) and others.[231]

Table 21 – Market shares of steam turbine suppliers in the market segment for MD steam turbines up to 5 MW worldwide (2009-2014), all applications[232]

MD steam turbine supplier	MW (Worldwide)
DR	**[20-30]%**
Siemens	**[0-5]%**
Combined	**[20-30]%**
Elliot	**[20-25]%**
Shin Nippon	**[10-15]%**
Others	**[45-50]%**

(376) As for the EEA level, while the combined market share of the Parties is [40-50] %, the Transaction will not significantly impede effective competition for several reasons, as set out in recitals (377) to (384).

Table 22 – Market shares of steam turbine suppliers in the market segment for MD steam turbines up to 5 MW at the EEA level (200-2014) - all applications[233]

229 ID 113 Form CO, paragraph 527.
230 ID 195 Q2 – Questionnaire to customers, replies to question 80.16.
231 ID 113 Form CO, paragraph 530.
232 ID 113 Form CO, table 46.
233 The market shares calculation includes internal and external sales of MD steam turbines.

MD steam turbine supplier	MW (EEA)
DR	**[30-40]%**
Siemens	**[10-20]%**
Combined	**[40-50]%**
Elliot	**[40-50]%**[234]
Others	**[…]%**

(377) In the first place, not only will Elliot remain a strong competitor, there will also be number of smaller EEA based competitors, such as MAN (Germany), Fincantieri (Italy), M+M (Germany). In addition, there are number of competitors that are based outside the EEA but sell MD steam turbines in the EEA, namely TGM Kanis/Turbinas, NG Metallurgica (both South America) and Shin Nippon (Japan).

(378) In the second place, the Parties are not close competitors with regard to the narrowest possible market segmentation for MD steam turbine for up to 5 MW. Rather, they have complementary product portfolios.[235]

(379) On the one hand, Siemens' business focus is on power generation. Historically, it has been active in the larger power generation business, i.e. > 100 MW. It became active in the < 100 MW power business through the acquisition of Alstom's Gas and Steam Turbines in 2003.[236] In 2006 Siemens acquired KK&K and, through this transaction, became active in the power range up to 5 MW. Prior to being acquired by Siemens, KK&K focused on power generation customers, and still has this focus. Currently, Siemens is active in producing MD steam turbines which it sells to various industries such as primarily power generation, steel, paper, waste, and to some limited extent O&G. However, it is not considered as a strong competitor in the O&G industry since it lacks references, reputation and experience.[237]

(380) On the other hand, DR's focus is on MD steam turbines for O&G applications. DR has a significant track record with steam turbine projects in the O&G industry with many references, and has over the years built a strong reputation of reliability, which is key for O&G customers. By contrast with Siemens, DR has not had an effective focus on power generation customers, which are essentially absent from its customer base in bare MD steam turbines.[238]

(381) This is confirmed by the Parties' sales information for the period 2009-2014. More than [80-90]% of DR's sales within that market segment are for O&G applications (about [10-20%] projects out of […]), whereas Siemens' sales to the O&G industries represent only about [20-30]% (about [20-30%] projects out of […]) of Siemens' total sales of MD steam turbines below 5 MW. In addition, over the same period, DR did not sell a single MD steam turbine to power generation customers, whereas Siemens sold more than [50-60]% of all of its MD steam turbines below 5MW to

234 Confidential information.

235 ID 2603 Minutes of the call with a competitor 4.3.2015; ID 2295 Minutes of the call with a competitor 6.3.2015.

236 Case COMP/M.3148 – *Siemens/Alstom,* 10.7.2003.

237 ID 113 Form CO, paragraph 446.

238 ID 113 Form CO, paragraph 447.

power generation customers (about [60-70]% projects out of […] were with power generation customers).[239]

(382) In the third place, barriers to entry and expansion in the market segment for MD steam turbines up to 5 MW are low. A number of competitors interviewed during the market investigation and that are already active in MD steam turbines below 5 MW indicated that if there was increased demand they could easily expand their production.[240]

(383) Moreover, a number of competitors interviewed during the market investigation and that produce GD steam turbines claimed that they could easily switch production from GD steam turbines to MD steam turbines,[241] as they would be able to fulfil the following requirements:

(a) *Firstly*, suppliers would need to adapt the technology from GD steam turbines to MD steam turbines. According to a number of competitors, this adaptation would not be difficult because steam turbines are based on mature and established technology.[242]

(b) *Secondly*, to be able to supply O&G customers, suppliers would have to comply with API requirements. In this respect, several competitors indicated that they are able to make their steam turbines compatible with the API standards. In addition, one competitor made the observation that customers may react quickly to changes in the supply conditions and could, for example, reconsider their strict requirements to allow new players to enter.[243]

(c) *Thirdly*, some competitors indicated that customers might require previous references for steam turbines in MD applications, however, the same competitors admitted that customers accept deviations.[244] For example, one competitor confirmed that in principle, if a manufacturer is well perceived in GD applications it is possible to find a customer who would accept a company without references in MD applications. [245]

9.3. Steam turbines for generator drive applications

(384) Based on the information provided by the Notifying Party, Siemens and DR only overlap in the supply of GD steam turbines packaged together with generators in the power range from 0 to 45 MW.[246] The Commission has therefore focused its assessment on this power range.

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239 ID 895, Presentation on the Steam Turbines market 4.2.2015.

240 ID 2243 Minutes of the call with a competitor 2.3.2015, ID 2353 Minutes of the call with a competitor 5.3.2015, ID 2603 Minutes of the call with a competitor 4.3.2015.

241 ID 2243 Minutes of the call with a competitor 2.3.2015, ID 2353 Minutes of the call with a competitor 5.3.2015, ID 2603 Minutes of the call with a competitor 4.3.2015.

242 ID 2243 Minutes of the call with a competitor 2.3.2015, ID 2353 Minutes of the call with a competitor 5.3.2015, ID 2603 Minutes of the call with a competitor 4.3.2015.

243 ID 2603 Minutes of the call with a competitor 4.3.2015.

244 ID 2791 Minutes of the call with a competitor 4.2.2015; ID 2603 Minutes of the call with a competitor 4.3.2015.

245 ID 2791 Minutes of the call with a competitor 4.2.2015.

246 ID 113 Form CO, tables 37-38.

9.3.1. Product market definition

9.3.1.1. The Notifying Party's view

(385) The Notifying Party argues that there is a separate market for GD steam turbines packaged together with generators.[247]

9.3.1.2. The Commission's assessment

(386) As explained in section 9.1, for the purpose of the competitive assessment of this Transaction, the Commission considered a separate market for GD steam turbines packaged together with generators as customers buy a final combined product.

(387) As the Transaction will not significantly impede effective competition under any plausible market definition (see section 9.3.3. below), the exact product market definition can, however, be left open,.

9.3.2. Geographic market definition

9.3.2.1. The Notifying Party's view

(388) The Notifying Party claims that the market for GD steam turbines packaged together with generators is worldwide because a number of suppliers are active worldwide and supply globally from a single production facility.[248]

9.3.2.2. The Commission's assessment

(389) The majority of customers and competitors that responded to the market investigation indicated that suppliers sell GD steam turbines packaged together with generators globally and the customers make tenders available for suppliers outside the EEA.[249]

(390) As the Transaction will not significantly impede effective competition under any plausible geographic market definition (see section 9.3.3), the question of the exact geographic market definition can be left open.

9.3.3. Competitive assessment

(391) For the reasons set out below (recitals (392) to (395)), the Commission considers that the Transaction will not to significantly impede effective competition in relation to GD steam turbines packaged together with generators with a power output between 0 and 45 MW.

(392) First, as indicated in Tables 23 and 24 below, the Parties' market share will not exceed [20-30]% whether at the EEA level or at the worldwide level.

247 ID 113 Form CO, paragraphs 447-458.

248 ID 113 Form CO, paragraphs 460-461.

249 ID 177 Minutes of the call with a customer 10.12.2014; ID161 Q1 Questionnaire to competitors, replies to question 54.

Table 23–Market shares of suppliers of GD steam turbines packaged together with generators below 45 MW worldwide (2009-2013)[250]

Gen-set supplier	MW (Worldwide)
DR	[0-5] %
Siemens	[10-20] %
Combined	[20-30] %
Shin Nippon	[10-15 %]
TGM Kanis/Turbinas	[5-10 %]
GE	[5-10 %]
MAN	[0-5 %]
Others	[40-60%]

Table 24 – Market shares of suppliers of GD steam turbines packaged together with generators below 45 MW, EEA, 2009-2013[251]

Gen-set supplier	MW (EEA)
DR	[0-5] %
Siemens	[20-30] %
Combined	[20-30] %
MAN	[20-25 %]
TGM Kanis/Turbinas	[10-15 %]
GE	[5-10%]
Fincantieri	[5-10%]
Others	[25-35 %]

(393) Second, the increment brought about by the Transaction is small both at worldwide level and EEA level. Whereas Siemens has a market share of [20-30]% at the EEA level and [20-30]% worldwide, DR is a minor competitor on the gen-sets market, with only a [0-5]% market share in the EEA level and [0-5]% worldwide.

(394) Third, the Parties will continue to face competition from major players, such as MAN Turbo and Diesel, GE, TGM Kanis/Turbinen, Shin Nippon, Fincantieri, and other smaller players.

250 ID 113 Form CO, table 36.
251 ID 113 Form CO, table 36.

(395) Fourth, while customers that responded to the market investigation identified Siemens as well-known and an established supplier of GD steam turbines packaged together with generators, they did not mention DR.[252]

10. FLUID CATALYTIC CRACKING (FCC) TRAINS

10.1. Introduction

(396) Fluid catalytic cracking is a widely used refinery process to convert hydrocarbon fractions of petroleum crude oil into more refined gasoline, olefinic gases and other products. During the process an expander captures energy from the high-temperature flue gas (that is normally wasted). This energy is then applied to drive a generator or the air compressor. This allows the refinery to reduce energy costs and to improve its overall energy index rating.

(397) The equipment (expander, air compressor, steam turbine and generator) can be arranged into one single FCC train ("FCC one-train solution") or in two separate trains ("FCC two-train solution"). The given train solution is determined by customers depending on plant specifications.[253]

(398) A **FCC one-train solution** consists of an expander, an air compressor, a steam turbine, and a generator. All components are included into a single train.

(399) A **FCC two-train solution** consists of two separate trains. In that case, one train consists of an air compressor driven by a steam turbine ("FCC compressor train"). The other train comprises an expander and a generator ("FCC expander train").

(400) Customers of both types of FCC trains are refineries. They generally purchase an FCC train as a whole rather than its components separately. The customers can also be assisted by EPC companies.

(401) The advantage of a FCC one-train solution over a FCC two-train solution is that it requires less space in the refinery. However, a FCC two-train solution is considered to be more reliable because a failure of an expander does not affect the operation of the compressor which is installed in a separate train. As the gas that drives the expander is hot and dirty, the expander requires more maintenance and is more vulnerable to outages than the air compressor. As already indicated (see recitals (47) to (53) of the Decision), O&G customers give priority to reliability and therefore more and more customers prefer a two train solution.[254]

(402) During the market investigation, concerns were raised that post-Transaction Siemens/DR will have the incentive to foreclose competing suppliers of FCC trains from access to DR's expanders.

10.2. Product market definition

10.2.1. The Notifying Party's view

(403) The Notifying Party considers that the relevant product market is the market for FCC trains, including FCC one-train and FCC two-train solutions.[255]

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252 ID 177 Minutes of the call with a customer 10.12.2014; ID 2295 Minutes of the call with a competitor 6.3.2015.

253 ID 1503 Notifying Party's reply to the Commission RFI of 19 February 2015, paragraph 3.

254 ID 1503 Notifying Party's reply to the Commission RFI of 19 February 2015, paragraphs 4-9.

255 ID 2746 Notifying Party's reply to the Commission RFI of 7 May 2015, paragraph 8.

10.2.2. The Commission's assessment

(404) The Commission has considered whether a putative market for FCC trains could be further segmented between FCC one-train and FCC two-train solutions.

(405) Regarding FCC one-train solutions, from the perspective of customers, there seems to be demand for an integrated solution – the FCC train – rather than a demand for its separate components – air compressor, steam turbine, speed reducing gear and motor/generator. When a refinery purchases a FCC one-train solution, it usually purchases a FCC train as a whole rather than the components separately. If the various components are not produced by one single manufacturer, usually the expander manufacturer or the air compressor manufacturer sells the train to the customer (it acts as prime contractor). To do so, it acquires parts that it does not produce itself from other manufacturers to then assemble them in the train.[256]

(406) Depending on the identity of the prime contractor (the air compressor manufacturer or the expander manufacturer), there could be an input market for the sale of expanders to air compressor manufacturers or an input market for the sale of air compressors to expander manufacturers. In practice, when the two components are not supplied by the same manufacturer, the air compressor manufacturer acts as prime contractor and sources the expander from a third party manufacturer.

(407) As for FCC two-train solutions, from the perspective of customers, there seems to be demand for a non-integrated solution. When a refinery purchases a FCC two-train solution, the FCC compressor train and the FCC expander train are often purchased separately and not necessarily from the same supplier. In such cases, the air compressor manufacturer usually acts as prime contractor for the FCC compressor train and the expander manufacturer usually acts as prime contractor for the FCC expander train.[257] Even when the two trains are purchased separately, through separate tender procedures, the customers organise the tenders for the FCC compressor train and for the FCC expander train rather than for the individual components of those trains.

(408) The Commission has also considered whether a putative market for FCC two-train solutions could be further segmented between FCC compressor trains and FCC expander trains. Since FCC compressor trains and FCC expander trains can be sold separately each type of train seems to be a plausible relevant product market.

(409) Finally, the Commission has also considered whether input markets may have to be taken into account for each of those trains.

(a) With respect to FCC compressor trains, the compressor manufacturer usually acts as prime contractor. It may source the driver (steam turbine) from a third party. Therefore, there could be an input market for the sales of steam turbines to suppliers of FCC compressor trains. Steam turbines that are used in FCC compressor trains are MD steam turbines with a power output of usually 5-20 MW.[258]

(b) With respect to FCC expander trains the expander manufacturer usually acts as prime contractor. It may source the generator from a third party. Therefore, there could be an input market for the sales of generators to suppliers of FCC

256 ID 2746 Notifying Party's reply to the Commission RFI of 7 May 2015, paragraph 5-7.
257 ID 2746 Notifying Party's reply to the Commission RFI of 7 May 2015.
258 ID 2746 Notifying Party's reply to the Commission RFI of 7 May 2015, paragraph 13.

expander trains. As generators are relatively standardised products,[259] all sales of generators may be part of this plausible relevant product market.

(410) As the Transaction will not significantly impede effective competition under any plausible product market definition (see section 10.4. below), the exact product market definition can, however, be left open.

10.3. Geographic market definition

10.3.1. The Notifying Party's view

(411) The Notifying Party considers that the market for FCC trains, including one-train solutions and FCC two-train solutions, is worldwide in scope. Suppliers of FCC trains can easily serve their customers worldwide from a limited number of manufacturing sites. Moreover, transport costs are minor compared to contract value.[260]

10.3.2. The Commission's assessment

(412) The Commission has previously not considered geographic markets for FCC trains or for components such as FCC expanders.

(413) As far as steam turbines and generators are concerned, the Commission found that there were EEA or worldwide markets.[261]

(414) For the case at hand, the Commission considers that the plausible geographic markets are at least EEA wide and potentially could be worldwide. FCC trains suppliers have a global presence and can easily supply customers based in different parts of the world.

(415) In any event, as the Transaction will not significantly impede effective competition under any plausible market definition (see section 10.4 below), the exact geographic market definition can be left open.

10.4. Competitive assessment

(416) For the reasons set out below (recitals (418) to (443)), the Commission considers that the Transaction will not significantly impede effective competition in relation to FCC trains, irrespective of the exact boundaries of the relevant market(s).

(417) In particular, the Commission has assessed possible vertical effects of the Transaction under the following plausible downstream markets: (i) FCC one-train solutions (see section 10.4.1); (ii) FCC two-train solutions: FCC compressor trains and FCC expander trains (see section 10.4.2); and (iii) FCC trains including both FCC one-train solutions and FCC two-train solutions (see section 10.4.3).

10.4.1. FCC one-train solutions

(418) For the reasons set out below (recitals (419) to (428)), the Commission considers that the Transaction will not significantly impede effective competition in the putative market for FCC one-train solutions.

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259 ID 2746 Notifying Party's reply to the Commission RFI of 7 May 2015, paragraph 44.

260 ID 2746 Notifying Party's reply to the Commission RFI of 7 May 2015, paragraph 9.

261 See Case COMP/M.3148 – *Siemens/Alstom*, 10.7.2003, paragraph 20-21 and Case M.6222/GE Energy/Convertam, paragraph 32.

10.4.1.1. Market structure

(419) Table 25 below presents the market shares of prime contractors supplying FCC one-train solutions, measured in number of projects, over the period 2004-2015. These are calculated both at the worldwide level and the EEA level.

Table 25 – Market shares of prime contractors in the sales of FCC one-train solutions (2004-2015)

Prime contractors	Worldwide		EEA	
	Number of projects	%	Number of projects	%
MAN (with a DR expander)	[…]	[60-70]%	0	-
Elliott Ebara	[…]	[30-40]%	0	-
Total	[…]	100%	0	-

Source: Dresser-Rand's bidding data for FCC trains[262]

(420) As can be seen from this table, neither of the Parties is present on this putative market, whether at the EEA level or the worldwide level. Only MAN and Elliott are active on this putative market. Therefore, any horizontal effect can be excluded.

(421) As explained in section 10.2, in this putative market, FCC train suppliers either rely on expanders that they produce themselves or source expanders from third party manufacturers which then are packaged together with the other components. MAN, a compressor and steam turbine manufacturer, won […] projects as a prime contractor for the FCC one-train solutions, sourcing the expanders from DR. Elliott, on the other hand, won […] project relying on its own expander and compressor line. Therefore there is possibly an upstream market for the sales of expanders used in FCC trains.

(422) Table 26 below presents the Parties' and their competitors' market shares in the sales of expanders, measured in units sold since 2004.[263] These are calculated both at the worldwide level and the EEA level.

262 ID 2745 Annex to the Notifying Party's reply to the Commissions RFI of 7 May 2015.

263 As expanders used are the same whether they are used in one-train solutions or two train solutions, the Commission considered all sales of expanders irrespective of the train configuration (FCC one-train or FCC two-train solutions). Moreover, as expander suppliers can either sell their expanders combined with a third party compressor or with their own compressor (integrated sales), the Commission considered all sales of expanders as part of FCC trains, whether as integrated sales or as sales to third party compressor OEMs which are prime contractors for the FCC train.

Table 26 – Market shares of manufacturers in the sales of FCC expanders (2004-2015)

Supplier	Worldwide		EEA	
	Number of units	%	Number of units	%
DR	[…]	[40-50]%	[…]	[0-5]%
Elliott Ebara	[…]	[30-40]%	[…]	[90-100]%
GE	[…]	[20-30]%	[…]	[0-5]%
Total	[…]	100%	[…]	100%

Source: Dresser-Rand's bidding data for FCC trains[264]

(423) As can be seen from this table, DR has a [40-50]% market share on this putative market for expanders at a worldwide level. […]. Its only competitors are Elliott and GE. Siemens is not active in this putative market.

(424) It has to be noted that as regards FCC one-train solutions, DR sold […] expanders as part of FCC trains offered by MAN ([…] projects) and Elliott […] as part of […]offered by Elliott itself.

10.4.1.2. Vertical effects

(425) For the reasons set out below (recitals (426) to (428)), the Commission considers that while the Parties may have an incentive to stop supplying FCC expanders to competing suppliers of FCC one-train solutions, they will not have the ability to foreclose them. In any event, even if the Parties had the ability and incentive to foreclose access to expanders, the Commission considers that this would not have a significant effect on competition at the FCC one-train solution level.

(426) With respect to the Parties' ability to foreclose, the Commission considers that the Parties will not have any such ability. This is because FCC one-train solution suppliers that rely on DR expanders could turn to GE or Elliott if the Parties stopped supplying expanders (or increased their price).

(427) With respect to the Parties' incentive to foreclose, the Commission considers that this question can be left open. The Parties would only have the incentive to do so if by combining DR's expanders with Siemens' compressors, they would be able to offer FCC one-train solution that would be able to compete against Elliott's integrated FCC one-train solutions. This pre-supposes, however, that Siemens' compressors are suitable for FCC train applications and constitute a credible alternative to MAN's compressors. If, however, by combining DR's expanders with Siemens' compressors the probability of the Parties winning the project is reduced beyond a certain level, the Parties would prefer combining their expanders with MAN's compressors. This is because the expected lost profit from selling expanders (including after sale services) would in that case not be compensated by the expected extra profit from selling additional compressors.

(428) In any event, even if the Parties had the ability and incentive to foreclose access to expanders, the Commission considers that this would not have a significant effect on competition at the FCC one-train solution level. The reason is that currently only

264 ID 2745 Annex to the Notifying Party's reply to the Commissions RFI of 7 May 2015.

Elliott and MAN (with a DR expander) compete at that level, as DR did not supply any FCC one-train solution since 2004. As a result, if the Parties were to stop supplying MAN and instead exclusively combined DR's expanders with Siemens' compressors into FCC one-train solutions, there would still be two competitors, that is Elliott and the combined entity DR-Siemens; the only difference to the pre-Transaction situation would be that the DR-MAN combination for FCC one-train solutions would be replaced by a DR-Siemens combination. This conclusion is valid irrespective of the exact scope of the product market definition for expanders.

10.4.2. FCC two-train solutions: FCC compressor trains and FCC expander trains

(429) For the reasons set out below (recitals (430) to (440)), the Commission considers that the Transaction will not significantly impede effective competition in the putative markets within FCC two-train solutions: FCC compressor trains and FCC expander trains.

10.4.2.1. Market structure

(430) As mentioned above (recitals (407) to (409)), FCC two-train solutions consist of two separate trains: (i) FCC expander trains and (ii) FCC compressor trains. Customers usually organise separate tenders for each train. Therefore, the supplier of the FCC expander train is not necessarily the supplier of the FCC compressor train. As a matter of fact, DR supplied […] FCC expander trains as part of FCC two-train solutions since 2004, whereas it has not supplied any FCC compressor train as part of FCC two-train solutions.[265]

FCC expander trains

(431) In relation to the FCC expander trains, Table 27 below sets the market shares of prime contractors, measured in number of projects, over the period 2004-2015. These are calculated both at the worldwide level and the EEA level. The main suppliers are DR, Elliot and GE. Siemens is not active in this market.

[265] ID 2745 Annex to the Notifying Party's reply to the Commissions RFI of 7 May 2015.

Table 27 – Market shares of prime contractors in the sales of FCC expander trains (2004-2015)

Prime contractors	Worldwide		EEA	
	Number of projects	%	Number of projects	%
DR	[…]	[30-40]%	[…]	[0-5]%
Elliott Ebara	[…]	[30-40]%	[…]	[90-100]%
GE	[…]	[20-30]%	[…]	[0-5]%
Total	[…]	100%	[…]	100%

Source: Dresser-Rand's bidding data for FCC trains[266]

(432) As can be seen from this table, DR has a [30-40%] market share on this putative market for FCC expanders trains at a worldwide level. […]. Its only competitors are Elliott and GE. Siemens is not active on this putative market.

(433) The Parties' activities do not overlap irrespective of the geographic scope of the market. Therefore, any horizontal effect can be excluded.

(434) As mentioned above (see section 10.2.2), it is usually the expander manufacturer who acts as prime contractor. It may then source the generator from a third party.

(435) In such a potential upstream putative market for generators. Siemens' share of supply is below [10-20]% in the EEA and worldwide. DR manufactures only a niche product (NovaGen 400) and has minimal market shares both at the EEA and the worldwide levels. That niche product is not used in combination with FCC expanders.[267]

FCC compressor trains

(436) Neither DR nor Siemens supply FCC compressor trains. Therefore, any horizontal effect can be excluded.

10.4.2.1 Vertical effects

FCC expander trains

(437) With respect to non-horizontal effects, DR has [30-40]% market share on the downstream market for FCC expander trains and Siemens has a less than 10% market share on the upstream market for generators. However, the Commission considers that the Transaction will not give rise to any anti-competitive input foreclosure or customer foreclosure.

(438) With respect to input foreclosure, the Commission considers that the Parties will have neither the ability nor the incentive to foreclose third party expander OEMs from having access to generators. This is because Siemens has a market share of less than [5-10%] in the putative market for generators and DR's market share in this market is minimal. Moreover, DR's generators are not used in combination with FCC expander trains. Therefore, the suppliers of FCC expander trains will post-

266 ID 2745 Annex to the Notifying Party's reply to the Commissions RFI of 7 May 2015.
267 ID 2746 Notifying Party's reply to the Commissions RFI of 7 May 2015, paragraph 15.

Transaction still have access to generators from Siemens' competitors, many of which are not integrated.[268]

(439) With respect to possible customer foreclosure, the Parties would not have the ability to foreclose access to a sufficient customer base to Siemens' competitors in the market for generators, as generators are used in many other applications, such as generator sets used in O&G applications. Therefore, even if the Parties were to only source generators internally from Siemens to combine them with DR's expanders into FCC expander trains, Siemens' competitors in the market for generators would still have access to a sufficient customer base in other applications.

FCC compressor trains

(440) Neither DR nor Siemens supply FCC compressor trains. On the upstream market, the combined market share of the Parties in MD steam turbines with power output in the range 5-45 MW is [0-5] %.[269] Therefore, the Commission considers that the Transaction does not raise any vertical issues in relation to FCC compressor trains.[270]

10.4.3 FCC trains including both one-train solutions and two-train solutions

(441) The Commission concluded in the two previous sections that the Transaction will not significantly impede effective competition in both the putative market for FCC one-train solutions and the putative market for FCC two-train solutions.

(442) This conclusion is even stronger, if these two types of FCC trains were part of the same relevant market. This is because in case of a hypothetical price increase in one of the two segments, customers and/or suppliers could substitute one solution with the other.

(443) In particular, if customers could substitute a FCC one-train solution with a FCC two-train solution, there could not be any possible input foreclosure concern. This is because a FCC two-train solution is sold in two separate trains – the FCC compressor train and the FCC expander train. Therefore, even if MAN's access to the Parties' expanders were foreclosed, MAN's customer could switch to a FCC two-train solution, purchasing the FCC compressor train from MAN (or any of its competitors) and the FCC expander train from DR, Elliott or GE.

11. CONCLUSION

(444) In the light of the above and on the basis of all available evidence, the Commission concludes that the Transaction will not significantly impede effective competition in the internal market or a substantial part thereof.

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268 ID 2746 Notifying Party's reply to the Commissions RFI of 7 May 2015, paragraph 43-44.

269 ID 2746 Notifying Party's reply to the Commissions RFI of 7 May 2015, paragraph 13.

270 As explained in section 9.2.3, it does not raise any horizontal concerns on the market for MD steam turbines either

HAS ADOPTED THIS DECISION:

Article 1

The notified operation whereby Siemens AG acquires sole control of Dresser-Rand Group Inc. within the meaning of Article 3(1)(b) of the Merger Regulation is hereby declared compatible with the internal market and the functioning of the EEA Agreement.

Article 2

This Decision is addressed to:

Siemens AG

Wittelsbacherplatz 2

80333 Munich,

Germany

Done at Brussels, 29.6.2015

(Signed)
For the Commission
Margrethe VESTAGER
Member of the Commission

Annex 1: The bidding data used to compute market shares and carry out the bidding analysis in relation to ADGT and light IGT driven turbo compressor trains

(1) The market share calculations and the bidding analysis set out in the decision rely on bidding data provided by the Parties and their competitors. The content of these bidding data contains business secrets, and is, as such, confidential.

(2) This Annex therefore explains only the methods used by the Commission to combine the bidding data of the various market participants to carry out its analysis.

(3) In a first stage, the Commission asked the Parties and their competitors (GE, MHI, Solar, MAN Diesel & Turbo and Elliott) to provide information on all their firm bids (binding offers) – irrespective of the driver used – in relation to projects won with ADGT driven compressor trains between 2008 and 2014.[1]

(4) In a second stage, the Commission asked the Parties and their competitors to complement this bidding data with information in relation to all firm bids in which they offered gas turbine driven turbo compressor trains in the context of tenders in which at least one bidder (at the firm bid stage) offered an ADGT driven turbo compressor train.[2] The period covered was again 2008-2014. The Commission specifically asked for information irrespective of whether the market participant was the prime contractor or instead quoted the turbine or the turbo compressor to a third party compressor or turbine OEM who was prime contractor for the turbo compressor train.

(5) The bidding information provided by each market participant included among others the following: (1) the identity of the prime contractor on the bid; (2) the OEM of the driver(s); (3) the type of driver (ADGT or IGT); (4) the model of the driver; (5) the power output of the driver (in MW); (6) the number of drivers; (7) the OEM of the turbo compressors; and (8) whether the market participant won the tender with that offer.

(6) In a third stage, the Commission combined all the bidding data submitted by the various market participants, except for data relating to projects taking place in Russia and other ex-USSR countries won by Russian/Ukrainian manufacturers and for which the Parties and GE did not submit a firm bid. The Commission understands that these projects were not open to competition from American and EU-based companies.

(7) In a fourth stage, using the combined data (the "Turbo Compressor Train Bidding Data"), the Commission then calculated market shares covering all projects awarded between 2008 and 2014 (with the exception of those that took place in the ex-USSR and that were excluded) which: (a) involved turbo compressor trains driven by ADGTs or light IGTs; and (b) in which at least one of the bidders – not necessarily the winning bidder – offered an ADGT driven turbo compressor train at the firm bid level. The market shares were calculated on two market segments: (1) turbo compressor trains driven by ADGT or light IGT with power output above 23 MW and (2) turbo compressor trains driven by ADGT or light IGT with power output below 23 MW.

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1 ID02515, ID02517, ID02518, ID02714, ID02413, ID01111, ID01168, ID00817.

2 ID02519, ID02520, ID02521, ID02522, ID02312, ID02267, ID02370.

(8) Finally, and in order to carry out the bidding analysis, the Commission excluded from the turbo compressor train bidding data those projects for which one of the market participants claimed to have won the project with an IGT driven turbo compressor train in competition with at least one offer for an ADGT driven turbo compressor train, but for which the Commission had no confirmation that a manufacturer actually submitted a firm bid for an ADGT driven turbo compressor train. In total, the Commission excluded one such project in relation to turbo compressor trains driven by gas turbines above 23MW.

Annex 2: The bidding data used to compute market shares and carry out the bidding analysis in relation to ADGT driven generator sets

(1) The market share calculations and the bidding analysis set out in the decision rely on bidding data provided by the Parties and their competitors. The content of these bidding data contains business secrets, and is, as such, confidential.

(2) This Annex therefore explains only the methods used by the Commission to combine the bidding data of the various market participants to carry out its analysis.

(3) In a first stage, the Commission asked the Parties to provide a list of all projects that they were aware of and that involved a gas turbine driven generator set that: (a) is employed in an O&G application; (b) uses an ADGT or an IGT with a power output between 15 and 60 MW as a driver and; (c) has an award date between 2008 and 2014. This list of projects was mainly built based on the publicly available McCoy gas turbine order data. The Parties also provided information about all the firm bids that they submitted in relation to these projects.[1]

(4) In a second stage, the Commission asked other market participants (GE, Solar, MHI, Hitachi, Pratt & Whitney and BHEL) to provide information about the firm bids that they submitted in relation to these projects. The bidding information required from all market participants included among others the following: (1) whether they submitted a firm bid; (2) whether they won; (3) the type of gas turbine offered (ADGT or IGT); (4) the model of gas turbine offered; (5) the power output of the gas turbine (in MW); (6) the number of gas turbines; and (7) the O&G application segment.[2]

(5) In a third stage, the Commission combined the bidding data submitted by the various market participants, except for data relating to:

a. Projects taking place in Russia and other ex-USSR countries won by Russian/Ukrainian manufacturers and for which no other competitors submitted a firm bid. The Commission understands that these projects were not open to competition from American and EU-based companies

b. Power generation projects, which the Parties had included by error in the list of projects it had provided in the first stage; and

c. Projects won with heavy duty driven gen-sets. The bidding data originally provided by the Parties included a number of firm bids by GE, MHI, Hitachi and BHEL with heavy duty gas turbine driven generator sets. With the exception of two projects (both won with an ADGT driven gen-set), these heavy duty gas turbines were, however, never competing against ADGTs, and therefore should be excluded from the bidding data.

(6) This combined data (the "Generator Set Bidding Data") covers in principle all gen-sets projects in O&G applications between 2008 and 2014 (with the exception of those that took place in the ex-USSR and that were excluded) won with either an ADGT driven

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1 See ID02754 for the project list as well as the bidding information of the Parties.

2 See ID02759, ID02761, ID02767, ID02769, and ID02813.

gen-set or a light IGT driven gen-set with a power output between 15MW and 60MW. Only those won by Solar might not be all included, as Solar is not a subscriber to McCoy and therefore the Parties might not have identified all projects won by Solar. As such, Solar's market share might be slightly underrated.

(7) In a fourth stage, the Commission calculated market shares in the relevant market segments on the basis of the Generator Set Bidding Data. The market shares were calculated on two market segments: (1) ADGT or light IGT driven gen-sets with power output above 23 MW and (2) ADGT or light IGT driven gen-sets with power output below 23 MW. The Commission also calculated market shares in each O&G application segment.

(8) To carry out its bidding analysis, the Commission used the same Generator Set Bidding Data.