

Anticipated acquisition by Schlumberger Limited of ChampionX Corporation

Decision on relevant merger situation and substantial lessening of competition

ME/7110/24

The Competition and Markets Authority's decision on relevant merger situation and substantial lessening of competition under section 33(1) of the Enterprise Act 2002 given on 27 March 2025. Full text of the decision published on 2 May 2025.

The Competition and Markets Authority (**CMA**) has excluded from this published version of the decision information which the CMA considers should be excluded having regard to the three considerations set out in section 244 of the Enterprise Act 2002 (specified information: considerations relevant to disclosure). The omissions are indicated by [§]. Some numbers have been replaced by a range, which are shown in square brackets.

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SUMMARY

OVERVIEW OF THE CMA'S DECISION

1. The CMA has found that the acquisition by Schlumberger Limited (**SLB**) of ChampionX Corporation (**ChampionX**), gives rise to a realistic prospect of a substantial lessening of competition (**SLC**) in the supply of production chemical technologies (**PCTs**) to oil and gas exploration, development and production (**E&P**) companies as a result of horizontal unilateral effects; and in the supply of (i) directional drilling services using rotary steerable systems (**RSS**), and (ii) permanent downhole gauges (**PDGs**), in both cases as a result of vertical effects.
2. SLB has agreed to acquire ChampionX pursuant to an agreement entered into on 2 April 2024 for a purchase price of US\$7.8 billion. The CMA refers to this acquisition as the **Merger**. SLB and ChampionX are together referred to as the **Parties** and, for statements relating to the future, the **Merged Entity**.
3. As the CMA has found that the Merger gives rise to a realistic prospect of an SLC, the Parties have until 3 April 2025 to offer undertakings in lieu of a reference (**UILs**) to the CMA that will remedy the competition concerns identified. If no such undertakings are offered, then the CMA will refer the Merger pursuant to sections 33(1) and 34ZA(2) of the Enterprise Act 2002 (the **Act**).

Who are the businesses and what products/services do they provide?

4. The Parties are global players, publicly listed in the United States (**US**), that supply oilfield services, equipment and related technologies to E&P companies as well as other oilfield services providers worldwide. Both Parties have significant operations (including assets) used to supply E&P companies in the UK North Sea.
5. The products that the CMA looked at in detail were:
 - (a) **PCTs**: PCTs are chemical products used, among other things, to (i) ensure flow assurance; (ii) maintain asset integrity; (iii) optimise production; and (iv) manage water treatment during the production of crude oil and natural gas. Both Parties are active in the supply of PCTs.
 - (b) **Poly-crystalline diamond (PCD) bearings**: Bearings allow for the relative movement or rotation of the directional drilling equipment. PCD bearings are particularly well-suited for operating under harsh conditions, such as the conditions in the UK North Sea, and last longer than other types of bearings. ChampionX, through its subsidiary US Synthetic Corporation (**US Synthetic**), is active in the supply of PCD bearings.

- (c) Directional drilling services using RSS: Bearings, including PCD bearings, are used in RSS, which are a form of drilling technology used to enhance the precision and efficiency of directional drilling operations, particularly in complex environments where precise control of the well path is required. SLB is active in the supply of RSS as part of its directional drilling services.
- (d) Quartz pressure sensors (**QPSs**) and transducers: Sensors, including QPSs, are used in oilfield applications to collect data and monitor certain downhole conditions (eg temperature and pressure). QPSs are typically used for high-value assets in offshore areas and are known for their robustness and accuracy in harsh downhole environments. The transducer is the entire assembly required to produce the output signals that can be read by a computer. ChampionX, through its Quartzdyne business, is active in the supply of transducers incorporating QPSs (**Quartz Transducers**).
- (e) PDGs: PDGs incorporate sensors/transducers, and are used primarily as part of well completions (ie the process of making a well ready for production) to measure certain downhole data, such as pressure and temperature. Quartz technology in PDGs allows for more accurate data measurement, faster transmission, higher resolution of information and greater long-term reliability. SLB is active in the supply of PDGs.

Why did the CMA review this merger?

- 6. The CMA's primary duty is to seek to promote competition for the benefit of consumers. It has a duty to investigate mergers that could raise competition concerns in the UK, provided it has jurisdiction to do so. In this case, the CMA has concluded that it has jurisdiction to review this Merger as a relevant merger situation has been created: SLB and ChampionX are each an enterprise that will cease to be distinct as a result of the Merger, and the share of supply test is met. The products supplied by SLB and Champion X are important inputs for E&P operators in the UK North Sea.

What evidence has the CMA looked at?

- 7. In assessing this Merger, the CMA has considered a wide range of evidence in the round.
- 8. The CMA received several submissions and responses to information requests from the Parties. This included information about the nature of the Parties' businesses, their bidding data, and the constraint from other suppliers.
- 9. The CMA also examined the Parties' internal documents, which show how they run their businesses, as well as how they view their rivals and the markets they operate in.

10. The CMA also spoke to and gathered evidence from the Parties' customers and competitors to get a better understanding of the competitive landscape and customers' requirements and purchasing patterns, as well as to get their views on the impact of the Merger.

What did the evidence tell the CMA...

...about the effects on competition of the Merger?

11. The CMA looked at whether the Merger would lead to a substantial lessening in competition as a result of:
- (a) reduced competition in the supply of PCTs to E&P companies in the UK (horizontal unilateral effects);
 - (b) whether SLB could harm the competitiveness of other suppliers of directional drilling services using RSS in the UK by limiting their access to PCD bearings (foreclosure of RSS suppliers); and
 - (c) whether SLB could harm the competitiveness of other suppliers of PDGs in the UK by limiting their access to Quartz Transducers (foreclosure of PDG suppliers).

Theory of Harm 1: Horizontal unilateral effects in the supply of PCTs to E&P companies in the UK

12. The CMA considers that the Merger gives rise to a realistic prospect of an SLC as a result of horizontal unilateral effects in the supply of PCTs to E&P companies in the UK. In particular:
- (a) The Parties had a combined share of supply of [60–70]% with an increment of [10–20]% in the supply of PCTs in the UK in 2023. The Merged Entity would be the largest supplier of PCTs in the UK by a large margin, with more than double the share of the next largest player. The CMA considers that the market for PCTs is already highly concentrated and that the Parties are close competitors, together with Baker Hughes and Clariant accounting for [90–100]% of the supply of PCTs in the UK. The Merger would combine the largest supplier of specialty chemicals (ChampionX), with one of the few other suppliers of specialty chemicals (SLB), and the largest supplier of commodity chemicals in the UK (SLB) with one of the few other material suppliers of commodity chemicals (ChampionX).
 - (b) Although the Parties' bidding data indicates that there is a degree of differentiation between the Parties, the CMA considers that in the context of a highly concentrated market, the overlap in bidding between the Parties is

nevertheless material, and in any event, bidding data may not capture the full extent of competition between the Parties.

- (c) The Parties' internal documents show that they regularly identify and monitor each other as one of very few credible competitors in the supply of PCTs in the UK, with ChampionX frequently identified as a market leader both globally and in the UK.
- (d) Third-party evidence indicates that the Parties compete closely in the commodity chemical segment of the PCT market. In the specialty chemical segment, despite not being ChampionX's closest competitor, SLB exerts a material competitive constraint on Champion X. Third-party evidence confirmed that the Parties, Baker Hughes and Clariant are the only significant suppliers of PCTs in the UK (including in both segments).

Theory of Harm 2: Input foreclosure in the supply of directional drilling services using RSS in the UK

13. The CMA considers that the Merger gives rise to a realistic prospect of an SLC as a result of input foreclosure in the supply of directional drilling services using RSS in the UK. In particular:
 - (a) With regard to the Merged Entity's ability to harm the competitiveness of its downstream rivals, the CMA considers that ChampionX (through its subsidiary, US Synthetic) has market power in the supply of PCD bearings as the global market leader (with a global share of [90–100]% in the supply of PCD bearings in 2023). The CMA also considers that PCD bearings are an important input, seen by third parties as critical elements in RSS tools and are used widely in the UK. The CMA considered various foreclosure mechanisms through which the Merged Entity may be able to harm its downstream rivals, as well as whether competition could be harmed by the flow of commercially sensitive information (**CSI**) from SLB's rivals to the Merged Entity (given ChampionX's role as their PCD bearing supplier).
 - (b) With regard to the Merged Entity's incentive to foreclose rivals, the CMA considers that, given SLB's strong position and successful downstream offering, and the Merged Entity's strong ability to foreclose, the gains in downstream sales are likely to outweigh any losses of upstream sales, which are likely to be limited given the lack of effective alternatives to ChampionX.
 - (c) With regard to the effects of any potential foreclosure, the CMA considers that SLB is the largest directional drilling services supplier in the UK, in a concentrated market comprising only four suppliers. As such, the firms that could be foreclosed play an important role in the competitive process in the

downstream market and a foreclosure strategy would significantly harm overall competition.

Theory of Harm 3: Input foreclosure in the supply of PDGs in the UK

14. The CMA considers that the Merger gives rise to a realistic prospect of an SLC as a result of input foreclosure in the supply of PDGs in the UK. In particular:
 - (a) With regard to the Merged Entity's ability to harm the competitiveness of its downstream rivals, the CMA considers that ChampionX (through its Quartzdyne business) has market power in the supply of Quartz Transducers for use in PDGs in the UK as the global market leader (with a global share of [90–100]% in the supply of Quartz Transducers in 2023). The CMA also considers that Quartz Transducers are an important input, are seen by third parties as the industry standard and are used widely in the UK. The CMA considered various foreclosure mechanisms through which the Merged Entity may be able to harm its downstream rivals, as well as whether competition could be harmed by the flow of CSI from SLB's rivals to the Merged Entity (given ChampionX's role as their Quartz Transducer supplier).
 - (b) With regard to the Merged Entity's incentive to foreclose rivals, the CMA considers that, given SLB's strong position and successful downstream offering, and the Merged Entity's strong ability to foreclose, the gains in downstream sales are likely to outweigh any losses of upstream sales, which are likely to be limited given the lack of effective alternatives to ChampionX.
 - (c) With regard to the effects of any potential foreclosure, the CMA considers that SLB is the largest PDG supplier in the UK, in a concentrated market comprising only three suppliers. As such the firms that could be foreclosed play an important role in the competitive process in the downstream market and a foreclosure strategy would significantly harm overall competition.

What happens next?

15. As a result of these concerns, the CMA believes the Merger gives rise to a realistic prospect of SLCs as a result of (i) horizontal unilateral effects in the supply of PCTs to E&P companies in the UK; (ii) input foreclosure in the supply of directional drilling services using RSS in the UK; and (iii) input foreclosure in the supply of PDGs in the UK.
16. The Parties have until 3 April 2025 to offer undertakings which might be accepted by the CMA to address the SLCs. If no such undertakings are offered, or the CMA decides that any undertaking offered is insufficient to remedy its concerns to the phase 1 standard, then the CMA will refer the Merger for an in-depth phase 2 investigation pursuant to sections 33(1) and 34ZA(2) of the Act.

ASSESSMENT

1. PARTIES, MERGER AND MERGER RATIONALE

1. SLB is a global oilfield services provider, publicly listed in the US. It supplies oilfield services, equipment and related technologies to E&P operators as well as other oilfield services operators worldwide. The turnover of SLB in the financial year ending 2023 was approximately £26.7 billion worldwide and approximately £[REDACTED] in the UK.¹
2. ChampionX is a global oilfield services provide, publicly listed in the US. It supplies oilfield products and services to other oilfield services operators as well as E&P companies worldwide. The turnover of ChampionX in the financial year ending 2023 was approximately £3 billion worldwide and approximately £[REDACTED] in the UK.²
3. The Parties entered into an agreement on 2 April 2024 whereby SLB will acquire ChampionX for a consideration of approximately US\$7.8 billion.³
4. The Parties informed the CMA that the Merger is also the subject of review by competition authorities in Angola, Australia, Brazil, Canada, Colombia, Mexico, New Zealand, Norway, Saudi Arabia and the USA.⁴
5. The Parties submitted that the main strategic rationale for the Merger is to:
 - (a) combine the Parties' complementary offerings and geographic footprints, enabling the Merged Entity to provide a more comprehensive offering that better serves its E&P customers on a global basis;⁵
 - (b) enhance the Parties' global offering to improve existing well performance, in response to the general oil and gas industry decline as a result of E&P companies shifting their focus from drilling new wells to enhancing performance on existing wells;⁶
 - (c) create significant cost synergies through supply chain optimisation and the reduction of operating and administrative costs, as well as revenue synergies by expanding ChampionX's sales outside North America;⁷ and

¹ Final Merger Notice submitted to the CMA on 22 January 2025 (FMN), paragraphs 3 and 60.

² FMN, paragraphs 2 and 56.

³ FMN, paragraphs 1, 64 and 65.

⁴ FMN, paragraph 70. The Parties told the CMA that the Merger has received clearance in Angola and Brazil.

⁵ FMN, paragraph 69(a)–(b).

⁶ FMN, paragraph 69(c).

⁷ FMN, paragraph 69(d).

(d) combine the Parties' complementary research and development (**R&D**) capabilities, enabling the Merged Entity to drive innovation globally.⁸

6. The CMA considers that the Parties' internal documents generally support this rationale.⁹

2. PROCEDURE

7. The CMA commenced its phase 1 investigation on 29 January 2025. As part of its phase 1 investigation, the CMA gathered a significant volume of evidence from the Parties, including a large volume of internal documents. The aim of the CMA's targeted information requests was to understand the market dynamics and the competitive landscape in the relevant product markets. The Parties also had opportunities to make submissions and comment on the CMA's emerging thinking throughout the phase 1 investigation. For example, in March 2025, the CMA invited the Parties to attend an Issues Meeting.

8. In response to the CMA's Issues Letter, the Parties submitted a significant volume of new evidence. This included, for example, the first detailed written submissions on two theories of harm discussed in this decision, papers on analysis of bidding data and market share data prepared by the Parties' economic advisers, as well as additional internal documents. While the CMA had regard to this additional evidence in reaching this decision, the late stage of the process when this was submitted, and the CMA's statutory timetable, limited the CMA's ability to fully test the robustness of this additional evidence. This affected the weight that the CMA was able to attribute to some of this evidence.¹⁰

9. The CMA also gathered evidence from other market participants, such as customers and competitors via calls and written questionnaires. The CMA also received a number of complaints from third parties. The evidence the CMA received has been tested rigorously, and the context in which the evidence was produced has been considered when deciding how much weight ought to be attached to it. Where necessary, this evidence has been referred to within this decision.

10. The Merger was considered at a Case Review Meeting.¹¹

⁸ FMN, paragraph 69(e).

⁹ See for example SLB Internal Document, Annex 6.11 to the FMN, '[§<]', April 2023, pages 7 and 14; ChampionX Internal Document, Annex 7.1 to the FMN, '[§<]', March 2024, page 22; ChampionX Internal Document, Annex 7.3 to the FMN, '[§<]', March 2024, page 3; SLB Internal Document, Annex 6.1 to the FMN, '[§<]', April 2024, pages 2 and 3; ChampionX Internal Document, Annex 7.7 to the FMN, '[§<]', March 2024, page 4; SLB Internal Document, Annex 6.2 to the FMN, '[§<]', April 2024, page 5.

¹⁰ The statutory timeframe to reach a phase 1 decision is 40 working days (section 34ZA(3) of the Act) and the evidence was submitted on or after working day 26 of the phase 1 investigation.

¹¹ [Mergers: Guidance on the CMA's jurisdiction and procedure \(CMA2\)](#), January 2025, page 47.

3. JURISDICTION

11. Each of SLB and ChampionX is an enterprise. As a result of the Merger, these enterprises will cease to be distinct.
12. Based on the evidence received from the Parties and third parties, the CMA estimates that the Merger will lead to the Parties having a combined share of supply of more than 25% by value, with an increment, in multiple segments. This includes the supply of PCTs in the UK for the 2023 financial year, in which the Parties would have a combined share of supply of [60–70]% (with an increment of [10–20]%) by value.¹² At least one of the Parties has a UK turnover exceeding £10 million.¹³ The CMA therefore believes that the share of supply test in section 23 of the Act is met.
13. The CMA therefore considers that it is or may be the case that arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation.
14. The initial period for consideration of the Merger under section 34ZA(3) of the Act started on 30 January 2025 and the statutory 40 working day deadline for a decision is therefore 27 March 2025.

4. COUNTERFACTUAL

15. The CMA assesses a merger's impact relative to the situation that would prevail absent the merger (ie the counterfactual).¹⁴
16. In an anticipated merger, the counterfactual may consist of the prevailing conditions of competition, or conditions of competition that involve stronger or weaker competition between the parties to a merger than under the prevailing conditions of competition.¹⁵ In determining the appropriate counterfactual, the CMA will generally focus on potential changes to the prevailing conditions of competition only where there are reasons to believe that those changes would make a material difference to its competitive assessment.¹⁶
17. In this case, the CMA has not received any evidence suggesting that the Merger should be assessed against an alternative counterfactual.¹⁷ Therefore, the CMA

¹² The Parties confirmed that 2023 is their most recent audited financial year and that their combined shares of supply are not expected to differ materially between 2023 and 2024. See Table 1 below.

¹³ FMN, paragraphs 56 and 60.

¹⁴ [Merger Assessment Guidelines](#) (CMA129), March 2021, paragraph 3.1.

¹⁵ CMA129, paragraph 3.2.

¹⁶ CMA129, paragraph 3.9.

¹⁷ FMN, paragraphs 9.1–9.3.

considers the prevailing conditions of competition to be the relevant counterfactual.

5. COMPETITIVE ASSESSMENT

5.1 Background and nature of competition

18. The Parties overlap in the supply of PCTs, as well as a range of other oilfield products and services, and there are also a number of vertical relationships between them.¹⁸ For the purposes of this decision, the CMA has focused on the Parties' overlaps in the supply of PCTs, and the vertical relationships between:
- (a) ChampionX, via its subsidiary US Synthetic, a supplier of PCD bearings and SLB, a supplier of directional drilling services using RSS; and
 - (b) ChampionX, via its Quartzdyne business, a supplier of transducers using quartz pressure sensors and SLB, a supplier of permanent downhole gauges (PDGs).

5.1.1 PCTs

19. PCTs comprise a range of chemical products used in the production of crude oil and natural gas, primarily to (i) ensure flow assurance; (ii) maintain asset integrity; (iii) optimise production; and (iv) manage water treatment.¹⁹
20. PCTs can be divided into two categories:²⁰
- (a) **Commodity chemicals**, which are less-complex, raw chemicals that serve basic, essential functions across various applications in the production of oil and gas. Examples of commodity chemicals include methanol, ethanol and glycols.²¹ ChampionX and SLB are both active in the supply of commodity chemicals;²² and
 - (b) **Specialty chemicals**, which are more complex in composition and are designed to address specific challenges or to enhance performance in critical areas of oil and gas production. Specialty chemicals are developed for

¹⁸ In addition to the supply of production chemicals, the Parties also overlap in the supply of artificial lift, subsea connectors, sensors and poly-crystalline diamond compact (PDC) cutters. There are also vertical relationships between the Parties in the supply of reservoir chemicals (with ChampionX supplying additives as inputs), drill bits (with ChampionX supplying PDC cutters as inputs), electrical submersible pumps (with ChampionX supplying electrical accessories as inputs), and directional drilling services (with ChampionX supplying sensors as inputs). On the basis of the evidence gathered, the CMA considered at an early stage in its investigation that there were no plausible competition concerns in the UK in these areas, and they are therefore not discussed further in this decision.

¹⁹ FMN, paragraphs 105 and 111–112.

²⁰ FMN, paragraph 106.

²¹ FMN, paragraphs 107–108.

²² FMN, paragraph 185 and Table 3.

particular applications, and typically require processing in blending and reaction plants before they can be supplied to E&P companies. Examples of these chemicals include polymer scale inhibitors, surfactants and corrosion inhibitors.²³ ChampionX and SLB are both active in the supply of specialty chemicals.²⁴

5.1.2 PCD bearings and directional drilling services using RSS

21. Bearings are used in RSS to allow for the relative movement or rotation of the directional drilling equipment.²⁵ PCD bearings in particular are capable of operating under harsh conditions, and last two to eight times longer than other types of bearings when operating in abrasive fluids.²⁶ The CMA understands that roughly half of the wells in the UK are high-pressure high-temperature wells, and that PCD bearings offer exceptional performance in such environments.²⁷ ChampionX is active in the supply of PCD bearings through its subsidiary US Synthetic.²⁸
22. Bearings, including PCD bearings, are used in RSS, which are a form of drilling technology used to enhance the precision and efficiency of directional drilling operations. RSS allow for the continuous rotation of the drill string, while simultaneously steering the wellbore.²⁹ RSS are used in complex drilling environments, where precise control of the well path is required.³⁰ SLB is active in the supply of RSS as part of its directional drilling services.³¹

5.1.3 Sensors, transducers and PDGs

23. Sensor technologies are used in oilfield applications to collect data and monitor certain downhole conditions (eg temperature and pressure). Pressure sensors can be manufactured from different materials, including quartz, silicon or ceramics. QPSs are typically used for high-value assets in offshore areas such as those in the UK, and are known for their robustness and accuracy in measuring pressure and temperature in such harsh downhole environments.³²
24. QPSs are a component of transducers.³³ The transducer is the entire assembly required to produce the frequency or digital output signals. While the pressure

²³ FMN, paragraphs 109–110.

²⁴ FMN, paragraph 185 and Table 3.

²⁵ FMN, paragraphs 160 and 162.

²⁶ FMN, paragraph 161.

²⁷ Note of a call with a third party, August 2024, paragraph 23; response to the CMA questionnaire from a third party, January 2025, question 3.

²⁸ FMN, paragraph 164.

²⁹ This is in contrast with conventional directional drilling methods, which require frequent stops to make directional adjustments to the well path (see FMN, paragraph 164).

³⁰ FMN, paragraph 164.

³¹ FMN, paragraph 185 and Table 3.

³² FMN, paragraphs 95, 167–168.

³³ FMN, paragraph 168.

sensor detects and measures pressure, the transducer converts this pressure into an electrical output signal that can be read by a computer.³⁴ ChampionX is active in the supply of Quartz Transducers through its Quartzdyne business.³⁵ It does not supply QPSs on a standalone basis.³⁶

25. PDGs incorporate sensors/transducers and are used primarily in well completions to measure certain downhole data. Typical PDGs measure pressure and temperature, but can also measure parameters such as vibration, flow, or strain.³⁷ Quartz technology in PDGs allows for more accurate data measurement, faster transmission, higher resolution of information and greater long-term durability and reliability, particularly in high-pressure high-temperature wells (the CMA understands these represent roughly half of the wells in the UK).³⁸ SLB is active in the supply of PDGs.³⁹

5.2 Market definition

26. Where the CMA makes an SLC finding, this must be ‘within any market or markets in the United Kingdom for goods or services’. An SLC can affect the whole or part of a market or markets. Within that context, the assessment of the relevant market(s) is an analytical tool that forms part of the analysis of the competitive effects of the merger and should not be viewed as a separate exercise, nor an end in itself.⁴⁰
27. Market definition involves identifying the most significant competitive alternatives available to customers of the merger parties and includes the sources of competition to the merger parties that are the immediate determinants of the effects of the merger.⁴¹
28. There may be no need for the CMA’s assessment of competitive effects to be based on a highly specific description of any particular market definition (including, for example, descriptions of the precise boundaries of the relevant markets and bright-line determinations of whether particular products or services fall within the relevant market). The CMA may take a simple approach to defining the market – for example, by describing the market as comprising the most important

³⁴ FMN, paragraph 172.

³⁵ FMN, paragraph 185 and Table 3.

³⁶ Parties’ response to the CMA’s Request for Information, 13 February 2025 (**RFI 8**), footnote 1.

³⁷ FMN, paragraph 175.

³⁸ Note of a call with a third party, August 2024, paragraph 23.

³⁹ FMN, paragraph 185 and Table 3.

⁴⁰ [CMA129](#), paragraphs 9.1 and 9.4.

⁴¹ While market definition can be an important part of the overall merger assessment process, the CMA’s experience is that in most mergers, the evidence gathered as part of the competitive assessment, which will assess the potentially significant constraints on the merger firms’ behaviour, captures the competitive dynamics more fully than formal market definition ([CMA129](#), paragraph 9.2).

constraints on the merger firms that have been identified in the CMA's assessment of competitive effects.⁴²

5.2.1 Product market

5.2.1.1 PCTs

5.2.1.1.1 Parties' submissions

29. The Parties submitted that the supply of PCTs should be segmented by supply arrangement, between (i) the supply of chemical management services (**CMS**), (ii) the stand-alone supply of specialty chemicals, and (iii) the stand-alone supply of commodity chemicals.⁴³ The Parties submitted that there is limited demand-side substitutability between these supply arrangements, as customers generally tender for CMS contracts separately from stand-alone specialty or commodity chemicals, and that there is limited supply-side substitutability because – unlike the supply of commodity chemicals – the supply of specialty chemicals requires technical sophistication, and suppliers of CMS must have significant technical expertise and resources to service these contracts.⁴⁴
30. With regard to CMS contracts, the Parties submitted that:
- (i) these are bespoke, long-term arrangements (at least three to five years), and their defining feature is the requirement for services alongside the provision of PCTs (with the service element typically accounting for a significant proportion of a customer's overall contract spend);⁴⁵
 - (ii) CMS contracts are driven by the specialty chemical component (which also makes up the bulk of sales under such contracts), and in some cases may cover only specialty chemicals;⁴⁶
 - (iii) Suppliers may sometimes provide commodity chemicals under CMS contracts as well, but these are a bolt-on service to the specialty chemicals offering;⁴⁷

⁴² [CMA129](#), paragraph 9.5.

⁴³ FMN, paragraph 194.

⁴⁴ FMN, paragraph 195.

⁴⁵ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 2.3; FMN, paragraph 197.

⁴⁶ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 2.3; FMN, paragraph 198.

⁴⁷ FMN, paragraphs 197–198.

- (iv) the majority (approximately 80% by value) of PCTs sold to E&P companies in the UK are supplied via CMS contracts;⁴⁸ and
- (v) CMS contracts are bespoke and individually negotiated, and as such there is limited demand-side substitutability between individual CMS contracts and stand-alone specialty and/or commodity chemical contracts. However, the Parties submitted that the supply of CMS contracts can be aggregated on the basis of supply-side substitutability, as the same suppliers compete for these contracts, and the same assets are used to service these contracts.⁴⁹

31. With regard to stand-alone specialty chemicals, the Parties submitted that:

- (i) while most specialty chemicals in the UK are supplied through CMS contracts, there are some instances where they are supplied outside of them (eg if the CMS supplier's specialty chemical is not fit for a particular purpose);⁵⁰
- (ii) specialty chemicals supplied outside a CMS contract are subject to the same analysis and testing process as those supplied under these contracts; and that such arrangements are driven by the technical differentiation of the individual specialty chemical required by the customer, and, as a result, are generally not subject to competition;⁵¹ and
- (iii) there is no demand-side substitution for any given stand-alone specialty chemical contract, and the conditions for aggregating such contracts on the supply-side are not met either, as the conditions of supply involve specific circumstances in each case.⁵²

32. With regard to stand-alone commodity chemicals, the Parties submitted that:

- (i) the conditions of competition are different from the supply of CMS and specialty chemicals, given the lower technological sophistication and service requirements involved;⁵³ and
- (ii) the conditions of competition are the same across the supply of all commodity chemicals, with the same suppliers competing to supply them.⁵⁴

⁴⁸ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 2.4.

⁴⁹ FMN, paragraphs 202–204.

⁵⁰ FMN, paragraphs 205–207.

⁵¹ FMN, paragraphs 206 and 209–211.

⁵² FMN, paragraph 209; Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraphs 4.2–4.3.

⁵³ FMN, paragraphs 211–212.

⁵⁴ FMN, paragraph 213.

5.2.1.1.2 CMA's assessment

33. As part of its assessment, the CMA considered the Parties' submissions, the Parties' internal documents, as well as evidence from third parties. The CMA has focused its assessment in this decision on the supply of PCTs to E&P companies as this is the key area of overlap between the Parties' activities, although the CMA understands that some suppliers also supply PCTs to each other.⁵⁵

5.2.1.1.2.1 Internal documents

34. Both Parties' internal documents appear to discuss or analyse the PCT market overall, and consistently identify the other Party as one of a small number of competitors when assessing the competitive landscape in the supply of PCTs.⁵⁶ The service element of these competitors' offering is generally described as a parameter of competition.⁵⁷ The CMA notes that many of these documents are global or regional (eg Europe-wide) in scope, but the picture appears to be the same in UK-focused documents as well, where market dynamics are presented for the supply of PCT as whole, and the ability to provide services is noted as an important parameter of competition. For example:
- (a) A 2022 UK strategy document by ChampionX segments PCT opportunities in 2022 by product (including [REDACTED] alongside [REDACTED] chemical categories identified), and by supplier revenues (identifying [REDACTED] suppliers including both Parties).⁵⁸ The same document identifies ChampionX as a 'market leader due to service differentiation',⁵⁹ and tracks four of ChampionX's competitors (including SLB), assessing their performance against various competitive parameters, which include '[REDACTED]' and '[REDACTED]'.⁶⁰ The same document notes that E&P companies in the UK '[REDACTED]', with ChampionX identified as leading the market, followed by SLB and Baker Hughes.⁶¹

⁵⁵ FMN, paragraphs 179–183.

⁵⁶ For example, see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00012544 to the FMN, '[REDACTED]', November 2022, page 12; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00012844 to the FMN, '[REDACTED]', November 2023, pages 17, 27 and 28; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00030049 to the FMN, '[REDACTED]', September 2024, page 6; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00019100 to the FMN, '[REDACTED]', November 2022, pages 25–26; SLB Internal Document, Annex 40 – SLB000944 to the FMN, '[REDACTED]', undated, page 20; SLB Internal Document, Annex 40 – SLB006378 to the FMN, '[REDACTED]', March 2024, page 6; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000884 to the FMN, '[REDACTED]', September 2023, pages 3 and 64; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00002054 to the FMN, '[REDACTED]', September 2023, page 13; SLB Internal Document, Annex 40 – SLB006364 to the FMN, '[REDACTED]', May 2024, pages 3–6; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00006045 to the FMN, '[REDACTED]', December 2023, page 9; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00006754 to the FMN, '[REDACTED]', November 2022, pages 25–26.

⁵⁷ See for example ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00006754 to the FMN, '[REDACTED]', November 2022, page 26; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000181 to the FMN, '[REDACTED]', undated, page 15; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000953 to the FMN, '[REDACTED]', undated, page 18.

⁵⁸ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000181 to the FMN, '[REDACTED]', undated, page 15.

⁵⁹ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000181 to the FMN, '[REDACTED]', undated, page 17.

⁶⁰ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000181 to the FMN, '[REDACTED]', undated, pages 40–41.

⁶¹ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000181 to the FMN, '[REDACTED]', undated, page 43.

- (b) A 2023 UK strategy document by ChampionX mentions that the '[redacted]' and that customers '[redacted]', noting that 'ChampionX has [redacted] of UK market ([40–50]%), 3 other main vendors have majority of remaining share' (the CMA understands this refers to SLB, Baker Hughes and Clariant).⁶² The same document references previous SWOT analyses carried out for SLB, Baker Hughes and Clariant in the supply of PCTs in the UK.⁶³

35. The CMA notes that some internal documents make factual references to the existence of CMS contracts, [redacted] for PCTs, or to specific CMS opportunities.⁶⁴ However, neither the CMA nor the Parties have identified any internal documents that reference a market for CMS as distinct from the supply of PCTs or other segments within PCTs, assess the competitive landscape specifically in the supply of CMS, or identify competitors in the supply of CMS as distinct from the small group of PCT suppliers consistently identified in internal documents. Some internal documents, mainly those submitted by SLB, appear to make a distinction between the markets for commodity and specialty chemicals, but the CMA notes that these mostly appear to be based on third-party market reports.⁶⁵ ChampionX's internal documents more commonly reference categories of chemicals (eg corrosion management and control) within the overall PCT market, with at least one document assessing competitors' (including SLB's) positions in these narrow product categories.⁶⁶

5.2.1.1.2.2 *Third-party evidence*

36. Third-party evidence generally indicates that customers purchase PCTs according to their specific requirements and/or preferences, and there are no bright lines that would support a segmentation of the PCT market either by product or contract-type. Specifically:

- (a) All customers indicated that they require a combination of specialty and commodity chemicals, and while most indicated that they currently multi-

⁶² ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000953 to the FMN, '[redacted]', undated, page 18.

⁶³ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000953 to the FMN, '[redacted]', undated, page 59.

⁶⁴ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraphs 2.6–2.8; see for example ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00028525 to the FMN, '[redacted]', April 2022, page 63; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00030342 to the FMN, '[redacted]', January 2023, pages 15–16; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00005815 to the FMN, '[redacted]', March 2023, page 21; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000001 to the FMN, '[redacted]', March 2024, page 17; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00030299 to the FMN, '[redacted]', April 2024, page 6; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00030358 to the FMN, '[redacted]', November 2023, pages 17–18.

⁶⁵ For example, see SLB Internal Document, Annex 40 – SLB002110 to the FMN, '[redacted]', December 2022, pages 14–15; SLB Internal Document, Annex 40 – SLB002587 to the FMN, '[redacted]', April 2023, page 37; SLB Internal Document, Annex 40 – SLB003744 to the FMN, '[redacted]', September 2023, pages 4–5.

⁶⁶ For example, see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000181 to the FMN, '[redacted]', undated, pages 15 and 44.

source, several customers also indicated a preference for one-stop shopping.⁶⁷

- (b) Regarding CMS, a small number of customers indicated a requirement (eg due to limited in-house capabilities) and several a preference (eg due to convenience and cost synergies) for CMS contracts, while a small number reported not using CMS contracts at all.⁶⁸
- (c) Similarly, more than half of the customers indicated a preference for purchasing both specialty and commodity chemicals together, a small number have a preference for sourcing specialty chemicals under CMS contracts and commodity chemicals separately, one noted having used separate CMS contracts for specialty and commodity chemicals, and a small number noted a preference for sourcing chemicals separately in general, outside of a CMS structure.⁶⁹

37. All customers listed the same small group of suppliers (the Parties, Baker Hughes and Clariant) when asked about current suppliers in all of these potential segments,⁷⁰ with only one customer specifically mentioning a smaller supplier outside of this group.⁷¹

5.2.1.1.2.3 *Conclusion on product market definition for PCTs*

38. The CMA notes that the overall PCT market could potentially be segmented in various different ways, eg (i) by supply arrangement, between the supply of CMS, stand-alone specialty and stand-alone commodity chemicals, or (ii) by product, between the supply of specialty and commodity chemicals. However, the CMA considers that the evidence does not support a clear-cut segmentation of the overall PCT market along any of these lines.
39. The CMA considers that the evidence indicates that on the demand-side, all customers have unique requirements for PCTs, but they all require a combination of both specialty and commodity chemicals (with associated services in some cases), while on the supply-side the same small group of suppliers (the Parties, Baker Hughes and Clariant) are competing to supply these products and services in the vast majority of cases (see section 5.3.1.2.1 below). The CMA notes that even within a particular contract type (eg CMS), there is variation in the nature,

⁶⁷ Responses to the CMA questionnaire from a number of third parties, January 2025, questions 1–3; note of a call with a third party, October 2024, paragraphs 20–21.

⁶⁸ Responses to the CMA questionnaire from a number of third parties, January 2025, questions 1 and 3; note of a call with a third party, October 2024, paragraphs 32–34.

⁶⁹ Responses to the CMA questionnaire from a number of third parties, January 2025, questions 2 and 3; note of a call with a third party, October 2024, paragraph 28.

⁷⁰ Responses to the CMA questionnaire from a number of third parties, January 2025, question 2.

⁷¹ Note of a call with a third party, October 2024, paragraph 41.

scope and complexity of services required.⁷² The CMA considers that the same suppliers (ChampionX, SLB, Baker Hughes and Clariant) represent the most important constraints in each of these potential segments as well as within the overall market for the supply of PCTs. The Parties' internal documents do not support further segmentation either.

40. Therefore, based on the evidence received, the CMA has considered the market for the supply of PCTs on an overall basis (which includes the provision of related services under CMS contracts, where relevant).⁷³ The CMA has considered the differences between suppliers (including the differences between their service and capabilities), and the differences between the supply of commodity and specialty chemicals in its competitive assessment, where appropriate (see section 5.3.1.2 below).

5.2.1.2 *PCD bearings*

5.2.1.2.1 *Parties' submissions*

41. The Parties submitted that the supply of bearings for industrial applications is the narrowest frame of reference. The Parties further noted that given the versatility of their application, the market for bearings should not be segmented by materials used (eg diamond) or end use (eg RSS equipment).⁷⁴ The Parties submitted that PCD bearings are readily interchangeable with non-PCD alternatives (such as tungsten carbide), which can be used in all well environments, including those in the UK.⁷⁵ The Parties also submitted that some suppliers of PCD bearings also produce tungsten carbide bearings, and that this is indicative of the demand- and supply-side substitutability between these products.⁷⁶

5.2.1.2.2 *CMA's assessment*

42. For the purposes of assessing the vertical relationship between ChampionX as a supplier of PCD bearings, through its subsidiary US Synthetic, and SLB as a supplier of directional drilling services using RSS, the CMA considers that the relevant product market is the supply of PCD bearings.

⁷² See eg Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraphs 3.2 and 3.4; Parties' response to the Issues Letter, 'Project Salt – Draft Issues Meeting Slides', 6 March 2025, page 17.

⁷³ For completeness, the CMA notes that the Office of Fair Trading (OFT) previously considered the supply of 'production chemicals and related services to oil and gas producers' as a single product market – see [Anticipated acquisition by Ecolab, Inc. of Permian Mud Service, Inc.](#), [ME/5696/12] (**Ecolab/Permian Mud Service**), paragraphs 23–26 and 35. However, the CMA also notes that it considers each merger with due regard to the particular circumstances of the case. See [CMA129](#), paragraph 1.12.

⁷⁴ FMN, paragraphs 234–235.

⁷⁵ Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraphs 4.1(a) and 4.4.

⁷⁶ Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 4.5.

43. Contrary to the Parties' submissions that the relevant product market is the supply of bearings for industrial applications, ChampionX's internal documents frequently distinguish between the bearings markets for 'Oil and Gas', 'Industrial' and 'Petro Chemical' applications, discussing opportunities and the competitive landscape in these segments separately.⁷⁷ ChampionX's internal documents frequently describe ChampionX as the market leader in PCD bearings, and note that PCD bearings are mainly used in 'Oil and Gas' applications, while potentially being suitable for wider use.⁷⁸
44. Third-party evidence indicates that there is limited demand-side substitutability between PCD bearings and bearings made of other materials (such as tungsten carbide) when used in RSS, particularly in high-pressure and high-temperature drilling environments (the CMA understands, based on third-party estimates, that around half of the wells in the UK fall into this category).⁷⁹ Third parties indicated that PCD bearings can withstand certain environments and offer a significantly longer lifespan compared to bearings using other materials.⁸⁰ One third party noted that 'PCD bearings remain the preferred choice for RSS applications, and switching to alternatives would compromise tool longevity and efficiency', and that tungsten carbide bearings 'lack the extreme wear resistance and thermal stability of PCD bearings', which are 'critical' in certain drilling environments.⁸¹ Further, third-party evidence indicates that there is limited supply-side substitutability between the supply of PCD and other types of bearings, as the supply of PCD bearings requires specialist technical expertise in diamond synthesis and other techniques, some of which are protected by intellectual property rights.⁸²
45. Based on the evidence above, the CMA considers that there is limited demand-side substitutability between PCD bearings and other types of bearings, due to the unique properties of PCD, which make PCD bearings essential in certain drilling environments. Similarly, due to the technical expertise required to supply PCD bearings, there is limited supply-side substitutability between PCD bearings and other types of bearings.
46. Accordingly, the CMA considers that the relevant upstream product market is the supply of PCD bearings.

⁷⁷ For example, see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00014538 to the FMN, '[<]', January 2024, pages 11–12; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00013251 to the FMN, '[<]', January 2023, page 57.

⁷⁸ For example, see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00012844 to the FMN, '[<]', November 2023, page 48; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00011412 to the FMN, '[<]', June 2024, page 27; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00029533 to the FMN, '[<]', January 2023, page 107; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00012777 to the FMN, '[<]', May 2023, page 53.

⁷⁹ Note of a call with a third party, August 2024, paragraph 23.

⁸⁰ Responses to the CMA questionnaire from a number of third parties, January 2025, question 3; responses to the CMA questionnaire from a number of third parties, January 2025, questions 5 and 6.

⁸¹ Response to the CMA questionnaire from a third party, January 2025, question 3.

⁸² Responses to the CMA questionnaire from a number of third parties, January 2025, question 8.

5.2.1.3 *Directional drilling services using RSS*

5.2.1.3.1 *Parties' submissions*

47. The Parties submitted that the relevant product market is the supply of directional drilling services, which includes the supply of RSS, due to the high degree of complementarity RSS exhibits with other directional drilling products.⁸³

5.2.1.3.2 *CMA's assessment*

48. Although some of SLB's internal documents discuss the RSS market, the majority refer to the directional drilling market and assess SLB's competitive position in that context, or assess the competitive position of SLB's wider well construction and drilling business.⁸⁴
49. Consistent with the Parties' submissions, third-party feedback suggests that RSS is provided as part of directional drilling services, and RSS technology forms part of a 'suite or subset of downhole equipment' required by E&P companies.⁸⁵ Third parties indicated that RSS is generally provided or rented as a service within the drilling services package, which also includes personnel to operate the tools, consultancy services, software etc.⁸⁶ In this regard, according to the Parties' submissions as well as third-party feedback, directional drilling services appear to be tendered together in every case, and RSS is not sold as a standalone product – in fact, RSS is often provided as a service or rented to customers.⁸⁷
50. Based on this evidence, the CMA considers that the relevant downstream product market is the supply of directional drilling services using RSS.

5.2.1.4 *Quartz Transducers*

5.2.1.4.1 *Parties' submissions*

51. The Parties submitted that the market definition can be left open as the Merger does not give rise to competition concerns under any plausible product market

⁸³ FMN, paragraph 239.

⁸⁴ For example, see SLB Internal Document, Annex 40 – SLB007827 to the FMN, '[§<]', January 2022, page 2; SLB Internal Document, Annex 40 – SLB013987 to the FMN, '[§<]', August 2022, page 18; SLB Internal Document, Annex 40 – SLB017395 to the FMN, '[§<]', November 2022, pages 7–8; SLB Internal Document, Annex 40 – SLB012869 to the FMN, '[§<]', July 2022, page 5; SLB Internal Document, Annex 40 – SLB011404 to the FMN, '[§<]', May 2022, pages 4–5; SLB Internal Document, Annex 40 – SLB011127 to the FMN, '[§<]', May 2022, page 7.

⁸⁵ Responses to the CMA questionnaire from a number of third parties, January 2025, question 1.

⁸⁶ Responses to the CMA questionnaire from a number of third parties, January 2025, question 1.

⁸⁷ Annex 50 to the FMN, '[§<]'; responses to the CMA questionnaire from a number of third parties, January 2025, question 1. For completeness, the CMA notes that the European Commission has previously defined the market for directional drilling services (including RSS) (see the European Commission decision in [Schlumberger/Smith International](#) [COMP/M.5839], paragraph 16), and has also considered whether it may possible to segment it further between onshore and offshore services, but ultimately left the market definition open (see the European Commission decision in [GE/Baker Hughes](#) [COMP/M.8297], paragraphs 75–76).

definition.⁸⁸ The Parties also noted that non-quartz alternatives to quartz sensors or Quartz Transducers are viable in over 90% of well conditions, where quartz is not required.⁸⁹

5.2.1.4.2 CMA's assessment

52. For the purposes of assessing the vertical relationship between ChampionX as a supplier of Quartz Transducers, through its Quartzdyne business, and SLB as a supplier of PDGs (using Quartz Transducers), the CMA considers that the relevant product market is the supply of Quartz Transducers.
53. ChampionX's internal documents discuss the 'precision quartz monitoring' market, and consistently describe ChampionX as the leader in QPSs, referencing an 'approximately [90–100]% market share' and distinguishing between different use cases (completions, production/logging and drilling).⁹⁰ ChampionX's internal documents also benchmark against other suppliers of QPSs and Quartz Transducers, whilst noting that most competitors have no track record and/or require investment.⁹¹
54. Third-party evidence suggests that other types of pressure sensors are not a good alternative for QPSs in transducers.⁹² Third parties noted that since PDGs are installed downhole for the lifetime of the well and are extremely expensive to replace, the performance and reliability of the transducers is very important.⁹³ One third party noted that Quartz Transducers are the most stable and precise type of transducer for PDGs.⁹⁴ Another third party noted that QPSs are the 'de facto standard for PDGs due to their ability to provide high accuracy and resolution measurements across a wide temperature range'.⁹⁵ Another third party noted that 'other types of sensors are either less accurate than quartz to begin with, or become less accurate over time, especially when exposed to high temperatures'.⁹⁶
55. The CMA considers that there is limited demand-side substitutability between Quartz Transducers and transducers that use other sensor technologies, due to the unique properties of QPSs (including high accuracy and stability, even when exposed to high pressure and high temperatures). The CMA also considers that,

⁸⁸ FMN, paragraph 242.

⁸⁹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraphs 1.5(b) and 3.11.

⁹⁰ For example, see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00018629 to the FMN, '[>X]', August 2023, page 16; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00022167 to the FMN, '[>X]', August 2024, pages 4–5.

⁹¹ For example, see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00022167 to the FMN, '[>X]', August 2024, page 5.

⁹² Response to the CMA questionnaire from a third party, January 2025, question 3; responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

⁹³ Responses to the CMA questionnaire from a number of third parties, January 2025, question 5.

⁹⁴ Response to the CMA questionnaire from a third party, January 2025, question 5.

⁹⁵ Response to the CMA questionnaire from a third party, January 2025, question 3.

⁹⁶ Response to the CMA questionnaire from a third party, January 2025, question 6.

based on third-party evidence, there appears to be limited supply-side substitutability between Quartz Transducers and transducers that use other sensor technologies, due to the specialist expertise, R&D and track record required for the supply of QPSs in transducers.

56. Accordingly, the CMA considers that the relevant upstream product market is the supply of Quartz Transducers.

5.2.1.5 PDGs

5.2.1.5.1 Parties' submissions

57. The Parties submitted that, since the Merger does not give rise to competition concerns under any plausible product market definition, this can be left open.⁹⁷

5.2.1.5.2 CMA's assessment

58. The CMA notes that it generally received limited SLB internal documents discussing PDGs, albeit some SLB internal documents appear to assess SLB's market position in relation to 'gauges' or 'monitoring tools'.⁹⁸
59. As explained in paragraph 54 above, third parties generally do not view PDGs using Quartz Transducers as substitutable with those that use other types of sensor technology. Third-party evidence suggests – in line with the Parties' submissions – that PDGs are sold to E&P companies either on a standalone basis or as part of the supply of completion services (which encompass a range of products and services for well completion).⁹⁹
60. The CMA considers that there is very limited demand-side substitutability between PDGs using Quartz Transducers and those that use other technologies (see paragraph 54 above), and according to third party evidence, the majority of use cases in the UK require PDGs with Quartz Transducers.¹⁰⁰ However, there appears to be a degree of supply-side substitutability as eg SLB supplies PDGs using Quartz Transducers as well as other types of sensors on a global basis.¹⁰¹

⁹⁷ FMN, paragraph 242.

⁹⁸ For example, see SLB Internal Document, Annex 40 – SLB040906 to the FMN, '[§<]', August 2017, page 32; SLB Internal Document, Annex 40 – SLB041055 to the FMN, '[§<]', September 2018, pages 3 and 10–12.

⁹⁹ Annex 57 to the FMN, 'Salt CMA Teach In – Sensor Technologies and ESP Accessories', page 8; responses to the CMA questionnaire from a number of third parties, January 2025, question 1.

¹⁰⁰ Response to the CMA questionnaire from a third party, January 2025, question 5; responses to the CMA questionnaire from a number of third parties, December 2024, question 4; Annex 53 to the FMN, 'Salt – RFI 5 – Response to Q6–8', January 2025; Parties' response to the CMA's Request for Information, 14 January 2025 (**RFI 6**), paragraph 8.1. The CMA notes that its assessment would not change materially if the market were defined on a narrower basis, to include only the supply of PDGs with Quartz Transducers.

¹⁰¹ Annex 53 to the FMN, 'Salt – RFI 5 – Response to Q6–8', January 2025; Parties' response to the CMA's RFI 6, paragraph 8.1.

The CMA notes that in practice, most PDGs supplied in the UK use Quartz Transducers (see paragraph 195).

61. Based on the evidence above, the CMA considers that the relevant downstream product market is the supply of PDGs.

5.2.2 Geographic market

5.2.2.1 PCTs

62. The Parties submitted that the market for the supply of PCTs through all supply-arrangements (ie CMS or stand-alone contracts) is UK-wide. The Parties submitted that when customers tender for PCTs contracts, they do this either for all their UK assets, or for specific assets in the UK (and, to the Parties' knowledge, these contracts almost never include the wider North Sea or Norwegian Sea area). The Parties also submitted that competitive conditions and regulations are very different between the UK and other European (or non-European) countries.¹⁰²
63. The CMA considers that, based on the Parties' submissions about limited demand-side substitution and regulatory divergences between geographies, the market for the supply of PCTs is UK-wide. The Parties' bidding data indicates that most UK opportunities between 2019 and 2023 for the supply of PCTs were UK-only (ie did not cover other countries).¹⁰³ Third parties also confirmed that the regulations in relation to the supply of PCTs are UK-specific, and several customers stated that the location of a supplier's facilities is an important parameter of competition for PCT suppliers (eg to enable urgent deliveries).¹⁰⁴

5.2.2.2 PCD bearings

64. The Parties submitted that the market for the supply of PCD bearings is global.¹⁰⁵
65. The CMA has not seen any evidence that would support a narrower geographic market definition. ChampionX's internal documents generally refer to the market for PCD bearings in global terms,¹⁰⁶ and the CMA notes that many of ChampionX's customers for PCD bearings are active on a global basis.¹⁰⁷ The CMA therefore considers that the market for the supply of PCD bearings is global.

¹⁰² FMN, paragraph 251.

¹⁰³ Annex 49 to the FMN, '[§<]', 11 December 2024; Annex 64.5 to the FMN, '[§<]', 11 December 2024.

¹⁰⁴ Note of a call with a third party, October 2024, paragraphs 25–26; responses to the CMA questionnaire from a number of third parties, January 2025, question 4.

¹⁰⁵ FMN, paragraph 259.

¹⁰⁶ For example, see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00012271 to the FMN, '[§<]', January 2024, page 20; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00014538 to the FMN, '[§<]', January 2024, pages 11–12.

¹⁰⁷ In particular, in 2023 ChampionX's top 5 customers in PCD bearings were [§<], [§<], [§<], [§<], [§<]. See Annex 13 to the FMN, 'CHX Contact Details', 4 September 2024.

5.2.2.3 Directional drilling services using RSS

66. The Parties submitted that the market for directional drilling services using RSS is global, but considered the UK as the narrowest plausible market on a conservative basis.¹⁰⁸
67. SLB's internal documents frequently appear to distinguish between different regions (such as Europe) or countries in the context of assessing the competitive landscape for SLB's well construction and drilling-related offering.¹⁰⁹ Third-party evidence also indicates that, while the suppliers of directional drilling services using RSS are generally active globally, some are better positioned for UK-specific opportunities due to the technical requirements involved (with a third party noting that UK drilling processes are difficult and expensive, which means customers tend to procure more premium technologies).¹¹⁰ The CMA therefore considered the market for the supply of directional drilling services using RSS on a UK-only basis.

5.2.2.4 Quartz transducers

68. The Parties submitted that the market for the supply of Quartz Transducers is global.¹¹¹
69. The CMA has not seen any evidence that would support a narrower geographic market definition. ChampionX's internal documents generally refer to the market for Quartz Transducers in global terms,¹¹² and the CMA notes that many of ChampionX's customers for Quartz Transducers are active on a global basis as well.¹¹³ The CMA therefore considers that the market for the supply of Quartz Transducers is global.

5.2.2.5 PDGs

70. The Parties submitted that the market for PDGs is global, but considered the UK as the narrowest relevant market on a conservative basis.¹¹⁴

¹⁰⁸ FMN, paragraph 261.

¹⁰⁹ SLB Internal Document, Annex 40 – SLB020740 to the FMN, '[REDACTED]', October 2024, pages 13 and 15; SLB Internal Document, Annex 40 – SLB008399 to the FMN, '[REDACTED]', February 2022, page 19; SLB Internal Document, Annex 40 – SLB010448 to the FMN, '[REDACTED]', April 2022, pages 4 and 15; SLB Internal Document, Annex 40 – SLB012723 to the FMN, '[REDACTED]', July 2022, pages 8–9.

¹¹⁰ Responses to the CMA questionnaire from a number of third parties, January 2025, question 11; note of a call with a third party, October 2024, paragraph 36.

¹¹¹ FMN, paragraph 263.

¹¹² For example, see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00020084 to the FMN, '[REDACTED]', January 2024, page 54; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00018629 to the FMN, '[REDACTED]', August 2023, page 16.

¹¹³ In particular, in 2023 ChampionX's top 5 customers in Quartz Transducers were [REDACTED], [REDACTED], [REDACTED], [REDACTED], [REDACTED]. See Annex 13 to the FMN, 'CHX Contact Details', 4 September 2024.

¹¹⁴ FMN, paragraph 263.

71. Third-party evidence also indicates that, while the suppliers of PDGs are generally active globally, customers in the UK tend to have specific requirements for PDGs, eg for offshore deep-water wells (with third-party estimates also indicating that around half of the wells in the UK are high-pressure high-temperature wells).¹¹⁵ The CMA therefore considered the market for the supply of PDGs on a UK-only basis.

5.2.3 Conclusion on market definition

72. On the basis of the evidence above, the CMA considers that the relevant markets are as follows:
- (a) the supply of PCTs to E&P companies in the UK;
 - (b) the supply of PCD bearings on a global basis;
 - (c) the supply of directional drilling services using RSS in the UK;
 - (d) the supply of Quartz Transducers on a global basis; and
 - (e) the supply of PDGs in the UK.

5.3 Theories of harm

73. The CMA assesses the potential competitive effects of mergers by reference to theories of harm. Theories of harm provide a framework for assessing the effects of a merger and whether or not it could lead to an SLC relative to the counterfactual.¹¹⁶
74. The CMA has considered the following theories of harm:
- (a) Horizontal unilateral effects in the supply of PCTs to E&P companies in the UK (**Theory of Harm 1**);
 - (b) Input foreclosure in the supply of directional drilling services using RSS in the UK (**Theory of Harm 2**); and
 - (c) Input foreclosure in the supply of PDGs in the UK (**Theory of Harm 3**).
75. Each of these theories of harm is considered below.

¹¹⁵ Responses to the CMA questionnaire from a number of third parties, January 2025, question 3 and 5; note of a call with a third party, August 2024, paragraph 23; note of a call with a third party, October 2024, paragraph 37.

¹¹⁶ [CMA129](#), paragraph 2.11.

5.3.1 Theory of Harm 1: Horizontal unilateral effects in the supply of PCTs to E&P companies in the UK

76. Horizontal unilateral effects may arise when one firm merges with a competitor that previously provided a competitive constraint, allowing the Merged Entity profitably to raise prices or to degrade quality on its own and without needing to coordinate with its rivals.¹¹⁷ Horizontal unilateral effects are more likely when the parties to a merger are close competitors.¹¹⁸
77. Closeness of competition is a relative concept. The CMA will consider the overall closeness of competition between the merger firms in the context of the other constraints that would remain post-merger. Where there is evidence that competition mainly takes place among few firms, any two would normally be sufficiently close competitors that the elimination of competition between them would raise competition concerns, subject to evidence to the contrary.¹¹⁹ In addition, where one merger firm has a strong position in the market, even small increments in market power may give rise to competition concerns.¹²⁰
78. The CMA assessed, based on a range of evidence, whether it is or may be the case that the Merger has resulted, or may be expected to result, in an SLC as a result of horizontal unilateral effects in the supply of PCTs to E&P companies in the UK.

5.3.1.1 Parties' submissions

79. The Parties argued that they are highly differentiated and that they are not close competitors in the supply of PCTs to E&P companies in the UK.¹²¹

(a) In describing ChampionX, the Parties submitted that:

- (i) ChampionX is predominantly a chemicals company with a focus on PCTs supply in the UK.¹²² Within PCTs, ChampionX focuses on specialty chemicals,¹²³ and [90–100]% of the value of PCTs supplied by ChampionX in the UK are supplied via CMS contracts.¹²⁴

¹¹⁷ CMA129, paragraph 4.1.

¹¹⁸ CMA129, paragraph 4.8.

¹¹⁹ CMA129, paragraph 4.10.

¹²⁰ CMA129, paragraph 4.12(a).

¹²¹ FMN, paragraph 355.

¹²² FMN, paragraph 329. The Parties argued that this is evidenced by the fact that [80–90]% of ChampionX's 2023 UK revenue came from the supply of PCTs.

¹²³ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 4.6 and Figure 3. The Parties submitted that [90–100]% of ChampionX's 2023 PCT revenues were made up of the supply of specialty chemicals, with the supply of commodity chemicals making up [0–5]% of its 2023 PCT revenues.

¹²⁴ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 2.11 and Figure 2. The supply of stand-alone specialty chemicals makes up [0–5]% of its UK PCT business (by value) whilst the supply of stand-alone commodity chemicals makes up less than [0–5]%.

- (ii) ChampionX does not properly compete in the supply of commodity chemicals in the UK.¹²⁵ ChampionX offers commodity chemicals only as a supplementary product to its wider chemical offering,¹²⁶ and ChampionX only sells commodity chemicals to customers which it already supplies with specialty chemicals.¹²⁷
 - (iii) ChampionX's UK operations include a reaction plant in Fawley as well as a facility in Aberdeen containing an R&D lab, a blending facility and sales offices, with over [3<] staff members working across both locations.¹²⁸ This includes technical production chemists and account managers who rotate offshore to provide technical services to customers.¹²⁹
- (b) In describing SLB, the Parties submitted that:
- (i) SLB is not a chemicals-focused company, with [90–100]% of its UK revenue generated in areas that do not overlap with ChampionX's business.¹³⁰ Within PCTs, SLB focuses on commodity chemicals.¹³¹
 - (ii) SLB lacks the know-how and sophistication to effectively compete in specialty chemicals.¹³² SLB only provides specialty chemicals in instances where the chemistry of an existing CMS supplier proved to be ineffective or for contained CMS contracts in 'anomalous

¹²⁵ FMN, paragraph 332. The Parties noted that ChampionX's market share in the supply of commodity chemicals is only [0–5]% (by value) and [0–5]% (by volume) – see Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 3.10.

¹²⁶ FMN, paragraph 332.

¹²⁷ FMN, paragraph 332. Any commodity chemicals ChampionX does supply, it [3<] (see Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 4.4). The Parties further stated that ChampionX has no incentive to compete for commodity chemicals contracts as they are [3<], with ChampionX only supplying commodity chemicals where it considers it necessary [3<] (Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 4.5).

¹²⁸ Parties' response to the Issues Letter, 'Project Salt – Draft Issues Meeting Slides', 6 March 2025, page 8. Reaction plants are designed to turn raw materials into new chemical compounds or intermediaries, whilst blending plants are utilised for the mixing of pre-existing chemicals such as intermediaries from reaction plants and/or raw materials to create finished PCT products (FMN, paragraph 121).

¹²⁹ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 2.12.

¹³⁰ FMN, paragraph 333. The Parties noted that the supply of PCTs only represents [0–5]% of SLB's UK business.

¹³¹ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 4.7 and Figure 4. The Parties submitted that [50–60]% of SLB's UK PCTs sales revenues (and [90–100]% of its volumes) stem from the supply of commodity chemicals, with the supply of specialty chemicals making up [40–50]% of its 2023 PCT revenues. More specifically, the Parties also stated that [50–60]% of SLB's UK PCT business (by revenue) was made up of its stand-alone commodity supply, with [20–30]% represented by its stand-alone specialty supply and [10–20]% by its CMS supply (Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, Figure 2).

¹³² FMN, paragraphs 333–336.

circumstances'.¹³³ The Parties stated that E&P companies often do not invite SLB to participate in CMS tenders and, if they do, SLB is [X].¹³⁴

- (iii) SLB's UK PCT operations are centred on its Aberdeen storage and blending facility, where [X] staff members who are predominantly responsible for logistics operate from.¹³⁵ SLB does not have an extensive R&D facility, technical service capability or reaction plant in the UK and [X].¹³⁶

80. The Parties further submitted that this lack of closeness of competition is reflected:

- (a) in their bidding data, which shows minimal competition between the Parties across all PCT segments identified by them (ie CMS, stand-alone specialty chemicals and stand-alone commodity chemicals – see section 5.3.1.2.2 below);¹³⁷
- (b) in their internal documents, which evidence minimal competition between the Parties in the UK (see section 5.3.1.2.3 below);¹³⁸ and
- (c) in the CMA's third-party evidence, which suggests limited competition between the Parties in specialty chemicals, with Baker Hughes and Clariant exerting far greater competitive constraints on ChampionX than SLB does (see section 5.3.1.2.4 below).¹³⁹

81. Further, the Parties stated that shares of supply are of limited relevance because: (i) their PCT offerings are highly differentiated; (ii) the decline in the UK oil and gas industry, the predominance of brownfield sites, and customers switching infrequently¹⁴⁰ mean that a small number of high-value and long-term contracts accounts for a high proportion of new revenues; and (iii) the relevant markets are bidding markets and E&P companies control the tendering process.¹⁴¹

¹³³ FMN, paragraph 335. The Parties noted that SLB's share of supply in CMS is only [0–5]% by value and [0–5]% by volume, [X] (Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraphs 3.2 and 3.4). The Parties also submitted that [80–90]% of SLB's limited supply of stand-alone specialty chemicals cover the supply of [X] (Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 4.3).

¹³⁴ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 3.2.

¹³⁵ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 2.14.

¹³⁶ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 2.14.

¹³⁷ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraphs 3.1–3.8.

¹³⁸ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraphs 5.1–5.10.

¹³⁹ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraphs 6.1 and 6.2.

¹⁴⁰ The CMA notes that this is inconsistent with the Parties' submission that customers regularly switch their PCT suppliers. See Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 7.1(e).

¹⁴¹ FMN, paragraph 287.

82. The Parties also stated that the Merged Entity will face competition from several large and well-established competitors.¹⁴² This includes Baker Hughes and Clariant who predominantly compete with ChampionX for CMS contracts.¹⁴³
83. The Parties also identified other suppliers, particularly in relation to the supply of commodity chemicals, that compete with SLB in the UK, including Synthite, Brenntag/Solventis, Peterson Chemicals, REDA Chemicals, Univar, Roemex and Johnson Matthey.¹⁴⁴
84. Moreover, the Parties submitted that E&P companies have countervailing buyer power over PCT suppliers both in the UK and globally, and will continue to do so post-Merger, and particularly that:
- (a) the supply of PCTs represents only a small proportion of E&P companies' product demands from suppliers, leading to customers having significant leverage over PCT suppliers;
 - (b) PCT demand is concentrated among a small number of large customers, who the Parties have no incentive to antagonise;
 - (c) customers have the freedom to design highly competitive tender processes;
 - (d) E&P companies use standardised pricing safeguards and suppliers are regularly subject to commercial audits; and
 - (e) despite switching costs, customers can and do regularly switch suppliers.¹⁴⁵

5.3.1.2 CMA assessment

5.3.1.2.1 Shares of supply

85. Shares of supply can be useful evidence when assessing the structure and degree of concentration in a market. In relation to the market for the supply of PCTs to E&P companies, which includes many different types of chemicals and related services, and where several large contracts are awarded through tenders, the

¹⁴² FMN, paragraphs 355–359.

¹⁴³ FMN, paragraph 358. The Parties described both firms as global leaders with a solid presence in the UK and sizeable customers that they [≥] against [≤]. Like ChampionX, both also supply commodity chemicals in the UK as a bolt-on to their CMS contracts. Moreover, the Parties stated that similar to ChampionX, both Baker Hughes and Clariant have reaction capabilities, R&D support, technical service capabilities and a well-established CMS track record in the UK (Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 2.13).

¹⁴⁴ FMN, paragraph 359; Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 3.3

¹⁴⁵ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 7.1.

CMA has considered evidence on shares of supply alongside evidence on closeness of competition and competitive constraints.¹⁴⁶

86. The Parties submitted share of supply estimates for speciality and commodity chemicals based on UK Government data.¹⁴⁷ Given the robustness of that source and the CMA's own review of the Parties' analysis,¹⁴⁸ the CMA considers the Parties' estimates to be robust. These estimates were used to produce the CMA's estimates in Table 1 below for the supply of all PCTs to E&P companies in the UK in 2021, 2022 and 2023.

Table 1: PCT shares of supply to E&P companies in the UK, 2021–2023 (revenue)¹⁴⁹

<i>Provider</i>	<i>2021</i>	<i>2022</i>	<i>2023</i>
SLB	13%	[10–20]%	[10–20]%
ChampionX	39%	[40–50]%	[50–60]%
Parties (combined)	52%	[50–60]%	[60–70]%
Baker Hughes	31%	[20–30]%	[20–30]%
Clariant	11%	[5–10]%	[5–10]%
Peterson	1%	[0–5]%	[0–5]%
REDA	0.2%	[0–5]%	[0–5]%
Roemex	0.2%	[0–5]%	[0–5]%
Solventis	1%	[0–5]%	[0–5]%
Synthite	1%	[0–5]%	[0–5]%
Other	3%	[0–5]%	[0–5]%
Self-supply	1%	[0–5]%	[0–5]%
Total	100%	100%	100%

Source: CMA's estimates. The CMA combined the Parties' estimated shares of supply for speciality and commodity chemicals to obtain estimated shares for all PCTs. The Parties' underlying estimates of speciality and commodity chemicals are based on data from the Department for Energy Security and Net Zero.

87. The Merged Entity would have a combined share of supply of [60–70]% with an increment of [10–20]% in the supply of PCTs to E&P companies in the UK in 2023.¹⁵⁰ ChampionX's share increased significantly between 2021 and 2023, and as a result the Parties' combined share also increased significantly.¹⁵¹ The Merger combines the largest and third largest suppliers (ChampionX and SLB, respectively), resulting in the Merged Entity being the largest supplier of PCTs to E&P companies in the UK by a large margin, with more than double the share of the next largest player (in 2022 and 2023).

¹⁴⁶ See also [CMA129](#), paragraph 4.15.

¹⁴⁷ Reported by operators in compliance with the Offshore Chemical Notification Scheme.

¹⁴⁸ This included ensuring the underlying data was correctly imported and that assumptions used in the analysis were reasonable. See also ChampionX's response to the CMA's section 109 Notice, 28 November 2024, questions 3–7.

¹⁴⁹ Annex 1 below includes shares of supply estimates for PCTs to E&Ps in the UK covering the years 2021–2023.

¹⁵⁰ ChampionX's market share of [50–60]% is consistent with one of ChampionX's internal documents which suggests that ChampionX roughly has [3<] of the UK market – see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000953 to the FMN, '[3<]', undated, page 18.

¹⁵¹ Over the same period, SLB's share of supply fell marginally, and Baker Hughes' and Clariant' shares of supply also decreased. The shares of supply of smaller competitors mainly fell between 2021 and 2023, with the exception of REDA who saw a marginal increase in its share.

88. The only other significant players in the market are Baker Hughes and Clariant. A number of much smaller competitors are also active in the UK, but accounted for less than [5–10]% of the market in total in 2023.
89. The estimates also show that the market is highly concentrated, and that concentration has increased over the observed timeframe. The Parties, Baker Hughes and Clariant together accounted for [90–100]% of the overall supply of PCTs to E&P companies in the UK in 2023, up from 94% in 2021.¹⁵²
90. The Parties stated that shares of supply for PCTs overall are not meaningful, as they: (i) do not recognise the differentiated nature of the underlying products; (ii) do not account for the requirement of and resources required to deliver services; and (iii) suggest a degree of competitive interaction between the Parties that does not exist.¹⁵³
91. However, the CMA notes that the specialty and commodity chemicals segments of the PCTs market are also both highly concentrated, with material increases in concentration caused by the Merger (see the Annex below):
- (a) In specialty chemicals, the Parties' combined share was more than double that of the next largest player in 2023, and the Merger combines the clear leader (ChampionX) with the fourth largest player (SLB).¹⁵⁴ The Parties, Baker Hughes and Clariant together accounted for around [90–100]% of this segment in 2022 and 2023.
 - (b) In commodity chemicals, the Parties' combined share was several times larger than the share of any other player, and the Merger combines the clear leader (SLB) with the second largest player (ChampionX).¹⁵⁵ The Parties and Baker Hughes alone accounted for more than [70–80]% of this segment in 2023.
92. Even segmenting the market for the supply of PCTs by supply arrangement as proposed by the Parties (see paragraph 29 above) leads to high shares and significantly concentrated segments.¹⁵⁶

¹⁵² This is consistent with a ChampionX internal document that states that ChampionX and three other unnamed main suppliers hold [90–100]% of the UK PCTs market – see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000953 to the FMN, '[3<]', undated, page 18.

¹⁵³ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 3.9.

¹⁵⁴ The Parties had a combined share of supply of [60–70]% in 2023 with an increment of [5–10]% (see Annex below). The Parties are followed by Baker Hughes and Clariant, with smaller suppliers accounting for a negligible [0–5]% combined.

¹⁵⁵ The Parties' combined share of supply in 2023 was [70–80]%, with an increment of [10–20]% (see Annex below). Competitors include Baker Hughes, Synthite and other smaller suppliers.

¹⁵⁶ The Parties estimated that in 2023: their combined share for CMS by revenue was [60–70]%, with a [0–5]% increment, and the Parties, Baker Hughes and Clariant together accounted for [90–100]% of this segment (FMN, Table 7); their combined share for stand-alone specialty chemicals by revenues was [40–50]%, with a [10–20]% increment, and the Parties, Baker Hughes and Clariant together accounted for around [80–90]% of this segment (FMN, Table 8); their combined share of supply for stand-alone commodity chemicals by revenue was [70–80]%, with a [0–5]% increment, and the Parties and Synthite alone accounted for around [80–90]% of this segment (FMN, Table 9).

93. On the basis of the above, the CMA considers that the share of supply estimates show that the only significant players in the supply of PCTs to E&P companies in the UK are the Parties, Baker Hughes and Clariant. Further, the Merged Entity would be by far the largest supplier in the market (and in all the segments considered), with a material increment brought about by the Merger. The small number of credible players and the strong position of ChampionX in the PCTs market (or each of the Parties in the respective segments) suggest that the Parties are close competitors, and the Merger would give rise to prima facie competition concerns.¹⁵⁷

5.3.1.2.2 *Bidding data*

94. The CMA received bidding data from both Parties for 2019 to 2023. These included:¹⁵⁸
- (a) [X] PCT opportunities that SLB bid for. According to the Parties' categorisation, these included [X] CMS opportunities,¹⁵⁹ [X] stand-alone specialty chemical opportunities,¹⁶⁰ and [X] stand-alone commodity chemical opportunities.¹⁶¹
 - (b) [X] PCT opportunities that ChampionX bid for. According to the Parties' categorisation, these included [X] CMS opportunities,¹⁶² [X] stand-alone specialty chemical opportunities,¹⁶³ and [X] stand-alone commodity chemical opportunities.¹⁶⁴

5.3.1.2.2.1 *Parties' submissions*

95. The Parties submitted that this data demonstrates that competition between SLB and ChampionX is not material.¹⁶⁵ Specifically, the Parties submitted that:
- (a) SLB competed for only [X] CMS opportunities worth around [0–5]% of the total value of the [X] CMS opportunities subject to competition between

¹⁵⁷ This is in line with [CMA129](#), paragraphs 4.10 and 4.12(a), as outlined in paragraph 77 above.

¹⁵⁸ Annex 49 to the FMN, 'Win Loss Data', 11 December 2024; Annex 64.5 to the FMN, 'List of Opportunities', 11 December 2024.

¹⁵⁹ Worth around US\$[X].

¹⁶⁰ Worth around US\$[X].

¹⁶¹ Worth around US\$[X].

¹⁶² Worth around US\$[X].

¹⁶³ Worth around US\$[X]. However, regarding their original bidding data submission, the Parties noted in their response to question 11 of the CMA's Request for Information, 18 September 2024 (**RFI 2**), that the majority [X] of ChampionX's stand-alone specialty production chemicals contracts could reasonably be considered as being part of existing CMS contracts. The remaining [X] stand-alone specialty opportunities were worth around US\$[X].

¹⁶⁴ Of which one was worth US\$[X], while the remaining opportunities' values was not known.

¹⁶⁵ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraphs 3.1–3.8.

2019 and 2023.¹⁶⁶ The [X] CMS contracts that SLB bid for are not 'representative', as ChampionX only supplies these contracts due to [X] and the volumes supplied [X] are negligible.¹⁶⁷ ChampionX bid for [X] opportunities, winning [X] and losing [X].¹⁶⁸

- (b) The Parties competed against each other for only [X] stand-alone specialty chemicals opportunities for the same customer, worth less than [0–5]% of the contract value of the stand-alone specialty chemicals opportunities bid for between 2019 and 2023.¹⁶⁹
- (c) While SLB bid for [X] stand-alone commodity chemicals opportunities between 2019 and 2023, ChampionX only bid for [X] small opportunities. The Parties overlapped in [X] opportunities over this timeframe, worth [0–5]% of the total value of stand-alone commodity chemicals that SLB bid for.¹⁷⁰

5.3.1.2.2.2 CMA assessment

- 96. The CMA considers that the Parties' bidding data indicates that there is some differentiation between the Parties. For instance, by value, ChampionX mainly bid for CMS opportunities between 2019 and 2023, whilst SLB mainly bid for stand-alone commodity contracts.¹⁷¹ Moreover, the CMA only identified [X] PCT opportunities for which both Parties bid over the years 2019 to 2023 (out of around [X] opportunities).¹⁷²
- 97. However, whilst the Parties did not compete against each other for a large proportion of their PCT opportunities between 2019 and 2023, the CMA considers that in the context of a highly concentrated PCT market (see paragraph 89 above),

¹⁶⁶ Annex 69 to the Parties' response to the Issues Letter, 'Annex 69: Analysis of bidding data', 6 March 2025, paragraph 7. The Parties submitted that SLB was not aware or was technically disqualified from bidding for [X] out of the [X] CMS contracts, or [90–100]% of the contract value on offer, during the above timeframe (Annex 69 to the Parties' response to the Issues Letter, paragraph 17). The Parties also stated that SLB was not competing for contracts that were not included in the bidding data (ie contract renewals or extensions without any noticeable competition or instances where customers switch supply between existing suppliers; Annex 69 to the Parties' response to the Issues Letter, paragraphs 7 and 23).

¹⁶⁷ Annex 69 to the Parties' response to the Issues Letter, 'Annex 69: Analysis of bidding data', 6 March 2025, paragraph 20.

¹⁶⁸ Annex 69 to the Parties' response to the Issues Letter, 'Annex 69: Analysis of bidding data', 6 March 2025, paragraph 18.

¹⁶⁹ Annex 69 to the Parties' response to the Issues Letter, 'Annex 69: Analysis of bidding data', 6 March 2025, paragraphs 8 and 34. The Parties submitted that such stand-alone specialty chemical contracts are typically not subject to any competition, and that specialty chemicals that are contracted on a stand-alone basis outside of CMS contracts make up less than [5–10]% of the total specialty chemical supply (Annex 69 to the Parties' response to the Issues Letter, paragraphs 8). The Parties further stated that SLB's stand-alone specialty chemical bids tend to result in limited volumes and are restricted to a limited set of chemicals that are more akin to commodity chemicals (Annex 69 to the Parties' response to the Issues Letter, paragraphs 31).

¹⁷⁰ Annex 69 to the Parties' response to the Issues Letter, 'Annex 69: Analysis of bidding data', 6 March 2025, paragraphs 10, 40 and 42.

¹⁷¹ Annex 49 to the FMN, 'Win Loss Data', 11 December 2024; Annex 64.5 to the FMN, 'List of Opportunities', 11 December 2024.

¹⁷² These include [X] CMS opportunities, [X] stand-alone specialty chemicals opportunities and [X] stand-alone commodity chemicals opportunities, and were worth around US\$[X] in total.

the overlap in the bidding data between the Parties is nevertheless material. The CMA also notes that the bidding data may not capture the full extent of competition between the Parties. For instance, while the Parties submitted that SLB's bidding data shows it bid for just [X] of [X] CMS opportunities, other material submitted by the Parties indicates that SLB bid or sought to bid for [X] further CMS opportunities between 2019 and 2023 that are not captured in SLB's bidding data.¹⁷³

98. Moreover, the CMA considers that it is unclear whether some opportunities in the Parties' bidding data, particularly for stand-alone specialty chemicals, were actually subject to competition,¹⁷⁴ and whether it is always possible to draw a clear distinction between different types of opportunities according to the Parties' categorisation.¹⁷⁵ Further, the Parties' bidding data does not allow for a robust analysis of the competitive strength of alternative PCT suppliers.¹⁷⁶
99. Overall, the CMA considers that the Parties' bidding data indicates that, notwithstanding a degree of differentiation between the Parties, there is material competition between the Parties in the supply of PCTs to E&P companies in the UK between 2019 and 2023.

5.3.1.2.3 *Internal documents*

5.3.1.2.3.1 *Parties' submissions*

100. The Parties submitted that their internal documents show that the Parties' PCT offerings are differentiated and that they evidence minimal competition between the Parties in the UK.^{177, 178} In particular, the Parties submitted that:
- (a) ChampionX's internal documents show that it does not view SLB as a close competitor in the UK.¹⁷⁹ The Parties cited a ChampionX internal document which mentions that SLB is weak in specialty chemicals and describes SLB

¹⁷³ FMN, paragraph 370. These opportunities relate to [X]. The CMA notes that SLB bid or had intentions to compete for [X] out of the [X] that ChampionX bid for during the relevant period. Notwithstanding that SLB was [X], this suggests an intention on its part to compete for these CMS opportunities.

¹⁷⁴ See footnotes 163 and 169 above.

¹⁷⁵ See paragraph 95(a) and footnote 169 above.

¹⁷⁶ The Parties submitted that [X] in the ordinary course of business and any record thereof in the bidding data is inaccurate – see Annex 69 to the Parties' response to the Issues Letter, 'Annex 69: Analysis of bidding data', 6 March 2025, paragraph 4.

¹⁷⁷ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraphs 5.1–5.10.

¹⁷⁸ The Parties also referred to a number of ChampionX's internal documents discussing ChampionX's strategy to [X]. The Parties submitted that these documents show ChampionX's lack of interest in materially competing for commodity chemical opportunities [X] (Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 5.4). However, the CMA notes that while these documents may indicate ChampionX's intention to increase its focus on specialty chemicals, they do not clearly evidence a lack of intention to materially compete in the supply of commodity chemicals.

¹⁷⁹ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 5.3.

as a small organisation in the UK,¹⁸⁰ and suggested that it reflects ChampionX's belief that SLB could not compete effectively in CMS contracts which focus on specialty chemicals and related services.¹⁸¹ The Parties also submitted that ChampionX's UK-specific internal documents always mention SLB alongside Baker Hughes and Clariant, who in ChampionX's view are strong competitors in the UK.¹⁸²

- (b) SLB's internal documents show that, on a global level, the Parties' PCT offerings are highly differentiated and complementary.¹⁸³ The Parties also cited an SLB internal document which states that [REDACTED],¹⁸⁴ showing SLB's lack of capabilities to compete for CMS contracts.¹⁸⁵

5.3.1.2.3.2 CMA assessment

101. In their internal documents the Parties monitor each other as major competitors in the supply of PCTs, alongside Baker Hughes, Clariant and Halliburton.¹⁸⁶ While some internal documents include references to smaller regional players such as Roemex, REDA, SNF, Kemira, Innospec and Rockwater,¹⁸⁷ the CMA notes that these documents typically assess the competitive landscape globally, and Halliburton and these smaller regional suppliers have very limited or no presence in the UK.¹⁸⁸
102. Internal documents which discuss the UK-specific competitive landscape show that ChampionX is the largest supplier and clear market leader in the supply of PCTs in the UK.¹⁸⁹ A ChampionX document suggests that ChampionX had a market share of around [40–50]% in the UK in 2023, and its three major competitors (ie SLB, Baker Hughes and Clariant) had a combined market share of [40–50]%.¹⁹⁰

¹⁸⁰ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000953 to the FMN, '[REDACTED]', undated, page 59.

¹⁸¹ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 5.3.

¹⁸² Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 5.2.

¹⁸³ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 5.6; SLB Internal Document, Annex 6.5 to the FMN, '[REDACTED]', April 2024, page 4.

¹⁸⁴ SLB Internal Document, Annex 40 – SLB004838 to the FMN, '[REDACTED]', February 2024, page 52.

¹⁸⁵ Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraph 5.8.

¹⁸⁶ See for example SLB Internal Document, Annex 40 – SLB000944 to the FMN, '[REDACTED]', March 2022, page 20; SLB Internal Document, Annex 40 – SLB004134 to the FMN, '[REDACTED]', December 2020, page 12; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00012844 to the FMN, '[REDACTED]', November 2023, pages 17 and 28; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00029307 to the FMN, '[REDACTED]', November 2023, pages 13 and 24.

¹⁸⁷ See for example SLB Internal Document, Annex 40 – SLB006305 to the FMN, '[REDACTED]', June 2023, pages 7 and 8; Annex 6.2 to the FMN, '[REDACTED]', April 2024, page 4; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00012544 to the FMN, '[REDACTED]', November 2022, page 12; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00019100 to the FMN, '[REDACTED]', November 2022, pages 25 and 26; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00011529 to the FMN, '[REDACTED]', October 2023, page 12.

¹⁸⁸ See shares of supply in Table 1 above; submission to the CMA from a third party, February 2025.

¹⁸⁹ SLB Internal Document, Annex 40 – SLB006305 to the FMN, '[REDACTED]', June 2023, pages 7 and 8; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000953 to the FMN, '[REDACTED]', undated, pages 13 and 18.

¹⁹⁰ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000953 to the FMN, '[REDACTED]', undated, page 18.

103. The CMA considers that, although ChampionX's internal documents do not identify SLB as the closest PCT competitor in the UK,¹⁹¹ they show that the Parties monitor each other as major PCT competitors in the UK. For example:
- (a) ChampionX's internal documents which discuss competition in the supply of PCTs in the UK identify SLB as a major competitor, alongside Baker Hughes and Clariant.¹⁹² One of these documents identifies SLB and Baker Hughes as [X] in the UK in 2021.¹⁹³ The same document also benchmarks ChampionX's performance and opportunity counts in PCTs in the UK against SLB, Baker Hughes and Clariant, and suggests that [X] in the UK in 2021.¹⁹⁴
 - (b) An SLB document which discusses PCT customer opportunities in the UK shows SLB's intention to win various CMS opportunities covering both specialty and commodity chemical businesses from [X].¹⁹⁵ This is also supported by the bidding data which shows that notwithstanding [X], SLB bid or had intentions to compete for [X] out of the [X] CMS opportunities subject to competition between 2019 and 2023.¹⁹⁶
104. Based on the above, the CMA considers that the Parties' internal documents evidence: (i) that, while differentiated, the Parties regard each other as one of very few credible competitors in the supply of PCTs in the UK (with at least one document showing that ChampionX considers SLB as a credible competitor in respect of service provision too); and (ii) SLB's intention to compete for a range of CMS opportunities, covering both specialty and commodity chemicals.

5.3.1.2.4 *Third-party evidence*

105. While the CMA has considered the market for the supply of PCTs to E&P companies overall, taking account of the Parties' submissions on the differentiation between their PCT offerings, the CMA asked third parties for their views in respect of the supply of each of specialty and commodity chemicals separately on a conservative basis.

¹⁹¹ This is evidenced by a ChampionX document which identifies Baker Hughes as ChampionX's biggest competitor in the UK in 2023. See ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00030358 to the FMN, '[X]', February 2024, page 16.

¹⁹² See for example ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000181 to the FMN, '[X]', undated, pages 38–46; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000953 to the FMN, '[X]', undated, page 13.

¹⁹³ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000181 to the FMN, '[X]', undated, page 46.

¹⁹⁴ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00000181 to the FMN, '[X]', undated, pages 28, 40–41. This document shows that SLB had a [X].

¹⁹⁵ SLB Internal Document, Annex 40 – SLB006364 to the FMN, '[X]', May 2024, pages 3–6.

¹⁹⁶ See footnote 173 above.

5.3.1.2.4.1 *Specialty chemicals*

106. The CMA asked the Parties' customers which specialty chemicals suppliers they would consider to be competitive if they were to tender for specialty chemicals for their business in the UK today, prompting customers to rate the strength of specialty chemical suppliers SLB, ChampionX, Baker Hughes and Clariant.¹⁹⁷
107. Out of the customers that rated and identified potential suppliers of specialty chemicals:
- (a) Almost all rated ChampionX as a strong or very strong supplier, with all bar one of those customers rating ChampionX as very strong.¹⁹⁸ Reasons provided for ChampionX's competitiveness included strong local technical support facilities as well as a proven track record with a range of specialty and commodity chemicals.
 - (b) A large majority rated Baker Hughes as a strong or very strong supplier.¹⁹⁹ One customer described Baker Hughes as the main competitor to ChampionX due to its CMS offering.²⁰⁰ Another customer stated that both Baker Hughes and ChampionX have a proven track record with a range of specialty and commodity chemicals.²⁰¹ Nevertheless, one customer stated that whilst Baker Hughes has a good product line, it is less competitive.²⁰²
 - (c) A large majority rated Clariant as a strong or very strong supplier.²⁰³ However, one customer stated that Clariant has a good product line but has limited presence in the UK,²⁰⁴ and two customers stated that Clariant is a weaker competitor that lacks experience or does not have the required technology.²⁰⁵
 - (d) Some rated SLB as a strong or very strong supplier²⁰⁶ and nearly half rated it as a moderate player.²⁰⁷ Specifically, one customer rated SLB as a strong competitor and submitted that SLB has good capabilities with respect to

¹⁹⁷ For each supplier, customers were asked to score the competitiveness of the supplier on a scale from 1 to 5 (where 1 indicated 'very weak' and 5 indicated 'very strong'). In its assessment, the CMA has classified a supplier as 'strong' or 'very strong' where it received a score of 4 or 5 respectively. Customers could identify further suppliers in the questionnaire.

¹⁹⁸ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6. One customer did not provide a rating for ChampionX as it cannot be supplied by ChampionX due to restrictions placed upon the customer by the Office of Foreign Assets Control (OFAC).

¹⁹⁹ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6. One customer did not provide a rating for Baker Hughes as it cannot be supplied by Baker Hughes due to restrictions placed upon the customer by the OFAC.

²⁰⁰ Response to the CMA questionnaire from a third party, January 2025, question 6.

²⁰¹ Response to the CMA questionnaire from a third party, January 2025, question 6.

²⁰² Response to the CMA questionnaire from a third party, January 2025, question 6.

²⁰³ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²⁰⁴ Response to the CMA questionnaire from a third party, January 2025, question 6.

²⁰⁵ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²⁰⁶ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6. One customer did not provide a rating for SLB as it cannot be supplied by SLB due to restrictions placed upon the customer by the OFAC.

²⁰⁷ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

specialty chemicals.²⁰⁸ On the other hand, one customer rated SLB as a weak supplier based on their lack of facilities, chemistry portfolio and CMS experience in the North Sea.²⁰⁹ Another customer also indicated that they do not believe SLB is strong in the UK CMS market.²¹⁰

- (e) A small number of customers identified REDA and Roemex as viable suppliers, and rated these competitors as 'weak' or at most 'moderate'.²¹¹ Although one customer indicated that REDA offers a wide product range,²¹² another customer does not consider Roemex or REDA to be viable alternatives due to their lack of scale, infrastructure and facilities.²¹³

- 108. The CMA also asked the Parties' customers to rate the importance of various factors, such as price, in choosing their specialty chemicals supplier. A large majority of respondents confirmed that the ability of a supplier to offer both specialty and commodity chemicals is important or very important to them when choosing their specialty chemicals supplier.²¹⁴
- 109. The CMA asked the Parties' competitors to list their main competitors in the supply of specialty chemicals in the UK and rate them.²¹⁵
- 110. A relatively small number of competitors provided evidence regarding other suppliers of specialty chemicals, and of those competitors:
 - (a) Almost all identified ChampionX as a strong or very strong supplier.²¹⁶ Two competitors stated that ChampionX is the largest specialty chemicals supplier in the UK,²¹⁷ with another competitor stating that ChampionX has an extensive product portfolio, development resources and budget.²¹⁸
 - (b) Most identified Baker Hughes as a strong or very strong supplier.²¹⁹ One competitor indicated that Baker Hughes has a good local footprint in the UK and is the second largest CMS and specialty chemical supplier by volume, just after ChampionX.²²⁰ Another competitor rated both ChampionX and

²⁰⁸ Response to the CMA questionnaire from a third party, January 2025, question 6.

²⁰⁹ Response to the CMA questionnaire from a third party, January 2025, question 6.

²¹⁰ Response to the CMA questionnaire from a third party, January 2025, question 6.

²¹¹ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²¹² Response to the CMA questionnaire from a third party, January 2025, question 6.

²¹³ Response to the CMA questionnaire from a third party, January 2025, question 6.

²¹⁴ Responses to the CMA questionnaire from a number of third parties, January 2025, question 4.

²¹⁵ The CMA asked competitors to provide a rating on a scale from 1 to 5 (where 1 indicated 'very weak' and 5 indicated 'very strong'). In its assessment, the CMA has classified a supplier as 'strong' or 'very strong' where it received a score of 4 or 5 respectively.

²¹⁶ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²¹⁷ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²¹⁸ Response to the CMA questionnaire from a third party, January 2025, question 6.

²¹⁹ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²²⁰ Response to the CMA questionnaire from a third party, January 2025, question 6.

Baker Hughes as very strong suppliers due to their global corporate support.²²¹

- (c) A few identified Clariant as a strong or very strong supplier, noting its extensive product portfolio, development resources, supply chain capability and innovation.²²² However, one competitor indicated that Clariant had lost significant market share over the last decade.²²³
- (d) A few identified SLB as a strong or very strong supplier.²²⁴ One competitor noted that SLB has a CMS contract in place in the UK and enjoys a high use of 'one off applications' in other UK assets.²²⁵ Another competitor noted SLB's extensive product portfolio, development resources and budget.²²⁶ However, one competitor indicated that SLB has limited activities in the supply of specialty chemicals in the UK,²²⁷ and another competitor similarly indicated that SLB has limited specialty chemical contracts in the UK.²²⁸
- (e) One identified REDA as a strong supplier, noting its growing presence and ability to manufacture its own chemicals.²²⁹ A few rated REDA as a weak supplier.²³⁰
- (f) Competitors also identified FIS Chemicals, Innospec, Kemira and Roemex, but none of them was seen as a strong or very strong supplier.²³¹

111. The Parties submitted that third-party evidence suggests limited competition between the Parties in specialty chemicals, in that most customers confirmed that ChampionX is a strong player in specialty chemicals, while only a third of the customers rated SLB as such.²³² The Parties also submitted that third-party evidence suggests that Baker Hughes and Clariant exert far greater competitive constraints on ChampionX than SLB does.

112. Taking the above evidence in the round, the CMA considers that while Baker Hughes and Clariant appear to compete more closely with ChampionX in the supply of specialty chemicals in the UK, SLB also represents a material competitive constraint on ChampionX. ChampionX is seen as the leading specialty chemicals supplier in the UK by both customers and competitors. While third-party evidence generally suggests that Baker Hughes and Clariant are strong/very

²²¹ Response to the CMA questionnaire from a third party, January 2025, question 6.

²²² Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²²³ Response to the CMA questionnaire from a third party, January 2025, question 6.

²²⁴ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²²⁵ Response to the CMA questionnaire from a third party, January 2025, question 6.

²²⁶ Response to the CMA questionnaire from a third party, January 2025, question 6.

²²⁷ Response to the CMA questionnaire from a third party, January 2025, question 6.

²²⁸ Response to the CMA questionnaire from a third party, January 2025, question 6.

²²⁹ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²³⁰ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²³¹ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6.

²³² Parties' response to the Issues Letter, 'Production Chemicals Technologies – Response to CMA Issues Letter', 6 March 2025, paragraphs 6.1–6.2.

strong competitors in specialty chemicals, a considerable number of customers and competitors view SLB as at least a moderate competitor, with a material number viewing it as strong/very strong.

113. Third-party evidence also suggests that other smaller suppliers were generally seen as weaker players in the market. This is consistent with shares of supply in the specialty chemicals segment (see paragraph 91(a) and Table A in the Annex) and internal documents on the overall PCT market, which show, respectively, that both the specialty chemicals segment and the overall market for the supply of PCTs are highly concentrated among the Parties, Baker Hughes and Clariant. The CMA therefore considers that the Merger will result in the consolidation of the clear market leader with one of just three other significant specialty chemical suppliers in the UK.²³³

5.3.1.2.4.2 *Commodity chemicals*

114. Similar to specialty chemicals above, the CMA asked the Parties' customers which commodity chemicals suppliers they would consider to be competitive if they were to tender for commodity chemicals for their business in the UK today, prompting customers to rate the strength of commodity chemicals suppliers SLB, ChampionX, Baker Hughes, Clariant, Peterson, REDA, Roemex, Solventis and Synthite.²³⁴
115. Out of the customers that identified potential suppliers of commodity chemicals:
- (a) A large majority rated SLB as a strong or very strong supplier.²³⁵ Some of these customers indicated that SLB is a leader in the supply of commodity chemicals, is very well established and that the supply of commodity chemicals is part of SLB's business model in which it has years of supply experience.²³⁶
 - (b) A large majority rated ChampionX as a strong or very strong supplier.²³⁷ In particular, one customer rated ChampionX as the leader in the supply of commodity chemicals alongside SLB, explaining that this was based on their recent tender experience,²³⁸ and another customer also described ChampionX as very well established supplier.²³⁹ On the other hand, one customer rated ChampionX as a very weak supplier, noting that the supply of

²³³ See shares of supply section above and third-party views on commodity PCTs below.

²³⁴ Customers could identify further suppliers in the questionnaire.

²³⁵ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7. One customer did not provide a rating for SLB as it cannot be supplied by SLB due to restrictions placed upon the customer by the OFAC.

²³⁶ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

²³⁷ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7. One customer did not provide a rating for ChampionX as it cannot be supplied by ChampionX due to restrictions placed upon the customer by the OFAC.

²³⁸ Response to the CMA questionnaire from a third party, January 2025, question 7.

²³⁹ Response to the CMA questionnaire from a third party, January 2025, question 7.

sole commodity chemicals is not part of its business model,²⁴⁰ and another customer said that while ChampionX has some commodity chemicals capability, it is unlikely to be commercially competitive.²⁴¹

- (c) Half rated Baker Hughes as a strong or very strong supplier.²⁴² However, one customer indicated that Baker Hughes is well established but less competitive than the Parties.²⁴³ One customer stated that whilst Baker Hughes has some commodity chemicals capability, it is unlikely to be commercially competitive.²⁴⁴ One customer stated that Baker Hughes prefers to focus on higher margin specialty chemicals.²⁴⁵ Another customer also indicated that the supply of sole commodity chemicals is not part of Baker Hughes' business model.²⁴⁶
- (d) Half rated Clariant as a strong or very strong supplier.²⁴⁷ However, one customer stated that whilst Clariant has some commodity chemicals capability, it is unlikely to be commercially competitive.²⁴⁸ One customer mentioned that Clariant prefers to focus on higher margin specialty chemicals.²⁴⁹ One customer indicated that it does not see Clariant as a supplier of commodity chemicals,²⁵⁰ and another customer similarly indicated that the supply of sole commodity chemicals is not part of Clariant's business model.²⁵¹
- (e) Only a small number rated REDA as a strong or very strong supplier.²⁵² On the other hand, one customer described REDA as a small-scale specialty chemicals supplier that is not known for its commodity chemicals supply,²⁵³ and another described REDA's offering as limited.²⁵⁴ Another customer stated that REDA is a small provider in the UK and may struggle to service complex multi-field operators.²⁵⁵
- (f) Only one rated Synthite as a strong supplier,²⁵⁶ and only one rated Peterson as a strong supplier.²⁵⁷ No customer rated Synthite or Peterson as a very

²⁴⁰ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁴¹ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁴² Responses to the CMA questionnaire from a number of third parties, January 2025, question 7. One customer did not provide a rating for Baker Hughes as it cannot be supplied by Baker Hughes due to restrictions placed upon the customer by the OFAC.

²⁴³ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁴⁴ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁴⁵ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁴⁶ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁴⁷ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

²⁴⁸ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁴⁹ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁵⁰ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁵¹ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁵² Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

²⁵³ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁵⁴ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁵⁵ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁵⁶ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

²⁵⁷ Response to the CMA questionnaire from a third party, January 2025, question 7.

strong supplier. The majority of customers also identified Solventis as a supplier but viewed it mainly as a weak supplier or a moderate supplier at best.²⁵⁸

116. The CMA also asked the Parties' customers to rate the importance of various factors, such as price, in choosing their commodity chemicals supplier. The CMA notes that a large majority of respondents submitted that the ability of a supplier to offer both specialty and commodity chemicals is important or very important to them when choosing their commodity chemicals supplier.²⁵⁹
117. As for specialty chemicals above, the CMA asked the Parties' competitors to list and rate their main competitors in the supply of commodity chemicals in the UK.
118. Out of the competitors that identified other suppliers of commodity chemicals:²⁶⁰
- (a) All identified SLB as a strong or very strong supplier,²⁶¹ with one competitor describing SLB as the largest supplier of commodity chemicals in the UK,²⁶² and another one describing it as the primary supplier of commodity chemicals to the UK North Sea.²⁶³
 - (b) Most identified ChampionX as a strong or very strong supplier,²⁶⁴ with one competitor describing ChampionX as the second largest commodity chemical supplier by volume,²⁶⁵ and another one stating that ChampionX is strong in commodity chemicals as part of existing CMS contracts it has in place.²⁶⁶ However, a few competitors indicated that ChampionX is more focused on specialty chemicals,²⁶⁷ and one of them also stated that ChampionX is uncompetitive in commodity chemicals due to its higher margin demands.²⁶⁸
 - (c) Only one identified REDA as a very strong supplier.²⁶⁹ One competitor mentioned that REDA can manufacture its own products and is able to drive raw material costs down as a result.²⁷⁰ Another competitor stated that REDA

²⁵⁸ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

²⁵⁹ Responses to the CMA questionnaire from a number of third parties, January 2025, question 5.

²⁶⁰ One of these competitors appeared to have identified commodity chemical suppliers who may not be active in supplying commodity chemicals to E&P companies in the UK, including Methanex (rated as 'strong'), Solvecco (rated as 'moderate'), Kronospan (rated as 'weak') and Bakelite (rated as 'weak'). This competitor's response is therefore excluded from the CMA's assessment on third-party views on competitive constraints on the supply of commodity chemicals.

²⁶¹ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

²⁶² Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁶³ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁶⁴ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

²⁶⁵ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁶⁶ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁶⁷ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

²⁶⁸ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁶⁹ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁷⁰ Response to the CMA questionnaire from a third party, January 2025, question 7.

was picking up momentum in the supply of commodity chemicals as it is able to supply them at lower margins.²⁷¹

- (d) Only one identified Clariant as a very strong supplier.²⁷² One competitor mentioned that Clariant lacks the purchasing power of other competitors and focuses on the supply of niche specialty chemicals.²⁷³ Another competitor stated that Clariant supplied very low volumes of commodity chemicals in the UK in 2024.²⁷⁴
- (e) Only one identified Baker Hughes as a strong supplier,²⁷⁵ and no competitor rated Baker Hughes as very strong. One competitor mentioned that Baker Hughes only has limited commodity chemical supply in conjunction with CMS contract activity.²⁷⁶ Two competitors indicated that Baker Hughes is more focused on specialty chemicals,²⁷⁷ and one of them also stated that Baker Hughes is uncompetitive in commodity chemicals due to its higher margin demands.²⁷⁸
- (f) One customer identified FIS Chemical but considered it 'moderate'.²⁷⁹ One customer identified Roemex but considered it 'weak'.²⁸⁰

119. Taking the above evidence in the round, the CMA considers that SLB is seen as the leading supplier of commodity chemicals in the UK by both customers and competitors, and ChampionX as the second strongest supplier and the closest competitor. Further, third-party evidence suggests that the Parties face a much weaker constraint from other players (including Baker Hughes, Clariant and REDA) than from each other.²⁸¹

5.3.1.2.4.3 *Impact of the Merger*

120. Half of the customers who responded to the CMA did not have any views on the impact of the Merger on competition. Of those that did, several customers viewed the Merger positively, noting that the Merger would allow the Parties to combine their complementary product offering to offer an integrated solution with a broader

²⁷¹ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁷² Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁷³ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁷⁴ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁷⁵ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁷⁶ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁷⁷ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

²⁷⁸ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁷⁹ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁸⁰ Response to the CMA questionnaire from a third party, January 2025, question 7.

²⁸¹ The remaining competitors that were mentioned by third parties, ie Roemex, Peterson, Solventis, FIS Chemical and Synthite, were seen as weaker suppliers of commodity chemicals.

product range.²⁸² On the other hand, a small number of customers expressed concerns regarding the Merger:

- (a) One customer submitted that the Merger will negatively impact competition in the PCTs market in the UK North Sea area, and noted that a recent tender illustrated that there is a lack of sufficient suppliers, potentially leading to a reduction in innovation and an increase in prices. This customer also noted wider industry consolidation and that the Merger would create a 'single extremely dominant company'.²⁸³
- (b) Another customer submitted that the Merger will lead to 'one fewer option' and higher prices across the market.²⁸⁴

121. The majority of competitors who responded to the CMA had negative views on the Merger and expressed various concerns over the impact of the Merger on competition:

- (a) One competitor submitted that the Merged Entity will have a 'disproportionate' market share in PCTs in the UK making it hard for rivals to compete effectively. This competitor also submitted that the Merger will lead to a reduction in choice for customers.²⁸⁵
- (b) One competitor submitted that the Merger would reduce the number of suppliers in an 'already concentrated' market for PCTs, leading to a reduction in number of 'major' PCTs suppliers from four to three. This competitor also submitted that SLB and ChampionX are already both 'very strong players' in the North Sea (including the UK) and that, post-Merger, all rivals will be 'distant competitors'. It also submitted that the UK market is 'fragmented', and that it is not aware of any customer with sufficient countervailing buyer power.²⁸⁶
- (c) One competitor submitted that the Merged Entity would have 'market dominance' in the UK PCTs market. This competitor noted that the Merger would combine the largest specialty chemicals supplier (ie ChampionX) with what is probably the largest commodity chemicals supplier (ie SLB), and that it would be hard for rivals to compete effectively. This competitor estimated that the Merged Entity would have a market share of 60–65%, with the next largest competitor (Baker Hughes) having a 17% share.²⁸⁷

²⁸² Responses to the CMA questionnaire from a number of third parties, January 2025, question 12.

²⁸³ Response to the CMA questionnaire from a third party, January 2025, question 12.

²⁸⁴ Response to the CMA questionnaire from a third party, January 2025, question 12.

²⁸⁵ Response to the CMA questionnaire from a third party, January 2025, question 9.

²⁸⁶ Response to the CMA questionnaire from a third party, January 2025, question 9.

²⁸⁷ Response to the CMA questionnaire from a third party, January 2025, question 9.

- (d) Another competitor submitted that customers would be discouraged to run CMS tenders or proceed with best-in-class evaluations, given much of the market would be controlled by the Merged Entity.²⁸⁸

5.3.1.2.4.4 CMA's views on third-party evidence

122. Overall, the CMA considers that the third-party evidence set out above shows that the Parties, alongside Baker Hughes and Clariant, are the only significant players in the supply of PCTs in the UK, including both specialty and commodity chemicals. In particular, this evidence shows that the Parties compete closely in the supply of commodity chemicals and that, despite not being ChampionX's closest competitor in the supply of specialty chemicals, SLB exerts a material competitive constraint on Champion X. Whilst some smaller competitors are also active in the market, third-party evidence indicates that they do not exert a material competitive constraint on the Parties.
123. Moreover, the CMA notes that SLB and ChampionX are among the very few suppliers with a material presence in the supply of both specialty and commodity chemicals in the UK, and third parties generally regarded ChampionX as the leader in specialty chemicals and SLB as the leader in commodity chemicals. The CMA considers that this, alongside the fact that a supplier's ability to offer both specialty and commodity chemicals is important to a large proportion of customers (see paragraphs 108 and 116 above), indicates that the Merged Entity would face very few material competitive constraints in the UK.

5.3.1.3 Conclusion on Theory of Harm 1

124. Irrespective of the segmentation, the market for the supply of PCTs to E&P companies in the UK is highly concentrated, with one Party being the clear market leader, and the other Party either being the second largest (for commodity chemicals) or one of just a handful of credible players (for specialty chemicals).
125. The CMA considers that the Parties, alongside Baker Hughes and Clariant, are the only significant competitors in the supply of PCTs to E&P companies in the UK, including in each of the specialty and commodity chemicals segments, which indicates that the Parties are close competitors.
126. While some smaller competitors are also active in the supply of PCTs, particularly commodity chemicals, having considered the evidence in the round, these competitors are currently marginal suppliers in the UK and the CMA believes that they are unlikely to impose a material constraint on the Merged Entity.

²⁸⁸ Response to the CMA questionnaire from a third party, January 2025, question 9.

127. The combination of the Parties' respective leading positions in specialty (ChampionX) and commodity chemicals (SLB), alongside the small number of significant competitors, indicates that the Merged Entity would face very few material competitive constraints in the supply of PCTs (including both specialty and commodity chemicals) to E&P companies in the UK, with its closest competitors being significantly smaller than the Merged Entity.
128. Accordingly, the CMA considers that the Merger gives rise to a realistic prospect of significant competition concerns as a result of horizontal unilateral effects in the supply of PCTs to E&P companies in the UK.

5.3.2 Theories of Harm 2 and 3: Vertical effects

129. Vertical effects may arise when a merger involves firms at different levels of the supply chain. A concern is that the merger may result in the foreclosure of rivals – ie the merged entity will be able to use its position in one market to harm the competitiveness of its rivals in the other. This would weaken the constraints that the merged entity faces and as a result harm competition and therefore customers.²⁸⁹
130. In the present case, the CMA has considered whether the Merged Entity could engage in input foreclosure in relation to the supply of: (a) directional drilling services using RSS in the UK; and (b) PDGs in the UK.
131. The CMA's approach to assessing vertical theories of harm is to analyse: (a) the ability of the merged entity to foreclose competitors, (b) its incentive to do so, and (c) the overall effect of the strategy on competition. In practice, the analysis of these questions may overlap, and many factors may affect more than one question.²⁹⁰ The CMA considers these cumulative conditions below for each theory of harm.

5.3.3 Theory of Harm 2: Input foreclosure in the supply of directional drilling services using RSS in the UK

132. The CMA has considered whether the Merged Entity would be able to harm the competitiveness of SLB's rivals in the supply of directional drilling services using RSS in the UK by restricting their access to ChampionX's PCD bearings (total foreclosure) or offering them on worse terms (partial foreclosure).
133. For example, this may be by refusing to supply the input (total foreclosure) or by increasing the price, worsening the quality of the input supplied to them, including delaying or reducing access to future product improvements and/or reducing

²⁸⁹ [CMA129](#), paragraph 7.2.

²⁹⁰ [CMA129](#), paragraph 7.10.

collaboration with respect to future development, affecting integration of the product (partial foreclosure). This might then harm overall competition in the downstream market to the detriment of customers.²⁹¹ The CMA's focus is on understanding if collectively these mechanisms would allow the merged entity to foreclose its rivals, not on predicting the precise actions it would take.²⁹²

134. As part of this theory of harm, the CMA has also considered whether post-Merger the Merged Entity could gain access to rivals' CSI in the supply of directional drilling services using RSS due to ChampionX's role as their PCD bearing supplier. This could allow the Merged Entity to compete less aggressively, eg with prices or product specifications only marginally better than its rivals, and may also deter rivals from innovating.²⁹³

5.3.3.1 *Ability*

5.3.3.1.1 *Parties' submissions*

135. The Parties submitted that the Merged Entity would not have the ability to materially affect directional drilling competitors' ability to compete in the UK (or anywhere) by withholding the supply of PCD bearings for RSS for the following reasons:²⁹⁴

- (a) There are existing alternative suppliers of PCD bearings, including Aseeder, Monton, GTD, Xiongchen, Hyperion, Wedo and XR Team.²⁹⁵
- (b) There are alternative steering mechanisms deployed in directional drilling services (eg mud rotors).²⁹⁶

²⁹¹ [CMA129](#), paragraph 7.9.

²⁹² [CMA129](#), paragraph 7.13.

²⁹³ [CMA129](#), paragraph 7.3.

²⁹⁴ The Parties also submitted that, in order to facilitate a timely US clearance of the Merger, they entered into a binding agreement to divest US Synthetic on closing of the Merger and that the CMA's review of the Merger can therefore exclude US Synthetic from the relevant merger situation (Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraphs 2.1–2.2). The CMA notes that the US Synthetic divestiture is structured to complete after the closing of the Merger. The CMA further notes that merger parties can put forward possible UILs to the CMA case team at any stage during the phase 1 investigation for discussion (see [Guidance on Mergers Remedies \(CMA87\)](#), 13 December 2018, paragraphs 4.3–4.4). The Parties have not put forward the US Synthetic divestment to the CMA as a proposed UIL. While the Parties made submissions about the effectiveness of the US Synthetic divestment (Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 2.5), these were brief and made at a late stage in the CMA's statutory timetable, limiting the CMA's ability to test their robustness. In any event, a decision on the existence and scope of an SLC precedes and is independent of the decision on whether any UILs offered address the competition concerns identified ([CMA87](#), paragraph 4.5). Accordingly, the CMA does not consider it appropriate to address these submissions further in this decision.

²⁹⁵ Annex 55 to the FMN, 'Salt CMA Teach In – Drilling Technologies', November 2024, slide 11; Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraphs 4.1(b) and 4.5.

²⁹⁶ Annex 55 to the FMN, 'Salt CMA Teach In – Drilling Technologies', November 2024, slide 14; Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraphs 4.1(c) and 4.6.

- (c) PCD bearings are only used in some RSS, ie any foreclosure strategy could only target a very small proportion of the available steering systems.²⁹⁷
- (d) PCD bearings are a negligible proportion of total RSS costs, and any attempt to increase price would not meaningfully impact downstream competitors.²⁹⁸
- (e) It is not possible to target downstream competitors active in the UK as SLB has no visibility over which steering mechanism is being deployed or whether directional drilling competitors even use bearings in their RSS or the type of bearing used,²⁹⁹ and as ChampionX also has no visibility over where PCD bearings are used.³⁰⁰
- (f) E&P customers have no knowledge of (or interest in) what bearing is used in the RSS when selecting a directional drilling service supplier.^{301, 302}

5.3.3.1.2 CMA's assessment

136. To assess the Merged Entity's ability to foreclose SLB's rivals in the supply of directional drilling services using RSS in the UK, the CMA has considered evidence from the Parties and from third parties on: (a) market power upstream; (b) the importance of the input; and (c) foreclosure mechanisms and CSI.

5.3.3.1.2.1 Market power upstream

137. The CMA has considered a range of evidence to assess ChampionX's position in the supply of PCD bearings.³⁰³
138. Data gathered by the CMA from ChampionX and third-party suppliers of PCD bearings indicates that ChampionX had a [90–100]% share by revenue in the supply of PCD bearings worldwide in 2023.³⁰⁴

²⁹⁷ Annex 55 to the FMN, 'Salt CMA Teach In – Drilling Technologies', November 2024, slides 4 and 18; Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 4.7.

²⁹⁸ Annex 55 to the FMN, 'Salt CMA Teach In – Drilling Technologies', November 2024, slide 18; Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraphs 4.1(d) and 4.8.

²⁹⁹ Annex 55 to the FMN, 'Salt CMA Teach In – Drilling Technologies', November 2024, slide 18.

³⁰⁰ Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 4.2.

³⁰¹ Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 4.1(e).

³⁰² Given the stage of the phase 1 investigation at which this submission was made, the CMA has not been able to test this with third parties. In any event, it is not clear why this would limit the Merged Entity's ability to engage in foreclosure, including because of the limited availability of credible alternative bearings for directional drilling services suppliers (see paragraphs 140–144).

³⁰³ [CMA129](#), paragraph 7.14(a).

³⁰⁴ CMA analysis based on Parties' estimates (Parties' response to the CMA's RFI 8, table 1) and responses to the CMA questionnaire from a number of third parties, January 2025, question 2. This is broadly consistent with the Parties' own estimate that ChampionX had a share of around [90–100]% globally in 2023 (FMN, paragraph 26.1).

139. ChampionX's internal documents describe US Synthetic as the '[X]' in PCD bearings,³⁰⁵ and suggest that US Synthetic's PCD bearings are viewed by one of its competitors as the '[X]'.³⁰⁶ Moreover, the CMA has not seen any document that benchmarks the performance of US Synthetic against any other competitors in relation to PCD bearings.³⁰⁷
140. Several third parties submitted that ChampionX is the market leader in the supply of PCD bearings globally,³⁰⁸ with some explaining that this is due to, among other things, ChampionX's established customer relationships and its ability to leverage its PDC cutters production to provide cost-effective PCD bearings solutions.³⁰⁹ One third-party PCD bearings supplier identified Sichuan Xiongchen Technology and Aseeder as its competitors, alongside ChampionX.³¹⁰ However, third-party feedback shows that overall there are no alternative suppliers of PCD bearings that would offer similar performance, reliability and quality compared to ChampionX.³¹¹
141. Consistent with third parties' views on the availability of alternatives, the CMA estimates that, by revenue, [60–70]% of the RSS supplied by third-party suppliers of directional drilling services in the UK included PCD bearings from ChampionX.^{312, 313}
142. When assessing market power upstream, the CMA may also investigate if there are features of the market that may limit the constraint from upstream rivals.³¹⁴
143. In particular, the CMA asked bearings suppliers how difficult it is to enter or expand in the supply of PCD bearings. Most respondents noted some features in the production of PCD bearings that impact suppliers' ability to compete effectively.³¹⁵ Those include economies of scale, technical expertise and

³⁰⁵ See for example ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00015130 to the FMN, '[X]', March 2023, page 3. See also ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00014538 to the FMN, '[X]', January 2024, page 12 which suggests to '[X]'. The CMA has not identified any SLB internal documents directly discussing '[X]'.

³⁰⁶ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00016958 to the FMN, '[X]', undated, page 4.

³⁰⁷ While ChampionX's internal documents usually monitor other competitors in the wider context of drilling technologies as a whole, these documents only identify suppliers of PDC cutters (as opposed to PCD bearings), such as MegaDiamond, as competitors in drilling technologies (see for example ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00011529 to the FMN, '[X]', October 2023, page 12; ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00013251 to the FMN, '[X]', January 2023, page 55).

³⁰⁸ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

³⁰⁹ Responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

³¹⁰ Response to the CMA questionnaire from a third party, January 2025, question 7.

³¹¹ Note of a call with a third party, August 2024, paragraph 9; note of a call with a third party, August 2024, paragraph 29; note of a call with a third party, January 2025, paragraph 30; responses to the CMA questionnaire from a number of third parties, January 2025, question 7.

³¹² Responses to the CMA questionnaire from a number of third parties, December 2024, question 3; submission to the CMA from a third party, March 2025.

³¹³ The CMA further notes that PCD bearings from ChampionX are also used in a substantial proportion of SLB's RSS. In particular, SLB said that [40–50]% to [50–60]% of RSS supplied in the UK between 2021 and 2023 included PCD bearings from ChampionX (Annex 53 to the FMN, '[X]', January 2025).

³¹⁴ [CMA129](#), paragraph 7.14(a).

³¹⁵ The remaining respondent did not directly address the question – see response to the CMA questionnaire from a third party, January 2025, question 8.

manufacturing capabilities, high fixed costs (eg equipment, certification and compliance costs), brand and reputation (eg established customer relationships while new entrants lack the necessary track record), and pre-existing intellectual property on PCD technology (some of which is owned by ChampionX).³¹⁶

144. In addition, all bearings suppliers who responded to the CMA and a customer noted that each RSS tool requires a customised PCD bearings assembly. This makes it difficult for customers to switch their PCD bearings supplier as they would need to find a supplier capable of producing the same configuration, revalidate new designs and conduct field testing.³¹⁷
145. For the reasons set out above, the CMA believes that ChampionX has market power in the supply of PCD bearings, being the clear market leader globally. The CMA has not identified alternative suppliers of PCD bearings that would offer similar performance, reliability and quality required by ChampionX's customers, nor received clear evidence of potential entrants who could do so in the short term.³¹⁸

5.3.3.1.2.2 *Importance of input*

146. The CMA has considered whether PCD bearings play an important role in shaping competition between suppliers of directional drilling services using RSS.³¹⁹
147. PCD bearings are used in RSS to allow for improved relative movement or rotation of the drilling equipment (see paragraph 21 above). Typically, an RSS contains two sets of bearings (ie upper and lower thrust bearings). PCD bearings are more expensive than other bearings.³²⁰ Notwithstanding this, the Parties stated that most RSS used in the UK have both sets of bearings made of PCD.³²¹ The CMA believes that this indicates PCD bearings are important for the functioning of most RSS used in the UK.

³¹⁶ Responses to the CMA questionnaire from a number of third parties, January 2025, question 8.

³¹⁷ Responses to the CMA questionnaire from a number of third parties, January 2025, question 5; response to the CMA questionnaire from a third party, January 2025, question 11; note of a call with a third party, August 2024, paragraphs 29 and 30.

³¹⁸ One PCD bearing supplier, who identified ChampionX as 'market leader' and a 'very strong' competitor, also identified Sichuan Xiongchen Technology as a 'strong' competitor with 'reliable' manufacturing capabilities, noting that they are a 'new entrant' (response to the CMA questionnaire from a third party, January 2025, question 7). The CMA notes that this is an isolated submission which is not supported by other third-party submissions and that PCD bearings customers did not identify viable alternative suppliers. Another third party stated that it is at an early stage of pursuing a project with a customer to supply some PCD bearings, albeit on a test basis only, noting that it is highly unlikely that the bearings would be used in the UK (note of a call with a third party, January 2025, paragraph 8). Moreover, one third party submitted that 'it does not believe that a potential entrant (of which there are no known candidates) could develop and scale up PCD bearing production in the short term due to IP and investment barriers' (submission to the CMA from a third party, June 2024, paragraph 11). Almost all bearings suppliers who responded to the CMA confirmed this point by identifying high barriers to entry or expansion in the supply of PCD bearing (responses to the CMA questionnaire from a number of third parties, January 2025, question 8).

³¹⁹ In line with [CMA129](#), paragraph 7.14(b).

³²⁰ Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 4.4.

³²¹ Parties' response to the CMA's RFI 6, paragraph 14.2.

148. ChampionX's internal documents suggest that PCD bearings are an important input for the supply of directional drilling services using RSS; for example, an investor-day presentation notes that diamond bearings are incorporated as 'critical elements in downhole tools'.³²²
149. Evidence from third parties similarly indicates that PCD bearings are a very important input for the supply of directional drilling services using RSS in the UK, with third parties describing PCD bearings as 'essential to enable modern RSS' and as a 'critical component of RSS'.^{323, 324} The CMA estimates that, by revenue, [60–70]% of the RSS supplied by third-party suppliers of directional drilling services in the UK in 2023 included PCD bearings.^{325, 326}
150. The CMA also understands that in the event of foreclosure, some directional drilling tools could become inoperable and be viewed by RSS customers as obsolete and unacceptable.³²⁷
151. For the reasons set out above, the CMA considers that PCD bearings are an important input in the supply of directional drilling services using RSS. Moreover, PCD bearings are used widely in directional drilling services supplied in the UK.

5.3.3.1.2.3 *Foreclosure mechanisms and CSI*

152. As noted in paragraph 133, the CMA has considered potential total and partial foreclosure mechanisms through which the Merged Entity might be able to harm SLB's rivals' competitiveness in the supply of directional drilling services using RSS in the UK. The CMA notes that some of these mechanisms may be used in combination and has not attempted to predict the precise actions the Merged

³²² This ChampionX document suggests that suppliers of drilling services rely on premium diamond technology for reliable and efficient drilling, and that PCD bearings are incorporated as 'critical elements in downhole tools' (see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00006986 to the FMN, '[redacted]', March 2023, page 89). Another document also suggests that the use of PCD bearings is important for significantly reducing impact drilling costs as it allows faster drilling and reduces interruptions (see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00016958 to the FMN, '[redacted]', undated, pages 3–4). One ChampionX document also indicates that US Synthetic's [redacted] customers are investing in new RSS products that incorporate PCD bearings (see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00006906 to the FMN, '[redacted]', October 2022, page 69). Another document similarly suggests there is a rapid increase in demand for PCD bearings in the industry (see ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00011348 to the FMN, '[redacted]', April 2022, page 7).

³²³ Submission to the CMA from a third party, June 2024, paragraph 15; responses to the CMA questionnaire from a number of third parties, January 2025, question 5.

³²⁴ This is consistent with third-party feedback indicating that there is limited demand-side substitutability between PCD bearings and bearings made of other materials (see paragraph 44 above).

³²⁵ Responses to the CMA questionnaire from a number of third parties, December 2024, question 2(ii); responses to the CMA questionnaire from a number of third parties, January 2025, question 4; submission to the CMA from a third party, March 2025.

³²⁶ The CMA further notes that SLB used PCD bearings as an input in a significant proportion of the RSS it supplied in the UK between 2021 and 2023, and that the proportion of RSS SLB supplied in the UK using PCD bearings increased steadily from [40–50]% in 2021, to [40–50]% in 2022 and to [50–60]% in 2023 (Annex 53 to the FMN, '[redacted]', January 2025). The CMA further understands that SLB introduced PCD as an option in the RSS it supplies in the UK in 2018 and that there has been a transition over time from tungsten carbide to PCD, particularly for bearings that are susceptible to wear (Issues Meeting at 2:10:31 and 2:10:51; likely SLB's Sales and Marketing Director, Europe).

³²⁷ Response to the CMA questionnaire from a third party, January 2025, question 12; submission to the CMA from a third party, June 2024, paragraphs 9 and 11.

Entity might take, nor the precise impact of each possible deterioration on rivals' businesses, but has instead focused on the question of whether collectively they could be used to foreclose rivals.³²⁸

153. In relation to the Parties' submissions that PCD bearings represent a small proportion of the cost of an RSS,³²⁹ the CMA understands that, while PCD bearings have a small impact on the total cost of RSS and drilling systems, they play an important role in drilling efficiency (eg by helping customers drill faster and reducing interruptions and unprofitable downtime, thereby enabling drilling at lower total cost).³³⁰ Therefore, the CMA considers that, irrespective of the cost of PCD bearings, the Merged Entity could still foreclose RSS rivals (eg by refusing to supply PCD bearings or reducing their quality). Moreover, the customisation of PCD bearings³³¹ makes a partial foreclosure strategy through the non-price mechanisms outlined in paragraph 133 plausible.
154. In relation to the Parties' submissions that it is not possible to target downstream competitors active in the UK as the Parties have no visibility of where PCD bearings are used or of directional drilling competitors' activities,³³² the CMA notes that SLB's main rivals are all active in the UK. The CMA considers that any foreclosure strategy could be implemented globally and would impact SLB's rivals' competitiveness in all settings where RSS benefit from PCD bearings, including in the UK.³³³
155. The CMA has also considered whether post-Merger the Merged Entity could gain access to CSI of its rivals in the supply of directional drilling services using RSS due to ChampionX's role as their PCD bearings supplier (see paragraph 134 above).
156. The Parties noted that it is common for vertical supply relationships to involve the exchange of at least some CSI to serve the needs of a downstream customer (including joint product development). However, the Parties considered that in the absence of any ability and incentive for a vertically integrated supplier to foreclose, as would be the case here, downstream customers can choose to use non-vertically integrated supplier alternatives or rely on contractual confidentiality

³²⁸ [CMA129](#), paragraphs 7.13 and 7.14(b).

³²⁹ See paragraph 135(d) above.

³³⁰ ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00006986 to the FMN, 'Investor Day', March 2023, page 85, which states that 'diamond inserts and bearings enable faster, longer drilling at lower total cost'. This is also supported by feedback from a supplier of bearings, which stated that 'PCD bearings offer a significantly longer lifespan compared to other materials, reducing maintenance costs'. See response to the CMA questionnaire from a third party, January 2025, question 3.

³³¹ See paragraph 144 above.

³³² See paragraph 135(e) above.

³³³ In relation to the Parties' submission that less than [30–40]% of bearings used in RSS systems globally are PCD bearings, and therefore any indiscriminate, global foreclosure strategy would simply result in diversion away from US Synthetic in the vast majority of cases (Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 4.10), the CMA notes that there is limited demand-side substitutability between PCD bearings and bearings made from other materials (see paragraph 45 above).

restrictions.³³⁴ With regard to PCD bearings specifically, the Parties further submitted that there is limited collaboration between RSS manufacturers and suppliers of diamond bearings.³³⁵

157. Third-party feedback from both bearings suppliers and directional drilling services providers shows that customers and suppliers collaborate closely in the design of PCD bearings for use in their RSS. This collaboration often includes the exchange of technical product specifications and drawings and the development of prototypes and deployment plans.³³⁶
158. The CMA notes that while CSI is generally protected by non-disclosure agreements (**NDAs**) with ChampionX, these NDAs may not adequately protect the interests of downstream suppliers. In some cases, the Merger would entitle SLB, as an affiliate of ChampionX, to access such information.
159. In particular, the CMA has reviewed two examples of NDAs between ChampionX's subsidiary US Synthetic and suppliers of directional drilling services.³³⁷ While both NDAs contain [REDACTED],³³⁸ these contractual protections may not be sufficient to adequately limit SLB's ability to access its competitors' CSI post-Merger.³³⁹
160. In practice, such contractual protections generally do not completely remove a firm's ability to harm its rivals. Moreover, over time contracts may be renegotiated or terminated, and firms may waive their rights to enforce any breaches in light of their overall bargaining position (reflecting the change in market structure brought about by a merger).³⁴⁰
161. Overall, the CMA believes that the Merged Entity could have the ability to access CSI of at least some of its rivals post-Merger. Moreover, the CMA considers that, irrespective of whether the Merged Entity would be able to use competitors' CSI, this could still deter rivals from innovating (see paragraph 134 above).

³³⁴ Parties' response to the CMA's Request for Information, 28 November 2024 (**RFI 4**), paragraph 2.1.

³³⁵ Parties' response to the CMA's RFI 4, paragraph 2.4.

³³⁶ Responses to the CMA questionnaire from a number of third parties, January 2025, question 6; responses to the CMA questionnaire from a number of third parties, January 2025, question 11; submission to the CMA from a third party, June 2024, paragraph 23.

³³⁷ Namely, NDAs between US Synthetic and each of [REDACTED] and [REDACTED].

³³⁸ NDA between US Synthetic and [REDACTED], Annex 31.11 to the FMN, Clauses 3–5; NDA between US Synthetic and [REDACTED], Annex 31.12 to the FMN, Clause 3.

³³⁹ In fact, one of the NDAs submitted by the Parties could permit SLB to access customer's CSI post-Merger. See NDA between US Synthetic and [REDACTED], Annex 31.12 to the FMN, Preamble ([REDACTED]). [REDACTED]. Additionally, the CMA notes that these agreements constitute a limited sample which may not be representative of agreements entered into with other suppliers of directional drilling services.

³⁴⁰ [CMA129](#), paragraph 7.15.

5.3.3.1.3 *CMA's conclusion on ability*

162. For the reasons set out above, the CMA believes that the Merged Entity would have the ability to foreclose competitors in the supply of directional drilling services using RSS in the UK.

5.3.3.2 *Incentive*

5.3.3.2.1 *Parties' submissions*

163. The Parties submitted that the Merged Entity would not have the incentive to foreclose competing suppliers of directional drilling services using RSS in the UK as the Merged Entity would risk substantially reducing upstream sales of bearings with no meaningful chance of recouping downstream directional drilling services given (i) the unimportance of the input which is only used in some RSSs, and (ii) its low value relative to the downstream service.³⁴¹

5.3.3.2.2 *CMA's assessment*

164. To assess the Merged Entity's incentive to foreclose rivals of SLB in the supply of directional drilling services using RSS in the UK, the CMA has considered the likelihood and magnitude of the benefits and losses of any foreclosure strategy.³⁴²

5.3.3.2.2.1 *Gains in downstream sales*

165. The CMA has considered the extent to which the Merged Entity would gain downstream sales from foreclosing other competing suppliers of directional drilling services using RSS in the UK. Those gains will be greater if the Merged Entity has a more successful downstream offering, and if it competes closely with the rivals that may be foreclosed. It is also likely to be greater if the Merged Entity has a particularly strong ability to foreclose.³⁴³

5.3.3.2.2.1.1 *Shares of supply*

166. The Parties submitted that there are multiple alternatives in the supply of directional drilling services, including Patterson-UTL, Scientific Drilling, Baker Hughes, Halliburton, Weatherford, Phoenix Technology Services and COSL.³⁴⁴ The Parties estimated that SLB had a [60–70]% market share, making it the market leader in the supply of directional drilling services using RSS in the UK in 2023. The Parties further estimated that SLB's share increased between 2021 and

³⁴¹ Annex 55 to the FMN, 'Salt CMA Teach In – Drilling Technologies', November 2024, slide 18; Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 4.9.

³⁴² In line with [CMA129](#), paragraphs 7.16 and 7.19.

³⁴³ In line with [CMA129](#), paragraph 7.19(b).

³⁴⁴ Annex 55 to the FMN, 'Salt CMA Teach In – Drilling Technologies', November 2024, slide 17.

2023 by more than [60–70]% (ie from [30–40]% to [60–70]%), whilst the share of competitors fell significantly.³⁴⁵

167. The CMA's share of supply analysis shows that SLB had a UK market share by RSS revenue of [90–100]% in 2023.³⁴⁶ The CMA's analysis also showed that SLB's market share increased significantly between 2021 and 2023, consistent with the Parties' estimates.³⁴⁷ Noting that the CMA's estimate of SLB's market share is significantly larger than the Parties' estimate, the CMA considers that qualitatively both show that SLB is by far the market leader in the supply of directional drilling services using RSS in the UK.

5.3.3.2.2.1.2 *Bidding data*

168. The Parties also submitted a list of opportunities won and lost by SLB for the supply of RSS in the UK from 2021 to 2023, including where RSS was contracted as a standalone product or part of a wider drilling services agreement.³⁴⁸ The CMA used this dataset to calculate SLB's win ratio, ie the share of all UK RSS opportunities won by SLB between 2021 and 2023.³⁴⁹ SLB's win ratio based on contracts value was [50–60]%. Only three competitors participated and won some of the listed opportunities. These were Baker Hughes with a [30–40]% win ratio, Halliburton with a [5–10]% win ratio, and Weatherford with a [0–5]% win ratio.
169. The CMA considers that SLB's win ratio is broadly consistent with its estimated market share. Moreover, the CMA's analysis shows that the supply of directional drilling services in the UK is a highly concentrated market with SLB as the market leader, Baker Hughes as its main competitor, and others having a very limited presence. Additionally, the list of RSS opportunities includes several contracts which SLB won to provide a range of products alongside directional drilling and/or RSS, including [redacted]. This indicates that SLB's strength is also due to its broad offering.

³⁴⁵ Parties' response to the CMA's Request for Information, October 2024 (**RFI 3**), 'SLB – CHX – Consolidated list of market shares.xlsx'. The CMA notes that the Parties submitted a share of supply of 42% for SLB for 2021; however, based on SLB revenue of £14.2m and a total UK market size of £37.3m for 2021, the CMA arrived at an estimate of 38%.

³⁴⁶ Based on data from SLB and third-party suppliers of directional drilling services using RSS in the UK.

³⁴⁷ Annex 53 to the FMN, 'Salt – RFI 5 – Response to Q6–8', January 2025; responses to the CMA questionnaire from a number of third parties, January 2025, question 2.

³⁴⁸ Annex 50 to the FMN, '[redacted]', December 2024. The Parties only provided opportunities whose value was equal to or exceeded \$100k in total. The Parties argued that opportunities below this value are typically not competitive and were therefore excluded from these lists (Annex 50 to the FMN, '[redacted]', December 2024, tab 'Notes'). While the CMA was not able to test this assumption, it considers that the estimated win ratios are consistent with the Parties' market share estimates (see paragraph 166).

³⁴⁹ The CMA included in its analysis only contracts which SLB bid for (ie [redacted] out of the [redacted] opportunities submitted by the Parties). The [redacted] opportunities for which SLB did not bid were won by [redacted], respectively. Those [redacted] opportunities were relatively small in value compared to the opportunities SLB bid for and won. As such, SLB's win ratio would not be significantly lower (ie [50–60]%) if those were included in the analysis.

5.3.3.2.2.1.3 *Margins*

170. The assessment of incentives typically involves a combination of quantitative and qualitative evidence, though the balance will vary between cases. The CMA may undertake more extensive quantitative analysis in simple markets with high quality data but place more weight on a qualitative assessment in complex markets such as in this case, where firms have wide-ranging activities in the UK.³⁵⁰
171. Nonetheless, the CMA has collected evidence on variable margins (in percentage and absolute terms) to support its assessment of gains downstream. The CMA considers that SLB's downstream margins in RSS are material.³⁵¹ Particularly SLB's UK contribution margin, which measures the profitability of SLB's RSS division in the UK, is significant. Taken together with the material size of the market for directional drilling services in the UK,³⁵² the CMA considers these margins indicate that gains downstream are likely to be material.³⁵³

5.3.3.2.2.1.4 *Strength of SLB's offering downstream*

172. Qualitative evidence from third parties on the strength of SLB's offering is also consistent with the quantitative evidence set out above.
- (a) All third-party RSS suppliers that responded to the CMA identified SLB's as a 'very strong' competitor in the supply of RSS to E&P companies in the UK.^{354, 355}
- (b) The CMA also asked E&P companies which suppliers they would consider if they were to procure RSS today for their business in the UK, prompting E&P companies to rate the strength of the RSS offering of SLB, Baker Hughes, Halliburton and Weatherford.³⁵⁶

³⁵⁰ [CMA129](#), paragraph 7.18, 7.19(e).

³⁵¹ SLB's 2023 Cost of goods sold (**COGS**) margin (ie (total revenue – COGS) / total revenue) for RSS was [20–30]% both worldwide and in the UK (Parties' response to the CMA's RFI 2, Table 9). SLB's contribution margin (ie variable profit per unit) was £[><] worldwide and £[><] in the UK (Parties' response to the CMA's Request for Information, January 2025 (**RFI 5**), Table 10).

³⁵² In particular, based on the Parties' estimates, the UK RSS market value was £[><] in 2023.

³⁵³ The CMA has considered the downstream gains in the UK. However, to the extent that ChampionX's PCD bearings are used in RSS in other countries, the Merged Entity's total gains from a foreclosure strategy could be larger.

³⁵⁴ Responses to the CMA questionnaire from a number of third parties, January 2025, question 3.

³⁵⁵ In particular, one supplier explained that SLB is 'likely the largest competitor in this market' (response to the CMA questionnaire from a third party, January 2025, question 3), another that SLB is the 'global market share leader for [RSS]' (response to the CMA questionnaire from a third party, January 2025, question 3), and another that SLB 'has long been the dominant party in the [RSS] market' (response to the CMA questionnaire from a third party, January 2025, question 3).

³⁵⁶ E&P companies could identify further suppliers in their response. Respondents did not identify any additional RSS suppliers that they either currently use in their UK operations or would consider to be competitive if they were to procure RSS for their business in the UK today (Responses to the CMA questionnaire from a number of third parties, January 2025, questions 10 and 11).

- (i) Respondents rated SLB's RSS offering in the UK, on average, as 'strong to very strong', due to a proven field record and strong technical offering, among other reasons.³⁵⁷
- (ii) Respondents rated Baker Hughes' and Halliburton's RSS offering in the UK, on average, as 'strong'.³⁵⁸
- (iii) Respondents rated Weatherford's RSS offering in the UK, on average, as 'moderate'.³⁵⁹

173. The CMA also notes that SLB's broad product portfolio (see also paragraph 169 above) and its positioning as an oilfield services company suggests that the gains from foreclosure could be larger when taking into account the complex market structures across various oilfield services, including the fact that SLB competes closely with Baker Hughes and Halliburton not only for RSS but also for other well construction and completions products and services, including PDGs (as discussed further in paragraph 228 below).³⁶⁰ In particular, to the extent that E&P companies prefer procuring well construction/drilling (and possibly well completions) products and services from a single supplier, rivals' foreclosure in RSS may also lead to gains in other markets.

5.3.3.2.2.2 *Losses in upstream sales*

174. The CMA has considered the extent to which the Merged Entity would incur losses upstream from foreclosing other suppliers of directional drilling services using RSS in the UK. Those losses are likely lower if the Merged Entity has strong market power upstream, and if it can engage in price discrimination or similar targeted deterioration of supply.³⁶¹
175. As explained in section 5.3.3.1.2.1 above, the CMA believes that ChampionX has significant market power upstream, being the clear market leader globally.
176. The CMA has also collected evidence on variable margins to support its assessment of losses upstream. The CMA considers that whilst ChampionX's upstream COGS margin in PCD bearings is [30–40]%, the contribution margin is [30–40]%, suggesting that losses upstream are likely to be limited.³⁶² Moreover, it is unlikely

³⁵⁷ Responses to the CMA questionnaire from a number of third parties, January 2025, question 11. One E&P company did not provide a rating for SLB, noting that SLB is 'not used'.

³⁵⁸ Responses to the CMA questionnaire from a number of third parties, January 2025, question 11. One E&P company did not provide a rating for Baker Hughes, noting that Baker Hughes is 'not used'.

³⁵⁹ Responses to the CMA questionnaire from a number of third parties, January 2025, question 11. One E&P company did not provide a rating for Weatherford.

³⁶⁰ See also submission to the CMA from a third party, June 2024, paragraph 22.

³⁶¹ In line with [CMA129](#), 7.19(c).

³⁶² ChampionX's 2023 COGS margin for PCD bearings globally was [30–40]% (Parties' response to the CMA's RFI 2, Table 10). ChampionX's contribution margin was £[30–40] assuming that two PCD bearings are used in RSS (see paragraph 147 above; Parties' response to the CMA's RFI 5, Table 10). For comparison, SLB's contribution margin was £[30–40] for RSS in the UK.

that any loss of sales would be significant and offset the gains downstream for a couple of reasons. First, the Merged Entity could reduce losses by targeting select rivals, or by engaging in partial foreclosure,³⁶³ with RSS suppliers unlikely to switch given the lack of effective alternatives to ChampionX and the importance of the input. Second, the upstream market is significantly smaller than the downstream market.³⁶⁴

177. For these reasons, the CMA considers that the losses of upstream sales are likely to be limited.

5.3.3.2.2.3 Conclusion on downstream gains and upstream losses

178. Given, (i) SLB's strong position and successful downstream offering (see Section 5.3.3.2.2.1 above), (ii) the Merged Entity's strong ability to foreclose given ChampionX' market power upstream and the importance of the input (see sections 5.3.3.1.2.1–5.3.3.1.2.2 above), and (iii) the potential gains in other markets too (see paragraph 173 above), the CMA considers that the potential gains from foreclosure are likely to outweigh the potential losses.

5.3.3.2.3 CMA's conclusion on incentive

179. For the reasons set out above, the CMA believes that the Merged Entity would have the incentive to foreclose competitors in the supply of directional drilling services using RSS in the UK.

5.3.3.3 Effect

5.3.3.3.1 Parties' submissions

180. The Parties submitted that any hypothetical foreclosure strategy would have no meaningful effect in the UK for the following reasons:

- (a) There are no UK RSS customers to foreclose. [REDACTED]. Even this supply is only due to [REDACTED].³⁶⁵

³⁶³ The CMA notes that partial foreclosure may also reduce the gains downstream.

³⁶⁴ In particular, the Parties estimated the size of the bearings market globally to be £[REDACTED] in 2023. This includes also non-PCD bearings and as such is an overestimate of the size of the PCD bearings market. In comparison, the Parties estimated the size of the RSS market globally to be £[REDACTED] (Parties' response to the CMA's RFI 3, 'SLB – CHX - Consolidated list of market shares.xlsx').

³⁶⁵ Annex 55 to the FMN, 'Salt CMA Teach In – Drilling Technologies', November 2024, slide 18; Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 4.10.

- (b) There is very limited, and rapidly declining, new drilling activity taking place in the UK.³⁶⁶ As of the end of 2023, there were already only 19 active oil rigs in the UK, and this is projected to be halved by the end of 2025.³⁶⁷

5.3.3.3.2 CMA's assessment

181. The CMA has considered whether the harm to SLB's competitors would result in substantial harm to overall competition in the supply of directional drilling services using RSS in the UK.³⁶⁸ Competition concerns may be particularly likely to arise if one of the merger firms has a degree of pre-existing market power in the downstream market, and already faced limited competitive constraints pre-merger.³⁶⁹
182. As discussed in paragraphs 166 and 168 above, SLB is the largest directional drilling services supplier in the UK. Based on the CMA's analysis of market shares and opportunities, the downstream market is concentrated with only four suppliers (ie SLB, Baker Hughes, Halliburton and Weatherford). Moreover, there are no rivals of SLB active in the supply of directional drilling services in the UK that are vertically integrated (ie that have an in-house supply of PCD bearings),³⁷⁰ and that would be unaffected by foreclosure.³⁷¹ These factors indicate that the firms that could be foreclosed play an important role in the competitive process of the downstream market.
183. The CMA also asked third parties their views about the impact of the Merger on competition. A few respondents considered the impact to be negative in relation to this market, believing that the Merged Entity would have the ability and incentive to restrict access or worsen terms of supply of ChampionX's PCD bearings to SLB's competitors, which would undermine the competitors' ability to compete with SLB in the market for RSS.³⁷² One respondent further submitted that the Merger would also adversely affect the market dynamics and intensity of competition in general, through a reduction in technical innovation, increased costs, and reduced efficiency.³⁷³
184. In relation to the Parties' submissions that a foreclosure strategy would have no effect on UK-based customers, the CMA believes that a foreclosure strategy would impact competition in the UK. Specifically, the CMA estimates that, by revenue, [60–70]% of the RSS supplied by third-party suppliers of directional drilling

³⁶⁶ Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 3.2.

³⁶⁷ Parties' response to the Issues Letter, 'PCD Bearings – White Paper Submission', 6 March 2025, paragraph 3.3.

³⁶⁸ [CMA129](#), paragraph 7.20.

³⁶⁹ [CMA129](#), paragraph 7.21.

³⁷⁰ Submission to the CMA from a third party, June 2024, paragraph 10.

³⁷¹ [CMA129](#), paragraph 7.22.

³⁷² Responses to the CMA questionnaire from a number of third parties, January 2025, question 15; submission to the CMA from a third party, June 2024, paragraphs 4 and 22.

³⁷³ Response to the CMA questionnaire from a third party, January 2025, question 15.

services in the UK included PCD bearings from ChampionX (see paragraph 141 above). One third party also stated that the manufacturing facilities of US or multinational oilfield service companies generally incorporate ChampionX's inputs into their end products and ship these products to wherever they may be sold or used.³⁷⁴

185. In relation to the Parties' submissions that there would be no substantial effect in the UK given the declining drilling activity in the UK, the CMA notes that drilling is expected to continue at least in the foreseeable future. Based on the 'UKCS 2024 Wells Insights Report', up to 15 exploration and appraisal wells are expected to be drilled in 2025 and up to 31 wells in 2026 (compared with 16 wells drilled in 2023),³⁷⁵ whilst 57 development wells are planned for 2025 and 31 development wells are planned for 2026 in the UK Continental Shelf (**UKCS**).³⁷⁶ Moreover, according to the North Sea Transition Authority, '[t]he UKCS is a mature basin and its existing well infrastructure [...] still presents opportunities to access new areas of a reservoir and increase recovery factors, via new spuds and sidetracks'.³⁷⁷ Given this, the CMA considers that there will be demand for directional drilling services using RSS in the UK at least in the foreseeable future and therefore, any foreclosure strategy of the Merged Entity would have an effect on competition in the UK.
186. For the reasons set out above, the CMA considers that a foreclosure strategy would significantly harm overall competition in the supply of directional drilling services using RSS in the UK.

5.3.3.4 *Conclusion on Theory of Harm 2*

187. For the reasons set out above, the CMA believes that the Merged Entity would have the ability and the incentive to foreclose rival suppliers of directional drilling services using RSS in the UK, and that this would significantly harm overall competition. Accordingly, the CMA found that the Merger gives rise to a realistic prospect of significant competition concerns as a result of input foreclosure in the supply of directional drilling services using RSS in the UK.

5.3.4 **Theory of Harm 3: Input foreclosure in the supply of PDGs in the UK**

188. The CMA assessed whether the Merged Entity would be able to harm the competitiveness of SLB's rivals in the supply of PDGs in the UK by restricting their access to ChampionX's Quartz Transducers (total foreclosure) or offering those on worse terms (partial foreclosure) (see paragraph 133 above). The CMA has also

³⁷⁴ Note of a call with a third party, August 2024, paragraph 10.

³⁷⁵ See the [North Sea Transition Authority's UKCS 2024 Wells Insight Report](#), page 4.

³⁷⁶ See the [North Sea Transition Authority's UKCS 2024 Wells Insight Report](#), page 5.

³⁷⁷ See the [North Sea Transition Authority's UKCS 2024 Wells Insight Report](#), page 3.

considered whether the Merged Entity could gain access to CSI of its rivals in the supply of PDGs due to ChampionX's role as their Quartz Transducers supplier.

5.3.4.1 Ability

5.3.4.1.1 Parties' submissions

189. The Parties submitted that the Merged Entity would not have the ability to foreclose competing suppliers of PDGs in the UK for the following reasons:

- (a) There are many alternative suppliers of QPSs/Quartz Transducers, including Metrolog, Precis and OAO Piezo.³⁷⁸ Furthermore, SLB's downstream rivals can readily develop in-house alternatives to Quartzdyne as large oilfield services companies have well-established research and development capabilities and a long history of innovation,³⁷⁹ and as cost barriers are surmountable and long testing periods for permanent applications are not required.³⁸⁰
- (b) QPSs/Quartz Transducers are only needed for PDGs for use in ultra-high-pressure-high-temperature environments, with less than 5% of wells in the UK exhibiting ultra-high-pressure-high-temperature conditions. Given this, any hypothetical foreclosure strategy could only target a small fraction of the downstream market.³⁸¹
- (c) QPSs/Quartz Transducer prices would need to increase by many multiples to affect PDG sales, given that they are a very small proportion (<5%) of the overall cost of PDG systems. Moreover, Quartzdyne is already [X] and a price increase of this magnitude is implausible or tantamount to total foreclosure.³⁸²
- (d) QPSs/Quartz Transducers are typically standardised inputs often sourced [X] in advance on an inventory basis. Given this, partial input foreclosure through a reduction in quality is not credible.³⁸³
- (e) The Parties do not have visibility on where and how QPSs are used (ie geography and end-use). Given this, the Merged Entity would not be able to

³⁷⁸ Annex 57 to the FMN, 'Salt CMA Teach In – Sensor Technologies and ESP Accessories', page 13; Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraphs 1.5(a), 3.8–3.10.

³⁷⁹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.20(c).

³⁸⁰ Parties' response to the Issues Letter, 'Project Salt – Draft Issues Meeting Slides', 6 March 2025, page 31.

³⁸¹ Annex 57 to the FMN, 'Salt CMA Teach In – Sensor Technologies and ESP Accessories', pages 12–13; Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraphs 1.3, 1.5(b), 1.5(e)(ii) and 3.32(c).

³⁸² Annex 57 to the FMN, 'Salt CMA Teach In – Sensor Technologies and ESP Accessories', page 13; Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraphs 1.5(c) and 3.2–3.3; Parties' response to the Issues Letter, 'Project Salt – Draft Issues Meeting Slides', 6 March 2025, page 28.

³⁸³ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 1.5(d); Parties' response to the Issues Letter, 'Project Salt – Draft Issues Meeting Slides', 6 March 2025, page 28.

target completion tenders for which QPSs are required. A foreclosure strategy would have to apply to all PDGs.³⁸⁴

- (f) Foreclosure through access to CSI is not plausible as Quartzdyne will remain independent from the SLB business division that uses Quartzdyne as an input post-Merger,³⁸⁵ no project specific information is shared with Quartzdyne and QPSs are largely standardised,³⁸⁶ NDAs are two-way so that counterparties could retaliate against any hypothetical misuse of information by doing the same with Quartzdyne's information,³⁸⁷ and SLB's PDGs are more technically advanced than its competitors.³⁸⁸
- (g) Finally, Quartzdyne has offered continuity of supply agreements to Quartzdyne's three largest customers, which should be sufficient to resolve any concerns being considered by the CMA.³⁸⁹

5.3.4.1.2 CMA's assessment

- 190. To assess the Merged Entity's ability to foreclose SLB's rivals in the supply of PDGs in the UK, the CMA has used the same framework as in paragraph 136 above.

5.3.4.1.2.1 Market power upstream

- 191. The CMA has considered a range of evidence to assess ChampionX's position in the supply of Quartz Transducers globally.³⁹⁰
- 192. Data gathered by the CMA shows that ChampionX had a [90–100]% share by revenue in the supply of Quartz Transducers worldwide in 2023.³⁹¹
- 193. ChampionX's internal documents recognise Quartzdyne as the clear market leader in Quartz Transducers, with a significantly higher market share than any of its

³⁸⁴ Annex 57 to the FMN, 'Salt CMA Teach In – Sensor Technologies and ESP Accessories', page 13.

³⁸⁵ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 1.6(a).

³⁸⁶ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 1.6(b).

³⁸⁷ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraphs 1.5(c) and 3.5(b).

³⁸⁸ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 1.6(d).

³⁸⁹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 1.2(c).

³⁹⁰ [CMA129](#), paragraph 7.14(a).

³⁹¹ CMA analysis based on Parties' estimates (Parties' response to the CMA's RFI 8, table 2) and responses to the CMA questionnaire from a number of third parties, January 2025, question 2. The Parties estimated that ChampionX had a market share of approximately [70–80]% by volume and [90–100]% by revenue in the supply of 'quartz pressure sensors/transducers used in permanent monitoring' worldwide in 2023: FMN, paragraph 12.50; Parties' response to the CMA's RFI 3, 'SLB – CHX – Consolidated list of market shares.xlsx'.

competitors.³⁹² For example, one document estimates that Quartzdyne has a market share of around [90–100]% in precision quartz monitoring.³⁹³

194. Third-party feedback is also consistent with the share of supply estimates and ChampionX’s internal documents. Specifically:

- (a) a third party rated ChampionX as the only ‘very strong’ supplier of QPSs, referred to it as the ‘gorilla’ among quartz suppliers with more than 85% market share, and noted that ChampionX was the first to develop a transducer;³⁹⁴
- (b) a third party noted that ‘[it] uses Quartzdyne’s transducers as a main input for its [PDG] offering as they are particularly reliable’ and that Quartzdyne has a very long track record of supplying reliable transducers favoured by customers;³⁹⁵
- (c) a third party noted that Quartzdyne’s products are considered the industry standard,³⁹⁶ and another third party that most customers in the industry insist on using gauges that incorporate Quartzdyne transducers;³⁹⁷ and
- (d) whilst third parties identified GRC, Phase sensors, SSEEC, Metrolog³⁹⁸ and Precis³⁹⁹ as competitors of ChampionX,⁴⁰⁰ third-party feedback shows that there are no alternative suppliers that could manufacture at the same scale, offer similar performance, reliability and quality to ChampionX, nor offer a credible alternative to Quartzdyne’s applications in the near future.^{401, 402}

³⁹² ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00022167 to the FMN, ‘[redacted]’, August 2024, page 5. While this document identifies rival offerings, it states that they either require investment and integration ([redacted]) or that they lack a track record ([redacted]). [redacted]. [redacted].

³⁹³ While the Parties submitted that this document refers to a ‘[redacted]’, it does so in the context of noting ‘[redacted]’ (emphasis added). It then goes on to explain how quartz technology is differentiated from alternatives ([redacted]). The same document also states that ‘[redacted]’, but under the heading ‘[redacted]’, states that ‘[redacted]’. Taken in the round, together with Quartzdyne’s market share, this suggests that alternative sensors may not impose a material price constraint on Quartzdyne. ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00018629 to the FMN, ‘[redacted]’, August 2023, page 16.

³⁹⁴ Response to the CMA questionnaire from a third party, January 2025, question 7; submission to the CMA from a third party, February 2025, pages 5 and 6.

³⁹⁵ Note of a call with a third party, August 2024, paragraph 2.

³⁹⁶ Note of a call with a third party, August 2024, paragraph 40.

³⁹⁷ Note of a call with a third party, September 2024, paragraph 13.

³⁹⁸ One third party noted that Metrolog is a relatively recent alternative supplier, but its transducers do not currently have the pressure and temperature reading that Quartzdyne’s transducers can provide and, therefore, gauges using Metrolog’s transducers are not suitable for use in high-temperature-high-pressure wells. See note of a call with a third party, August 2024, paragraph 23.

³⁹⁹ The CMA understands that Precis does not supply a full Quartz Transducer assembly but is offering QPSs for customers to build their own tools (submission to the CMA from a third party, February 2025, page 6).

⁴⁰⁰ Response to the CMA questionnaire from a third party, January 2025, question 7; submission to the CMA from a third party, February 2025, page 5; note of a call with a third party, August 2024, paragraph 23; note of a call with a third party, August 2024, paragraph 41.

⁴⁰¹ Submission to the CMA from a third party, June 2024, paragraph 19; submission to the CMA from a third party, June 2024, paragraph 19; note of a call with a third party, August 2024, paragraph 24; note of a call with a third party, October 2024, paragraph 18; note of a call with a third party, August 2024, paragraphs 39 and 41; note of a call with a third party, September 2024, paragraph 14.

⁴⁰² The CMA notes that no third party identified OAO Piezo as an alternative to Quartzdyne.

195. Consistent with third parties' views on the availability of alternatives, the CMA estimates that [90–100]% of PDGs that third-party suppliers supplied in the UK in 2022 and 2023 included Quartz Transducers from ChampionX.^{403, 404}
196. When assessing market power upstream, the CMA may also investigate if there are features of the market that may limit the constraint from upstream rivals.⁴⁰⁵
197. One supplier identified as barriers to entry/expansion into the supply of QPSs the small size of the market and the need for technical capabilities as 'quartz is expected to have top-tier performance which requires attention to detail and specialized test equipment'.⁴⁰⁶ In addition, a small number of customers active in the supply of PDGs commented on ease of switching, and they said that switching Quartz Transducer supplier would be very difficult and time consuming, including due to the lengthy and rigorous reliability testing of the alternative.⁴⁰⁷
198. For the reasons set out above, the CMA considers that ChampionX has market power in the supply of Quartz Transducers, being the clear market leader globally. There are no alternative suppliers of Quartz Transducers that would offer similar performance, reliability and quality as ChampionX.

5.3.4.1.2.2 *Importance of input*

199. The CMA has considered whether Quartz Transducers play an important role in shaping downstream competition between suppliers of PDGs in the UK.⁴⁰⁸
200. Quartz Transducers are used to collect data and monitor certain downhole conditions (see paragraphs 23 and 24 above).
201. SLB estimated that more than [60–70]% (ie [X] out of [X]) of the PDGs that it supplied in the UK between 2021 and 2023 had Quartz Transducers fitted.⁴⁰⁹ Similarly, the CMA estimates that [90–100]% of the PDGs third-party suppliers of PDGs supplied in the UK in 2022 and 2023 included Quartz Transducers.^{410, 411}

⁴⁰³ Responses to the CMA questionnaire from a number of third parties, December 2024, question 3.

⁴⁰⁴ The CMA further notes that in the instances where SLB used Quartz Transducers in PDGs supplied in the UK between 2021 and 2023, these Quartz Transducers were sourced from ChampionX (Parties' response to the CMA's RFI 6, paragraph 8.1; Annex 53 to the FMN, 'Salt – RFI 5 – Response to Q6–8', January 2025).

⁴⁰⁵ [CMA129](#), paragraph 7.14(a).

⁴⁰⁶ Response to the CMA questionnaire from a third party, January 2025, question 8.

⁴⁰⁷ Responses to the CMA questionnaire from a number of third parties, January 2025, question 10. One of these third parties considered the fact that most PDGs use Quartzdyne to be a barrier to switching as it is in turn difficult to convince end customers (ie E&P companies) that another supplier's products are reliable if they do not have a lengthy track record to prove it (note of a call with a third party, August 2024, paragraph 40).

⁴⁰⁸ [CMA129](#), paragraph 7.14(b).

⁴⁰⁹ Annex 53 to the FMN, 'Salt – RFI 5 – Response to Q6–8', January 2025; Parties' response to the CMA's RFI 6, paragraph 8.1.

⁴¹⁰ Responses to the CMA questionnaire from a number of third parties, December 2024, question 2(iv); responses to the CMA questionnaire from a number of third parties, January 2025, question 4.

⁴¹¹ Consistent with this feedback, another third party believed that 90% or more of well completion in the UK offshore market will dictate a quartz-based solution (Response to the CMA questionnaire from a third party, February 2025, question 9).

202. Consistent with the data above, ChampionX's internal documents indicate that Quartz Transducers are an important input for the supply of PDGs. For example, a ChampionX document suggests that while QPSs are more expensive than lower-end sensors, customers use QPSs for added reliability, accuracy and lower total cost of ownership.^{412, 413}
203. Evidence from third parties similarly shows that Quartz Transducers are a 'very important' input for the supply of PDGs in the UK, with third parties explaining that it would be very expensive to replace a PDG and, therefore, it is critical that these transducers remain accurate over long time periods at high temperatures.⁴¹⁴ Consistent with the data in paragraph 201 above, a third party explained that for offshore deep-water applications, as in the UK North Sea, Quartz Transducers often are the only transducers that can meet customers' requirements as they have higher temperature and pressure ratings.⁴¹⁵
204. The CMA also asked third parties how significantly, if at all, the competitiveness of suppliers of PDGs in the UK would be affected in a scenario where Quartzdyne were to stop supplying them with Quartz Transducers or materially increase their price or reduce their quality. Third-party feedback suggests that this would cause significant disruption to PDG suppliers in the UK and their competitiveness.^{416, 417}
205. For the reasons set out above, the CMA believes that Quartz Transducers are an important input, with Quartzdyne's Transducers viewed as the 'industry standard'. Moreover, Quartz Transducers are used widely in PDGs supplied in the UK.

5.3.4.1.2.3 *Foreclosure mechanisms and CSI*

206. As noted in paragraph 188 above, the CMA has considered potential total and partial foreclosure mechanisms through which the Merged Entity might be able to harm SLB's rivals' competitiveness in the supply of PDGs in the UK. The CMA notes that some of these mechanisms may be used in combination and has not attempted to predict the precise actions the Merged Entity might take, nor the precise impact of each possible deterioration on rivals' businesses, but it has

⁴¹² ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00018629 to the FMN, '[§<]', August 2023, page 16.

⁴¹³ The CMA understands that Quartzdyne's Transducers are much more expensive than other types of transducers (eg 10 to 30 times more expensive than piezo which the CMA understands is a silicon-based material). See [§<], 7 January 2025, pages 62 and 177.

⁴¹⁴ Responses to the CMA questionnaire from a number of third parties, January 2025, question 5.

⁴¹⁵ This third party further explained that UK customers tend to purchase more premium products (ie quartz) due to the prevalence of high-pressure offshore wells (note of a call with a third party, October 2024, paragraphs 37 and 40).

⁴¹⁶ Responses to the CMA questionnaire from a number of third parties, January 2025, question 12.

⁴¹⁷ One respondent further explained that PDGs are often run on the same cable as other well completion equipment, and well monitoring services are often procured as a part of an integrated well completions or even wider, oilfield services, solution. Given this, the potential harm to its business from this foreclosure strategy is far greater (response to the CMA questionnaire from a third party, January 2025, question 12).

instead focused on the question of whether collectively they could be used to foreclose rivals.⁴¹⁸

207. In relation to the Parties' submissions that partial foreclosure through a price increase is not credible, or would be equivalent to total foreclosure, since QPS/Quartz Transducer prices would need to increase by many multiples to affect PDG sales and [redacted],⁴¹⁹ the CMA notes that evidence it has received suggests that the cost of QPSs/Quartz Transducers is significant. In particular, one third party noted that a 'quartz sensor accounts for over 60% of the total cost of a PDG'.⁴²⁰ Further, notwithstanding whether partial foreclosure through a price increase alone is a credible strategy, the CMA considers that the Merged Entity could use a price increase in combination with other partial foreclosure mechanisms (see paragraph 188 above) to harm SLB's rivals' competitiveness.⁴²¹
208. In relation to the Parties' submissions that Quartzdyne is already [redacted], the CMA considers that the Merger could change Quartzdyne's incentives as the Merged Entity's potential gains from foreclosure are likely to outweigh the potential losses (see paragraph 233 below).
209. In relation to the Parties' submissions that partial foreclosure through a reduction in quality is not credible since sensors are largely commoditised and standardised,⁴²² the CMA considers that the Merged Entity could reduce the quality of the sensors even if they were standardised.⁴²³ The CMA also notes that third-party evidence was inconclusive on the extent to which sensors are standardised.⁴²⁴ Moreover, the CMA understands that, even where Quartzdyne does not undertake joint research and development efforts with a customer [redacted], Quartzdyne may sometimes undertake 'custom modifications' [redacted].⁴²⁵
210. The CMA has also considered whether post-Merger the Merged Entity could gain access to CSI of its rivals in the supply of PDGs due to ChampionX's role as their Quartz Transducer supplier (see paragraph 188 above).
211. The CMA has considered the role of CSI in vertical supply relationships more generally as part of section 5.3.3.1.2.3.

⁴¹⁸ [CMA129](#), paragraphs 7.13 and 7.14(b).

⁴¹⁹ See paragraph 189(c) above.

⁴²⁰ Response to the CMA questionnaire from a third party, January 2025, question 8.

⁴²¹ The CMA also considers that partial foreclosure through a price increase, or through a combination of a price increase with other mechanisms, depending on its severity, may have a similar impact to a total foreclosure strategy.

⁴²² See paragraph 189(d) above.

⁴²³ The CMA further notes that third-party feedback suggests that 'quality of the quartz sensor' is a very important factor that drives customers' choice of which supplier to purchase the QPS from for use in their PDGs, suggesting that a quality reduction could impact customers' decision making (response to the CMA questionnaire from a number of third parties, January 2025, question 4; response to the CMA questionnaire from a third party, January 2025, question 8).

⁴²⁴ Response to the CMA questionnaire from a number of third parties, January 2025, question 11.

⁴²⁵ See [redacted], 16 January 2025, pages 96, 128–129.

212. With regard to PDGs specifically, the Parties noted that there is limited involvement from manufacturers of PDGs in the design and development of Quartz Transducers. Instead, [REDACTED]. Quartzdyne co-develops custom transducers and [REDACTED] on a case-by-case basis. The vast majority of these co-development projects are conducted under NDA.⁴²⁶
213. However, internal documents indicate that Quartzdyne works with customers to develop custom integrated products with its Quartz Transducers.⁴²⁷ Third-party feedback also suggests that some customers collaborate closely with suppliers in the design of Quartz Transducers for use in their PDGs. This collaboration often includes the exchange of CSI about PDG design.⁴²⁸
214. The Parties submitted two examples of NDAs between ChampionX's subsidiary Quartzdyne and suppliers of PDGs.⁴²⁹
215. While both NDAs contain [REDACTED],⁴³⁰ the CMA considers that these contractual protections may not be sufficient to adequately limit SLB's ability to access and use these competitors' CSI post-Merger (see paragraph 160 above).
216. The Parties also submitted that SLB plans to operate Quartzdyne independently from the relevant SLB business divisions that use Quartz Transducers as an input, and that SLB has committed to implement structural protections to safeguard rivals' CSI.⁴³¹ The CMA notes the late stage at which these submissions were made and the limited supporting evidence provided by the Parties.⁴³² The CMA notes that one of the NDAs submitted by the Parties could permit SLB to access customers' CSI post-Merger.⁴³³ Finally, the CMA notes that the proposed protections are not part of the Merger under review [REDACTED]. Given time constraints following the Parties' late-stage submission, and the status of these proposed future mechanisms, the CMA has not assessed the extent and robustness of such safeguards post-Merger.
217. In any event, the CMA considers that the Merged Entity could have the ability to access at least some of its rivals' CSI post-Merger and that this could deter rivals from innovating (see paragraph 134 above).

⁴²⁶ Parties' response to the CMA's RFI 4, paragraph 2.6.

⁴²⁷ See for example ChampionX Internal Document, Annex 64 – CHX-SLB-CMA-00020311 to the FMN, '[REDACTED]', February 2024, page 15, with the notes stating that: '[REDACTED]'.

⁴²⁸ Response to the CMA questionnaire from a third party, January 2025, question 6; response to the CMA questionnaire from a third party, January 2025, question 11.

⁴²⁹ Namely, NDAs between Quartzdyne and each of [REDACTED] and [REDACTED].

⁴³⁰ NDA between Quartzdyne and [REDACTED], Annex 32.3 to the FMN, Clause 2; NDA between Quartzdyne and [REDACTED], Annex 32.1 to the FMN, Clause 2.

⁴³¹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraphs 1.6(a) and 4.1.

⁴³² Accordingly, the CMA has placed limited weight on SLB's non-binding assurances about its future plans and any contractual commitments to implement them, including for the reasons set out in paragraph 160 above.

⁴³³ NDA between Quartzdyne and [REDACTED], Annex 32.1 to the FMN, Clause 1 '[REDACTED]' and '[REDACTED]'. [REDACTED].

5.3.4.1.2.4 *Continuity of supply agreements*

218. Supply commitments usually seek to prevent merging parties from exercising the enhanced market power that they are likely to acquire from a merger and restrict the adverse effects expected, rather than addressing the source of the SLC.⁴³⁴
219. The Parties submitted that Quartzdyne's offer to enter into continuity of supply agreements with its three largest customers should be sufficient to resolve the CMA's concerns. If the Parties are seeking to put forward the proposed supply agreements as a UIL, which is suggested by their language about resolving the CMA's concerns, such proposals fall to be considered as part of the UIL process rather than in the substantive assessment.

5.3.4.2 *Incentive*

5.3.4.2.1 *Parties' submissions*

220. The Parties submitted that the Merged Entity would not have the incentive to foreclose competing suppliers of PDGs in the UK for several reasons:
- (a) Input foreclosure would risk significant financial prejudice to Quartzdyne as QPSs are not required in about 90% of use cases.⁴³⁵
 - (b) Foreclosure would risk E&P customer dissatisfaction given that SLB relies on critical relationships with E&P customers for 90% of its core business.⁴³⁶ E&P customers would not tolerate any effort by SLB to foreclose access to Quartzdyne offerings for their oilfield services providers,⁴³⁷ and, in addition to switching away from SLB as their PDG supplier, they have multiple other methods to deter SLB from engaging in foreclosure.⁴³⁸
 - (c) SLB is dependent on its rivals for key inputs, and a foreclosure strategy would risk significant retaliation by other oilfield services companies.⁴³⁹
 - (d) There would be no meaningful diversion of downstream sales as only some PDGs require QPSs, which, in turn, are a low value input in PDG systems. There would also be no meaningful diversion of downstream completion

⁴³⁴ [CMA87](#), paragraph 7.32. The CMA also notes that the Parties have submitted proposed remedial commitments to maintain continuity of supply for Quartzdyne in at least one other jurisdiction.

⁴³⁵ Annex 57 to the FMN, 'Salt CMA Teach In – Sensor Technologies and ESP Accessories', page 14.

⁴³⁶ Annex 57 to the FMN, 'Salt CMA Teach In – Sensor Technologies and ESP Accessories', page 14; Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.23.

⁴³⁷ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.23.

⁴³⁸ In particular, E&P customers could: (i) source Quartzdyne's offerings directly and then provide those components to SLB's rivals; (ii) tender separately for PDGs from SLB and then award the remainder of the completions related work to SLB's rivals; (iii) punish SLB in areas outside of completions. Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.24.

⁴³⁹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.28.

sales more broadly as the PDG system is typically less than one percent of the value of a completion project from the E&P customer perspective.⁴⁴⁰

- (e) The Parties submitted a quantitative analysis of the Merged Entity's incentive to foreclose SLB's main competitors in completions and specifically PDGs in support of their conclusion that the losses from total foreclosure far exceed the possible gains.⁴⁴¹

5.3.4.2.2 CMA's assessment

- 221. To assess the Merged Entity's incentive to foreclose SLB's rivals in the supply of PDGs in the UK, the CMA is using the same framework as in paragraph 164. The CMA has also considered the Parties' submissions on retaliation from E&P customers and other oilfield services companies, as well as the Parties' quantitative analysis on the lack of incentive.

5.3.4.2.2.1 Gains in downstream sales

- 222. The CMA has considered the extent to which the Merged Entity would gain downstream sales from foreclosing other competing suppliers of PDGs in the UK. Those gains will be greater if the Merged Entity has a more successful downstream offering, and if it competes closely with the rivals that may be foreclosed. It is also likely to be greater if the Merged Entity has a particularly strong ability to foreclose.⁴⁴²

5.3.4.2.2.1.1 Shares of supply

- 223. As part of its investigation, the CMA gathered data from SLB and third-party suppliers of PDGs in the UK to undertake its own share of supply analysis. The CMA's analysis shows that SLB had a UK market share by PDG revenue of [90–100]% in 2023.⁴⁴³ Although the CMA's estimate of SLB's market share is significantly larger than the Parties' estimate,⁴⁴⁴ the CMA considers that they both show that SLB is by far the market leader.

⁴⁴⁰ Annex 57 to the FMN, 'Salt CMA Teach In – Sensor Technologies and ESP Accessories', page 14.

⁴⁴¹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.18; Annex 75 to the Parties' response to the Issues Letter, 'Quartzdyne Foreclosure Incentives', 6 March 2025, page 14.

⁴⁴² [CMA129](#), paragraph 7.19(b).

⁴⁴³ Annex 53 to the FMN, 'Salt – RFI 5 – Response to Q6–8', January 2025; Parties' response to the CMA's RFI 6, paragraph 8.1; responses to the CMA questionnaire from a number of third parties, January 2025, question 2.

⁴⁴⁴ See Parties' response to the CMA's RFI 3, 'SLB – CHX – Consolidated list of market shares.xlsx'. The Parties estimated that SLB had a [70–80]% share in the supply of PDGs in the UK in 2023, and that Halliburton and Baker Hughes each had a share of [10–20]%. No other suppliers were noted to be active in the supply of PDGs in the UK.

5.3.4.2.2.1.2 *Bidding data*

224. The Parties also submitted a list of opportunities won and lost by SLB in the UK from 2021 to 2023 for the supply of PDGs.⁴⁴⁵ This dataset included opportunities for standalone PDGs as well as PDGs provided as part of well completions. The CMA used this dataset to calculate SLB's win ratio, which was [90–100]%.⁴⁴⁶ The only other competitors who participated in, [×], those opportunities were Halliburton and Baker Hughes.
225. The CMA considers that SLB's win ratio is consistent with the CMA's share of supply analysis. Moreover, the CMA's analysis shows that the supply of PDGs in the UK is a highly concentrated market with SLB as the market leader with only Halliburton and Baker Hughes as competitors. Further, the list of PDG opportunities include several contracts that SLB won to provide PDGs as part of 'core completions'. This indicates that SLB's strength is also due to its broad offering in well completions (eg intelligent completion innovations).

5.3.4.2.2.1.3 *Margins*

226. The CMA has collected evidence on variable margins (in percentage and absolute terms) to support its assessment of the gains downstream. The CMA considers that SLB's downstream margins in PDGs are material.⁴⁴⁷ Together with the observation that the downstream market for the supply of PDGs in the UK is of a material size,⁴⁴⁸ the CMA considers these margins to be supportive of the view that gains downstream are likely to be material.⁴⁴⁹

5.3.4.2.2.1.4 *Strength of SLB's offering downstream*

227. Qualitative evidence from third parties on the strength of SLB's offering is also consistent with the quantitative evidence above.
- (a) All PDG suppliers that responded to the CMA identified SLB as a 'very strong' competitor in the supply of PDGs to E&P companies in the UK, noting

⁴⁴⁵ As noted in footnote 348 above, the Parties only provided opportunities whose value was equal to or exceeded \$100k in total (Annex 50 to the FMN, 'List of won and lost opportunities in the UK from 2021 to 2023', December 2024).

⁴⁴⁶ The CMA included in its analysis only contracts which SLB bid for (ie [×] out of the [×] opportunities submitted by the Parties). The [×] opportunities for which SLB did not bid were won by [×], respectively. [×] of these opportunities were relatively large in value compared to the opportunities SLB bid for and won. As such, SLB's win ratio would be significantly lower (ie [50–60]%) if those were included in the analysis. Nonetheless, SLB would be the market leader in this case, followed by [×] with a win ratio of [30–40]% based on value. [×] would have a win ratio of [10–20]%.
⁴⁴⁷ SLB's 2023 COGS margin for PDGs was [30–40]% worldwide and [30–40]% in the UK (Parties' response to the CMA's RFI 2, Table 9). SLB's contribution margin was £[×] worldwide and £[×] in the UK (Parties' response to the CMA's RFI 5, Table 12).

⁴⁴⁸ In particular, based on the Parties' estimates, the UK PDGs market value was £[×] in 2023 (SLB had UK PDG revenue of £[×] and a [70–80]% estimated share by value in 2023 (Annex 57 to the FMN, '[×]', November 2024, slide 8)).

⁴⁴⁹ The CMA has considered the downstream gains in the UK. However, to the extent that ChampionX's Quartz Transducers are used in PDGs in other countries, the Merged Entity's total gains from a foreclosure strategy could be larger.

that SLB integrates PDGs well into the rest of its completions portfolio, is regarded as a leader in the field for permanent downhole monitoring solutions, and has a good track record and a strong PDG product offering with high perceived reliability and performance.⁴⁵⁰

- (b) The CMA also asked E&P companies which suppliers they would consider if they were to procure PDGs today for their business in the UK, prompting E&P companies to rate the strength of the PDG offering of SLB, Baker Hughes, Expro, Halliburton and Metrol Technology.⁴⁵¹
- (i) Respondents rated SLB's PDG offering in the UK, on average, as 'very strong' due to SLB's large range of selection of gauges, track record in providing downhole gauges for customers' UK projects, as well as meeting customers' technical requirements.⁴⁵²
 - (ii) Respondents rated Baker Hughes' and Halliburton's PDG offering in the UK, on average, as 'strong'.⁴⁵³
 - (iii) Respondents rated Metrol Technology's PDG offering in the UK, on average, as 'moderate'.^{454, 455}
 - (iv) Respondents rated Expro's PDG offering in the UK, on average, as 'weak to moderate'.^{456, 457}

228. Moreover, as discussed in paragraph 173 above, the gains from foreclosure will likely be larger when taking into account SLB's already strong position, its broad product portfolio and its positioning as an oilfield services company (see also paragraph 225 above). This is consistent with feedback from a third party who noted that 'Because well monitoring solutions are often sold with other equipment,

⁴⁵⁰ Responses to the CMA questionnaire from a number of third parties, January 2025, question 3.

⁴⁵¹ E&P companies could identify further suppliers in the questionnaire. One respondent identified Omega as a supplier in response to this question, explaining that Omega is a 'strong [supplier] in temporary gauges due to the long battery life of their system' but is 'not as competitive on permanent completion gauges' (Response to the CMA questionnaire from a third party, January 2025, question 9). Besides Omega, respondents did not identify any additional PDG suppliers that they either currently use in their UK operations or would consider to be competitive if they were to procure PDGs for their business in the UK today (Responses to the CMA questionnaire from a number of third parties, January 2025, questions 8 and 9).

⁴⁵² Responses to the CMA questionnaire from a number of third parties, January 2025, question 9.

⁴⁵³ Responses to the CMA questionnaire from a number of third parties, January 2025, question 9. One respondent explained that Baker Hughes has no track records with it and a more limited presence in downhole gauges.

⁴⁵⁴ Responses to the CMA questionnaire from a number of third parties, January 2025, question 9. One respondent explained that Metrol Technology is a 'strong [supplier] in temporary gauges due to the long battery life of their system' but is 'not as competitive on permanent completion gauges'.

⁴⁵⁵ Several E&P companies did not provide a rating for Metrol Technology (responses to the CMA questionnaire from a number of third parties, January 2025, question 9), with one of them explaining that Metrol Technology 'do[es] not supply in UKCS'.

⁴⁵⁶ Responses to the CMA questionnaire from a number of third parties, January 2025, question 9. One respondent explained that Expro has no track records with it and a more limited presence in downhole gauges.

⁴⁵⁷ Several E&P companies did not provide a rating for Expro (responses to the CMA questionnaire from a number of third parties, January 2025, question 9), with one of them explaining that Expro 'do[es] not supply in UKCS'.

or as part of an integrated solution, the potential harm to [the third party]'s business from a SLB foreclosure strategy is far greater'.⁴⁵⁸

5.3.4.2.2.2 *Losses of upstream sales*

229. The CMA's assessment of incentives also considers the extent to which the Merged Entity would incur losses upstream from foreclosing other suppliers of PDGs in the UK. Those losses are likely lower if the Merged Entity has strong market power upstream, and if it can engage in price discrimination or similar targeted deterioration of supply.⁴⁵⁹
230. The CMA assessed market power upstream as part of the ability assessment in section 5.3.3.1.2.1 above and considers that ChampionX has strong market power upstream, being the clear market leader globally.
231. The CMA has also collected evidence on variable margins to support its assessment. The CMA considers that whilst ChampionX's upstream COGS margin in QPSs/Quartz Transducers is [X], the contribution margin is [X].⁴⁶⁰ Moreover, it is unlikely that any loss of sales would be significant and offset the gains downstream for a couple of reasons. First, the Merged Entity could reduce losses by targeting select rivals, or by engaging in partial foreclosure,⁴⁶¹ with PDG suppliers unlikely to switch given the lack of effective alternatives to ChampionX and the importance of the input. Second, the upstream market is significantly smaller than the downstream market.⁴⁶²
232. For these reasons, the CMA believes that the losses of upstream sales are likely to be limited.

5.3.4.2.2.3 *Conclusion on downstream gains and upstream losses*

233. Given (i) SLB's strong position and successful offering downstream (see section 5.3.4.2.2.1 above), (ii) the Merged Entity's strong ability to foreclose due to ChampionX's market power upstream and the importance of the input (see sections 5.3.4.1.2.1–5.3.4.1.2.2 above), and (iii) the potential gains in other markets too (see paragraphs 225 and 228 above), the CMA considers that the potential gains from foreclosure are likely to outweigh the potential losses.

⁴⁵⁸ Submission to the CMA from a third party, June 2024, paragraph 21.

⁴⁵⁹ [CMA129](#), paragraph 7.19(c).

⁴⁶⁰ ChampionX's 2023 COGS margin for QPSs/Quartz Transducers globally was [60–70]% (Parties' response to the CMA's RFI 2, Table 10). ChampionX's contribution margin was £[X] (Parties' response to the CMA's RFI 5, Table 11). For comparison, SLB's contribution margin was £[X] in the UK.

⁴⁶¹ The CMA notes that partial foreclosure may also reduce the gains downstream.

⁴⁶² In particular, the UK PDG market value alone was £[X] in 2023 meaning that the entire global PDG market value would likely be a significant multiple of this. In comparison, the Parties estimated the size of the entire global quartz pressure market to be £[X] in 2023 (Quartzdyne had global revenue of £[X] in 2023 and an estimated [90–100]% share by value (Annex 57 to the FMN, 'Salt CMA Teach In – Sensor Technologies and ESP Accessories', November 2024, slide 8)).

5.3.4.2.2.4 *Retaliation from E&P customers and other oilfield services companies*

234. The CMA has considered the Parties' submissions that a foreclosure strategy would lead to retaliation from both E&P customers as well as other oilfield services companies (see paragraphs 220(b) and 220(c) above).
235. With respect to the Parties' submission that a foreclosure strategy would risk E&P dissatisfaction, and that E&P customers would not accept any disruptive behaviour in their supply chains as they '[>]',⁴⁶³ the CMA considers that a customer's buyer power depends on the availability of good alternatives they can switch to,⁴⁶⁴ which in the context of this Merger would be limited given SLB's strong position in the supply of PDGs in the UK and the Merged Entity's ability to foreclose the few alternative PDG suppliers. While the Parties provided two examples of 'E&P retaliation',⁴⁶⁵ the CMA understands that these examples do not involve the supply of PDGs, and considers that these examples appear to be evidence of negotiations between SLB and its customers, rather than evidence of 'retaliatory power'.
236. With respect to the Parties' submission that, in addition to switching away from SLB as their PDG supplier, E&P customers have multiple other methods to deter SLB from engaging in foreclosure,⁴⁶⁶ the CMA considers that any of those mechanisms raised by the Parties (including shifting purchases away from SLB) could be costly for E&P customers relative to their previously optimal usage of SLB.⁴⁶⁷ For example, it is not clear why E&P companies that previously bought PDGs from SLB's rivals would react to the foreclosure of SLB's rivals in the supply of PDGs by sourcing Quartz Transducers themselves and then providing those components to SLB's rivals rather than switching their PDG purchases to SLB,⁴⁶⁸ or whether it is realistically practical for them to 'punish' SLB in other areas.
237. With respect to the Parties' submission that SLB is [>], and a foreclosure strategy would risk significant retaliation by other oilfield services companies,⁴⁶⁹ the CMA has not seen evidence indicating that other oilfield services companies would retaliate. Even though SLB may currently single-source some inputs from its

⁴⁶³ Annex 57 to the FMN, 'Salt CMA Teach In – Sensor Technologies and ESP Accessories', pages 12 and 14.

⁴⁶⁴ [CMA129](#), paragraph 4.20.

⁴⁶⁵ In particular, the Parties noted that: (i) [>], SLB sought to renegotiate pricing with an E&P customer in one segment based on an unanticipated [>], and in response to this this customer threatened to [>]; (ii) [>], an E&P customer wished to cancel a supply contract with SLB and threatened [>] (Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.26).

⁴⁶⁶ In particular, E&P customers could: (i) source Quartzdyne's offerings directly and then provide those components to SLB's rivals; (ii) tender separately for PDGs from SLB and then award the remainder of the completions related work to SLB's rivals; (iii) punish SLB in areas outside of completions. Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.24.

⁴⁶⁷ See also Annex 75 to the Parties' response to the Issues Letter, 'Quartzdyne Foreclosure Incentives', 6 March 2025, page 15.

⁴⁶⁸ The CMA is not aware of any E&P company acquiring Quartz Transducers or sensors directly from upstream suppliers.

⁴⁶⁹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.28.

competitors,⁴⁷⁰ it is not clear that SLB could not find alternative providers for those inputs. Moreover, cutting the supply of inputs to SLB in response to foreclosure could be costly for these oilfield services companies.

238. Overall, the CMA considers that the available evidence does not indicate that the risk of retaliation from E&P customers or other oilfield services companies would materially affect the Merged Entity's incentive to foreclose its rivals.

5.3.4.2.2.5 *The Parties' quantitative analysis on the lack of incentive*

239. The Parties submitted a quantitative analysis on the lack of incentive to engage in input foreclosure post-Merger.⁴⁷¹

240. The CMA received this analysis at a late stage of the phase 1 investigation in response to the Issues Letter on 6 March 2025. In any event, the CMA has assessed this analysis within the time constraint of a phase 1 investigation and has identified a number of potential issues that limit the extent to which the CMA can rely on the analysis' results, particularly in a phase 1 context.

241. For example, the Parties assume that:⁴⁷²

- (a) Gains from foreclosure are time-limited, while the losses are permanent. In particular, the Parties assume that E&P companies would switch back from SLB's PDGs to competitors' PDGs once competitors develop an in-house alternative sensor or find an alternative supplier of QPSs.⁴⁷³ The CMA considers that it is not clear that E&P companies would switch back, particularly given the strength of SLB's offering downstream (see paragraph 233 above). The CMA considers that the results of the Parties' analysis would change significantly if the gains from foreclosure were not assumed to be time-limited.
- (b) Just one year following the start of total foreclosure, the gains from foreclosure would be worth significantly less than what they were worth initially (based on assumptions about responses from competitors).⁴⁷⁴ The CMA considers that it is unlikely that within one year: (i) a PDG supplier

⁴⁷⁰ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.29.

⁴⁷¹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.18.

⁴⁷² The CMA also notes that the Parties stated that 'the CMA is concerned only with the possible gains in the UK. However, the merged firm would be unable to target specific projects in the UK' (Annex 75 to the Parties' response to the Issues Letter, 'Quartzdyne Foreclosure Incentives', 6 March 2025, page 2). However, the CMA considers that any foreclosure strategy could be implemented globally, and would impact SLB's rivals competitiveness in all settings where PDGs benefit from Quartz Transducers (eg in high-pressure and high-temperature environments), including in the UK.

⁴⁷³ Annex 75 to the Parties' response to the Issues Letter, 'Quartzdyne Foreclosure Incentives', 6 March 2025, Section 4.3 'Duration of foreclosure'.

⁴⁷⁴ In particular, the Parties' baseline model assumes that gains depreciate at an annual rate of 14% due to competitors innovating and developing capabilities to replace quartz sensors over time (Annex 75 to the Parties' response to the Issues Letter, 'Quartzdyne Foreclosure Incentives', 6 March 2025, Table 2 (ie delta in column C)). This means that already one year following the start of total foreclosure, gains are worth 86% of what they worth initially.

would have been able to develop or source an alternative (quartz) sensor, and (ii) E&P companies would have qualified this alternative for use in their wells. The assumption also appears inconsistent with the Parties' explanation that 'the time over which competitors will be able to advance, qualify, certify or develop an alternative [sensor] for an enhanced range of pressures and temperatures is uncertain', and with the examples of competitors innovating that range from three (ie Metrolog) to five years (ie SLB's eSOI).⁴⁷⁵

- (c) QPSs are used only in downhole monitoring.⁴⁷⁶ The CMA understands, however, that Quartzdyne's sensors/transducers are used also in the measurement-while-drilling and/or logging-while-drilling tools of SLB's downstream competitors.⁴⁷⁷ Given this, the actual effect of refusing to supply Quartzdyne's transducers is likely more complex than a quantitative analysis of SLB's gains limited to the downstream sales of PDGs (see also paragraphs 170 and 173 above).

242. Overall, the CMA considers that the Parties' quantitative analysis is not sufficiently robust to show that the Merged Entity would not have the incentive to foreclose its rivals.

5.3.4.2.3 *CMA's conclusion on incentive*

243. For the reasons set out above, the CMA believes that the Merged Entity would have the incentive to foreclose competitors in the supply of PDGs in the UK.

5.3.4.3 *Effect*

5.3.4.3.1 *Parties' submissions*

244. The Parties submitted that any hypothetical foreclosure strategy would have no meaningful effect in the UK for the following reasons:

- (a) Quartz Transducers are predominantly sold in the US (ie Quartzdyne generated only a small amount of revenue from sales of quartz sensors/transducers in the UK).⁴⁷⁸
- (b) In the absence of new drilling in the UK, PDG demand in the UK is in sharp decline, and this trend is expected to continue.⁴⁷⁹ PDGs are more relevant for

⁴⁷⁵ Annex 75 to the Parties' response to the Issues Letter, 'Quartzdyne Foreclosure Incentives', 6 March 2025, Section 4.3 'Duration of foreclosure'.

⁴⁷⁶ Annex 75 to the Parties' response to the Issues Letter, 'Quartzdyne Foreclosure Incentives', 6 March 2025, page 3.

⁴⁷⁷ Parties' response to the CMA's RFI 6, paragraph 5.2.

⁴⁷⁸ Parties' response to the Issues Letter, 'Project Salt – Draft Issues Meeting Slides', 6 March 2025, page 36; Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.32(a).

⁴⁷⁹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 5.2(b)(i).

new wells rather than existing wells being worked over to extend their life (which constitutes the vast majority of completions projects in the UK).⁴⁸⁰

- (c) Any hypothetical foreclosure strategy could only affect a small fraction of the downstream PDG category. A foreclosure strategy would not be effective in relation to PDGs installed as part of well workovers because switching a PDG supplier in the well workover context would attract significant additional costs to the E&P company. Therefore, E&P companies continue to use the previous product and there is no competition for workover projects.⁴⁸¹

5.3.4.3.2 CMA's assessment

245. The CMA has considered whether the harm to SLB's competitors would result in substantial harm to overall competition in the supply of PDGs in the UK.⁴⁸² Competition concerns may be particularly likely to arise if one of the merger firms has a degree of pre-existing market power in the downstream market, and already faced limited competitive constraints pre-merger.⁴⁸³
246. As discussed in paragraphs 223 and 224 above, SLB is the largest PDG supplier in the UK and has few rivals. Based on the CMA's analysis of market shares and opportunities, the downstream market is highly concentrated with only three suppliers (ie SLB, Baker Hughes and Halliburton). Moreover, there are no rivals of SLB active in PDGs in the UK that are vertically integrated (ie that have an in-house supply of QPSs/Quartz Transducers),⁴⁸⁴ and that would be unaffected by foreclosure.⁴⁸⁵ These factors indicate that the firms that could be foreclosed play an important role in the competitive process of the downstream market.
247. Consistent with the evidence above, a third party raised concerns about the impact of the Merger in relation to this market, stating that the Merged Entity would have the ability and incentive to worsen terms of supply of Quartz Transducers to SLB's competitors. This respondent further submitted that the Merger would also adversely affect the market dynamics and intensity of competition in general, through a reduction in technical innovation, increased costs, and reduced efficiency.⁴⁸⁶
248. In relation to the Parties' submissions that Quartzdyne's activities in the UK are limited, the CMA understands that ChampionX primarily sells inputs to customers' US locations. The manufacturing facilities of US or multinational oilfield service

⁴⁸⁰ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.21.

⁴⁸¹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraph 3.20(b); Parties' response to the Issues Letter, 'Project Salt – Draft Issues Meeting Slides', 6 March 2025, page 36.

⁴⁸² [CMA129](#), paragraph 7.20.

⁴⁸³ [CMA129](#), paragraph 7.21.

⁴⁸⁴ Responses to the CMA questionnaire from a number of third parties, December 2024, question 3.

⁴⁸⁵ [CMA129](#), paragraph 7.22.

⁴⁸⁶ Response to the CMA questionnaire from a third party, January 2025, question 13.

companies then incorporate ChampionX's input into their end products or equipment and then ship these products or equipment to wherever they may be sold or used.⁴⁸⁷

249. In relation to the Parties' submissions that there would be no effect in the UK given the declining drilling activity in the UK, the CMA notes that drilling in the UK is expected to continue at least in the foreseeable future (see paragraph 185 above).⁴⁸⁸
250. In relation to the Parties' submissions that workover projects cannot realistically be subject to foreclosure, the CMA notes that the incumbent PDG supplier would likely want to use the incumbent sensor technology,⁴⁸⁹ which is very likely to be Quartzdyne technology in the UK context.⁴⁹⁰ As such, the CMA considers that foreclosure would be effective in relation to both new wells and well workovers.
251. For the reasons set out above, the CMA believes that a foreclosure strategy would significantly harm overall competition.

5.3.4.4 Conclusion on Theory of Harm 3

252. For the reasons set out above, the CMA believes that the Merged Entity would have the ability and the incentive to foreclose rival suppliers of PDGs in the UK, and that this would significantly harm overall competition. Accordingly, the CMA believes that the Merger gives rise to a realistic prospect of significant competition concerns as a result of input foreclosure in the supply of PDGs in the UK.

6. ENTRY AND EXPANSION

253. Entry, or expansion of existing firms, can mitigate the initial effect of a merger on competition, and in some cases may mean that there is no SLC. The CMA will consider entry and/or expansion plans of rivals who do so in direct response to the merger as a countervailing measure that could prevent an SLC. Entry or expansion plans of rivals that occurs irrespective of whether the merger proceeds may be considered in the competitive assessment when appropriate.⁴⁹¹

⁴⁸⁷ Note of a call with a third party, August 2024, paragraph 10.

⁴⁸⁸ Moreover, the CMA notes in relation to the Parties' submission that the supply of PDGs is of declining relevance in the UK that SLB's UK PDG revenue in the UK between 2022 and 2023 was stable (Annex 53 to the FMN, '[<]', January 2025; Parties' response to the CMA's RFI 6, paragraph 8.1), and that the total UK market size between 2021 and 2023 based on the CMA's analysis was stable at around £[<]m to £[<]m.

⁴⁸⁹ The Parties explained that the increase in SLB's PDG sales using Quartzdyne's QPSs in the UK between 2021 and 2023 was due to these PDGs being used in 'projects that involved changes to old wells (eg drilling in a different direction in an existing well) that were already equipped with legacy Quartzdyne technology, such that in the event it was easier to still use Quartzdyne sensors' (Parties' response to the CMA's RFI 6, footnote 4).

⁴⁹⁰ One third party explained to the CMA that customers operating oilfields in areas such as the North America land and China may accept other types of technologies, but the third party believed that most of the oilfields in the UK use Quartzdyne transducers (note of a call with a third party, October 2024, paragraph 37).

⁴⁹¹ [CMA129](#), paragraph 8.28.

In assessing whether entry or expansion might prevent an SLC, the CMA considers whether such entry or expansion would be timely, likely and sufficient.⁴⁹²

6.1 Parties' submissions

254. With regard to entry and expansion triggered by the Merger, the Parties submitted that E&P companies are highly sensitive to even marginal increases in the prices of commodity chemicals, and in case of a hypothetical price increase by the Merged Entity, E&P companies would be able to incentivise or sponsor new entry.⁴⁹³ The Parties also submitted that: (i) the ability of E&P companies to expand into the supply of stand-alone commodity chemicals would apply to the stand-alone supply of specialty chemicals as well;⁴⁹⁴ and (ii) E&P companies can enter the UK by leveraging any best-in-class products that have been developed overseas, and that several E&P companies have already developed proprietary formulations for various specialty chemicals to self-supply.⁴⁹⁵
255. With regard to barriers to entry and expansion irrespective of the Merger, the Parties submitted that barriers to entry and expansion are low for the supply of commodity and specialty chemicals on a standalone basis.⁴⁹⁶ The Parties emphasised that barriers to entry are particularly low for commodity chemicals as they have simple and standardised formulations and are easy to produce.⁴⁹⁷ The Parties also submitted that existing major chemicals suppliers can easily expand into specialty chemicals by hiring the relevant personnel.⁴⁹⁸ On the other hand, the Parties submitted that barriers to entry and expansion are higher for CMS contracts as they require higher technical capabilities, resources and extensive track record of supplying CMS.⁴⁹⁹

6.2 CMA's assessment

256. Third-party evidence received by the CMA suggests that barriers to entry and expansion are generally high for PCTs overall, particularly due to strict regulatory requirements for supplying chemicals in the UK.⁵⁰⁰ Although some third parties confirmed that barriers to entry are lower for commodity chemicals than specialty chemicals,⁵⁰¹ a few third parties also suggested that supplying commodity

⁴⁹² [CMA129](#), from paragraph 8.40.

⁴⁹³ FMN, paragraph 442.

⁴⁹⁴ FMN, paragraph 444.

⁴⁹⁵ FMN, paragraph 444.

⁴⁹⁶ FMN, paragraph 436.

⁴⁹⁷ FMN, paragraphs 285 and 437.

⁴⁹⁸ FMN, paragraph 438.

⁴⁹⁹ FMN, paragraph 441.

⁵⁰⁰ Note of a call with a third party, October 2024, paragraphs 35–36; note of a call with a third party, October 2024, paragraphs 25–26; note of a call with a third party, January 2025, paragraphs 24–25; responses to the CMA questionnaire from a number of third parties, January 2025, question 8.

⁵⁰¹ Responses to the CMA questionnaire from a number of third parties, January 2025, question 8.

chemicals requires economies of scale and large supply infrastructure that can be hard for smaller suppliers to achieve.⁵⁰²

257. Third-party evidence received by the CMA suggests that there are very high barriers to entry for PCD bearings, particularly due to significant requirements of technical expertise and large production capacities.⁵⁰³ A few third parties also suggested that there are high barriers to entry for Quartz Transducers, mainly owing to significant technical performance requirements of Quartz Transducers and the amount of time required for new suppliers to develop the sensor technology required for Quartz Transducers.⁵⁰⁴
258. The CMA has not received any evidence of entry or expansion being planned or occurring as a response to the Merger. In addition, due to the relatively high barriers to entry and expansion for PCTs, PCD bearings and Quartz Transducers, the CMA considers that any entry or expansion would not be sufficiently timely and likely to prevent a realistic prospect of an SLC as a result of the Merger.

7. EFFICIENCIES

259. To find that efficiencies would counter an SLC, the CMA must receive compelling evidence to be satisfied that efficiencies will (i) enhance rivalry in the supply of those products where an SLC may otherwise arise; (ii) be timely, likely and sufficient to prevent an SLC from arising; (iii) be merger-specific; and (iv) benefit customers in the UK. At phase 1, the evidence must be sufficient to satisfy the CMA within the time available in an initial investigation that efficiencies would prevent the realistic prospect of an SLC.⁵⁰⁵
260. The Parties submitted that: (i) the Merger is expected to give rise to various efficiencies globally, with E&P customers benefitting from the Merged Entity's enhanced portfolio, geographical reach, R&D investment and technology innovation; and (ii) that these benefits will flow through to UK customers, who may not otherwise benefit from them given the declining UK market.⁵⁰⁶
261. The Parties have not however provided the CMA with substantiated or verifiable evidence that the Merger will lead to efficiencies that would meet the criteria described in paragraph 259 above, including evidence that UK customers can be expected to benefit from these claimed efficiencies. The CMA therefore considers

⁵⁰² Note of a call with a third party, January 2025, paragraphs 10–12 and 27–30; responses to the CMA questionnaire from a number of third parties, January 2025, question 8.

⁵⁰³ Note of a call with a third party, January 2025, paragraph 29; responses to the CMA questionnaire from a number of third parties, January 2025, question 8.

⁵⁰⁴ Response to the CMA questionnaire from a third party, January 2025, question 8; note of a call with a third party, August 2024, paragraph 34.

⁵⁰⁵ [CMA129](#), paragraphs 8.8–8.20.

⁵⁰⁶ FMN, paragraphs 448–451.

the Parties have not demonstrated that the claimed efficiencies would be timely, likely and sufficient to prevent an SLC from arising.

8. CONCLUSION ON SUBSTANTIAL LESSENING OF COMPETITION

262. Based on the evidence set out above, the CMA considers that it is or may be the case that the Merger may be expected to result in SLCs as a result of horizontal unilateral effects in relation to the supply of PCTs, as well as vertical effects in relation to the supply of directional drilling services using RSS, and the supply of PDGs.

9. EXCEPTIONS TO THE DUTY TO REFER

263. Where the CMA's duty to refer is engaged, the CMA may, pursuant to section 33(2)(a) of the Act, decide not to refer the merger under investigation for a phase 2 investigation on the basis that the market(s) concerned is/are not of sufficient importance to justify the making of a reference (the **de minimis exception**).⁵⁰⁷ The CMA has considered below whether it is appropriate to apply the de minimis exception to the present case.
264. The CMA's starting point when considering whether to apply the 'de minimis' exception is the size of the market(s) concerned. The CMA considers that the market(s) concerned will generally be of sufficient importance to justify a reference (such that the exception will not apply) where the annual value in the UK, in aggregate, of those market(s) is more than £30 million.⁵⁰⁸
265. The Parties submitted that, if the CMA were to only find competition concerns in relation to the Merger as a result of input foreclosure in the supply of PDGs, the CMA should apply the de minimis exception as the downstream UK PDG market is well under £30 million and is not of sufficient importance to justify a reference.⁵⁰⁹ The Parties acknowledged that the applicability of the de minimis exception is contingent on the CMA's conclusions on other theories of harm.⁵¹⁰
266. Given that the CMA has found competition concerns as a result of all three theories of harm as set out in this decision, the size of the markets concerned is, in aggregate, well in excess of £30 million.⁵¹¹ The CMA therefore considers that the

⁵⁰⁷ [Mergers: Exceptions to the duty to refer \(CMA64\)](#), 25 April 2024, paragraph 2.1.

⁵⁰⁸ [CMA64](#), paragraph 2.2.

⁵⁰⁹ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, paragraphs 5.1–5.3.

⁵¹⁰ Parties' response to the Issues Letter, 'Quartzdyne – White Paper Submission', 6 March 2025, footnote 17.

⁵¹¹ Based on the data provided by the Parties and the CMA's estimate, the UK market sizes exceed £[30] in aggregate for the supply of: (i) PCTs, (ii) directional drilling services using RSS and (iii) PDGs.

market(s) concerned are of sufficient importance to justify a reference (such that the exception will not be applied).

DECISION

267. Consequently, the CMA believes that it is or may be the case that (i) arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation; and (ii) the creation of that situation may be expected to result in an SLC within a market or markets in the United Kingdom.
268. The CMA therefore believes that it is under a duty to refer under section 33(1) of the Act. However, the duty to refer is not exercised whilst the CMA is considering whether to accept undertakings under section 73 of the Act instead of making such a reference.⁵¹² The Parties have until 3 April 2025⁵¹³ to offer an undertaking to the CMA.⁵¹⁴ The CMA will refer the Merger for a phase 2 investigation⁵¹⁵ if the Parties do not offer an undertaking by this date; if the Parties indicate before this date that they do not wish to offer an undertaking; or if the CMA decides⁵¹⁶ by 10 April 2025 that there are no reasonable grounds for believing that it might accept the undertaking offered by the Parties, or a modified version of it.

Sorcha O’Carroll
Senior Director, Mergers
Competition and Markets Authority
27 March 2025

⁵¹² Section [33\(3\)\(b\)](#) of the Act.

⁵¹³ Section [73A\(1\)](#) of the Act.

⁵¹⁴ Section [73\(2\)](#) of the Act.

⁵¹⁵ Sections [33\(1\)](#) and [34ZA\(2\)](#) of the Act.

⁵¹⁶ Section [73A\(2\)](#) of the Act.

10. ANNEX

Table A: Specialty chemicals shares of supply in the UK, 2021–2023 (revenue)

<i>Provider</i>	<i>2021</i>	<i>2022</i>	<i>2023</i>
SLB	5%	[5–10]%	[5–10]%
ChampionX	46%	[50–60]%	[50–60]%
Parties (combined)	50%	[50–60]%	[60–70]%
Baker Hughes	35%	[30–40]%	[20–30]%
Clariant	12%	[10–20]%	[10–20]%
Other	2%	[0–5]%	[0–5]%
Total	100%	100%	100%

Source: Parties' estimates based on data from the Department for Energy Security and Net Zero.

Table B: Commodity chemicals shares of supply in the UK, 2021–2023 (revenue)

<i>Provider</i>	<i>2021</i>	<i>2022</i>	<i>2023</i>
SLB	51%	[40–50]%	[50–60]%
ChampionX	7%	[5–10]%	[10–20]%
Parties (combined)	59%	[50–60]%	[70–80]%
Baker Hughes	13%	[5–10]%	[5–10]%
Clariant	3%	[0–5]%	[0–5]%
Peterson	5%	[0–5]%	[0–5]%
REDA	1%	[0–5]%	[0–5]%
Roemex	1%	[10–20]%	[0–5]%
Solventis	4%	[0–5]%	[0–5]%
Synthite	6%	[5–10]%	[5–10]%
Self-supply	3%	[0–5]%	[0–5]%
Other	4%	[5–10]%	[0–5]%
Total	100%	100%	100%

Source: Parties' estimates based on data from the Department for Energy Security and Net Zero.