SIMPLIFIED NOTIFICATION OF CONCENTRATION

Concerning the establishment of Knutsen NYK Carbon Carriers AS as a full-function joint venture under joint control by Nippon Yusen Kabushiki Kaisha and Knutsen Technology AS

Oslo, 18 March 2022
Lawyer in Charge: Håkon Cosma Størdal
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Target company:	Knutsen NYK Carbon Carriers (KNCC) Org. No. 827 900 842 Smedasundet 40, 5529 Haugesund

1. INTRODUCTION

(1) This notification concerns the establishment of Knutsen NYK Carbon Carriers AS ("**KNCC**") as a full-function joint venture jointly controlled by Nippon Yusen Kabushiki Kaisha ("**NYK Line**") and Knutsen Technology AS ("**Knutsen**").

(2) NYK Line and Knutsen (together, the "**Parties**") currently exercise joint control over KNCC, which is presently a non-full function joint venture. The Parties intend to transfer assets and resources to KNCC that will enable it to perform on a lasting basis all the functions of an autonomous economic entity with a market presence (the "**Transaction**").[1] The Transaction, therefore, entails that KNCC *becomes* a full-function joint venture in accordance with the Competition Act section 17.

(3) Since the Transaction entails that KNCC becomes a full-function joint venture and the Parties meet the turnover thresholds set out in the Competition Act section 18, the Transaction is notifiable to the Norwegian Competition Authority.

(4) The concentration is only notifiable to the Norwegian Competition Authority, and its completion is conditional on the Authority's approval.

2. THE TRANSACTION

(5) NYK Line and Knutsen entered a Share Transfer Agreement (the "**Agreement**") on 24 December 2021. The Agreement entailed that NYK Line acquired 500 shares, equal to 50% of the total shares, in KNCC. Prior to the Agreement, Knutsen was the sole shareholder in KNCC.[2]

(6) The share transfer in which NYK Line acquired joint control of KNCC did not constitute a notifiable concentration under the Norwegian Competition Act. KNCC has no assets, liabilities, or obligations of any kind (other than in relation to its share capital), which also was the case when the Agreement was concluded. KNCC has no commercial activities, turnover or market presence. Therefore, KNCC does not currently, or did at the time of the share transfer, meet the criteria for being a full-function joint venture.

(7) The Parties now intend to establish KNCC as a fully functional joint venture to develop carbon dioxide marine transportation and storage business using technology developed by Knutsen.

(8) The Transaction will be carried out by way of KNCC acquiring the entire issued share capital of Knutsen Pressurized Natural Gas AS ("**Knutsen PNG**") from Knutsen.[3] KNCC's acquisition of Knutsen PNG will be financed by Knutsen and NYK subscribing for additional shares in KNCC.

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[1] [redacted]

[2] Knutsen Technology AS is controlled by Trygve Seglem through TS Shipping Invest AS.

[3] Being the entity which, at the time of completion, will own all the intellectual property rights developed by Knutsen in relation to the proposed business.

3. DESCRIPTION OF THE PARTIES

3.1 NYK Line

3.1.1 Legal and organisational structure

(9) NYK Line is a Japanese Limited Liability Company with headquarters located in Tokyo. NYK Line is the parent company in the NYK Group.

(10) NYK Line's major shareholders include The Master Trust Bank of Japan Ltd, Custody Bank of Japan Ltd, Mitsubishi Heavy Industries Ltd and Meiji Yasuda Life Insurance Co. None of these shareholders exercises control in NYK Line.

(11) The NYK Group has several hundred subsidiaries and a global presence in liner and bulk shipping, as well as global logistics. The structure of the company group can be found at https://www.nyk.com/english/profile/structure/.

(12) Further details on NYK Line's legal and organisational structure can be found at https://www.nyk.com/english/profile/profile/.

3.1.2 Business areas

(13) The NYK Group is present in the global logistics (air, sea and land), liners and bulk shipping markets. The services include energy transportation (crude oil, petroleum, chemicals and LPG) and transportation of dry bulk (iron ore, coal and wood) as well as RoRo. The group is also involved in the Japanese real estate market and cruise business.

(14) The NYK Group owns and operates a total of 784 vessels, including 58 containers ships, 396 bulk carriers, 111 car carriers, 56 tankers and 74 LNG carriers operating at 21 ports. Moreover, the NYK group operates eight freight aircraft.

(15) NYK Line initiated a stage one study with Mitsubishi Shipbuilding in December 2021 for developing technology for storage and transport of low and mid-pressure liquefied CO_2. [redacted]

(16) A brief description of the NYK Groups corporate profile and services is available at https://www.nyk.com/english/profile/

3.2 Knutsen

3.2.1 Legal and organisational structure

(17) Knutsen is a Norwegian limited company, 90% of the equity of which is owned by TS Shipping Invest AS ("**TS Shipping**") and 10% of which is owned by PELO A/S. TS Shipping is the ultimate parent company in the Knutsen Group.

(18) TS Shipping is controlled through Seglem Holding AS by Trygve Seglem. PELO AS is controlled by Per Lothe.

(19) The Knutsen Group is organised into five shipping segments, all controlled by TS Shipping:

- Knutsen OAS Shipping AS (LNG and Product Tankers ship management)
- KNOT Offshore Partners LP (MLP listed company on NYSE)
- Knutsen NYK Offshore Tankers AS (Shuttle Tankers and Floating Storage and Offloading Tankers)
- Knutsen LNG AS (Liquefied Natural Gas Carriers)[4]
- Knutsen Technology (Marine Shipping Technology Development)[5]

(20) We refer to the enclosed organisation chart for an overview of Knutsen Group's organisational structure.

Appendix 1: Knutsen's organisational structure

(21) The Knutsen Group has offices and branch offices worldwide, including in Spain, France, Denmark, Scotland, Latvia, Canada, Ghana, Philippines and Brazil.

3.2.2 Business areas

(22) The Knutsen Group is a global provider of shipping technology and shipping services, including maritime transport of liquefied natural gas ("**LNG**"), crude oil and other petrochemicals. The Knutsen Group provide in-house shipping management, including technical and commercial operation, chartering, building supervision, conversion and project development. Moreover, the Knutsen Group is the largest shuttle tanker operator globally, with a strong focus on LNG carriers.

(23) The Knutsen Group currently has 15 vessels in its LNG fleet, and 15 more are currently under construction. Moreover, the group has presently 11 shuttle tankers and an additional fleet of 17 advanced shuttle tankers, with 34 other shuttle tankers under construction.

(24) The group also specialises in developing technology used for offshore energy transportation. The group owns proprietary technology for, *inter alia,* reduction of emissions during loading of petroleum and ballast water treatment. The Knutsen Group has also developed its own concept for operations in the maritime transport sector, including floating production storage and offloading vessels and liquefied natural gas vessels.

(25) The Knutsen Group is further a developer and provider of technology for marine transportation of compressed natural gas ("**CNG**"). Knutsen is the sole owner of Knutsen Pressurized Natural Gas AS, which currently holds all of the Knutsen Group's rights for the technology which enables the storage and transport of high-pressure liquefied CO_2. This technology has not yet been commercialised but is to some degree currently being developed with potential future customers.

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[4] Knutsen LNG is controlled by TS Shipping Investment AS. Shareholders in the company includes NYK, but compromises also Laveness Marine, Hatteland, OMP and Cape Omega.

[5] Currently the owner of Knutsen PNG Technology AS

(26) All the rights and licenses the Knutsen Group currently owns related to storage and transport of liquefied CO_2 will, as a result of the Transaction, be transferred to KNCC. The Knutsen Group will therefore have no overlap with KNCC's technology post-Transaction.

(27) An overview of the Knutsen Group's organisation and business operations can be found at https://knutsenoas.com/about/

3.3 KNCC

(28) KNCC is currently a non-full function joint venture jointly controlled by NYK Line and Knutsen.

(29) Once the Transaction is completed, KNCC will research and perform commercial development of technology for the manufacturing and operation of marine vessels for transportation, capture and storage of CO_2, including the grant of licenses of the said technology to third parties.

(30) KNCC's technology offering will at first be related to cargo containment system designs, cargo measurement instrument designs and concepts, vessel designs, cargo handling system designs, emergency shut down response system designs and concepts, and manuals (including operations manuals and cargo handling system manuals).

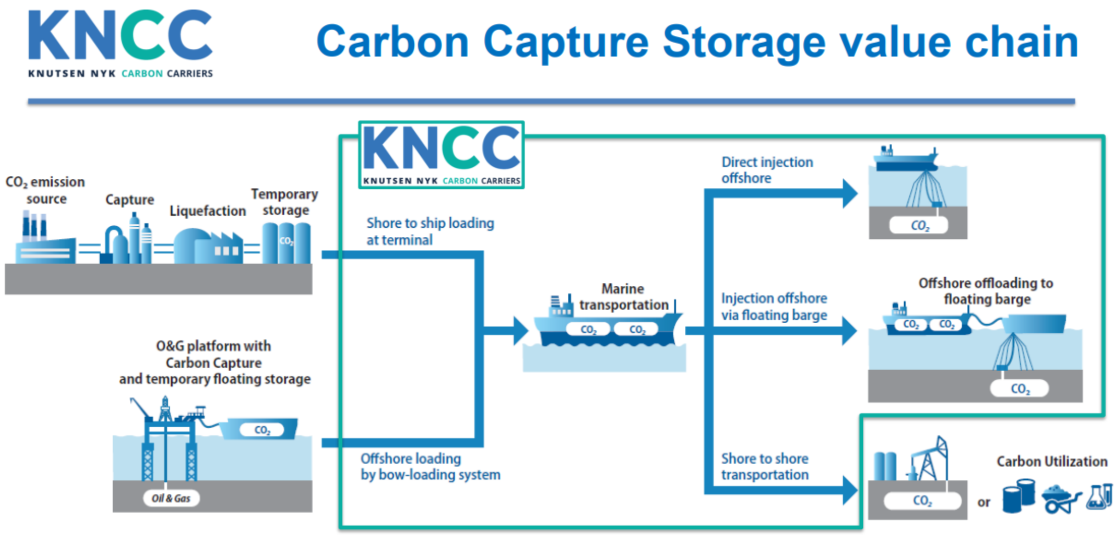
(31) The Parties estimate that KNCC will generate revenues from these technologies within approximately three years after the Transaction has been completed.

(32) KNCC is also intended to perform commercial development of marine transportation and onshore handling of CO_2. These activities will be carried out by;

(i) ownership and/or management of vessels engaged in transportation and storage of CO_2. The fleet is intended to include both high-pressure vessels using the KNCC's own technology and low- and mid-pressure vessels based on third-party technologies; and

(ii) loading (on and offshore), transportation, and discharge (on and offshore) of CO_2. See table 1 below for an illustration of the value chain.

Figure 1: Illustration of the carbon capture storage value chain and KNCC's intended presence



(33) Further information on KNCC is available at https://www.kn-cc.com/

4. MARKET DEFINITION

4.1 Introduction

(34) KNCC is intended to be active within the commercialisation of technology necessary to manufacture and operate vessels for shipping and storing liquefied CO_2 on the one side and ownership and management of vessels engaged in transportation and storage of liquefied CO_2 on the other.

(35) The Parties consider that these business areas constitute two separate product markets, described in the sections below.

4.2 Technology

(36) The Parties submit that commercialisation of technology for manufacturing and operating vessels for shipping and storing liquefied CO_2 constitutes a separate product market.

(37) Transport and storage of liquefied CO_2 is carried out using three degrees of pressure; low-pressure, medium-pressure and high-pressure. The pressure chosen for a given transportation assignment depends on several factors, such as how the CO_2 is captured and the receiving terminal's equipment. Low-, mid-, and high pressure vessels or handling equipment are not substitutable since they are specifically design to handle either low-, mid-, or high pressure CO_2. It is therefore questionable whether technology for low-, medium-, and high-pressure transportation respectively are in the same market as low- and medium pressure.

(38) Moreover, low and mid-pressure liquefied CO_2 are stored in tanks that hold temperatures between minus 25 to minus 50 degrees Celsius. High-pressure liquefied CO_2 is, on the other hand, stored in cylinder pipes arranged in stacks and do not require the same tank system or the low temperatures that low- and medium-pressure

liquefied gas require. The Parties intend that KNCC's technology and future product development shall be mainly within high-pressure storage.

(39) To the Parties' knowledge, there is currently no existing market for technology for manufacturing and operation of vessels for shipping or storing high-pressure liquefied CO_2.[6] The technology is still in the research phase, and no ships are presently utilising the technology. Therefore, it is difficult to predict the future outcome and scope of such a market, including to which extent technology pertaining to high-pressure liquefied CO_2 can be substitutable with technology pertaining to low- and/or mid-pressure liquefied CO_2.

(40) However, it is not necessary to conclude on the precise market definition for the purpose of this notification (including whether low-/mid-pressure transportation technologies and high-pressure technologies constitute separate markets) since it will not affect the competition analysis.

(41) As to the geographical scope, the Parties [redacted] The Parties further expect to meet international competition. Hence, for the purposes of this notification, the Parties submit that the geographical market is worldwide.

4.3 Provision of services related to transportation of liquefied CO_2 by large vessels

(42) The ownership and management of vessels engaged in transportation and storage of liquefied CO_2 may constitute a relevant product market. Similarly, the provision of services for loading (on and offshore), transportation, and discharge (on and offshore) of CO_2 may constitute another separate product market.

(43) The market for ownership and management of vessels engaged in transportation may also be segmented according to the the size of the vessels and whether the vessels are equipped to handle high-, mid- or low-pressurised liquefied CO_2. However, to the Parties' knowledge, there is currently no market offering within services related to transportation of liquefied CO_2 by large vessels (by all forms of pressure).[7] Transportation by large ships is necessary to cater to the need for emitters using CCS services since small vessels do not have sufficient capacity to be a part of a CCS value chain.

(44) The market for loading (on and offshore), transportation, and discharge (on and offshore) of CO_2 might also be segmented according to pressure type. The equipment is specifically designed to handle one kind of pressure and cannot be used for other purposes.

(45) It is difficult to predict the scope of a future market for providing services related to the transportation of liquefied CO_2 by large vessels and for loading (on and offshore), transportation, and discharge (on and offshore) of CO_2. None of the Parties, including

[6] There are presently a few market players offering transport services for low- and mid-pressure liquefied CO_2 in a small scale (i.e. smaller vessels for short sea transportation), such as Larvik Shipping AS.

[7] Larvik Shipping AS' vessels are about 1.800 cbm, while KNCC's target for vessels will be [redacted] cbm and more than [redacted] cbm in the future.

KNCC, are active within these markets. For the purpose of this notification, the exact market definition(s) can therefore be left open.

(46) As to the geographical scope of the markets, the Parties predict that the abovementioned services will be provided based on where the customers are located. The customers of such services could typically be emitters of CO_2 that need capture and storage services, companies buying CO_2 or looking into owning parts of the CCS value chain, and reservoir owners. All of these potential customers can be located at any place globally. The Parties expect to meet international competition on the relevant services. Hence Parties submit that the geographical market is worldwide.

5. NO MARKETS ARE AFFECTED BY THE TRANSACTION

5.1 Introduction

(47) None of the Parties currently have a market presence within any type of CO_2 transportation technology or ownership and management of vessels engaged in transportation and storage of CO_2 or the provision of related services. The Parties, however, own and develop (in various degrees) technology for the transportation of CO_2, which has not yet been commercialised.

(48) Regardless of the precise market definition, the Parties' market shares will be well below 20 per cent. This entails that the Transaction will not lead to any adverse effects on competition.

5.2 Technology

(49) None of the Parties or KNCC currently offers technology for the manufacturing and operation of vessels for shipping, capturing or storing liquefied CO_2 on any market. Hence, the Parties and KNCC do not have an *overlapping market presence* within the *sale* of such technology.

(50) However, Knutsen owns technology for the transportation of CNG and CO_2, and NYK has initialised a study for developing technology for low- and mid-pressure natural gas and CO_2 transportation. These technologies are, however, yet to be commercialised.

(51) Upon completion of the Transaction, Knutsen will transfer its technology to manufacture and operate vessels for shipping, capturing or storing CO_2 to KNCC. Knutsen, including the Knutsen Group, will not have any horizontal overlap with KNCC's activities within the research and development of said technology post-Transaction.

(52) NYK Line has an ongoing study with Mitsubishi to develop low/mid pressure type of CO_2 transportation technology. This study is still at an early stage [redacted] Consequently, NYK Line and KNCC are not expected to have overlapping activities.

(53) Therefore, [redacted] However, this transfer will not have any appreciable effects on competition.

(54) Firstly, Knutsen and NYK's technologies are not in close competition. Knutsen's technologies are related to high-pressure transportation, while NYK has studied developing low- and mid-pressure technologies. It is questionable whether these technologies are in the same product market as they have different use cases and are not entirely substitutable. Hence, the combination of the Parties' technologies in KNCC will not extinguish an existing competitive pressure.

(55) [redacted] Hence, the Transaction cannot be considered to remove an existing market player from developing technology.

(56) Thirdly, the Parties know that other companies currently are developing technology substitutable to KNCC's future product offerings. To the Parties' knowledge, these companies have not yet entered the market or taken final steps to commercialise their technology for transport or storage of high-pressure liquefied CO_2 but will exercise competitive pressure on KNCC. Hence, the KNCC will meet fierce competition from these and other global market players in relation to developing technology and future commercialisation.

(57) The contemplated Transaction will accordingly not have negative effects on competition. In any case, the companies' market shares are not expected to exceed 20 per cent since a commercial market for the said technologies does not currently exist.

5.3 Provision of services related to transportation of liquefied CO_2

(58) None of the Parties or KNCC currently own or offer management of vessels engaged in the transportation and storage of liquefied CO_2. Similarly, they are not offering services for loading (on and offshore), transportation, discharge (on and offshore) and storage of CO_2 commercially.

(59) If KNCC starts providing the abovementioned services in the future, this will establish a new market player, *increasing* competition once it enters the market. The Transaction will accordingly not negatively affect competition but rather increase it.

(60) The Parties expect that the market for offshore transportation and storage of CO_2 will be subject to substantial growth in the coming years. Pursuant to GCCSI, carbon capture and storage ("**CCS**") projects expand rapidly, increasing demand for offshore transportation of CO_2. The estimated CO_2 captured is expected to increase and amount to 5.6 Gt CO_2/year in 2050. [8]

(61) The demand for large vessels transporting liquefied CO_2 is also expected to increase. DNV estimates in a report from 2020 that the demand for offshore transportation of CO_2 will amount to 24 vessels within 2030 and further expand to 119-341 ships by 2040. Moreover, onshore pipelines will also exercise competitive pressure for the

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[8] "Energy Technology Perspective 2020", Special Report on Carbon Capture Utilisation and Storage, International Energy Agency,https://iea.blob.core.windows.net/assets/181b48b4-323f-454d-96fb-0bb1889d96a9/CCUS_in_clean_energy_transitions.pdf

transportation of CO_2 across shorter distances. Hence, the Parties accordingly expect to meet significant competition by the time any KNCC vessel would enter the market.

5.4 No vertical relations

(62) The Parties have not identified any vertical overlap with KNCC's future activities within the commercialisation of the technology and provision of services related to transportation of liquefied CO_2.

6. MOST IMPORTANT CUSTOMERS, COMPETITORS AND SUPPLIERS

(63) Since the development of low- and mid-pressure technologies is considered to be in the same market as high-pressure technologies in this notification, the Parties may have an overlap in this market (even though they do not have a commercial market presence).

(64) The Parties' competitors, customers or suppliers in this market are provided below.

Table 1: Knutsen's five most important competitors, customers and suppliers in the technology market as defined in section 4.2 (**confidential**)

Competitors	Customers[9]	Suppliers[10]
[redacted]		

Table 2: NYK's most important competitors, customers and suppliers in the technology market as defined in section 4.2 (**confidential**)

Competitors[11]	Customers[12]	Suppliers[13]
[redacted]		

9 [redacted]

10 [redacted]

11 [redacted]

12 [redacted]

13 [redacted]

7. THE PARTIES TURNOVER IN NORWAY, ANNUAL ACCOUNTS AND REPORTS

(65) The Parties' turnover in Norway in 2020[14] follows from the table below.

Table 3: Parties' turnover and revenue in Norway 2020 (NOK) **(confidential)**

Company	Turnover	Operating revenue
NYK[15]	[redacted]	
Knutsen	1.031 MNOK	1.031 MNOK
KNCC (JV)	0 NOK	0 NOK

(66) Knutsen's annual accounts are publically available at the Norwegian Company Register's website https://www.brreg.no/.

(67) NYK's annual accounts are enclosed.

Appendix 2: NYK Line's annual accounts

8. PROCEDURAL MATTERS AND CONFIDENTIALITY

8.1 The conditions for submitting a simplified notification are present

(68) The Transaction fulfils the criteria for simplified notification in accordance with Section 3 (1) no. 3 of the Regulation on the Notification of Concentration.

(69) Neither of the Parties currently has a market presence within the areas of the intended commercial activities of KNCC. To the extent the Parties' activities could be deemed to overlap with KNCC's future commercial activities, the combined market shares would, in any event, be below 20 per cent in any relevant market. A further description is provided in section 3 below.

8.2 Request for confidentiality

(70) This notification, with attachments, contains business secrets and other information that it is of competitive importance to keep secret. This information shall be treated strictly confidential and exempt from public access in its entirety, ref the Public Administration Act section 13, first paragraph, no. 2.

(71) The relevant information is double underlined or marked as "confidential".

(72) Further justification for confidentiality is enclosed.

Appendix 3: Justification for confidentiality

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[14] The Parties' and KNCC accounts for 2021 are not yet available.

[15] NYK is an international company that does not calculate separate operating revenue for their operations in Norway.