

Implementation of investment projects - Key results

Dual-fuel Aframax and MR tankers

Serial construction of «green» tankers was started at Russian shipbuilding facilities, at the Zvezda Shipbuilding Complex (Primorsky Krai, Russia), as part of cooperation between Rosneft and Sovcomflot. In 2018 an order was placed for the construction of two Aframax crude oil tankers using LNG as the primary fuel, to be subsequently chartered to Rosneft under long-term time charter contracts. During 2020 the vessels were being built in accordance with the approved schedule. The steel cutting took place for both hulls and the keel of the first vessel scheduled to enter service in 2022 was laid.

In addition, an order for the construction of three MR product tankers using LNG as the primary fuel was placed with the Zvezda Shipbuilding Complex in 2019. The tankers are designed to transport petroleum products and gas condensate and have been chartered to NOVATEK under long-term time charters. The vessels are also being built in accordance with the approved schedule, the steel cutting took place for all ordered vessels.

SCF Group was one of the first in the shipping industry to start operating large-capacity LNG-fuelled tankers. In 2018-2019, six Aframax crude oil tankers specially designed to use LNG as



the primary fuel were added to the SCF fleet. SCF's 'Green Funnel' tanker series has set a new standard of environmental sustainability in the maritime shipping industry. The tankers' main engines, auxiliary engines, and boilers are dual-fuel (using conventional ship fuel and LNG). In addition, these vessels are fitted with Selective Catalytic Reduction (SCR) technology, which enables compliance with Tier III regulations governing NOx emissions (Annex VI to the International Convention for the Prevention of Pollution from Ships) even when running on conventional fuel.

Fifth-generation Atlanticmax LNG carriers

In 2020 the construction of two fifth-generation Atlanticmax LNG carriers was completed. The LNG carrier *SCF La Perouse* was put into operation on 10 February 2020 and commenced a long-term charter with Total. *SCF Barents* joined the fleet on 15 September 2020 and operates under an agreement with Shell.

Another vessel of this series, *SCF Timmerman*, was put into operation on 15 January 2021. Besides, a shipbuilding contract with the shipyard and a time charter with Total for the fourth vessel of the series were signed in January 2021. These contracts include options for one or two similar vessels. The ordered LNG carrier is scheduled to be delivered in 2023.

These LNG carriers with a capacity of 174,000 cubic metres are fitted with an upgraded Mark III Flex cargo containment system and dual-fuel diesel X-DF engines. Such a propulsion plant is more reliable and requires less time and resources for planned repairs compared to a dual-fuel diesel electric engine (DFDE). This type of gas carrier consumes 30% less bunkers than fourth-generation gas carriers. A small amount of boil-off gas and a boil-off gas



partial re-liquefaction system will enable the charterer to maximally reduce cargo losses during long voyages and waiting time, giving vessels of this type a competitive advantage. The fourth carrier of the series will be also fitted with a hull air flow system, which in combination with two shaft power generators with frequency-to-current converters will deliver an even more significant decrease in fuel consumption.

Yamalmax Arctic LNG carriers

In 2019 Sovcomflot Group and PAO NOVATEK set up a joint venture, SMART LNG, LLC (SMART LNG). This was a result of long-term cooperation started in 2010 when Sovcomflot proceeded to designing a logistic scheme for eastbound hydrocarbon shipments via the Northern Sea Route. Sovcomflot directly participated in developing the transport component of the successfully implemented Yamal LNG project, and today it operates the world's first Arctic LNG carrier, *Christophe de Margerie*.

The main task of the joint venture is to provide year-round LNG transportation from the Arctic LNG 2 and other current and prospective projects of NOVATEK.

The Arctic LNG 2 project involves the construction of 21 new-generation Arctic LNG carriers with ice class Arc7.



Shipbuilding contracts for 15 vessels for the Arctic LNG 2 project were concluded in 2019-2020. One of the vessels is being built to order from SCF Group and 14 to order from SMART LNG, LLC. The construction of these 15 vessels is financed with the participation of VEB.RF. Three similar vessels were ordered by SCF Group from a South Korean shipyard in 2020.

Aframax shuttle tankers for the Sakhalin-1 project

In 2019 Sovcomflot Group entered into shipbuilding contracts for two Aframax shuttle tankers with ice class 1C and a deadweight of 105,000 tonnes each. The vessels are intended to operate under long-term charter contracts with Exxon Neftegas Limited, the operator of the Sakhalin-1 project (development of oil and gas reserves in the Sea of Okhotsk, on the north-eastern shelf of Sakhalin Island). The new vessels were ordered to renew the SCF Group fleet serving the De Kastri export terminal. They are scheduled to be put into service in 2022.

