

Aker Arctic is trusting in LNG in northern waters

Design company Aker Arctic's strength is its ice laboratory, which is unique on a global scale. Thanks to the Helsinki ice basin, the company has extensive experience designing icebreakers and specialist vessels that sail through ice.

According to **Reko-Antti Suojanen**, the company's CEO, one upcoming trend is the growing importance of LNG in Arctic waters.

"In northern waters, there is already more gas exploration than oil exploration. The number of gas shipments in icy waters is increasing, along with the use of LNG as a fuel for vessels," Suojanen says, describing the changes underway in seafaring related to environmental and energy needs.

Aker Arctic Technologies is well prepared for these trends. Firstly, the majority of the world's icebreakers are built in Finland, and the company has been involved in designing them. Secondly, Russia and the USA are designing new polar icebreakers, and Aker Arctic has ready-to-go concepts for both.

"Russia is replacing its 40 MW nuclear icebreakers, Taymyr and Vaygach, which were built at the end of the 1980s in Helsinki for Rosatomflot. Russia is preparing to purchase two large, LNG-powered icebreakers," Suojanen says, adding that the vessels could even be built at USC's shipyard in Helsinki.

"The new icebreakers are approximately 160 meters long and 31 meters wide. They will have very powerful engines and large fuel tanks. Previously, it was not possible to bunker LNG in northern waters, but the situation has turned on its head since the Sabetta terminal opened on the Yamal Peninsula," Suojanen says of the fuel solutions available.

Russia is preparing to purchase two large and very powerful LNG-powered icebreakers for the Northern Sea route.

Ice-reinforced tonnage for the High Arctic

The second major LNG project that Aker has had a hand in is related to the ice-reinforced tanker tonnage purchased by Novatek, a gas company, for its LNG shipments to and from Yamal.

"That project began in 2005, so it is absolutely not a one-day turnaround. We spent three years designing new tankers, after which Daewoo's shipyard won the tender competition. Since then, LNG tankers have been built in South Korea. Our collaboration with Novatek and the other Russian parties has gone very well," he says.

The United States is also planning to buy a new polar icebreaker, and President Donald Trump's government has succeeded in securing funds for the ship from Congress. According to US law, the icebreakers under the supervision of the US Coast Guard must be built by American shipyards. Three shipyards are involved in the competition to build the polar icebreakers, and Aker has a design agreement with one of them.

Vuosaari ice basin put in good use

As mentioned previously, the heart of the design bureau's specialist expertise is a 70-metre-long ice basin in Vuosaari, Helsinki, where scale models are tested for Aker as well as for external clients.

Recently, the basin has been used to test-drive scale models of autonomous vessels. According to Suojanen, a large number of experiments of similar autonomous models are planned for the future.

One significant area where Finnish technology is at the forefront of international development is oil recovery in icy waters. In Suojanen's opinion, oil recovery is difficult enough in open waters, let alone in icy conditions.

"The brushing devices produced by Lamor, a Finnish company, have proven themselves in practice in icy waters,"

Suojanen says. He notes that LNG has the advantage over oil in this area.

"If there is a leak, the liquefied natural gas dissipates into the atmosphere of its own accord, so there is no need to scrub it out of the sea."

