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Croatia's Oil Infrastructure: A Key Element of Central European Energy Security

Due to its strategic geographical location and existing infrastructure, Croatia plays a critical role in the supply of crude oil to refineries in Bosnia and Herzegovina, Serbia, Hungary, and Slovakia. The Omišalj crude oil terminal and the Adria pipeline are particularly significant in this regard. The importance of this infrastructure has grown since the outbreak of the full-scale war in Ukraine in 2022. Recent sporadic disruptions in crude oil supplies from Russia via the Druzhba pipeline have accelerated the shift by Central European refineries away from Russian crude oil, making the Adria pipeline a key alternative.

Omišalj crude oil terminal and pipeline system. In Croatia, the state-owned company JANAF (Jadranski naftovod) operates the Omišalj crude oil terminal and the Adria pipeline, both critical to the country's crude oil infrastructure. Situated on the island of Krk, the Omišalj terminal has a storage capacity of 1.4 bcm for crude oil (spread across 17 tanks of varying sizes) and 80,000 cubic meters for fuels (across six tanks). The terminal benefits from natural protection from winds, enabling 24-hour unloading operations. Furthermore, the deep approach channel allows even the largest tankers to access the terminal. The pipeline network, spanning a total of 631 kilometres, supplies refineries in Croatia (Rijeka), Bosnia and Herzegovina (Bosanski Brod), Serbia (Pančevo), Hungary (Százhalombatta), and Slovakia (Bratislava). The Adria pipeline, with a nominal capacity of 480,000 barrels per day, is divided into several sections. The first (Omišalj – Urinj), a short section (7 km), supplies crude oil to the Rijeka refinery (with a throughput of 90,000 barrels per day). The second (Omišalj – Sisak) allows crude oil to be delivered to Sisak, where a refinery operated until 2019 (66,000 barrels per day). The third (Sisak – Virje – Gola) is a pipeline that delivers crude oil to the border with Hungary, from where crude oil is then sent to refineries in Hungary (165,000 barrels per day) and Slovakia (124,000 barrels per day). This section has a capacity of 280,000 barrels per day. The fourth section (Virje – Lendava) has previously enabled the supply of crude oil to the Lendava plant in Slovenia. The fifth and sixth sections (Sisak – Slavonski Brod and Slavonski Brod – Bosanski Brod) are responsible for supplying crude oil to refineries in Bosnia and Herzegovina. The seventh section (Slavonski Brod – Sotin) allows crude oil to be exported to the Panchev plant in Serbia. The entire Adria pipeline system is thus made up of several sections, which currently allow the delivery of crude oil to five refineries (in the past, up to a maximum of eight)¹. Storage facilities along the pipeline, located in Sisak (660,000 cubic meters) and Virje (40,000 cubic meters), ensure the safe transport of crude oil. Currently, the Adria pipeline supplies crude oil to refineries in Rijeka, Bosanski Brod, Pančevo, and partially to those in Százhalombatta and Bratislava.

Importance of Croatia's oil system for Hungary and Slovakia. At present, refineries in Hungary and Slovakia primarily import crude oil from Russia through the southern route of the Druzhba pipeline. However, due to sanctions on Russia following its invasion of Ukraine, both countries have started transitioning to non-Russian crude oil supplies. According to political agreements, they are expected to complete this transition by 2025. In 2022, Budapest indicated that the transition to non-Russian crude oil supplies for the Százhalombatta refinery would require modernization of the Adria pipeline. Bratislava expressed a similar view, suggesting that without upgrades, the shift away from Russian crude oil would be difficult. However, considering the existing capacity of the Croatia-Hungary (280,000 barrels per day) and Hungary-Slovakia (120,000 barrels per day) routes, no

¹ In the past, the Adria pipeline supplied crude oil to the Sisak refineries in Croatia, Lendava in Slovenia and Novi Sad in Serbia. Currently, these plants are no longer in operation.

upgrades to Croatian infrastructure are currently necessary. This suggests that Hungary's and Slovakia's claims about the lack of alternative crude oil supply routes are not entirely accurate. Two key reasons explain their reluctance to fully embrace crude oil imports through Croatia. First, technological factors. Undoubtedly, refineries in Hungary and Slovakia import crude oil from Russia, using import channels that have been in place and proven for years (the Druzhba pipeline). Technologically, importing crude (even of comparable grades) from other directions would translate into an increase in supply costs, as well as a possible reduction in the optimization of alternatives to Russian-sourced crude oil processing at existing facilities (investments carried out in previous years were designed to maximize the processing of the Urals grade crude). Thus, the profitability and production profile of these refineries could change. Second, political and business considerations. Importing crude from two independent sources (Russia and Croatia) offers economic advantages, such as the ability to negotiate more favourable transmission tariffs. Additionally, political relations between Hungary and Croatia have been strained for years, further complicating energy cooperation. If Hungary and Slovakia were forced to abandon Russian imports, they would become fully reliant on the Adria pipeline, potentially diminishing their financial and geopolitical leverage. Since 2022, Hungary has also raised concerns over JANAF's significant tariff increases for crude oil transport.

Croatian fuel terminals on the Adriatic Sea. Croatia operates just one refinery, located in Rijeka, which is currently undergoing modernization². This means that at times, the country has no domestic crude oil processing, necessitating fuel imports to meet demand. Most of the country's storage capacity is dedicated to crude oil (80%), with only 20% allocated for fuel storage. JANAF holds a 70% market share in domestic storage, followed by INA (a subsidiary of Hungary's MOL), which owns the Rijeka refinery (15%), and Adriatic Tank Terminals (11%), which is dedicated exclusively to fuel. Smaller companies, including Luka Koper Kepol Terminal, own the remainder of storage capacity. Fuel imports are primarily handled through the Omišalj terminal (80,000 cubic meters) and the ports of Ploče (268,000 cubic meters, split between Luka Koper Storage and Adriatic Tank Terminal) and Zadar (16,000 cubic meters, owned by Kepol Terminal). The existing import and storage infrastructure is sufficient to meet domestic demand, while also playing a minor role in supplying neighbouring countries.

Conclusions

- Croatia's role in the regional crude oil market is of utmost importance, not due to its capacity to supply fuels, but because of its crude oil supply capabilities. The existing handling capacity of the Omišalj terminal, along with the Adria pipeline, currently enables the refineries connected to this infrastructure to fully meet their crude oil supply needs without requiring any upgrades to the pipeline.
- Hungary and Slovakia face strategic decisions regarding the future of their crude oil industries. The impending end of the derogation period on imposed sanctions, and consequently the necessity to import oil from sources other than the Russian Federation, will undoubtedly create a need to secure crude oil supplies via Croatia. Recent events, such as Ukraine limiting the transit of crude oil through the southern section of the Druzhba pipeline ("[IEŚ Commentaries", no. 1176](#)), highlight that beyond political factors, other elements are also influencing the need to change crude oil import routes. The threat of halting crude oil supplies from Russia, given the ongoing military conflict, remains a very real possibility.
- The lack of diversification in crude oil supply sources and routes in Hungary and Slovakia is primarily the result of their foreign policy choices and their desire to continue cooperation with Russia. This is not due to technological or infrastructural constraints, as evidenced by the lack of modernization efforts on the Adria pipeline. Thus, the choice of supply routes is politically driven, creating room for influencing the decisions of Budapest and Bratislava to reduce their energy cooperation with Russia.

² Work is underway at the refinery to build a delayed coking unit, which will lead to an increase in capacity to produce high-margin products (including gasoline, diesel) in 2025.