

# JANAF - strategic oil pipeline for security of supply of South-Eastern and Central Europe

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REVIEW

This paper presents the company profile of JANAF Plc., as Croatian oil company of strategic significance, which performs the activities of crude oil transport, as well as storage of crude oil and oil products, having also the strategic importance in the energy of South-Eastern and Central Europe and the EU, since, for thirty five years, it contributes to security of consumers supply with crude oil and provides two directions for crude oil supply to the refineries, namely from Omišalj direction (i.e. the Mediterranean) and from Hungarian direction (i.e. the Družba oil pipeline).

In recent years, the company has diversified its business operations by constructing storage capacities for storing compulsory stocks of crude oil and oil products. Thus, additional contribution has been made as to enhancement of security of consumers supply since the compulsory stocks are intended to be used in cases of emergencies according to the EU procedures.

Company's further development is considered through storage projects, then by increasing crude oil transport and storage, as well as by developing compatible projects planned to be realized in cooperation with strategic partners. JANAF's strength and competitive advantage lie in available capacities and infrastructure, favourable geostrategic and energy position that enables crude oil and oil products supply from the countries of the Middle East, North Africa, Caspian region, Russia and others.

**Key words:** JANAF pipeline, crude oil transport, storage of crude oil and oil products, South-Eastern and Central Europe, EU project of common interest

## 1. Introduction

The aim of this paper is to demonstrate the strategic significance of the JANAF oil pipeline for security of crude oil supply of Croatia and the South-Eastern and Central European countries, as well as the importance of newly built storage capacities in ensuring compulsory stocks of crude oil and oil products to be placed on the market in cases of emergency.

## 2. Company profile of JANAF Plc.

JANAF Plc. is a strategically important energy company and economic entity both in Croatia and in the region, which is operating the oil pipeline as modern, efficacious and cost-efficient crude oil transportation system for both local and foreign refineries. Along with crude oil transport, JANAF's core business includes also storage of crude oil and oil products. The reloading of liquid cargoes is also performed.

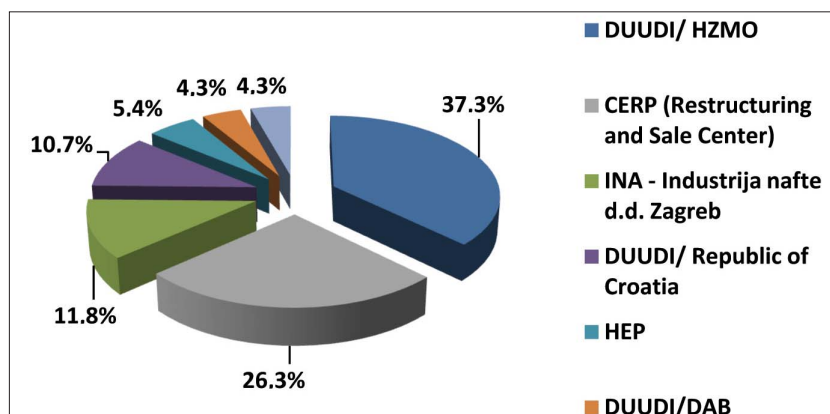
The majority ownership of JANAF Plc. belongs to state institutions, while 17.2 % of shares is held by the Croatian energy companies (Figure 1).

The oil pipeline system with terminals was built in 1979 and afterwards it has been upgraded by the Omišalj - Urinj subsea oil pipeline, storage tanks, the

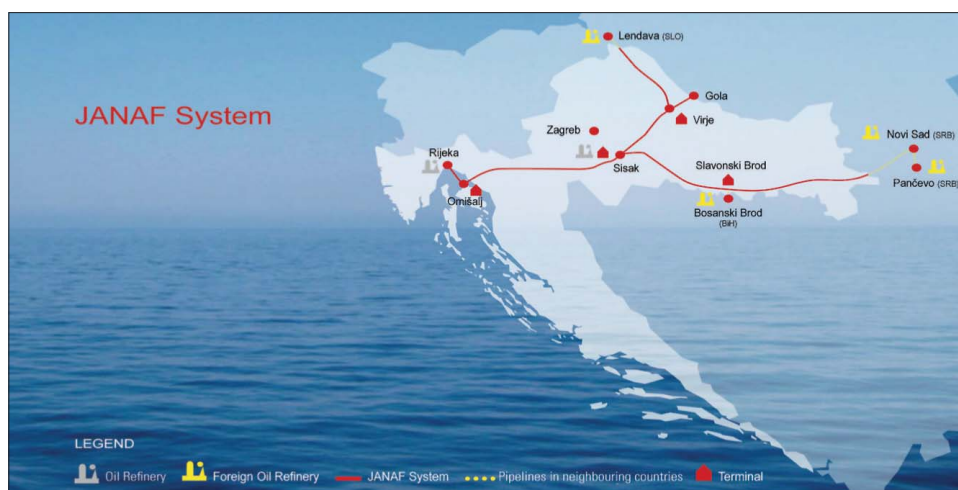
Slobodnica-Donja Vrba by-pass oil pipeline, flow reversal system and other. Besides, the JANAF system is modernized from technical and engineering point of view by new supervisory control system (SCADA), as well as electric power, geographic information and communication information systems.

The JANAF oil pipeline system (Figure 2) consists of the following:

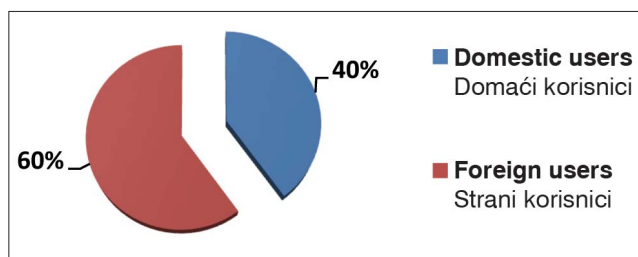
- 622 km long pipeline, comprising the following sections:



**Fig. 1. Shareholders structure of JANAF Plc.**  
Sl. 1. Vlasnička struktura JANAF d.d.-a



**Fig. 2. JANAF system with pipelines and terminals**  
Sl. 2. Sustav JANAF-a s cjevovodima i terminalima



**Fig. 3. Structure of users of JANAF oil pipeline system**  
Sl. 3. Struktura korisnika naftovodnog sustava JANAF-a

- Omišalj - Sisak,
- Sisak - Virje - Gola (Hungarian border),
- Virje - Lendava (Slovenia) - not operational since 2001 due to the Lendava refinery shut-down,
- Sisak - Slavonki Brod - Brod (Bosnia and Herzegovina),
- Slavonki Brod - Sotin (Serbian border);
- Omišalj - Urinjska subsea pipeline (7.2 km long) linking the Omišalj Terminal and INA-Oil Refinery Rijeka;
- Crude oil handling terminal at Omišalj on the island of Krk, with storage tank farm of 1 000 000 m<sup>3</sup> for crude oil and 60 000 m<sup>3</sup> for oil products;
- Crude oil handling terminals at Sisak, Virje and Slavonki Brod, with storage tank farm of 500 000 m<sup>3</sup> at Sisak and 40 000 m<sup>3</sup> at Virje.

In 2009 JANAF bought the oil products terminal at Žitnjak, Zagreb, having the capacity of around 40 000 m<sup>3</sup> which has been modernized and upgraded with additional 100 000 m<sup>3</sup> of storage tank farm capacity.

The crude oil is transported by the JANAF system for:

- local INA's Rijeka and Sisak refineries (belonging to a vertically integrated oil company INA d.d. owned by MOL and the Croatian government);
- foreign refineries: Brod in Bosnia and Herzegovina, owned by NeftegazInKor a.d. (which is owned by

Zarubezhneft a.d.); NIS refineries in Serbia, which is predominately owned by Gazpromneft a.d.; MOL refineries in Hungary and Slovakia.

From 1979 till the end of 2013, approx. 195 mil. tons of crude oil were transported, of which 60% for foreign users, thus indicating the pipeline predominately international character (Figure 3). In last years the crude oil transport has been at the level of 6-7 mil. tons, which is significantly below the installed and designed capacity.

Operational risks, in terms of volatile oil market, represented a challenge to JANAF

Plc. that diversified its business operations by developing the activities of crude oil and oil products storage, mainly for the purposes of establishing and keeping the compulsory stocks in compliance with the EU and national legislation. In recent years the storage capacities were built for such needs, as follows: 480 000 m<sup>3</sup> for crude oil storage (Figure 4) and 100 000 m<sup>3</sup> for oil products storage. Thus, the total storage capacities for crude oil amount to 1.54 mil. m<sup>3</sup> and 200 000 m<sup>3</sup> for oil products respectively.

### 3. JANAF strategic importance and development

The company development will continue to be influenced by changes on the oil market, which is characterized by global trend of reducing oil products consumption and efforts to enhance the security of supply. A moderate growth of oil products consumption, along with the economic growth, is expected in the countries of the region that import crude oil by JANAF, since they are mainly less developed than most of the EU countries. The company's business activities are expected to be increased as result of changing the supply routes, primarily as regards crude oil, yet oil products as well, and owing to development of compatible projects that will contribute to better utilization of the existing capacities and infrastructure, as well as to the company's growth.

#### 3.1. Crude oil transport

Today Croatia has three (3) routes for crude oil supply to local refineries, in particular from the onshore national oil fields of INA and by the JANAF transport system from two directions - Omišalj direction (the Mediterranean) and from Hungarian direction and the Družba oil pipeline respectively (Figure 2). Besides, JANAF also supplies regional refineries in Serbia, Bosnia and Herzegovina (from both directions) and in Hungary from Omišalj direction. There are possibilities for crude oil transport up to Slovakian and Czech refineries from Omišalj direction. Thus, the JANAF pipeline has secured a strategically significant position in crude oil supply of



**Fig. 4. New storage tanks for crude oil storage at Omišalj and Sisak Terminals**  
Sl. 4. Novi spremnici za skladištenje nafte na Terminalu Omišalj i Terminalu Sisak

Croatia, the EU states and the countries of the region, since the refineries are provided with a possibility both to achieve, by choosing the direction and supply sources, the security of supply and to have a choice of cheaper crude oil adjusted to technical and technological possibilities of processing in refineries. The pipeline importance for security of supply in certain oil opportunities and/or difficulties can be especially huge, which is shown also from examples of oil crises in the past.

JANAF is recognized as EU strategic pipeline through project of common interest entitled: "JANAF-Adria pipelines: reconstruction, upgrade, maintenance and capacity increase of the existing JANAF and Adria oil pipelines linking Croatian Omišalj seaport to the Southern Druzhba", (abbreviated: Project of JANAF-Adria pipelines). List containing 248 energy projects, of which six (6) concern oil pipelines (Figure 5), was adopted by the European Commission on 14 October 2013.

After construction of new oil pipelines, namely the Százhalombatta - Sahy pipeline (Hungary-Slovakia) and Bratislava - Schwechat pipeline, new market opportunities are opened for crude oil transportation by JANAF for Hungarian, Slovakian, Czech and even Austrian refineries. It is important to emphasize that the key factor of choosing a route of supply to the refineries in the EU countries and those in the region will be not only the security of supply, but lower costs as well. Therefore, a conclusion might be reached that due to Russian strategic commitment towards Asian markets and construction of new oil pipelines towards the East, the crude oil transport by the Druzhba oil pipeline will weaken, which opens up opportunities for greater transport by JANAF from Omišalj direction.

Therefore, a possibility of refineries choosing crude oil supply direction is one of JANAF's potentials and strength respectively, providing a possibility to better utilize the available capacities of the existing oil pipeline infrastructure and oil transport corridors. However, there are chances that companies give up on construction of certain new oil pipelines due to drop in profitability in terms of decrease in crude oil refining and transporta-



**Fig. 5. EU oil pipelines projects of common interest in Central and Eastern Europe**

Sl. 5. Naftovodni projekti od zajedničkog interesa EU u Srednjoj i Istočnoj Europi

tion and given the fact that, according to the valid regulations, the oil pipelines projects (as opposed to gas pipelines and energy power supply facilities) are not eligible for financing from the EU funds.

Security of consumers supply and crude oil transport, together with safety and protection of the environment,



humans and equipment, increase of crude oil transport and profitability represent the strategic goals of the company's business and development, which are foreseen to be further implemented through realization of the following projects related to: pipeline inspection, repairs and rehabilitation; construction of subsea oil pipeline linking the Krk Island to the mainland (that would replace the existing crude oil transport through the Krk bridge pipeline); upgrade of the Omišalj Terminal and making it capable for crude oil loading on tankers and other.

### 3.2. Storage of crude oil and oil products

By constructing storage capacities and storing the total volumes of compulsory crude oil stocks and part of compulsory oil products stocks, JANAF further contributes to enhancement of security of consumers supply with crude oil. Moreover, oil products are stored at the Omišalj and Žitnjak terminals for oil trading companies.

Continued development of storage activities is taken into consideration owing to JANAF's potentials and opportunities in the region, in particular: pipeline available capacities and infrastructure, competitive strategic position of the Omišalj Terminal (on the Mediterranean market), then of the Sisak Terminal (at oil routes crossing) and the Žitnjak Terminal (in close vicinity of Zagreb consumer centre); obtained location permits and the Environmental Impact Studies adopted; expertise and experience of employees and management, financial potential and other.

Thus, there are possibilities of further development and construction of:

- Storage tanks for crude oil with total capacity of 400 000 m<sup>3</sup> (5 x 80 000 m<sup>3</sup>) at the Omišalj Terminal and 160 000 m<sup>3</sup> (2 x 80 000 m<sup>3</sup>) at the Sisak Terminal;
- Storage tanks for oil products with capacity of 100 000 m<sup>3</sup> at the Omišalj Terminal and 60 000 m<sup>3</sup> at the Žitnjak Terminal;
- Upgrade of the Omišalj Terminal for purposes of crude oil loading on tankers that would create conditions for greater crude oil storage and transport, as well as for trading.
- Realization of these projects is considered through strategic partnership with oil companies and/or state institutions authorized for establishing and maintaining the compulsory stocks.

## 4. Conclusion

For thirty five years JANAF has been a strategic oil pipeline for supply of the refineries in Croatia and the South-Eastern and Central European region. Owing to the flow reversal of a certain part of the pipeline sections, the refineries are supplied with crude oil from two directions, as follows: from Omišalj direction, i.e. the Mediterranean and Hungarian direction, i.e. the Družba oil pipeline, that contributes to enhancement of security of their crude oil supply. This is also supported by pipeline available capacities and possibility of significant increase in crude oil transport. Furthermore, JANAF is recognized as strategic pipeline for enhancing security of crude oil supply of the EU Member States and as such forms a part of the EU project of common interest,

namely: "JANAF-Adria pipelines: reconstruction, upgrade, maintenance and capacity increase of the existing JANAF and Adria oil pipelines linking Croatian Omišalj seaport to the Southern Družba".

Favourable geostrategic and energy position of the Omišalj and Sisak Terminals, available pipeline and storage infrastructure as well as free capacities, obtained permits, together with professional experience of employees and management represent JANAF's strength, being at the same time factors that will enable continued company's development, in particular by construction of new storage capacities and increase of crude oil transport and storage of crude oil and oil products. Furthermore, the projects compatible with the existing company's operations are being considered, which are foreseen to be realized with strategic partners. Revival of oil market and enhancement of crude oil supply to the refineries in the region and EU from Omišalj direction would contribute to realization of strategic goals related to JANAF's development and its projects.



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