UNIVERSITY OF LJUBLJANA
FACULTY OF ECONOMICS

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MASTER'S THESIS

THE ANALYSIS OF THE OIL INDUSTRY AND DEVELOPMENT OF THE OIL STORAGE IN BOSNIA AND HERZEGOVINA IN COMPLIANCE WITH THE EU

Ljubljana, February 2018 SAMIRA AVDIĆ

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INTRODUCTION

Renewable energy sources have been in focus for quite some time. However, crude oil still remains one of the most important sources of energy until today. Its importance has been thousands of years and through the years it has been gaining importance for developed countries and especially for countries that are in the process of transition. Before introducing the subject of this master thesis, it is essential to present a short overview of oil supply, demand and sources in the world oil market through the years.

Global oil supply decreased from an estimated 575 kb/d to 86.3 mb/d in May 2010, largely on lower non Organization of the Petroleum Exporting Countries (hereinafter OPEC) output due to seasonal maintenance (International Energy Report 2012, p.16). In 2013 the world oil supply was 90.2 mb/d (OPEC Annual report 2014, p. 20). The demand side of oil is concerned with the consumption over time. World crude oil demand grew on average of 1.76% per year from 1994 to 2006, with the increase of 3.4% in 2003-2004. After reaching a high of 85.6 million barrels per day in 2007, world consumption decreased in both 2008 and 2009 by 1.8%, due to rising fuel costs. Despite this lull, world demand for oil is projected to increase by 21% from the 2007 levels by 2030 (104 million barrels per day from 86 million barrels) (International Energy Report 2012, p. 4). In 2013 world oil demand was 90.2 mb/d (OPEC Annual report 2014, p. 20).

Although no one can precisely calculate the exact amount, it is certain that oil resources are finite. Therefore, it has become a national problem for every country to secure oil supplies, especially in times of crises like wars and natural disasters. However, the only proven oil reserves are secured oil reserves and in theory, they are superior, so they have been analyzed first. Paddock (1980, p. 5) suggested that one takes into account only the flows of additions to proved reserves as an acceptable indicator of future potential supply.

All major sources estimate that the world´s proven oil reserves are about 1.1 and 1.2 trillion barrels Maugeri (2006, p. 212). From a geographical point of view, they are highly concentrated. Maugeri (2006, p. 213) emphasized that almost 65 percent of oil reserves are found in five countries in the Persian Gulf area: Saudi Arabia, Iraq, Kuwait, United Arab Emirates and Iran. Outside of this area, only two countries have large reserves of proven reserves, Venezuela and the Russian Federation.

However, neither the United States of America (hereinafter USA) nor the European Union (hereinafter EU) have their own resources and in the European Union International oil companies are still major capacity holders (Survey of the EU Oil Sector and Markets, 2009, p. 6). Therefore, in an unstable geopolitical environment where the balance between supply and demand is generally uneasy, the European Union´s dependency on imports of oil products is an increasing cause for concern of European economic prospects.

In addition, the United States imports about 45% of the petroleum which is consumed in only one year. Just over half of these imports come from the Western Hemisphere. This dependence also causes problems in the USA concerning international geopolitical questions. In the USA, there are a many attempts to break this dependency (*International Energy Statistics*. n.d., in US Energy Information Administration).

On the other hand, Bosnia and Herzegovina (hereinafter B&H) is fully dependent on the import of crude oil because it does not have its own resources. Import of crude oil is over one million tons per year (Emergency Oil Stocks in the Energy Community, B&H, 2011, p. 44). The consumption of petroleum product is over one million and two hundred tons per year (Emergency Oil Stocks in the Energy Community, B&H, 2011, p. 46).

Three quarters of the crude oil used in B&H is for transformational purposes, only 9% is used for industrial purposes. B&H mainly import crude oil from Croatia, Hungary, Slovenia, Serbia and Austria (Strategic plan and program of development sector of energy in Federation of B&H, 2009, p. 168). According to the data of the Competition Council from 2014, there are 951 gas stations in B&H and the largest distributors are HoldIna – Energopetrol, Gazprom Petrol, Nestro Petrol, Petrol Inc. and HIFA group. These distributors cover more than 30% of the retail market.

However, the post-war period in B&H is characterized by the disintegration and fragmentation of the energy sector as one of the most important segments of the economy of any country. B&H is the only country in Europe that does not have a strategy of energy development, nor Energy Law at national level and currently does not have mandatory stocks at a national level. The company "Oil Storage of Federation" was formed in 2014 according to the Oil Law and the Law on oil products in the Federation of B&H, adopted in June 2014 at the entity level (only FB&H). The aforementioned company is responsible for mandatory stocks in FB&H.

In 2009, Council Directive 2009/119/EC was adopted to maintain minimum stocks of crude oil and oil products up to 90 days of average daily net imports or 61 days of average daily inland consumption. The purpose of this master's thesis is to focus on the importance of enhancing the crude oil market in B&H and harmonization of the legal framework according to the EU directives, especially regarding to mandatory stocks and to point out the possibility of the Oil Storage of Federation Ltd's development. The objectives of this master thesis are to:

- Present the basic characteristics of the crude oil sector in B&H;
- Provide an overview of previous research in the field of crude oil and oil products in B&H and the region;
- Indicate the need for addressing the issues of implementation of reforms in the oil sector in B&H;

- Analyze existing state of the oil market in B&H, with special emphasis on the comparison to the EU market;
- Critically review present laws that govern the oil sector in B&H, with special reference to the area of mandatory oil stocks and oil products;
- Present SWOT analysis for Oil Storage of Federation.

This master thesis is based on literature, published scientific articles and other available data related to the oil sector. Research methods include collections of primary and secondary data. Primary data are collected using two different surveys.

One of the surveys is an online survey for 205 final consumers of oil products about conditions in the oil market in B&H from their point of view. The questions are about usage, prices, and quality of oil products in B&H.

The second questionnaire is intended for oil company management, and it is done to assess B&H oil market from the oil company's point of view. The questionnaire includes both, open-ended and closed-ended questions about creating prices, the quality of the oil and the legal framework that regulates the oil industry in B&H and EU oil markets. During the research, answers were given by representatives of oil companies that operate in the above- mentioned markets. This includes 31 oil companies that conduct business in B&H oil market.

Moreover, secondary data were collected using different sources such as reports from enterprises and by previously published scientific research papers and data from various publications about the crude oil and oil products sector in B&H and EU. A literature review was compiled using only secondary data, in order to provide insight into what has been done on the subject so far. The main sources of literature on this subject were e-books, official journals, and publications from an academic institution in their respective sites.

A big focus is put on the world oil market and the oil market in the EU and neighboring countries. The information on oil demand and supply is provided as well as the biggest importers and exporters, and the biggest and the most important oil companies. The first chapter also contains information about crude oil prices in the market and also about retail prices as well as OPEC's impact on the market and prices.

The second chapter deals with an explanation about the basics of the oil market in B&H. At first, it is explained about the supply and demand of crude oil and oil products, then the retail market and the number of retailers and also the biggest importers and distributors.

The third chapter is about storage capacities in the EU, neighboring countries and B&H. It explains the possibilities of fulfillment in the EU directives in this area and in what way

different EU members make assumptions to do that. Also, it is stressed that B&H and neighboring countries don't have enough capacities and need investments in new terminals.

An important part of this master's thesis is the legal framework in the EU, the neighboring countries, and B&H which has been explained in the fourth chapter. It compares the framework in the EU with the framework in B&H and the neighboring countries. It shows that almost all countries have laws that consist of EU directives, except B&H. The final chapter focuses on the company mentioned earlier in this document "Oil Storage of Federation" and its short SWOT analysis.

1. CHARACTERISTICS OF THE OIL MARKET IN THE WORLD AND THE EU

1.1 Basic characteristic of the oil market in the world

Crude oil is one of the most important sources of energy and it is the key to every civilization. Crude oil not only moves our cars, heats our homes and runs our factories, it also drives national economy, politics, and military policy around the world (Lin, 2011a, p. 1).

Crude oil was first mentioned about four thousand years ago. Its use began in the Middle East, in Babylon and ancient Persia. Written cuneiform sources mention the use of asphalt mortar for brick bonding and coating of irrigation canals. In Persia, asphalt was used in road construction, in ancient Egypt, bitumen was used for embalming the dead, and in ancient Rome, wood was used for heating baths, but first soaked in crude oil, and oil-soaked torches were used for lighting (Boranić, 1950, p. 7).

Crude oil was also known in ancient China, where it was acquired from wells in the third century BC. It is estimated that in China, at that time, several hundreds of such wells were in use. After these wells dried up, crude oil fell into oblivion and was not used again until the modern era.

The word itself comes from the ancient Persian word "oil", which meant transpire. In the ancient Greek language, we already have an exact designation in the word "naphtha", which means rock oil. This confirms that the ancient Greeks already knew the concept of oil (Dekanić, Kolundžić & Karasalihović, 2003, p. 17).

Oil is a liquid or semi-solid substance which is found in the Earth's crust, mainly in sedimentary layers and rarely in metamorphic and igneous rocks. The chemical

composition of the oil is a complex mixture of hydrocarbons with a small admixture of oxygen, nitrogen, and sulfur.

It is found in the form of gas, liquid and solid phase, depending on the pressure and temperature conditions in the reservoir. As already pointed out, oil is located in sedimentary rocks and areas with this type of rock are of potential interest for research. After detailed geological and geophysical studies, drilling is required in order to establish recoverable reserves and complete the categorization of reserves (Đajić, 2002, p. 18).

According to estimates carried out for the purposes of the World Energy Council (hereinafter WEC) in the period 1975-1985, the total reserve of oil and liquefied gas ranged between 240 and 360 billion tons of oil equivalents. These estimates are changed every year, together with price changes in the global market and the development of technology for exploitation.

At the end of 2014, the quantity of crude oil and natural gas liquids proven to exist in knowing reservoirs and that can be extracted economically is reported to be 1700.1 billion barrels or 239.8 million tons according to Britain Petrol Statistical Review of World Energy (2015), sufficient to meet the requirements of 53.3 years of global production. According to the BP Statistical Review of World Energy from 2015 OPEC countries, members still hold the majority of reserves. They have 71,9% of global total reserves. Also, BP Review from 2015 announced increasing of confirmed global reserves to 27% or over 350 billion barrels.

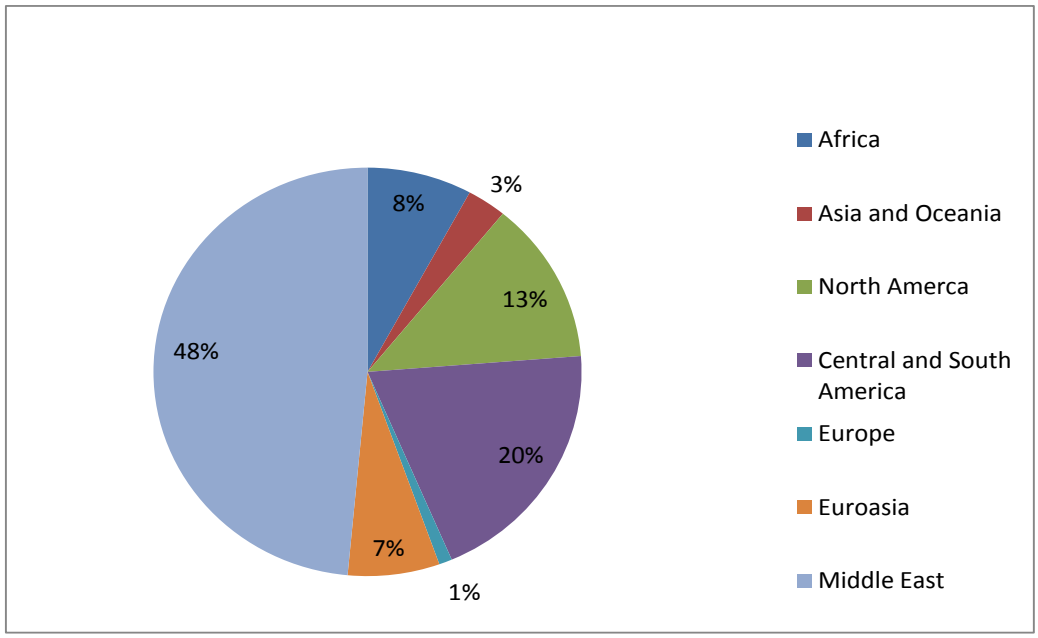
Different sources regularly quoted as benchmarks estimate current global oil reserves at 1650 billion barrels. In 1991 consumption was 66 mb/d (million barrels per day) and increased to 88MBd in 2011 (32%). In the same period reserves also have increased by 60%. So the reserves-to-production ratio has increased from 43 to 54 years (WEC, World Energy Council – World Energy Resources, 2013).

Although no one can precisely tell the exact amount, it is certain that oil resources are finite, which presents a unique demand issue, from the customer's point of view. Furthermore, there is a national problem of securing supplies for every country, especially in times of crises such as wars and natural disasters. In the future, more problems will appear from the supply side, when it becomes clear that only proven oil reserves are secure oil reserves and in theory, they are superior so we analyzed them first. As suggested by Adelman (1980, p. 5) who said that one takes into account only the flows of additions to proven reserves as an acceptable indicator of future potential supply.

Figure 1 shows crude oil reserves in the world, by region. This shows that 56% of the total oil reserves are located in the Middle East and Africa. Significant reserves are located in North America (13%) and Central and South America (20%).

More than half of world oil reserves are outside of the United States and Europe, which are the biggest consumers. That is one of the reasons for many projects of energy independence in these regions.

Figure 1. World Oil Reserve by Region in 2012



Source:*International Energy Statistics*. (n.d.) inUS Energy Information Administration

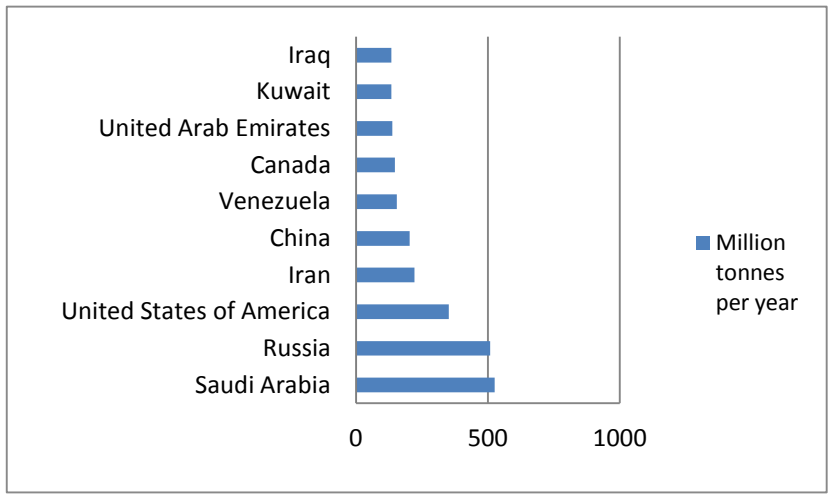
Today, all major sources estimate that the world´s proven oil reserves vary between 1.1 and 1.2 trillion barrels (Maugeri, 2006, p. 212). From a geographical point of view, they are highly concentrated, this is what causes problems in the present and will continue to cause problems in the future, because some countries use their position of monopolist on the oil market and work together to influence world oil supplies. Maugeri (2006, p. 213) emphasized that almost 65% of oil reserves are found in five countries in the Persian Gulf area: Saudi Arabia, Iraq, Kuwait, United Arab Emirates and Iran. Outside this area, only two countries have large reserves of proven reserves, Venezuela and the Russian Federation.

The Organization of the Petroleum Exporting Countries (hereinafter OPEC) was created at the Baghdad Conference on September 10-14, 1960. This is one permanent and intergovernmental Organization established by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. Qatar, Libya, United Arab Emirates, Algeria, Nigeria, Ecuador, Angola and Gabon have joined the five Founding Members.

Figure 2 shows the largest producers of oil in 2014. It is noticeable that the OPEC countries are at the forefront, with Saudi Arabia produces 526 million tons, Iran 222 million tons, Venezuela 155 million, United Arab Emirates 138 million, and Kuwait and Iraq 134 million tons each,

which is 1309 million tons or 51.9% of the total production (2522 million tons per year). A large portion of production comes from Russia, with 509 million tons or 20.1%, and the USA, with 352 million tons or 13.9% of the total production.

Figure 2. Top oil producing countries in 2014



Source: *Survey of the competitive aspects of oil products in the EU,* 2009, p. 29

In the first part, the history of oil and reserves is described and, it is realized that reserves are limited and still insufficiently investigated and that the OPEC countries are the main "players" in the oil market since the crude oil has been traded internationally for decades. Prior to the 1980's, oil producing companies and countries sold 'cure under terms contracts, but in early 1980's a spot market developed to enable traders to balance their requirements. This spot market now accounts for a third of all physical trades. Most OPEC oil is traded using term contracts (Survey of the competitive aspects of oil products in the EU, 2009, p. 29.).

Table 1. Demand of crude oil in 2009-2013 (in million barrels per day)

WORLD DEMAND (in million barrels)	**2009**	**2010**	**2011**	**2012**	**2013**
OECD	45.6	47.0	46.5	46.0	45.9
OECD Americas	23.3	24.1	24.0	23.6	23.9
OECD Europe	14.6	14.7	14.3	13.8	13.6
OECD Asia Pacific	7.7	8.2	8.2	8.6	8.4
DCs	25.8	26.5	27.3	28.2	28.9
FSU	4.0	4.2	4.3	4.4	4.5
Other Europe	0.8	0.6	0.6	0.6	0.6
China	8.2	9.0	9.4	9.7	10.1
TOTAL WORLD DEMAND	**84.4**	**87.3**	**88.1**	**89.0**	**90.0**

Source: *OPEC's annual reports 2009; OPEC's annual reports 2010; OPEC's annual reports 2011; OPEC's annual reports 2012; OPEC's annual reports 2013.*

Table 2. Supply of crude oil in 2009 – 2013(in million barrels per day)

WORLD SUPPLY (in million barrels)	**2009**	**2010**	**2011**	**2012**	**2013**
OECD	19.5	20.0	20.2	21.1	22.1
OECD Americas	14.2	15.0	15.5	16.7	18.1
OECD Europe	4.7	4.4	4.1	3.8	3.6
OECD Asia Pacific	0.6	0.7	0.6	0.6	0.5
DCs	12.6	12.7	12.6	12.1	12.1
FSU	12.9	13.2	13.2	13.3	13.4
Other Europe	0.1	0.1	0.1	0.1	0.1
China	3.8	4.1	4.1	4.2	4.2
TOTAL NON OPEC SUPPLY	55.4	57.3	57.8	58,4	60
OPEC CRUDE OIL PRODUCTION	28.7	29,2	29,8	31.1	30.2
TOTAL OIL SUPPLY	**84.1**	**86.5**	**87.6**	**89.5**	**90.2**

Source: *OPEC's annual reports 2009; OPEC's annual reports 2010; OPEC's annual reports 2011; - OPEC's annual reports 2012; OPEC's annual reports 2013*.

Tables 1 and 2 demonstrate the world oil supply and demand from 2009 – 2013 according to OPEC's annual reports (2009-2013). It is noticeable that the Organization for Economic Co-operation and Development (hereinafter OECD) countries demand cover 50% of total oil demand but only provide 24% of oil supply. On the other side, total OPEC supply of oil is 35% of total world oil supply. This shows the dependency of OECD countries on OPEC oil.

In 2014, there was a sudden increase in oil supply leading to price reductions that, according to estimations by Petroleum Intelligence Weekly (hereinafter PIW), continue to weigh on oil prices, with volumes in September rising by another 717,000 b/d from already impressive levels in August to reach almost 95 million b/d, preliminary PIW soundings indicate. This left the overall global supplies some 2.8 million b/d ahead of demand. OPEC oil output was up by 129,000 b/d, with a 381,000 b/d monthly rise from Iraq trumping a 292,000 b/d slump from Nigeria, the latter mainly reflecting a bloated level of loadings in August as shippers sought to squeeze in cargoes before a threatened port strike.

The big jump in Iraqi volumes to 3.431 million b/d reflected both the success of the Kurdistan Regional Government (hereinafter KRG) in finding alternative pipelines and road routes in Turkey around Islamic State-controlled territory, and a full month of almost perfect weather for crude loadings in the south. Non-OPEC production was up by an impressive 543,000 b/d compared with August, with North America again to the fore, the region’s output holding up well in the face of the recent slump in oil prices, despite talk of

the US light, tight oil surge's vulnerability to lower prices. US oil output was up by 200,000 b/d on the month level.

Table 3. Top world oil net exporters and importers 2012 (million barrels per day)

Exporter	Amount	**Importer**	Amount
Saudi Arabia	8,8652	**United States**	7,3722
Russia	7,0023	**China**	4,6083
UAE	2,5444	**Japan**	4,5594
Kuwait	2,3475	**India**	2,4605
Iraq	2,2476	**Korea, South**	2,2616
Nigeria	2,2247	**Germany**	2,2257
Qatar	1,8298	**France**	1,6998
Iran	1,7289	**Spain**	1,2729
Angola	1,71410	**Singapore**	1,22010
Venezuela	1,71211	**Italy**	1,21611
Norway	1,68512	**Netherlands**	95112
Algeria	1,50713	**Taiwan**	90313
Canada	1,50514	**Thailand**	78414

Source: *International Energy Statistics. (n.d.)* in US Energy Information Administration

Table 3 shows top world oil exporters and importers. Analyzing the table leads us to the conclusion that half the exports belong to OPEC members, and that the only non-member country with a larger share in exports is Russia.

On the other hand, the United States, China, and Japan are the largest importers of oil from OPEC countries and Russia. European countries such as Germany, France, Spain, Italy, and Netherlands belong to the greater importers and there are no European countries that export a significant amount of crude oil.

A very important change, according to the world oil market, is that the world oil market is not dominated by a handful of multinational corporations anymore. Forty years ago, the eight largest oil companies produced 89% of world's oil.

The original eight included ESSO, British Petroleum, Shell, Gulf, Texaco, Standard Oil, Mobil and Campagnie Francais des Petrole according to PIW from 2008. Today these same companies account for just 12% of production and only 3% of world's remaining proved oil reserves. According to Energy Digital[1]Saudi Aramco, Gazprom and National Iranian Oil Company (hereinafter NIOC) are the greatest producers in the world.

[1]Energy Digital is an innovative digital platform aimed at bringing business executives up-to-date with the latest news, information and trends from across the energy industry

Table 4. Top 10 oil companies in the world in 2014 year

Company	Daily production (in million barrels)
Saudi Aramco	9.5
Gazprom	9.7
NIOC	6.4
Exxon Mobil	5.3
PetroChina Co.	4.4
BP	4.1
Shell	3.9
Pemex	3.6
Chevron	3.5
Kuwait Petroleum Corp	3.2

Source: *Author's elaboration according to Energy Digital, 2014, n.p.*

1.2 Basic characteristic of the oil market in the EU

The European Union is the largest regional market in the world (over 500 million consumers), one of the largest consumers and importers of energy. According to Eurostat data, energy consumption was down by 8% between 2006 and 2012 in the EU28. In the European Union (EU28), total energy consumption in 1990 was 1.67 million tons of oil equivalent (Mtoe), and grew to peak at 1830 Mtoe in 2006 and then dropped to 1680 Mtoe by 2012 (-8% in six years).

The leaders in consumption are the United Kingdom and Italy (-12.2% and -12.0%). Own production is around 850 Mtoe, so total import reaches up to 1000 Mtoe. Therefore, the energy dependence of the European Union today is over 50% and with a tendency for further growth, particularly in the natural gas and oil, and estimates are that by 2020 it will reach 60%. Pongas[2] (2014, n.p.) quotes that crude oil dominates the total trade value of energy products imported into EU with 295 billion euro in 2003 or 73% of all energy imports.

Tables 5 and 6 show that the largest importer of oil and gas in the EU countries is Russia. For oil, Russia is less dominant because of the existence of a larger number of competitors with smaller shares.

According to this data, the conclusion is that the EU is dependent on energy imports, so the main goal of the European Commission is to provide a competitive, sustainable and

[2]Statistical analysis of EU trade in energy products, with focus on trade with the Russian Federation

secure supply for all of its members. This goal is proclaimed in Article 194 of the Lisbon Treaty on the Functioning of the European Union. Security of supply includes the transit of energy and cross-border trade, diversifying suppliers, energy storage and the construction of new power capacity and infrastructure for the transport/transfer of energy.

Table 5. Extra[3]-EU-28 imports and exports of energy products

	Extra-EU Imports	**Extra-EU Exports**	**Extra-EU Imports**	**Extra-EU Exports**
	Unit (billion EURO)		Share %	
Petroleum oils from natural gas	7,3	0,0	10,8	0,0
Petroleum oils and oils obtained from bituminous minerals, crude	295,0	5,6	487,0	9,1
Natural gas, liquefied	13,6	1,7	33,2	3,2
Natural gas in gaseous state	73,4	1,3	167,7	2,4
Coal	16,1	0,2	196,8	1,8
Lignite	0,1	0,0	0,7	0,1
Peat	0,0	0,1	0,3	1,0
Coke	0,4	0,5	2,2	2,5
TOTAL	**405,8**	**9,5**	**898,7**	**20,1**

Source: *PONGAS et al., 2014, n.p.*

Refineries started operating in Europe at the beginning of the twentieth century, but it was not until the increased economic growth and a significant increase in road transport in the 1950s when refining operations began to experience high growth. Figure 3, shown below, indicates that refining capacity continued to grow through the 1960s and early 1970s, to peak in the mid to late 1970s.

After this time capacity began to decline through to the mid to late 1980s and stabilized thereafter *(Survey of the competitive aspects of oil products in the EU, 2009, p. 29)*. The decline in capacity from the since 1980s reflected overcapacity, exacerbated by a severe global reflected overcapacity, exacerbated by a severe global recession and reduced demand due to more efficient road vehicles.

Between 1985 and 1999 there was a continued consolidation and rationalization, which saw marked reductions in a number of refineries and throughout, with investment in

[3]Extra-EU refers to transactions with all countries outside of the EU: the rest of the world except for the European Union (EU) as it is now, consisting of 28 Member States. The term is used in the context of external trade, balance of payments, foreign direct investment, migration, transport, tourism and similar statistical areas where goods, capital or people moving in and out of the EU are being measured and where the EU as a whole is considered in relationship to the rest of the world. Extra-EU transactions of the EU as a whole are the sum of the extra-EU transactions of the 28 Member States.

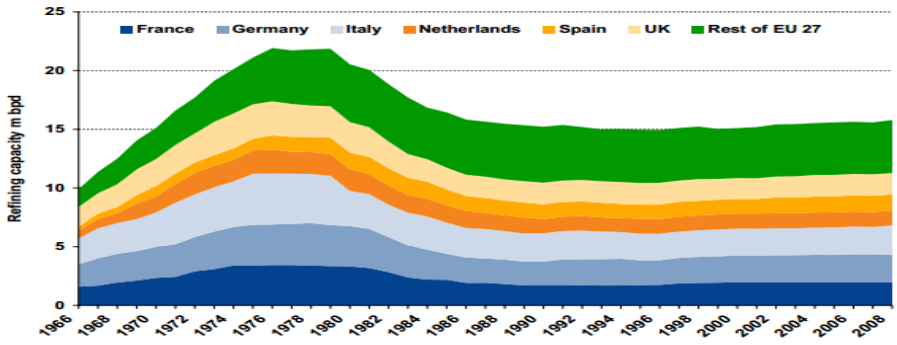
upgrading facilities to produce greater volumes of gasoline, naphtha, diesel and kerosene and reducing refining capacity, shown in Figure 3 (*Survey of the competitive aspects of oil products in the EU*, 2009, p. 33).

Table 6. Share in Extra-EU-28 imports of petroleum oil, crude oil and NLG

Country	Share in imports %
Russia	33
Norway	11
Nigeria	9
Saudi Arabia	8
Kazakhstan	7
Libya	6
Algeria	5
Azerbaijan	5
Iraq	3
Angola	3
Mexico	2
Equatorial Guinea	1
Egypt	1

Source: *PONGAS et al., 2014, n.p.*

Figure 3. Refining capacity in million barrels per day



Source: *Survey of the competitive aspects of oil products in the EU,* 2009, p. 33

In July 2009 there were 108 refineries operating in the EU, which represents 17 % of global refineries and capacities. The EU remains the second largest producer after the United States, operating in the European Union, which represents17% of global refineries and capacity. There are refineries in each Member State with few exceptions, and many are located at sites with landing terminals for oil tankers or on large rivers such as the Rhine and Danube that have good river navigation for barge transport (*Survey of the competitive aspects of oil products in the EU*, 2009, p. 34).

Table 7 shows a short overview of players that are active in refining crude oil in the world market. It shows the most important ways different players are active in refining crude oil.

Table 7. Overview of players active in refining crude oil

International oil companies	Vertically-integrated with supply chain operations from exploration and production through refining to retail marketing	Shell, BP, ExxonMobil, Chevron, ConocoPhilips and Total S.A.
National Oil Companies (NOCs)	Often began as state-owned/controlled companies with significant operation within their national borders, but some have undergone transformation to publicly quoted entities with a wide share ownership.	PKN (Poland), MOL (Hungary), Eni (Italy), OMV (Austria), Rompetrol (Romania), KPC (Kuwait) and PDVSA (Venezuela)
Pure Play Refiners	Specialize in refinery operations alone where they refine crude oil for other market for wholesale products.	Ineos and Petroplus
Refiner and Marketers	Refinery operations are integrated with retail fuel marketing	SARAS
Niche Refineries	Specialist refinery with specific processes as bitumen plants	Nynas

Source: *Survey of the competitive aspects of oil products in the EU,* 2009, p. 34

1.3 Basic characteristic of the oil market in the neighboring countries

Countries neighboring B&H, which for the purposes of this study include Serbia, Croatia, and Montenegro, belong to the countries in transition. It is a known fact that energy consumption is increasing in these countries due to the increase of the modern sector of the economy, such as industry, motorized transport, and consumption in an urban areas (Jelisavac, 2007, p. 330).

What we particularly emphasize is that the petroleum industry in these countries was part of the state and the public sector and that privatization started only after the war (1992-1995) in B&H and a large number of private companies were established that started with business activities in the field of buying and selling oil. In Serbia, the research and processing of oil started in 1956 at Jermenovci, the largest volume of production was achieved in 1982 (1303 million of tons) followed by a declining trend until today, where the production is around 650 000 tons (Đajić, 2011, p. 63). According to the IEA 2013, Serbia, in the last five years has proven reserves of 0.0775 billion barrels, Croatia 0.071 billion barrels, while Montenegro, and B&H has no proven reserves.

Production and oil exploration in Croatia began in 1960, at the same time as in Serbia, with the establishment of INA Naftaplin, which was credited with the discovery of

numerous oil and gas fields, while Montenegro, same as B&H, has not yet commenced exploration, but the concessions have been granted to Greek oil companies. The current production in Croatia is at the level of 13,780 barrels per day from 2010 according to Index Mundi and in Montenegro, there are no production and petroleum refining. The production of oil and condensates on domestic exploitation covers 20% of domestic requirements for crude oil (Sedlar et al. 2009, p. 9).

Table 8 shows production, consumption, imports and exports of oil in B&H and neighboring countries in the 2009-2013 (*International Energy Statistics*. n.d., in US Energy Information Administration). It is observed that B&H and Montenegro have no oil supply; these countries are also the least consumers compared to the four countries.

Table 8. Production, consumption, imports and exports of oil in B&H and neighboring countries 2010 – 2013in billion barrels

Country	Year	2009	2010	2011	2012	2013
B&H	Oil Supply	-0,0936	-0,03195	-0,03195	-0,03195	-0,03195
	Consumption	33,9289	35,2474	35,39866	35	36
	Export	0	1,75167	10,45797	NA	NA
	Import	23,94962	9,03447	16,33211	NA	NA
Serbia	Oil Supply	19,99119	23,72507	21,30589	19,72234	21,22096
	Consumption	82,66589	79,84562	78,92764	80	77,2
	Export	3,98126	7,10978	7,57622	NA	NA
	Import	25,47249	26,04792	29,29307	NA	NA
Croatia	Oil Supply	24,4447	23,82472	21,89321	20,07449	20,23842
	Consumption	93,55944	80,22624	79,42569	82	84
	Export	38,13989	41,90088	42,30581	NA	NA
	Import	40,8494	23,87745	28,49507	NA	NA
Montenegro	Oil Supply	0	0	0	0	0
	Consumption	3,77344	2,93058	4	4,74532	4,46
	Export	0	0	0,36934	NA	NA
	Import	3,66632	3,77344	3,29992	NA	NA

Source: *International Energy Statistics*. (n.d.) in US Energy Information Administration

1.4 Regulation of the prices of oil

At the time when the world oil market is unstable and when price changes daily, this section began with a brief historical overview and the most important events that have affected this instability. A complex and interdependent set of price relationships exists

across the entire matrix of global oil markets and products, including physical oil and related derivatives contracts. These price relationships are based on many fundamental factors, such as supply, demand, geographical, time and quality arbitrages across the globe which underpins the market and prices in all grades and regions.
In addition, due to inter-product spread pricing, greater liquidity in one oil market can help priceless liquid oil markets at a differential (ICE Crude &Refined Oil Products, p. 5). This has been shown in Figure 4.

Figure 4. The facts behind oil prices

Source: *Gas Prices Explained, 2015, n.p.*

Crude oil prices are set globally through the daily interactions of thousands of buyers and sellers in both physical and futures markets and reflect participants' knowledge and expectations of demand and supply. A lot of other reasons affect the price of crude oil like economic growth and geopolitical risks. Other factors that come into play are weather events, inventories, exchange rates, investments, spare capacity, OPEC production decisions, and non-OPEC supply growth (Gas Prices Explained, 2015, n.p.).

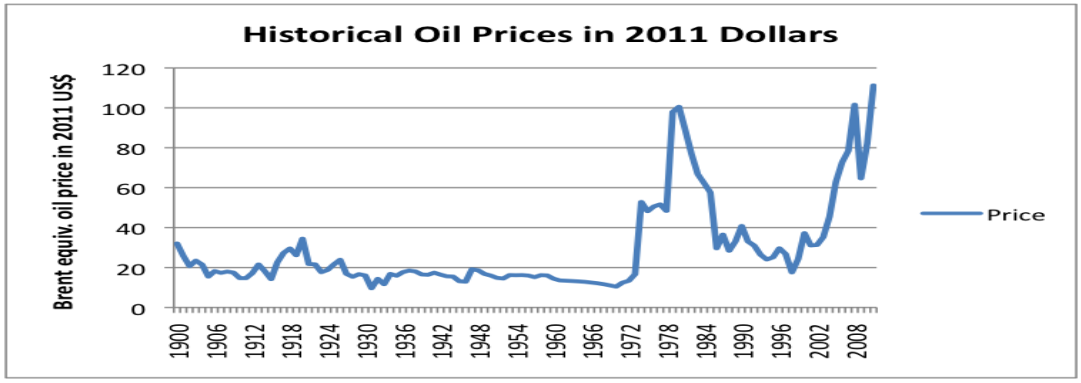
Oil is the only important global product that has held a stable price (from 1.20 to 3 $/b) for as long as 120 years, from 1861 to 1960. This was despite the two great world wars, conflicts and severe destruction in Korea and Vietnam, and the numerous wars between Israel and the Arab states.

Figure 5 presents price developments between 1861 and 2011 and it is clear that after the 1970s, the price began to grow until the highest prices in 2010. After 2010, oil prices began to fall again.

Thanks to cheap oil, the West industrialized developed and the market price of oil was determined or strictly controlled. It was only in the seventies that oil prices increased to 4-$ 6, and by the end of the century, they have reached $ 20. At the beginning of the financial crisis in 2008, oil price doubled and achieved a record high of $ 145 per barrel.

However, it seemed that everything was under control. Because the world economy was recovering until the summer of 2014 when crude oil prices again started to fall as a result of increasing supply of oil caused by America to become one of the biggest oil producers through increasing production of oil shale in a single year by four million barrels of oil per day. This is an enormous amount that allowed the US to become the second strongest member of OPEC. This turn of events influenced prices so that by December 2014 the price dropped to $ 80 per barrel and OPEC intervention was expected as the largest oil exporters have experienced reduced revenues from oil production.

Figure 5. Historical Oil real spot prices, 1900 – 2008 (Brent equivalent in 2011$)



Source: *Tverberg, 2015, n.p.*

There are two major pieces of OPEC's strategy for "stabilizing prices":

- "shutting in" existing production capacity, which means extracting less oil than existing wells can produce;
- restricting the growth of new capacity by limiting the effort to find and develop new resources (Smith, 2009, p. 152).

The meeting of the OPEC main board was held on 27 December 2014 and the expectation was that countries would agree to reduce oil production as they did in 2008. But Saudi Arabia, the largest among OPEC members, was against the cut in output.

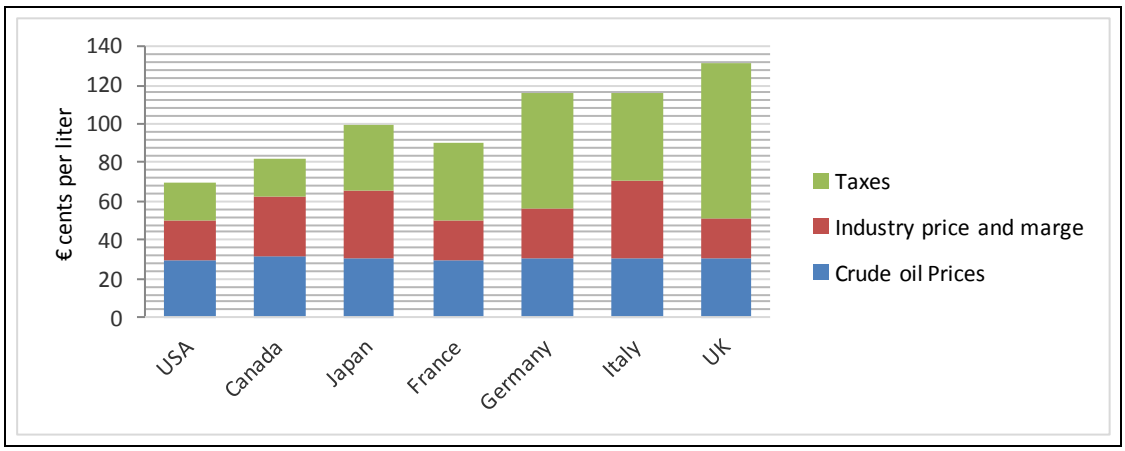
Brent crude, the European benchmark, was down by about 7% at $72.60 after it was announced that production would remain around 30 million barrels a day. The price of light crude, the U.S. benchmark plunged about 7% to below $69 per barrel (Kottasova, 2014, n.p.).

The retail price of fuel is determined by the price of one liter of crude oil, margin, excise duty, and VAT. The margin is the cost actually incurred for oil refining, transport, insurance, stockpiling, distribution and sale of fuel to end users. Excise and VAT taxes are determined at the national level, and local level and may include taxes related to environmental protection.

These taxes make up 60% of the price of diesel fuel in the G7 countries. For example, just from tax on fuel Britain collects around 25 billion pounds each year. These tax revenues are distributed mainly to basic budgetary needs and subsidization for less successful forms of transport, rather than being reinvested in road infrastructure. In some countries, the price of diesel fuel at the petrol stations is 3-4 times higher than the price set by OPEC.

Taxes varied the most in final price 19 % in the USA to 69% in the UK. In Canada taxes are 25% of the final price and in Japan 34%. In European countries, taxes are much higher and in France, they are 48%, Germany 50% and Italy 44% of the final price (Figure 6).

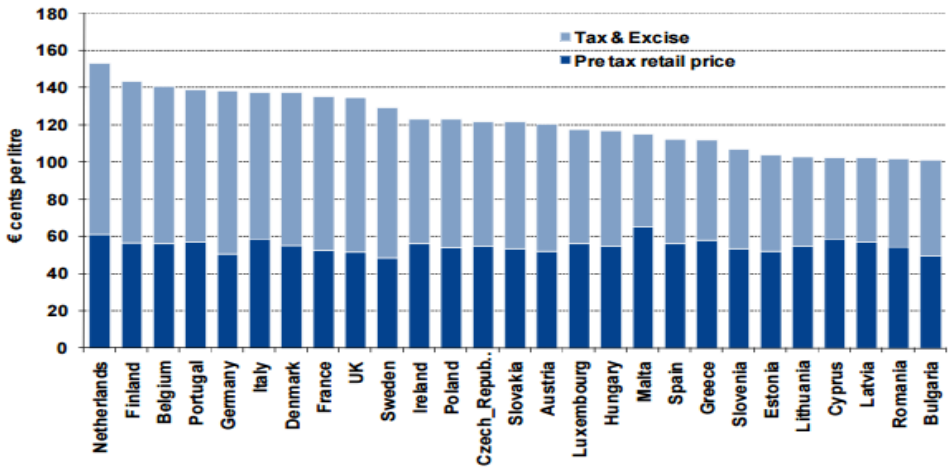
Figure 6. Oil Products Price Formation



Source: *POYRY, p. 20*

Looking at prices across the individual Member States, there is a significant price spread, as can be seen in Figure 7 which shows the average retail price and tax and excise components for gasoline across the EU-27 during 2008. It is seen that the variation in retail prices is greater than the variation in pre-tax prices (POYRY, p. 20).

Figure 7. Average gasoline retail prices with and without taxes and excise, 2008



Source: *POYRY, p. 20*

Price setting mechanisms and market models that are applied in different EU countries are characterized by large disparities despite market integration. Most member countries utilizing oil for household needs are still being offered fixed tariffs with levels that are determined by the national regulator. If there are tariffs that are competing with the "free market", competition is obstructed and the price is still kept ostensibly low (*The Impact of Oil Prices on EU Energy Prices*, 2014, p. 108).

According to the 2014 Index of Liberalizations, the EU15 member state with the most liberalized gasoline retail market is Austria (that scores 100% according to the Index methodology), followed by Germany (99%) and the UK (89%). The least liberalized countries are Ireland (56%), Italy (57%) and Greece (68%). The Index is comprised of three macro indicators that are built by aggregating both qualitative and quantitative indicators of the degree of market openness and competition in the retail gasoline market.
The first indicator captures the burden of direct as well as indirect taxation, under the assumption that higher taxes relative the industrial price of gasoline lowers the incentive for the customer to switch provider, as the price difference is perceived as being lower. A second indicator reflects the after-tax price differentials: since the wholesale cost of gasoline differs only across a limited range across Europe, most of the retail price differentials can be attributed to inefficient cost structures or other competition-related issues.

Finally, an indicator is considered on the sector organizations that take into account the degree of penetration of modern channels of distribution such as the diffusion of self-service and the share of gas stations that sell non-oil products (*Index of Liberalization*, 2014, p. 5).

For example, according to German Energy Law, there are different tariffs. Under mentioned law only tariffs charged to private households, agricultural concerns and small commercial properties (so-called tariff customers) are subject to approval by the Price Supervision Authorities of the Laender (in general the Ministry of Economic Affairs) under the Federal Regulation on Electricity Tariffs (Bundestarifordnung Elektrizität – BTOElt) of 18 December 1989. Tariffs must be authorized by the Supervisory Authority in advance before they may be applied. The aims of the price control after the BTOElt are the protection of tariff customers against excessively high prices, the protection of utilities by guaranteeing them reasonable profits, the protection of the environment and the sparing use of resources.

An example of an open and competitive free market is the United Kingdom. Wholesale prices are set by market dynamics and government influence to retail prices for consumers only through taxation (Energy Policies of IEA Countries, United Kingdom, 2012, Review, p. 61).

The Italian market is also one with a fully liberalized market and they have free export, import, trade, and prices. The government only intervenes if there is a need to protect the free market from being abused by dominant positions. All these changes and developments in the world oil market referred to at the beginning affects also the oil market and price formation in B&H and neighboring countries. In B&H, there is no price regulation and legal framework for oil and oil products provide self-regulating market prices. Price of gasoline and diesel in 2015 is equal and amounts to 0.95 Euros per liter, which is about 20 percent less than in June 2014 when according to the Agency for Statistics of B&H liter of fuel was 1.176 Euro. Given that the price in the world market fell by more than 50%, we can conclude that B&H does not follow this trend.

The Cyprus Economic Policy review from 2010 announced that it is a very widespread belief that oil companies and retailers rush to increase prices in local markets immediately when international oil price rise. On the other hand, the mentioned review noticed also that this does not happen when international oil prices drop. This phenomenon is known as asymmetric price adjustment or the "rockets and feathers" phenomenon (price rise like a rocket and drop like a feather) (Cyprus Economic Policy Review, 2010, p. 25).

When it comes to the neighboring countries, Serbia and Croatia also have no control (Law on oil and oil products RS and Energy Law RS) and the prices are formed freely on the market. However, in Croatia, the Decision that determines the highest retail prices of oil derivatives determines the maximum price based on the price of oil derivatives on the Mediterranean market, the exchange rate, the premium energy operator, the means of financing the work of the Agency for compulsory stocks and compulsory stocks of oil and oil products in the amount. The maximum retail price of oil products is determined in Montenegro and Macedonia (Regulation on the method of maximum retail prices of oil products Montenegro and Energy Law - The Energy Regulatory Agency of Macedonia).
Comparing final prices across the neighboring countries and B&H distinctly shows that in B&H are the lowest prices 0.95 Euro/L. The price in Macedonia is 0.99 Euro/L, while Serbia and Croatia have higher prices (1.07 Euro/L in Serbia and 1.11 Euro/L in Croatia). Also, given the different way of pricing in the EU countries, B&H and neighboring countries, we can notice that these changes differently affected the retail price of each country in the EU and the region (Appendix – Table 2015 prices B&HAMK).

2. BASIC CHARACTERISTICS OF THE OIL MARKET IN B&H

2.1 Source of oil and production of refinery

In the area of B&H, oil exploration began back in 1889, when the Austrian geologists F. Katzev and Hofer studied the Majevica mountain area, in the villages of Zavidovići and Priboj, in the Tuzla – Zvornik region. Austrian geologists have drilled several wells up to 50 meters deep from which they took several samples. However, this project was suspended due to lack of funding.

Between the two world wars, a research study was carried out only in northeastern Bosnia. Oil is found in several wells in Požarnica and Simin Han near Tuzla. In 1939 there were about 300 tons of oil extracted, which was transported to the refinery in BosanskiBrod, but due to the small production, costs of transportation, lack of equipment, personnel and soon war conditions, production was stopped in 1943 (Studija energetskog sektora, 2008, p. 56).

After the World War II, the company to exploit oil and gas was established in Požarnica near Tuzla, but in 1962 it was shut down. From 1963 to 1973 the rights to exploit in B&H were given to INA NAFTAPLIN Zagreb. In 1973 the Energoinvest Sarajevo was also given the rights to exploit oil and gas on the territory of B&H for a period of 10 years. During this period extensive geological research project in the area of Northern Bosnia and project Dinarides were carried out. Given that the degree of exploration of the Northeast B&H, it is considered that there are reserves of crude oil in four basic areas:

1. The area south of Bosanski Šamac (approximately 9.2 million tons),
2. The site southwest of Orašje (approximately 6.1 to 15.5 million tons),
3. Tuzla region, river Tinja (approximately 14.3 million tons) and
4. Site environment Lopare (approximately 11.9 million tons).

The preparatory work on the Dinarides project was carried out and it came to show that the results can be assessed as positive, according to AMOCO, the US Company which financed the study (Studija energetskog sektora, 2008, p. 57). From the foregoing, it is evident that the research results indicate that both areas can be assessed as promising from the standpoint of oil and gas exploration and to future research could uncover commercial prospecting. Bearing in mind the aforementioned research results and their own research and analysis for the period 2011-2013, the British-Dutch company Shell Exploration Company BV, based in the Netherlands, called the concession for the exploitation of oil and has planned an investment of 700 million dollars.

Research and explorations proposed to blocks Slunj, Bihać, Bosanska Krupa, Prijedor, Drvar, Key, Knin, Glamoč, Bugojno, Sinj, Livno, Prozor, Imotski, Mostar, Kalinovik, Metkovic, Ston and Dubrovnik (*B&H market mostly attracts Turkey and Russia*, 2015, n.p.). However, in 2015, Shell has decided to give up the continuation of research in B&H "after an internal review of the portfolio in light of the current circulating in the oil and gas, Shell will take on this opportunity at this stage and therefore will not look for (new) extension of the memorandum" was written in the letter to the Government of FB&H(*B&H market mostly attracts Turkey and Russia*, 2015, n.p.).

In this chapter, production of oil in two existing refineries in B&H will also be discussed, Oil refinery in Bosanski Brod and refinery in Modriča, chemical industry called Danica. (Naftna privreda B&H, 2006, p. 5). In Bosanski Brod municipality, an Oil refinery was constructed because of easy access to the Sava river (navigable from Sisak to the Danube

and Black Sea) and also because the railway which connects it with the European countries and with the rest of Bosnia, and in Brod there was a big reloading railway station. During its history, this refinery has changed a few different owners and in 2008 the refinery was sold to the Russian company Zarubezneftin. After Zarubezneftin took over the refinery, the reconstruction was finished and the old processing line was set into operation with the capacity of 1.2 mil tons per year and the processing of waste water was modernized (Onama, 2008, n.p.).

Another refinery is a small chemical workshop called "Budućnost" was founded in 1954, as the basis for future development of Oil Refinery Modriča. After the integration with the Oil refinery Brod in 1961, Modriča's refinery has become a significant factor in the Yugoslav market. The first engine oils from OPTIMA and MAXIMA family were produced in 1964 and in the coming years became a significant exporter of base oils and paraffin wax on the market of Western European countries, and as a reputable producer of engine oils, lubricants, base oils and paraffin wax entered a firm business arrangement with world leading companies, such as Orogil, Golf, Ammoco, Wintershall etc.

After the war in 1992 – 1995, production was restarted and in 2003 the company has been transformed into a joint stock company. In 2007, Russian company „NeftegazInKor" became majority owner by purchasing 75%, 65% of shares being from the state and external shareholders and began the restoration of the facilities for base oils and paraffin wax production (Istorijat, 2007, n.p.).

2.2 Import and crude oil

Although there are various indications about finding crude oil in B&H and there are big plans of exploitation (Shell Exploration Company granted a concession and the exploitations to begin in 2015), we are still completely dependent on its import. These plans are very important due to the increase in oil consumption in B&H but also because of the constant disruption of the world oil market and constant price fluctuation.

Consumption has increased from 800.351 tons per year from 2009 to 1.387.459 tons per year in 2013 that is a 40% of the increase (Table 10). Production of oil products in B&H in 2013 is 965.720 tons. The amount of oil products available for supply is 1.387.459 tons, out of which 41.423 tons is for transformation input, energy sector consumption is 144.150 tons and final consumption is 1.204.750 tons.

In total final energy consumption of 1.143.217 tons of oil products in 2013, the largest share is in the transport sector of 79.2%, households participate with 6.8%, industry with 6.4%, while the other, construction and agriculture sectors participate with 7.6% (*Statistika energije*, 2015, n.p.).

In the first ten months of 2014 import of crude oil was 964.226 thousand of KM which is almost 50% more than in the first ten months of 2009, when it stood at 439,597 KM. We can notice that after the restart of production in the Oil Refinery Brod (2010) there was an increase in imports of crude oil in B&H. However, as we will see in the next section, in the same period there has been a decrease in imports and an increase in exports of oil products.

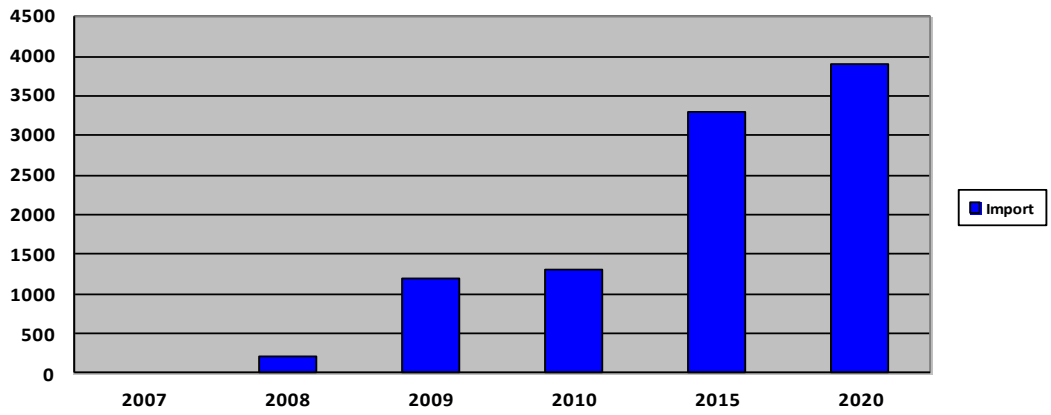
Table 9. Import and export of crude oil and natural gas in 2009 - 2013

YEAR	IMPORT (thousands of tons)	EXPORT (thousands of tons)
2009	803.351	0
2010	1.067.270	0
2011	1.474.453	0
2012	1.418.909	0
2013	1.351.183	0

Source: *Statistika energije,* 2015, n.p.

The largest importers of crude oil in B&H are Optima Group Inc. Banja Luka and "Holdina" Sarajevo. Included in the Optima Group is "Brod Oil Refinery" Inc which produces oil products that are applied daily in the economy (industry, construction, transportation and household). The total processing capacity of crude oil is 4.2 million tons per year. "Oil Refinery Brod" Inc. now has the facility capacity 1.2 million tons per year, a capacity of 3 million tons per year is in preparation (removal of the damage from the war, overhaul, modernization). Crude oil has been supplied by pipeline from Russia through Sisak to Bosanski Brod and from Mediterian by pipeline JANAF from Omišaj (Studija energetskog sektora u B&H, 2007). The Figure 8 provides a summary of the current and forecast imports of crude oil in B&H (Emergency Oil Stocks in the Energy Community, 2011, n.p.).

Figure 8. Imports of crude oil on Bosnia and Herzegovina 2007 - 2020



Note: *Imports for 2015 and 2020 are forecast estimates*
Source: *Emergency Oil Stocks in the Energy Community, 2011, n.p.*

2.3 Import and export of oil products

During the pre-war period, B&H needs for oil products was 1.5 million tons to 1.7 million tons per year. The main supplier and distributors were Energopetrol Sarajevo (70-75 % of the market) and Ina Zagreb (20-25%) (Naftna privreda B&H, 2006). Current needs for oil products are estimated around 1.5 million tons per year.[4]

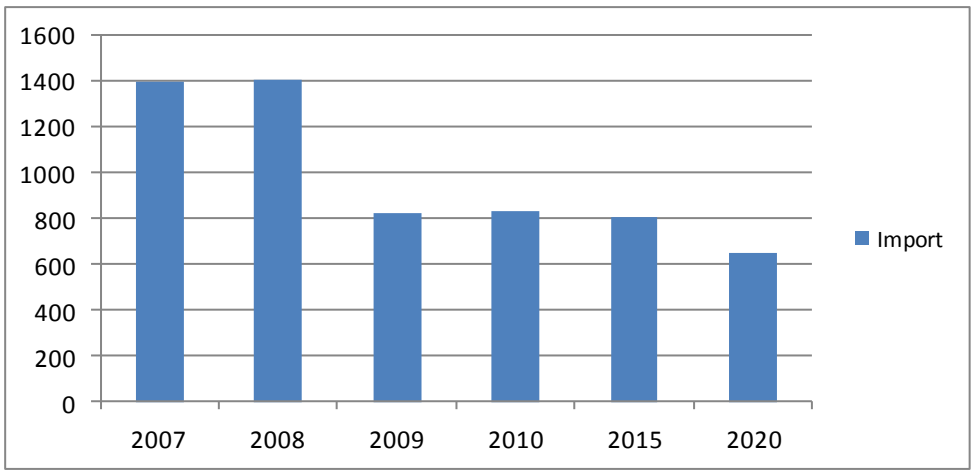
Import in 2009 was 1.379.780 thousand of KM and it was covered by export only in 10% which was 144.945 thousand KM. In 2013 import was covered by export in 15% but, only because the import of crude oil and products is also decreasing and in 2013 is 2.272.295 thousand of KM, export has also decreased to 361.490 thousand of KM which is 15% less than in 2012 (Table 10).

Table 10. Imports and exports of oil and oil products in B&H

YEAR	IMPORT in thousands of KM	EXPORT in thousands of KM
2009	1.379.780	144.945
2010	1.771.492	287.832
2011	2.375.667	493.315
2012	2.307.678	418.664
2013	2.272.295	361.490

Source:*Foreign trade chamber of B&H, 2014.,in Naftnaprivreda B&H (n.p.)*

Figure 9. Oil products imports in B&H, 2007 – 2020 in thousand KM



Note: *Imports for 2015 and 2020 are forecast estimates*
Source: *Emergency Oil Stocks in the Energy Community, 2011, n.p.*

[4] This information is very difficult to figure out because there are two statistics agency and there is no information at the national level.

Figure 9 shows imports of oil products in B&H. According to Emergency Oil Stocks in the Energy Community forecast imports should decrease after 2015 because of production in two refineries (Bosanski Brod and Modriča Refinery) and after the re-start of production in 2009, B&H has become an exporter of oil products. Figure 9 also shows estimations, according to Emergency Oil Stocks in the Energy Community, of export of oil products with the same assumptions of production in B&H and provides a summary of current and forecast exports (*Emergency Oil Stocks in the Energy Community*, 2011, n.p.).

As we have no information about imports of oil products, separate from crude oil through the years, on the national level, we are going to give information separately for Federation of Bosnia and Herzegovina (hereinafter FB&H) and Republic of Srpska (hereinafter RS). Table 11 shows imports of oil products in FB&H in last 5 year. Import of oil products in 2009 was 726.065 thousand of tons. After 2009 import started decreasing until 2013 when import increased to 644.060 thousands of tons, and in 2014 import was 693.164 thousand tons which shows that growth is continuing (*Foreign trade chamber of B&H*, 2014., in Naftna privreda B&H, n.p.).

Table 11. Imports of oil products in FB&H from 2009 - 2013

YEAR	**IMPORT in thousands of tons**
2009	726.065
2010	647.336
2011	639.111
2012	612.732
2013	644.060

Source: *Foreign trade chamber of B&H, 2014., in Naftnaprivreda B&H (n.p.)*

Table 11 shows imports of oil production in FB&H in the last five years, according to the country of imports. This shows that the biggest importers in B&H are Croatia, Italy, Hungary, Serbia, and Slovenia.

Import from Croatia is constantly about 70% of total import. Hungary is very interesting because import from Hungary changes through the years. In 2009 were 69.836 thousands of tons, while in 2012 only 1.769 thousands of tons. Import from Slovenia has decreased and from 35.649 thousands of tons in 2009 comes to 13.146 thousands of tons in 2013. Only import from Serbia has increased in last five years being 9.048 thousands of tons in 2009 and 36.171 thousands of tons in 2013.As it is shown from the Table 12 in the last five years the largest import is from the following countries:

a) Croatia 60.97% (2009), 72.35% (2010), 71.64% (2011), 72.34% (2012) and 72.27% (2013)

b) Italy 14.60% (2009), 14.313% (2010), 22.09% (2011), 19.60% (2012) and 13.97%), (2013)

Table 12. Imports of oil product in thousands of tons in FB&H in 2009 -2012

YEAR / COUNTRY	2009	2010	2011	2012	2013
Croatia	442.708	468.367	457.856	443.250	465.480
Hungary	69.836	40.120	6.980	1.769	31.097
Slovenia	35.649	21.475	21.594	22.812	13.146
Italy	106.020	92.649	141.153	120.092	89.951
Austria	6.169	3.030	3.004	9.293	2.893
Serbia	9.048	7.529	6.194	13.048	36.171
Other	24.301	14.166	2.330	2.468	5.322

Source: *Foreign trade chamber of B&H, 2014.*,in Naftnaprivreda B&H (n.p.)

Table 13. The biggest importers of oil products in 2009 – 2013

YEAR (in thousands of tons) / IMPORTERS	2009	2010	2011	2012	2013
Holdina Ltd. Sarajevo	24,50	20,28	24,90	42,77	75,58
Hifa-Oil, Ltd. Tešanj	17,40	21,5	21,73	21,54	3,61
Energopetrol, d.d. Sarajevo	13,22	17,83	14,34	6,72	
Petrol BH Oil Company, Sarajevo	10,50	13,45	15,03	15,54	13,81
Antunović, Ltd. Orašje	9,10	-	-	-	-
G-Petrol Ltd. Sarajevo (ex OMV BH)	-	-	-	-	3,61

Source*: Foreign trade chamber of B&H,* 2014., in Naftna privreda B&H (n.p.)

Table 14. Imports of oil products from RS to FB&H from 2009 – 2013

YEAR	IMPORT (in tons)
2009	-
2010	274,134
2011	280,992
2012	271,909
2013	260,123

Source*:Foreign trade chamber of B&H,* 2014., in Naftna privreda B&H (n.p.)

Table 12 shows some of the biggest importers by percentage of import of oil products. Holdina Ltd. purchases oil products from refineries in Rijeka and Sisak and Zagreb by road: trucks and tank trucks and by rail to the warehouse in Podlugovi (Sarajevo), where the warehouse, dispatches and sell the product.

The largest importers of oil products, which accounted for about 86 % of imports, are Holdina Sarajevo, Hifa -Oil d.o.o. Tešanj Petrol BH Oil Comp. Sarajevo and Energopetrol

Inc. Sarajevo. It is very important to notice that in 2013 HoldIna and Energopetrol become consortium and in 2013 together imported 75, 58 thousands of tons.

The RS during 2012 purchased 271,909 tons of oil products to FB&H which is about 3.5% less than in 2011. Most were purchased by Optima Group Ltd. Banja Luka and approximately 90.53 %, while the remaining quantity of oil products purchased from the company Igmin MM, Reunion Ltd. Banja Luka, Nestro Petrol etc. During the year 2013 FB&H purchases from the Refinery of Bosanski Brod or other suppliers from RS was 260,123 tons, which are about 4.33% less if we compare to the same period 2014 when it purchased 271,909 tons (Table 14).

Most oil products were purchased from Optima Group Ltd. Banja Luka, about 92.83% (241 470 t), while other quantities of oil products are purchased from company Reunion Ltd. Banja Luka, Super Petrol Banja Luka, Niskogradnja Ltd. Laktaši and directly from the Refinery Bosanski Brod. Import and export of oil products in the RS are shown in Table 16. It clearly shows that after 2001 production at refineries stopped and that import of oil products increased while the export decreased.

Table 15. Import and export of oil products of Republic of Srpska

Year	Import x 1000t	Export x 1000 t
2000	163,2	109,3
2001	219,4	65,4
2002	256,7	52,9
2003	359,3	34,1
2004	364,7	5,5
2005	355,3	4,5
Total	**1718,6**	**271,7**

Source: *Foreign trade chamber of B&H, 2014,* in Naftna privreda B&H (n.p.)

2.4 Distribution of oil products

Two main distributors in B&H, before the war 1992-1995, were Energopetrol Inc. Sarajevo and INA Zagreb. Energopetrol had 165 petrol stations and held 70-75% of the wholesale market. Ina Zagreb had 65 Petrol stations and held 15-30% of the wholesale market (*Naftna privreda B&H*, 2006, p. 14).

After adopting the Law on independent economic activity in B&H in 1990, the situation has fully changed. The market was open and the legal possibilities for the construction and operation of private gas stations were created, which aroused the considerable interest of a number of investors and threaten duopoly position of INA and Energopetrol (*Naftna privreda B&H*, 2006, p. 14.). The retail network has undergone radical changes, both in the number of service stations, as well as in appearance and services provided in these

facilities. It was built in a large number of contemporary and modern equipped petrol stations.

The retail network in the FB&H consisted of 622 petrol stations that are bound in the control system and the quality of transport oil products in FB&H (*Foreign trade chamber of B&H,* 2014., in Naftna privreda B&H, n.p.). According to the data of the Competition Council from 2014, the RS has a total of 389 and Brčko District 69, so the total number in B&H amounted to 951 gas stations. It can be concluded based on this data that the number of stations in FB&H from 2011 (when the same data amounted to 650) for May 2014 decreased by less than 5%.

The dominant role in the number of gas stations have Nestro Petrol 82 gas stations (71 in RS), Energopetrol with 65 petrol stations, 46 Holdina, Petrol Inc. 37, Gazprom 27 (6 RS) and HIFA Oil 21 gas station. Table 16 shows all major distributors and number of stations in FB&H, RS, and BD.

Table 16. Distributors and number of stations in FB&H, RS and BD

O.N	The name of distributors	FB&H	RS	BD	Total B&H
1.	Nestro Petrol Inc.	9	71	2	82
2.	Energopetrol Inc.	65	0	0	65
3.	Holdina Ltd.	46	0	0	46
4.	Petrol Inc.	28	9	0	37
5.	Gazprom Petrol	21	5	1	27
6.	Hifa Oil Ltd.	21	0	0	21
7.	TI Oil Ltd.	14	0	0	14
8.	Čavkunić Ltd.	8	0	0	8
9.	Ahmetspahić Ltd.	6	0	0	6
10.	Orman Oil Ltd.	6	0	0	6
11.	Brkić Petrol Ltd.	5	0	0	5
12.	Polo Ltd.	5	0	0	5
13.	Nešković Ltd.	0	28	1	29
14.	Krajina Petrol Ltd.	0	16	0	16
15.	Other	388	260	65	713
TOTAL		**622**	**389**	**69**	**951**

Source: *Foreign trade chamber of B&H, 2014,* in Naftna privreda B&H (n.p.)

If we look at the most developed countries in EU and compare with B&H according to the number and network of service stations, it can be concluded that B&H is quite "buried" with petrol stations. Particularly indicative is the spatial distribution of these facilities, where practical, to individual routes is building a facility to facility or within a very small distance. From the standpoint of competitiveness, it is somewhat acceptable, but from the

standpoint of economic efficiency and profitability can be concluded that it is an irrational investment. Table 17 shows the number of petrol stations in neighboring countries in order to gain the comparison with the number in B&H. To show more pronounced "overcrowding" petrol stations in B&H, we calculated the number of citizens/petrol stations.

Analyzing the table, it is found that in B&H every four thousand citizens have one gas station while in Croatia, Serbia, and Montenegro the situation is different. There is one gas station for more than six thousand citizens. It leads us to the conclusion that the retail market in B&H is overcrowded.

Table 17. Number of petrol stations in neighboring countries

Country	Number of citizens	Number of gas stations	Number of citizens/number of gas stations
B&H	3.791.662	951	3987
Serbia	7.186.862	1.118	6428
Croatia	4.284.889	711	6026
Montenegro	620.029	95	6526

Source: *Foreign trade chamber of B&H, 2014,* in Naftna privreda B&H (n.p.)

2.5 Results of the surveys

This chapter serves to present results of two different surveys that have been conducted through this study. The goal of this research was to gain information about the market condition from the consumer's and supplier's sides. Because of differences of market in B&H, regarding the fact that there are two economical spaces (FB&H and RS), it was necessary to explore all segments of the market, consumer habits, prices, quality and laws. The first part of the survey, that is determined by consumers, included 205 randomly selected respondents from different cities from B&H. They answered eight questions about their use of oil products, quality, prices, etc. The study included 26% of women and 74% men from Tuzla, Živinice, Bugojno, Sarajevo, Kakanj, Banovici, Bratunac, Brcko, Ilidža, Banja Luka, Mostar, Gračanica, Zenica, DobojIstok, Travnik, Cazin, Živinice and other cities.

The first question was: "For what do you use oil and oil products" and the results are shown in Figure 10. It is noticeable that 94 % of respondents use oil products for driving cars, and the rest of hitting, production etc. When speaking about money consumption for buy oil products, Figure 11 shows answers to the question: "How much money do you spend on oil products each month?" Figure 12 shows the results for the question: "Are you satisfied with the quality of oil products?". 76% said they are partially satisfied, only 10% were totally satisfied. 11% surveyed said that they are mostly dissatisfied with the quality and 3% are dissatisfied.

The question, "What makes you rate the quality of products obtained?", has many different answers; for example its length run, stain, and density, spending per kilometer. While some believe that the price benchmark is quality, some of the consumer's believe that the price has never been a measure of quality.

It was very important to know the factors that influence the choice of distributors of oil and oil products. Answers to this question are shown in Figure 16. More than half of consumers (54 %) choose their distributors determined by quality. For 14 % of respondents, it is important that the distributor is domestic and 18 % made decisions based on the price.

Figure 10. For what do you use oil and oil products?

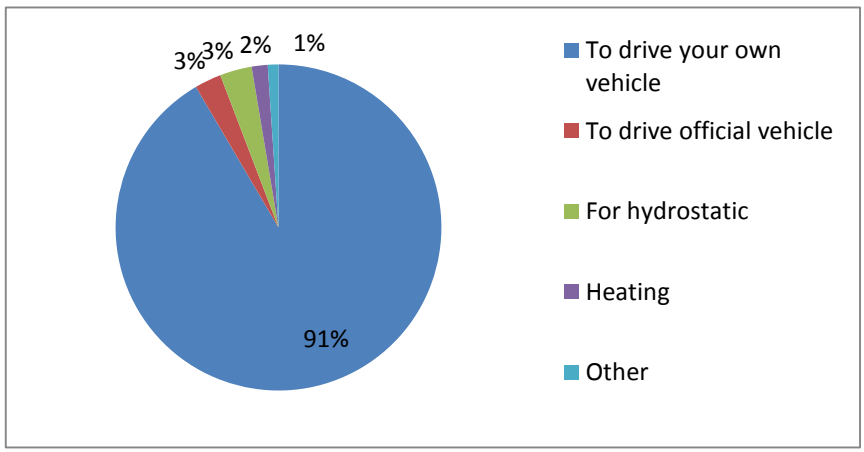


Figure 11. How much money (KM) do you spend on oil products each month?

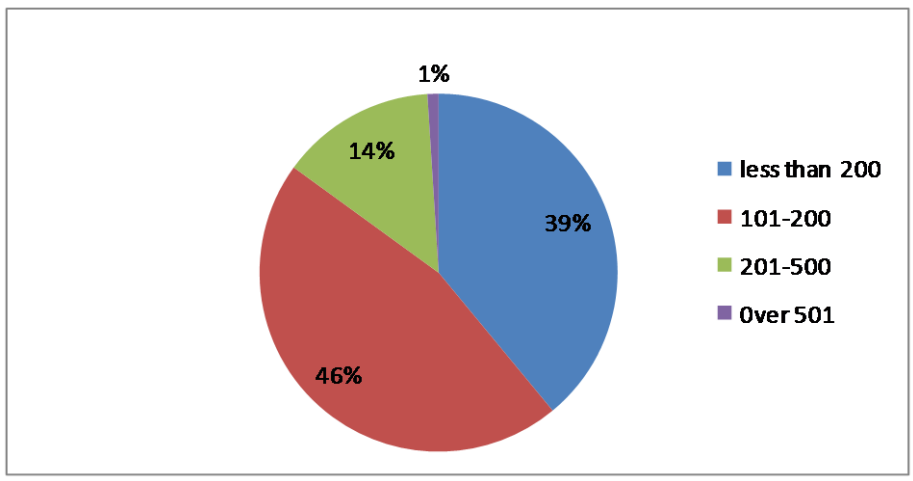


Figure 12. Did you notice difference in quality of oil products from different suppliers?

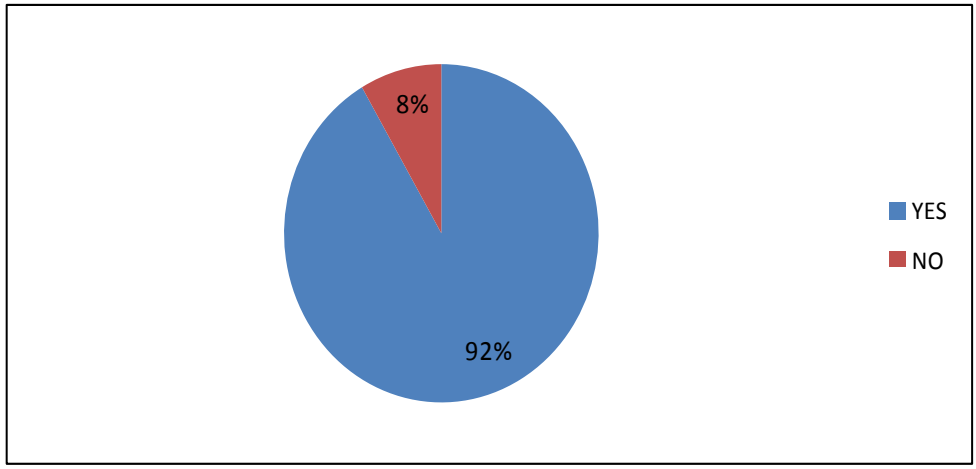


Figure 13. Which suppliers have quality oil products?

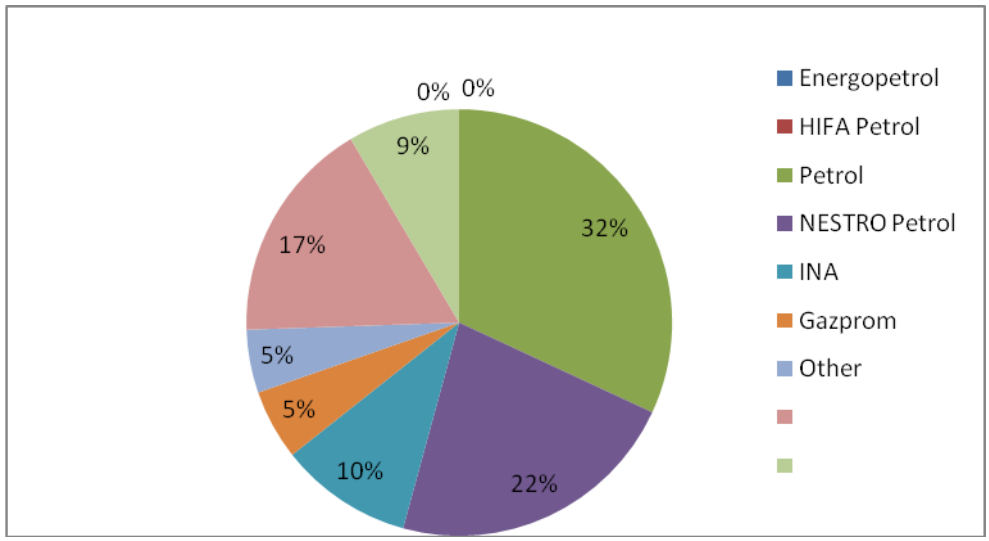
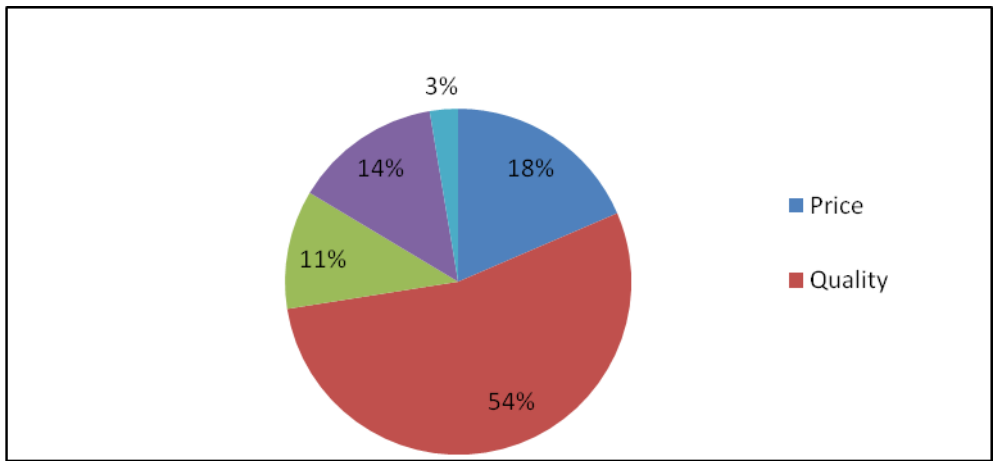


Figure 14. What factors influence the choice of distributors of oil and oil products?



The second part of the survey was a questionnaire for the oil company's management in B&H. This questionnaire for the oil company's management is done to assess B&H oil market from the supplier's point of view. This questionnaire was answered by 31 oil companies with 26% of share in the retail market. 57% of respondents participate in the whole country, 28% of respondents only in the market of Federation B&H and 15% of respondents participate only in the market of RS.

This survey had been involved wholesalers (43%), retailers (50%), distributors and transporters (7%) of oil products. Companies were also asked if they participate in the market in neighboring countries and 27% answered with yes, also 18% answered that they participate in EU market. Figure 15 shows that in this survey were included 88% of gas stations from F B&H, 11% from RS and 1% from Brčko District.

Figure 15. Number of gas stations (share %)

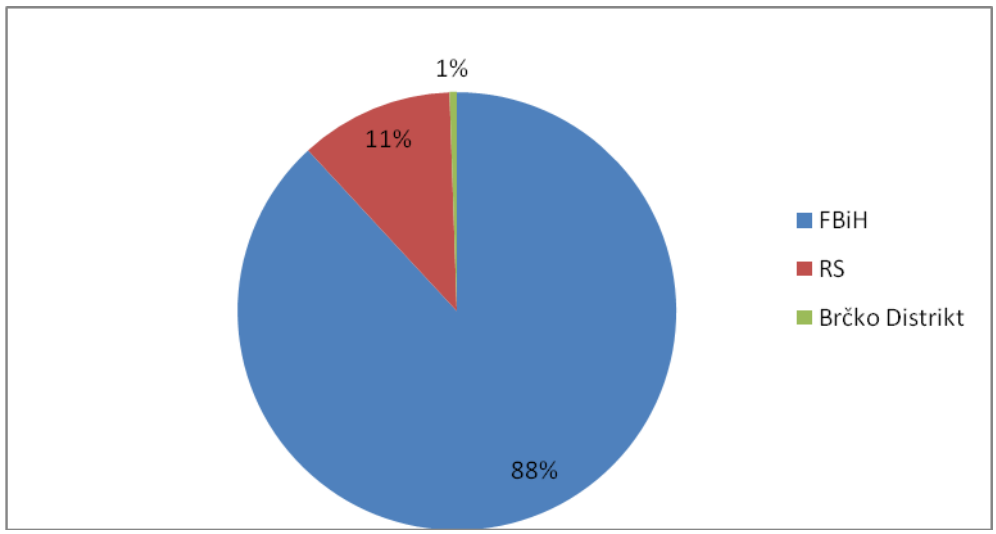


Table 18. Consumption of oil products by sectors

Sector	Consumption (%)
Industry	9,71
Service sector	11,1
Transportation	51,8
Other	27,1

Table 18 shows the consumption of oil products by sectors based on answers to oil company management. Only 36% of companies have their own import of oil products and results show that 65% of import is from Croatia, 24% from Serbia, 7, 5% from Hungary and 3, 5% from other countries.

In regards to the question "How do they describe market of oil products in B&H?", 36% answered that it is regulated, 36% said it is partially regulated, 18% consider the market as

unregulated and 9% as completely unregulated. No one answered that they consider the market of oil products in B&H as completely regulated (Figure 16).

Through our survey, oil companies answered on question do they face difficulties due to the absence of single state law on oil and oil products. More than half of those which are surveyed (55%) totally agree that there are difficulties for oil companies and 36% partially agree with this claim.

The answers were that the difficulties are due to the absence of the following:

- an unequal position of distributors in the entities,
- the absence of clear conditions that must be met to deal with this sector, whether big monopoly,
- divided economic space and etc. Only 9% partially disagree and don't see clearly that there are some difficulties (Figure 17).

Figure 16. How do you describe the market of oil and oil products in B&H?

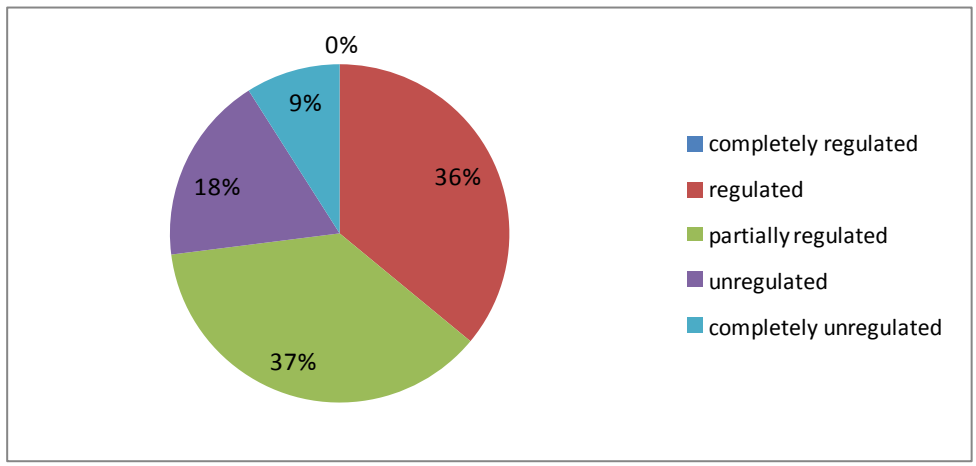
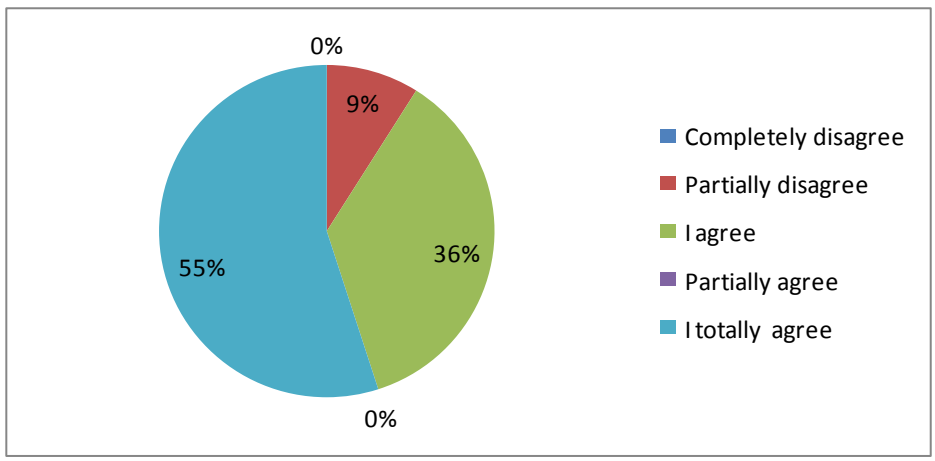


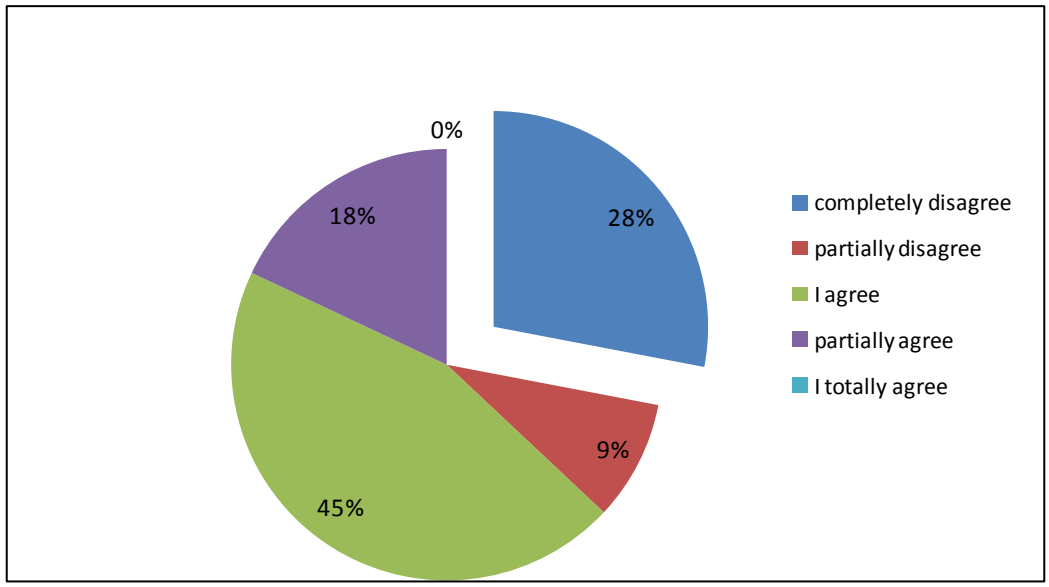
Figure 17. The business market in B&H faces difficulties due to the absence of a state law?



As B&H has no law on the national/state level and RS also has no Law on oil and oil products, it was examined Law from Federation B&H through this study. This Law listed Oil Storage of Federation as central operator stocks of petroleum product at the level of FB&H entity.

This is a good solution considering answers of 63% respondents, 45% agreeing with this ascertainment and 18% partially agree. 28% of respondents completely disagree with this ascertainment and 9% partially disagree (Figure 18).

Figure 18. The central operator is a good solution



The Law on oil and oil products in the FB&H is foreseen to establish fees for the establishment of reserves of oil products in the FB&H. This fee is added to the retail price of oil products in distribution and is 0.01 km/l.

This is a good solution because it will provide money for establishing capacities for obligatory reserves considering positive answer of 54% respondents and 46 % of those that disagree. Almost every respondent already heard about Oil Storage of FB&H but only 18% used their services for using capacity for oil storage. As Oil Storage of Federation need a large investment, through this survey, we tried to find out if there is a private company that would be likely to invest in non-functional capacities of Oil Storage bud more than 85% said that they would rather invest in their private capacities.

Also, oil companies were asked what they think about maximal price as a solution for B&H. Figure 20 shows the results and it is that there are almost the same number of those who think this is good and bad solution seen.

So there are 34% of surveyed that completely disagree that B&H should have maximal prices and 11% partially disagree. No one totally agrees, and 33% partially agreed, which means that they do not believe this is the right solution. Only 22% agree and see this as the best option.

Figure 19. The fee (0.01 km/l) is a good solution because it provides money for establishing capacities for obligatory reserves

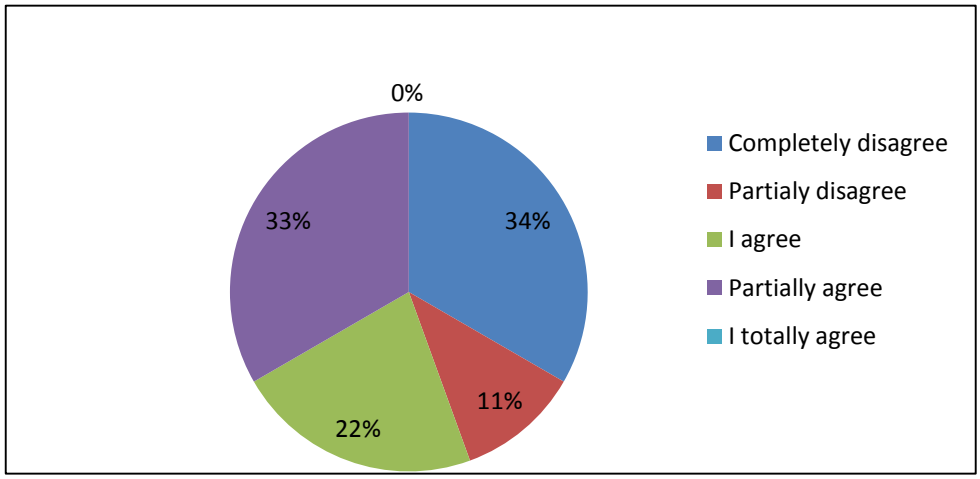
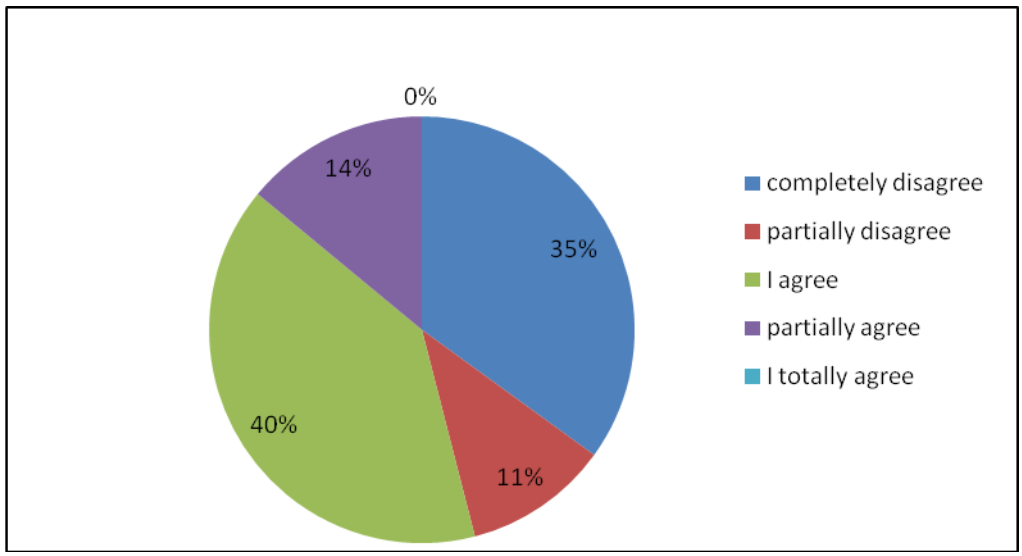


Figure 20. Maximal prices for oil products would be a good solution for B&H



3. STORAGE CAPACITIES IN EU, NEIGHBORING COUNTRIES, AND B&H

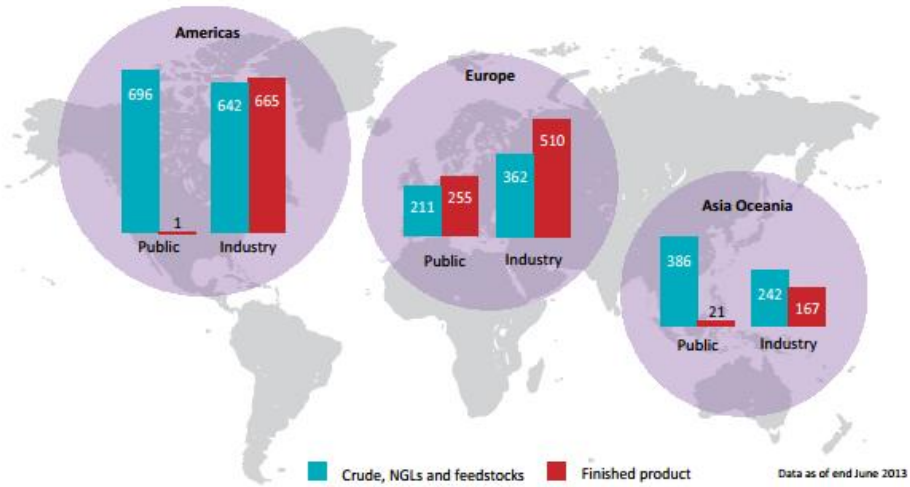
For several decades now, developed oil importing countries (that include almost all EU and neighboring countries and B&H) has been trying to ameliorate the dangers and potential instabilities of the international oil market, as well as their impact on national energy markets and systems, by creating strategic oil reserves. In case of crisis and disruption, the system of strategic oil reserves enables the supply of additional oil

quantities for insurance of normal supply for the duration of market disruption (Sedlar et al., 2009, p. 11).

3.1 Storage capacities in the EU

Obligated stocks are the most effective mechanism of action in crisis situation when we talk about supplying of oil and oil products globally. In accordance with the International Energy Program (I.E.P.) The agreement, each IEA country has an obligation to hold oil stocks that equate to no less than 90 days of net imports. This basic oil stockholding obligation of IEA countries was first formulated in 1974 to establish "a common emergency self-sufficiency in oil supplies". In 2013, there were three net exporting IEA countries: Canada, Denmark, and Norway. These countries do not have a stockholding obligation under the I.E.P. Agreement.

Figure 21. Total oil stocks in IEA region



Note: oil stocks as of end-June 2013.
Source: IEA, 2014b.

Of the 29 IEA countries, 20 countries also have minimum stockholding obligations as member states of the European Union (EU). For the majority of countries that are members of both organizations, the IEA and EU minimum stockholding obligations are now the same, with the additional requirement under the EU rules that at least one-third of the obligation be met with refined product stocks (the IEA stockholding requirement does not specify how the oil is to be held). For a small number of countries, the minimum stockholding obligation is greater under the EU system than under that of the IEA, as the EU rules require countries to cover either 90 days of net imports or 61 days of consumption, whichever is greater. Thus, net exporting countries (e.g. Denmark), or countries with relatively small levels of net imports compared to domestic consumption (e.g. Estonia, United Kingdom), is required to hold 61 days of consumption under the EU requirements compared to no obligation or only a minimal stockholding obligation under

the IEA system. The IEA minimum stockholding obligation is based on net imports of all oil, including both primary products (such as crude oil and natural gas liquids [NGLs]) and refined products. It does not cover naphtha and volumes of oil used for international marine bunkers (*Energy supply security*, 2014, p. 30).

Table 19. Public stocks in IEA countries

Country	**IEA members**	**EU members**	**Structure of stockholding responsibility**
Australia	1979	-	-
Austria	1974	1995	Agency/Industry obligation
Belgium	1974	1957	Agency
Canada	1974	-	-
Czech Republic	2001	2004	Government
Denmark	1974	1973	Agency/Industry obligation
Estonia	2014	2004	Agency
Finland	1992	1995	Agency/Industry obligation
France	1992	1957	Agency/Industry obligation
Germany	1974	1957	Agency
Greece	1976	1981	Industry obligation
Hungary	1997	2004	Agency
Ireland	1974	1973	Agency
Italy	1974	1957	Industry obligation /(Agency) (from 2014)
Japan	1974	-	Industry obligation/government
Korea	2002	-	Industry obligation/government
Luxembourg	1974	1957	Industry obligation
Netherlands	1974	1957	Agency/industry obligation
New Zealand	1977	-	Government
Norway	1975	-	Industry obligation
Poland	2008	2004	Industry obligation/government
Portugal	1981	1986	Agency/Industry obligation
Slovak Republic	2007	2004	Agency
Spain	1974	1986	Agency/Industry obligation
Sweden	1974	1995	Industry obligation
Switzerland	1974	-	Industry obligation
Turkey	1974	-	Industry obligation
United Kingdom	1974	1973	Industry obligation
United States	1974	-	Government

Source: *Energy supply security*, 2014, p. 36

Different stockholding regimes apply in different IEA countries because of different oil markets, geography and national policy that reflect emergency response. On the other hand, countries that are members of IEA and EU, this policy reflect the need to apply both systems. We can summarize this with three approaches which guarantee that overall stock levels meet minimum stocks: industry stocks, government stocks, and agency stocks. Some countries use all three models or combination of two models, while others use only one model (*Energy supply security*, 2014, p. 30).

Applying different models, IEA countries have 4.2 billion barrels of total oil stocks in 2013. More than 1.5 billion barrels of this amount were held exclusively for emergency purposes. While the other amount is held to meet government-imposed minimum stockholding obligations and for commercial purposes (*Energy supply security,* 2014, p. 23).

The result of this is that 19 out of 29 IEA countries held public stocks (only 10 of 21 countries in 1984 held public stocks). Stockholding agencies also increased from 4 to 12 since the 1980s. Some countries are in the process of establishing agencies after adopting new changes to the EU minimum stockholding rules (*Energy supply security*, 2014, p. 36).

3.2 Storage capacities in neighboring countries

Required reserves of oil and oil derivatives are formed according to the EU directives and the rules of the IEA in neighboring countries, bound to the specified time provided storage capacities for oil and oil products corresponding to 90 day's average imports or the average daily consumption of oil and oil derivatives the period of the 61 days. All three countries, which are observed in this paper have legally regulated this field in such a way that the state established a legal entity/agency for the management of strategic reserves.

Serbia, according to the Energy Law, required that by 2023 the capacity to provide the required reserve of oil and oil derivatives, and for the executive and professional activities related to the mandatory reserves of natural gas and the mandatory reserves of oil and oil derivatives in accordance with the law regulating commodity reserves, formed the Management of energy reserves (hereinafter referred to as the Authority), as a body within the Ministry of Mines and Energy and determine its jurisdiction (Energy Law, Article 349). Serbia now has about 716,000 cubic meters of storage capacities for oil and oil products (managed by the Republican commodity reserves, the army or the company) and to meet the defined required reserve still lacks about 250,000 cubic meters of storage capacity.

Memorandum of Understanding, which was signed by Transnafta and German Oil tanking provides conditions for the establishment of a joint company. This company will build another 250,000 cubic meters of storage capacity to accommodate regulations of the

Energy Law and the recommendations of the EU. This would contribute to the energy security of the country (Putniković, 2014, n.p.).

Energy activity of storing oil and oil products were carried out by 21 energy service companies (Report on the Work of the Croatian Energy Regulatory Agency for the year 2013). Storage of oil and oil products include storage on the premises for its own needs (producers, consumers, and transporters) and storage for the purposes of security of supply and/or for the purpose of trafficking. Price storage of oil and oil products is not regulated, that is, determined based on market principles.

According to the data submitted by energy undertakings, the total available storage capacity in 2013 amounted to 2.1 million m3 (not including storage capacities within the refinery INA d.d.) geographical position of the most significant oil stocks and oil products in the Republic of Croatia, based on the type of goods that are stored in a particular stock (Izvješće o sektoru nafte I naftnih derivata I biogoriva u Republici Hrvatskoj, 2013, n.p.).

Storage facilities (2013) in the Republic of Croatia are for crude oil 1,300,000 m3, oil products 812 637 m3 and liquefied petroleum gas 11,014 m3. When it comes to mandatory oil reserves, for the Oil Law and the Law on oil products HANDA (Croatian Compulsory Oil Stocks Agency) was founded as a central body in the Republic of Croatia for compulsory stocks of oil and oil products. HANDA is a public institution founded by the Republic of Croatia; founding rights are exercised by the Croatian Government for its work to the Croatian Government. HANDA, as well as the job it performs, are of strategic and special interest of the Republic of Croatia. Montenegro does not have such an agency regarding the capacity regarding the capacity of the oil companies.

3.3 Storage capacities in B&H

The Oil Law and Law on oil derivatives in B&H adopted in 2014 also provides for the creation of conditions and the fulfillment of the directives on compulsory stocks of oil and oil products for a period of 90 days. According to this law, the current enterprise Terminals of the Federation will be renamed Oil Storage of Federation B&H - Operator, which is the only authorized body for the establishment and renewal of reserves of petroleum derivatives.

Owned by the FB&H, and given the use of the Terminals of the Federation of the terminal in the Port of Ploče, the Republic of Croatia, tank capacity 81.250m³, and continental terminals in Živinice near Tuzla, Blažuj near Sarajevo, Mostar, B&Hać, the total storage capacity of 117.000 m³ and 3.000 m³ capacities for LPG, the total land area of 385,457 square meters. The Oil Storage of the Federation uses the assigned assets and the so-called military terminals, namely: Misoča-Ilijaš, Pajtovhan-Vareš, Pasci-Živinice, Soba-B&Hać, Dretelj-Čapljina and Rastani - Mostar (*Kapaciteti*, 2014, n.p.).

Table 20. Storage capacity in FB&H

Place	Functional capacity (m³)	Non-functional capacity (m³)	Total (m³)
Ploče	81.250		81.250
Živinice		17.400	17.400
Mostar		36.277	36.277
B&Hać		18.100	18.100
Blažuj		42.000	42.000
TOTAL	**81.250**	**113.777**	**195.027**

Source: Kapaciteti, *2014, n.p.*

3.3.1 Functional capacities

Functional capacities are terminals that are in use. The terminal of liquid cargo Terminals Ltd. Ploče is located in the Free Zone of the Port of Ploče and it is about 15 hectares. The storage area consists of containers with protective reinforced concrete sump. There are twelve tanks for oil products with the total capacity of 81,218 m³.

The boat ships have placed four ship arms through which the fuel in containers unloaded up to 1000 m³/hour. The road tankers loading facility consists of three islands in the upper filling of truck tanks and an island in the upper and lower charge.

Filling the tank truck is enabled on both sides of the island so it is possible to simultaneously charge the eight road tankers. Rail tanker loading facilities are situated on two tracks with eight drops out hand capacity of 960 m3 / hour. Because of its location Terminals Ltd. operates in southern Croatia and B&H.

3.3.2 Non-functional capacities

The Federation of B&H does not have an oil refinery but has nearly 200,000 m³ of storage capacity, which are connected by road and rail. Most of the storage capacities in B&H have been damaged by war activities, and are not in operation due to the damage caused and the years of non-use. These terminals are so-called non-functional capacities.

The tanks are necessary to rehabilitate and modernize in order to be in compliance with the requirements and standards of B&H and the EU. The existing facilities for the storage of liquid fuels can be divided on overhead and underground:

- Overhead terminals are located in Blažuj, Živinice, Mostar, and Bihać. Accommodation facilities for liquid fuels on these locations are given in the table below in appendixes. The total amount is to 117 000 m3. The technical condition of the terminal is at a very low level and needs repairs and reconstruction, partial or complete for bringing capacity to function. The high degree of irregularity is the

product of war operations, inadequate maintenance capacity, outdated equipment, as well as many years of decline due to lack of capacity in any activities.

- Underground terminals - Pajtov Han, Misoča, Room, Rastani, and Pasci, were taken in 2006 by the Federal Ministry of Defense. Their total capacity is about 83 000 m3. These terminals are devastated and mined, and now we can't count on their use. The plan are the initiatives concerning demining, in order to provide the necessary financial resources, as well as tendering for demining.

4. LEGAL FRAMEWORK OF THE OIL SECTOR

4.1 Legal framework in the European Union

When it comes to oil, the EU paid great attention to the security of oil supply due to the extremely high import dependence of the EU in the Member States. The European Union (EU) imports over 60 % of its gas and over 80 % of its oil. This situation obviously needs some adequate instruments to complete its internal energy market. The first instrument was adopted already on 20 December 1968 as Directive 68/414/EEC imposing an obligation on Member States of the EEC to maintain minimum stocks of crude oil and/or oil products.

The following directive was made on 24 July 1973 concerning measures to mitigate the effects of difficulties in the supply of crude oil and oil products (73/238/EEC). According to this Directive, Member States need to take all necessary measures to provide the competent authorities with the necessary powers in the event of difficulties arising in the supply of crude oil and oil products which might appreciably reduce the supply of these products and cause severe disruption.

The Council of the European Union has adopted the Directive 98/93/EC of 14 December 1998 which amended Directive 68/414/EEC. This directive is in compliance with the principles of subsidiary and principles of proportionality as determined in Article 3b of the Treaty, the objective of maintaining a high level of security of oil supply in the Community through reliable and transparent mechanism is based on solidarity amongst the Member States and, at the same time, complying with the rules of the internal market and competition.

Innovations in the new directive are, at first imposing an obligation on “Member States of the EEC to maintain minimum stocks of crude oil and/or oil products to at least 90 days' average daily internal consumption in the preceding calendar year” (Directive 98/93/EC). Stocks may be maintained in the form of crude oil and intermediate products, as well as in the form of finished products. Member States also should ensure legal powers which will control using of stocks in crisis. Also, States may decide to have recourse to a joint

stockholding body or entity; in that case, they shall be jointly responsible for the obligations deriving from this Directive.

Under Council Directive 2006/67/EC of 24 July 2006 imposing an obligation on Member States to maintain minimum stocks of crude oil and/or oil products (4), stocks are calculated on the basis of average daily inland consumption during the previous calendar year. However, stockholding obligations under the Agreement on an International Energy Program for 18 November 1974 (hereinafter 'the IEA Agreement') are calculated on the basis of net imports of oil and oil products. For that reason, and due to other differences in methodology, the way in which stockholding obligations and Community emergency stocks are calculated should be brought more into line with the calculation methods used under the IEA Agreement.

Finally, all of these directives have been repealed after the adoption of Directive 2009/119/EC. This Directive lays down rules aimed at ensuring a high level of security of oil supply in the Community through reliable and transparent mechanisms based on solidarity amongst The Member States, maintaining minimum stocks of crude oil and/or oil products and putting in place the necessary procedural means to deal with a serious shortage. According to this Directive, all Member States have to adopt such laws, regulations or administrative provisions as may be appropriate in order to ensure, by 31 December 2012, that the total oil stocks maintained at all times within the Community for their benefit correspond, at the very least, to 90 days of average daily net imports or 61 days of average daily inland consumption, whichever of the two quantities is greater (Article 3).

Also, Member States shall ensure that emergency stocks and specific stocks are available and physically accessible for the purposes of this Directive. They shall establish arrangements for the identification, accounting, and control of those stocks so as to allow them to be verified at any time. This requirement also applies to any emergency stocks and specific stocks that are commingled with other stocks held by economic operators (Article 5).

Member States may set up CSEs (Central stockholding entities). No Member State may set up more than one CSE or any other similar body. A Member State may set up its CSE at any location within the Community. Where a Member State sets up a CSE, it shall take the form of a body or service without profit objective and acting in the general interest and shall not be considered to be an economic operator within the meaning of this Directive (Article 7). The main purpose of the CSE shall be to acquire, maintain and sell oil stocks for the purposes of this Directive or for the purpose of complying with international agreements concerning the maintenance of oil stocks. It is the only body or service upon which powers may be conferred to acquire or sell specific stocks.

What is important in this Directive is that the Coordination Group for oil and oil products is hereby set up (hereinafter the 'Coordination Group'). The Coordinating Group is a consulting Group that shall contribute to analyzing the situation within the Community with regard to security of supply for oil and oil products and facilitate the coordination and implementation of measures in that field. The Coordination Group shall be made up of representatives of the Member States. It shall be chaired by the Commission. Representative bodies from the sector concerned may take part in the work of the Coordination Group at the invitation of the Commission.

The International Energy Agency is very important for this part because the IEA (founded 1974) "was initially designed to help countries co-ordinate a collective response to major disruptions in the supply of oil such as the crisis of 1973/4." (About us, 2013, n.p.). The creation of an institutional security framework with this size of an autonomous organization, the IEA examines the full spectrum of energy issues and advocates policies that will enhance the reliability, affordability, and sustainability of energy in its 29 member countries and beyond.

The four main areas of IEA focus are:

- Energy security: Promoting diversity, efficiency, and flexibility within all energy sectors
- Economic development: Ensuring the stable supply of energy to IEA member countries and promoting free markets to foster economic growth and eliminate energy poverty;
- Environmental awareness: Enhancing international knowledge of options for tackling climate change; and
- Engagement worldwide: Working closely with non-member countries, especially major producers and consumers, to find solutions to shared energy and environmental concerns.

The IEA is made up of 29 member countries. Before becoming a member country of the IEA, a candidate country must demonstrate that it has:

- as a net oil importer, reserves of crude oil and/or product equivalent to 90 days of the prior year's average net oil imports to which the government (even if it does not own those stocks directly) has immediate access should the Coordinate Emergency Response Measures (CERM) – which provide a rapid and flexible system of response to actual or imminent oil supply disruptions – be activated
- a demand restraint program for reducing national oil consumption by up to 10%
- legislation and organization necessary to operate, on a national basis, the CERM and legislation and measures in place to ensure that all oil companies operating under its jurisdiction report information as is necessary (About us, 2013, n.p.).

As already mentioned, the IEA member countries have an obligation to store about 90 days of oil stocks depending on their net oil import. They have at their disposal some other instruments as demand restraint, fuel switching capacity and guaranteed production capacity. The EU and IEA have revised their oil emergency and stockholding policy to harmonize both rules and address oil security concerns (J. Bielecki, p. 240). The legislative framework regulating the EU fuel quality following will be represented. As follows the adoption, hereinafter following are directives that stipulate the quality of motor fuels in the EU.

Gasoline:

- Directive 78/611/EEC limits the lead content in gasoline lead to a maximum of 0.4g / l,
- Directive 85/210/EEC limits the lead content in gasoline lead to a maximum of 0.15g / l and introduced unleaded petrol - BMB
- Directive 85/536/EEC regulates the addition of oxygenates
- Directive 87/416/EEC banning lead in regular gasoline.

Diesel/gas oil:

- Directive 75/716/EEC limit the sulfur content in gas oil to 0.5%since October 1976, and 0.3% from October 1980.
- Directive 93/12/EEC limits the sulfur content in diesel fuel to a maximum of 0.2% from October 1994. Ie 0.05% from Oct. 1996.
- Directive 1999/32/EC (amending Directive 93/12 / EEC) limits the sulfur content in gas oil / marine gas oil to 0.2% from July 2000 and 0.1% from January 2008.
- Directive 2005/33/EC (amending Directive 1999/32/EC) limits the sulfur contenting marine gas oil to 0.1% from January 2010.

The fundamental basis for the further definition of the quality of motor fuels is determined by the following

Directives:

- Directive 98/70/EC to limit the sulfur content of the BMB 150/50 mg / kg or for diesel fuel at 350/50 mg / kg from 01 January 2000/The 1st January 2005th
- Directive 2000/71/EC adjust Article 10 of Directive 98/70/EC on methods
- Safety and environmental protection are indispensable factors in the oil industry, primarily due to large amounts of crude oil and oil products are concentrated in a relatively small area.

Protect the environment in the oil industry is managed by four main factors:

- Emission of air pollutants,
- Emissions of pollutants into water,
- Waste Management,
- Safety and risk management.

Given the above, the EU has prescribed a set of rules for the regulation and control of industrial activities of plant-related environmental impact. This set of rules is defined by the so-called IPPC (Integrated pollution prevention control) Directive 96/61/EC. This directive is to minimize pollution from various industrial sources throughout the European Union and the obligation of each operator (industrial plants) that the outcome of the environmental permit is in accordance with the IPPC Directive. 30 October 2007 which is defined as the deadline by which all installations must fully meet the requirements Directive. The IPPC Directive is based on a few basic principles, i.e. integrated approach, BAT (best available techniques and technologies), flexibility and participation public. The IPPC Directive 96/61/EC was amended by Directive 2003/35/EC, 2003/87/EC Regulation no. 1882/2003 and 166/2006.

In the EU countries, emissions of air pollutants in the field of petroleum activities are regulated in the following directives:

- Directive 96/61/ EC on the integration of pollution prevention and control (IPPC)
- Directive 94/63/EC on the control of volatile organic compounds resulting from storage oil products and their distribution from terminals to service stations,
- Directive 84/360/EC on the restriction of air pollution from industrial plants and
- Directive 2000/69/ EC on limit values for benzene and carbon monoxide in the atmosphere.

In EU countries, the protection of water is regulated by the following directives:

- Directive 96/61/EC on the integration of pollution prevention and control (IPPC), which as discussed in section 4.2.1., lays down a full set of rules that regulates all activities related to the industrial impact on the environment,
- Directive 2000/60/EC lays down the basic guidelines in the field of water, and includes inland surface water, groundwater and coastal waters and the prevention and reduces their pollution. This Directive was amended by Decision 2455/2001 / EC that establishes priority substances relevant in the politics of water. It covers 33 substances or groups of substances between which and anthracite, benzene, cadmium, naphthalene, etc.

In the sector of petroleum refining, storage and transport of oil and oil products, there is an emergence of certain quantities of different categories of waste (sludge tank, emulsions hydrocarbons in water and the like), which must be disposed of properly. In the European Union in force Directive 2006/12 / EC on waste which lays down measures for prevention and reduction of waste, a manner of collection and disposal of waste, payment of fees for the waste and other important issues in waste management. Catalog Waste containing the list of waste is regulated by Decision 2000/532/EC and amendments 2001/118/EC, 2001/119/EC and 2001/573/EC. The IPPC Directive 96/61/EC on the integration of prevention and pollution control, as explained earlier, which stipulates a full set of rules which, regulate all activities related to the industrial impact on the environment, including

the waste issue. Directive 75/439 / EEC provided for the disposal of waste oils and shall apply to all mineral lubricating oils and industrial oils that do not meet the original use. This Directive was amended by Directives 1987/101 / EEC, 91/692 / EEC and 2000/76 / EC.

One of the very important aspects is the environmental consequences which may arise as a result of accidents at the plant for processing, storage, handling or transportation of oil and oil products. For this reason, it is necessary to conduct a detailed risk assessment for every single plant (facility). The European Union is in effect, a set of laws that deal with aspects of safety and emergency measures in accident situations. General provisions relating to intervention accident situations, programs in the field of protection of civilians, preventive measures in case hazard prescribed by the Decision 2001/792/EC on the mechanisms for improving cooperation in intervening circumstances to protect civilians and Decision 1999/847/EC on the program of activities field of the protection of civilians. Directive 96/82/EC on the control of major accident hazards involving dangerous substances introduced new requirements relating to the management system security, emergency response and public information.

4.2 Legal framework in B&H

Concerning B&H, it has to be stressed that there are no laws, acts, documents or any regulations on the national level in the field of oil and oil products. According to the B&H Constitution, competence in this field is represented in other levels of government, first of all, entities and cantons. However, given that the fulfillment of the obligations in this field, the path to EU membership, are international commitments, it is necessary to establish a regulatory framework at the state level, but it currently lacks the political will.

The only decision concerning the oil sector that has been made at the state level is a decision on the quality of liquid fuels. This Decision on the quality of liquid petroleum fuels (Official Gazette, 27/02), lays down the quality requirements to be met by liquid petroleum fuels on the territory of B&H are used in internal combustion engines, as well as liquid fuel intended for combustion in order to direct production of heat and prescribe standards governing the physic-chemical properties of liquid fuels, a threshold of the basic characteristics of these fuels, process or method by which testing is done on these characteristics, marking and proving that the quality of fuel complies with the requirements of this decision, as well as monitoring the way of certifying bodies that will check the compliance with the requirements for their competence.

The provisions of this decision apply to the following liquid petroleum fuels:

- Unleaded motor gasoline,
- Motor gasoline with lead,
- Kerosene for fuel and kerosene for lighting,

- Diesel - fuel,
- Heating oil: extra light, light special, easy, medium and hard.

Faced with the new regulations in the fuel quality and fuel standards in Europe and the World Bureau of Standards, Metrology and Patents of B&H in early 1998, formed a technical committee BAS/TC 11 for the area oil and oil products. In 1999, BAS / TC 11 have prepared the first two standards for fuel in B&H:

- EN 228 which relates to lead-free petrol and is identical to the European EN 228: 1993 prepared by the European Technical Committee CEN / TC 19th
- EN 590 relating to diesel fuel and is identical to the European standard EN 590: 1993, which was prepared by CEN / TC 19.

The Council of Ministers of B&H 23.09.2002 amended this Decision on the quality of liquid petroleum fuels (Official Gazette, 27/02), which was amended and altered in the coming years (Official Gazette, 28/03, 28/04, 16/05, 14/06 and 19/07), and laying down the quality requirements to be met by liquid fuel in the territory of B&H used in internal combustion engines, as well as current fuel for combustion in order to direct a production of heat.

For unleaded petrol prescribed standard EN 228, whereas the one produced in B&H was exempt from this provision until 30.06.2010 (Official Gazette, 19/07). Heating oil prescribed the BAS 1002 standard, and heating oil medium "S" produced in this country were exempt from these provisions to 30.06.2010 and apply to them the maximum sulfur content of 3.0% m / m is applied (Official Gazette, 19/07).

Inspection bodies perform conformity assessments for the quality of liquid petroleum fuels using service testing laboratories. Both entities have separately adopted laws in the oil sector. The Oil Law and Law on oil products were adopted by the Government of the RS in the 2009 year. This Law regulates the activities in the field of oil and oil derivatives, their regulation, the functioning of the oil and oil derivatives, requirements for quality and safe supply of buyers of oil and oil products and the establishment and maintenance of operational and mandatory reserve of oil products.

Article 17 stipulates that the Ministry of Industry, Energy and Mining supervise and undertake activities for the purpose of safe, regular and quality supply of oil derivatives. Stocks under Article 18 of mentioned laws are at least equal to fifteen-average requirements in the previous calendar year of the mentioned subjects. The operational reserves of oil derivatives are used for the provision of energy security of the population and the economy.

The Law regulates the formation of mandatory reserves of oil products, but not in accordance with the Directive 2009/119 / EC since the law was adopted before the entry

into force of the said Directive. Article 19 stipulates that the mandatory reserves are formed from the following groups of oil products: gasoline and gasoline for airplanes, diesel fuel, gas oil and jet fuel and heating oil. Part of the required reserves may contain oil and intermediate products up to 50%. Department and operating reserves are not included and the RS Government shall, within one year, make a special rule to regulate the quantity, the dynamics of the formation and renewal of required reserves of oil products and the organization of their storage.

The law does not anticipate the formation of the 90 days inventory or a special body for the establishment of mandatory oil reserves in order to anticipate the EU directive and that the practice in the EU member states. The formation, preservation, and restoration of the mandatory reserves of oil products perform public enterprises will be done by the "Commodity Reserves of the RS" Banja Luka.

In the other entity, the FB&H, the regulatory framework for the oil sector has only been adopted in mid-2014, after months of debate due to some controversial provisions. The Law on oil derivatives was adopted by the House of Representatives on 06.05.2014 and the House of Peoples of the FB&H Parliament on 05.06.2014., published in the Official Gazette no. 52/14.

The Law regulates: strategy development of the oil sector, policy development and Petroleum sector, strategic plan development of the oil sector, the action plan, harmonization of plans, Balance of oil products, energy activities in the sector of the oil industry, conditions and methods carrying out energy activities, the import of oil products, the submission of data, regulation of the oil sector, responsibilities and obligations of the Energy Regulatory Commission in FB&H, work permits, and method for issuing permits for work, register licenses, secure supply of petroleum product with market price oil products, the fee for the establishment of reserves of oil products, the quality of oil products, labeling pumping machines, quality control, marketing of LPG in bottles, operating supplies, required reserves, reserves of oil products, the establishment and activity Operator reserves of oil products, administrative and inspection supervision.

When we talk about security of supply petroleum product market, we can conclude that according to Article 28, the Ministry of Energy, Mining, and Industry undertakes activities in this field, as is the case in the RS. The same solution is applied to both entities when it comes to operational stocks, however, under Article 37 of this Law, operational stocks formed at the biweekly average needs in the previous calendar year and insurances are: energy undertakings from petroleum producing electricity or heat energy, public institutions that have or may produce electricity or thermal energy from petroleum and energy entities that provide services of supplying of oil products at airports open to international traffic.

The article 39 stipulates that the compulsory stocks of oil products are formed to ensure the supply of oil products in the event of threats to the energy security of B&H because of the extraordinary disruption in supply. Compulsory stocks of oil products will be formed in accordance with the Directive 2009/119/EC.

The reserves include the following groups of oil products: motor fuels, diesel fuel, and heating oil - LUEL. The reserves of oil products are stored in the finished product only in warehouses that are owned or held by the Operator and cannot be subject to execution. The article 41 of this Law provides for the establishment the Operator reserves of oil products which will be the sole authority for the establishment and renewal of reserves of oil products.

4.3 Legal compliance framework by EU directive

At the beginning, we emphasized that B&H signing the Emergency Oil Stocks in the Energy Community Treaty, and in particular by signing the Stabilization and Association Agreement, assumed the international obligation to meet the conditions for joining the EU and of harmonization of its legislation with EU legislation in all areas, including the field of oil and oil products.

As already stated out, it is necessary for B&H to satisfy its obligations under said agreements by passing legislation at the state level, which is currently not the case and the laws in the field of oil products have already been adopted at the entity level, with the exception of the decision on the quality of liquid fuel, which was adopted at the state level. This decision was last revised in the year 2004 and it did not fulfill all the conditions laid down in Directive 2009/30 / EC, which is meant to be in April 2009.

Furthermore, B&H addressed the formation of mandatory reserves of oil products in the amount for 90 days average consumption. Directive 200/119 / EC lays down the obligation to establish stocks of oil and oil products in the amount of the 90 days net imported quantity, the 61 days quantity of internal consumption, depending on which is the higher of the two. The implementation of this obligation is provided for by article 39 of the Law on Oil products FB&H while in the smaller Bosnian entity legally ordains to complete this obligation.

Also, in the Federation, a company has been established to manage stocks of crude oil and oil products, as is the practice in the EU countries, while in the RS it is not regulated. The law in the Federation created the conditions for the fulfillment of obligations under EU directives, but in real terms in the area of FB&H there are no functional capacities for the fulfillment of that commitment and the enormous investments necessary for putting it into operation for existing facilities. On the other hand, the RS still has not legally regulated this issue, despite the existence of capacity in oil refineries Brod and Modriča, it is not

sufficient to meet the obligations of the 90 days storage of oil. All these prerequisites for fulfilling the obligations must be coordinated at the national level, given that this is an international obligation of B&H, before the accession of B&H to European Union.

4.4 Oil market in B&H after legal compliance

The deadline for transposition into national law and the implementation of Directive 2009/119 / EC are about 1 January 2023 year. According to the Director of the Emergency Oil Stocks in the Energy Community Secretariat in Vienna Janez Digger, B&H is lagging far behind in meeting international commitments in the energy sector due to a lack of political will.

In this section, it is important to be mentioned that the directives and standards of the European Union (EU) in the energy sector involve the establishment of a single agency for oil reserves at the state level and that the drafting and passing of the individual (non-harmonized) legal framework at the entity level does not lead to harmonization and fully comply with international obligations. We also want to give a short guide for the next steps and possible scenarios after the fulfillment of obligations. The current solution, described in the previous section, is the legislation at the entity level, and even these laws are not harmonized and do not provide for the implementation of obligations under Directive 2009/119/EC (particularly when it comes to the Law on Petroleum in RS).

One possible scenario is drawing up a joint body comprising representatives of the Entity Ministries of Energy, Mining and Industry and the Ministry of Foreign Trade and Economic Relations, which is prepared for the Coordinating activities and harmonizing plans of the Entity authorities and institutions at the international level in the field of energy. This body would be tasked to draw up a proposal for a uniform law on oil products that would be acceptable for both entities. This law would be provided for a single agency with a mandate to meet the conditions of the compulsory reserves and storage of petroleum and oil products. However, reality shows that for such a scenario, there is no political will and that in the coming period will not be implemented so we should seek other solutions that are "possible".

The example of electricity could be used. In the mentioned sector of electricity, the EU forces that there should be unified law and that there is one Regulatory Commission for Electricity. Since there was no will for conditions to be met fully, a compromise was made that entities adopt special or harmonized laws and that the State Electricity Regulatory Commission was to be established. In this way, they overcame the obstacles of the further fulfillment of the conditions and possibilities of using EU funds.

The same scenario can be expected in the process of harmonization of legislation in the oil sector. It is possible for the entities to harmonize their laws with EU directives and

solutions are the same, but to establish a national agency for compulsory stocks. However, the current situation is that in the Federation there is an operator who has been active for more than 10 years, according to various decisions of the Government of the Federation and who owns a part of the functional capacities of which collects revenue but also has enormous debts.

The EU funds are funds that should be used to meet the conditions of Directive 2009/119/EC, or for investments in storage capacity. In order to unblock these funds, B&H needs to align the legislative framework.

5. DEVELOPMENT OF THE OIL STORAGE OF FEDERATION LTD.

5.1 History of the Oil Storage of Federation

The company "Oil Storage of Federation" Sarajevo was established by the Decision by the Federal Government in 2003 with the primary purpose of storing oil and oil products. This company is 100% owned by the Government of the FB&H. With the subsequent decisions of the Federal Government in 2005, the company received the assets of Energopetrol Inc.

This property has been given to the use and disposal of "Oil Storage of Federation".
It has the following assets:

- the terminal at the Port of Ploče, Republic of Croatia, tank capacity 81.250m3,
- the continental terminals in Živinice near Tuzla, Blažuj near Sarajevo, Mostar, Bihać, total storage capacity of 117.000m3 and 3.000m3 capacity for LPG, the total land area of 385,457 m².

According to the Law on oil and oil products in the FB&H, adopted by Parliament of FB&H in 2014, Oil Storage of Federation became the only company that is in charge for compulsory stocks. This Act prescribes the activity, capital, property, authority, financial plan and other important issues for operation. According to the Law on oil and oil products, Article 45, Oil storage of Federation activities, among others, are:

- wholesale of liquid fuels and related products,
- storage of oil products,
- placing stocks of oil products on the market in case of disruption of supply, organization, monitoring and control the quantity and quality of reserves of oil products
- collecting and processing data on balance and turnover of operational stocks of refined oil products and oil products reserves,

- cooperation with ministries and relevant inspections in accordance with special regulations,
- cooperation with national and international energy bodies and/or entities and insurance technical and technological safety of installations and warehouses for the storage of oil products.

However, it is necessary to solve a lot of issues that will affect the future positioning of the Oil Storage on the oil market. Those issues are registration of assets in the Federation (mentioned terminals), resolving the status of the terminal in Croatia (terminals and gas stations) etc.

5.2 Role of the Oil Storage of Federation in the oil market

The main task of Oil Storage is to monitor the oil flows and effects of the oil supply in the event of major market disruptions and in this way to provide security and stability to the market. The significance of Oil Storage of Federation will depend on the dynamics of the realization of the strategic objectives.

Oil Storage of Federation should also enter in the market competition, but there are a lot of questions that the management of Oil Storage of Federation should answer whether to choose retail or/and the wholesale market and to determine their target group of consumers (private consumers or public companies).

As stated in the third chapter of the thesis, Oil Storage of FB&H has around 200,000 m³ storage capacity. Many of these storage tanks were damaged during the conflict. There are also tank facilities that need modernization in order to comply with EU security standards. Only functional capacity is a terminal in the Port of Ploče in Croatia with a capacity 82,000 m3 with a shipping capacity of 500 t/h and receiving capacity of 1000t/h. As it is already said, this terminal is owned by the Oil Storage of Federation (Kapaciteti, 2014, n.p.).

The total obligation of emergency stocks to be held in the period of 2011-2021 is expected to be 460.00 tons by 2021. According to the proposed structure of compulsory stocks, it is necessary to ensure 426.000 m3 of storage for oil products, and 130,000 m3 for crude oil by 2021. It is estimated that in B&H there are about 40,000 m3 for crude oil. Accordingly, it is necessary to build additional 284,000 m3 of storage capacity for oil products and 90,000 m3 for crude oil. Total investment in construction of new storage capacities and modernization of existing facilities is estimated at 103 million of Euros.

In order to generate the finances for emergency stock formation in B&H, the new Law that the Government of FB&H adopted predicts the collection of the fee that is paid on the sale

of oil products used for final consumption in the amount of 0.01 KM per liter of oil products, including LPG, which is used in internal combustion engines.

There is no uniform opinion when it comes to compensation due to be charged in just one part of the country and distributors are put in a disadvantageous position. 60% of oil companies consider that this is not a good solution because of this disadvantage, but also because they believe that such a small fee can't reconstruct the dysfunctional facilities and terminals.

According to Article 31 of the Law on oil product fee revenue will be used for:

- purchase of oil products with a view of the formation of reserves of oil products,
- contracting of insurance reserves of oil products,
- quality control of stocks of oil products,
- provision of technical and technological safety of installations and storage facilities for storage of oil products and
- costs of the operators.

With the defined scenario of emergency oil stocks formation and forecast consumption of oil products in B&H, the average fee paid by the importers and manufacturers of oil products per liter of oil products, residual fuel oil and LPG placed on the market would amount to 0,020 €/l. The proposed fee ensures the formation of 90 days supplies of oil and oil products by the year 2020 in B&H (*Emergency Oil Stocks in the Energy Community*, 2011, n.p.). However, as already stated, according to the adopted Law the fee is 0,01KM/l which led us to the conclusion that the commitments that have been signed in the Stabilization and Association Agreement will not be completed unless they provide other investment.

5.3 SWOT analysis of Oil Storage of Federation

This section analyses the potential growth opportunities for Oil Storage of Federation and provides a company's SWOT analysis that will be presented in the table below. We hereby offer new insights into the company's present situation and its future prospects.

The capacity of the operator possesses was discussed in previous chapters. However, we once again emphasize that the storage facilities are connected by railways, and this is one of the company's key strategic advantages.

All the company's facilities were built in the period before the war of 1992-1995 and their construction was based on the needs of the entire former Yugoslavia, not just Croatia. The terminal at the port of Ploče has facilities for both land and sea connections.

The shipping channel, than runs from the lake of Vlaška to the Adriatic Sea has a sufficient berth to allow the passage of tankers. The terminal can be accessed from road and two railway lines and is equipped with a filling station for tank trucks as well as ancillary facilities necessary for the safe operation of the facility.

Table 21. SWOT analysis of Oil Storage of Federation

Strengths	**Weaknesses**
-The storages are connected by railways - The favorable geographical position - Retail network (take back 30 of gas stations from Energopetrol) - A stable ownership structure; - Revenues from fees	-Age and inefficiency of infrastructure capacity (terminals and railway connection) - Required enormous investments for putting into operation of the existing capacities - Unresolved property status and large debt - outnumbered but unprofessional employees - Lack of investment in the rehabilitation and modernization of functional terminal in Ploče - Losses from the previous period - Technological changes;
Opportunities	**Threats**
- Cooperation with private partners in the process of reconstruction and rehabilitation of non-functional capacity - Issuing capacity in the port of Ploče for foreign companies or agencies	- The lack of interest of private and foreign companies to invest in non-functional capacity - Redirect reserves in other terminals - The harmonization with the EU legislation in the field of energy at the entity level - Bad implementation or no implementation of legislations - Political instability; - Regional competition;

Source: *Authors abbreviation*

The fuel is delivered mostly by ship and is forwarded by rail and road. Although it has a favorable geographical position, the terminal at the port of Ploče operates poorly and is losing customers because of massive debt and unresolved issues regarding property status.

The company does not have the human resource capacity to resolve its problems. Although it has a large number of employees, many of them lack sufficient training and education to be able to cope with the challenges associated with EU legislation.

Oil Storage of the Federation has a goal to take back 30 of the gas stations from Energopetrol (Government of FB&H has 23% of ownership in Energopetrol). In this case, it could develop its activities and have an influence on the *retail market*.

The *loss from the previous period* (especially the enormous debt, according to the Decision of the Arbitration Court in Paris, Oils Storage has to pay the British company Deltagrip more than seven million Euros) is a very big weakness.

The *losses from the previous period* (especially the enormous debt, according to the Decision of the Arbitration Court in Paris, Oils Storage has to pay the British company Deltagrip more than seven million Euros) are a very big weakness.

The *lack of sufficiently clear and official data*, but also a great *vulnerability to technological changes* are major weaknesses of Oil Storage of Federation. In order to overcome these weaknesses, opportunities that the market in B&H provides for Oil Storage of Federation should be utilized. One of the opportunities is to find and cooperate with the private partners in the process of reconstruction and rehabilitation of non-functional terminals but only three private companies expressed interest for investment (Market Survey, 2015).

The Terminal in the Port of Ploče, has a great chance to participate in the regional market due to the good geographical location. It is important to find an opportunity in the lack of capacity for mandatory stocks in neighboring countries.

Unfortunately, there are many more threats that affect the exterior work of Oil Storage of Federation. One of them is that the legislation, according to the EU directives has been adopted only recently and not on a national level, but only in one part of the country because of political instability. It is most important to emphasize that competition in neighboring countries (Croatia JANAF - Terminal Sisak and Omišaj) are already in very good position because those are reconstructed and developing companies.

Having regard to the foregoing analysis, it is evident that the development of Oil Storage indeed is difficult. If the strengths are not fully exploited and all the capacities are not invested in overcoming weaknesses and thereby reducing threats as much as possible.

CONCLUSION

The goal of this master thesis was to emphasize the importance of oil and oil products market in B&H and to explain all important segments of market and the legal framework for compliance with the EU framework, including Oil Storage of Federation as the main body in fulfillment of EU directive according to the mandatory reserves.

On the demand side, it is noticeable that OECD countries are the biggest consumers of oil and oil products with consumption of 45.9 million barrels per day. World oil companies are not as strong as they were forty years ago when the eight largest oil companies

produced 89%of the world oil production. Today these eight companies are reduced to five largest companies that account only for 12% of total production and only 3%of world oil proven reserves. The EU is also over 50% dependent on oil import and in 2009 had 108 refineries that represent 17% of global refinery capacities.

B&H has no oil sources and is fully dependent on import. Current needs for oil products are estimated at 1.5 million tons per year and main import countries are Croatia, Hungary, Slovenia, Austria and Serbia. More than 70% of crude oil and oil products are imported from Croatia. It is observed that almost every country in the EU, neighboring country and B&H are dependent on import of oil and oil products so it is very important to try to reduce potential danger and instabilities of oil supply. Mandatory stocks are the most effective mechanism of action in crises so the EU adopted directives that lay down rules for ensuring a high level of security of oil supply in the Community through reliable and transparent mechanisms based on solidarity. Every member and candidate country should harmonize its legal framework with the EU framework. One of the purposes of this thesis was to stress the importance of this harmonization and analysis has shown that B&H did not adopt the Law on oil and oil products. This legislation was adopted only at the entity level. Also, B&H has no storage capacities and by EU directives should fulfill this obligation until 2020. In the Federation B&H new body has formed "Oil Storage of Federation" that is in charge of fulfilling the EU directives according to mandatory reserves. The "Oil Storage of Federation" is obliged to build new capacities and reconstruct current terminals and for this purpose, the FB&H has formed a fee paid on the sale of oil products used for final consumption in the amount of 0,01 KM per liter.

The Market Survey brings to the conclusion that the oil market in B&H is unregulated and that participation in the market (both demand and supply side) face difficulties because of it. One of the important information obtained from research is that the 54% of customers choose quality-based retailers. An important result is that most distributors and retailers of petroleum products agree with the introduction of the fee (0,001 KM/l) and 63% consider Central operator as good solution because it follows the European framework in this field. The maximal price is not accepted as a good solution, which is related to the frequent occurrence of the "rockets and feathers" phenomenon in B&H where retailers rush to increase prices in local market immediately when international oil prices rise but this does not happen when international oil prices drop.

SWOT analysis for Oil Storage of Federation was done and showed that the development of this company will be very difficult, but that there are opportunities that should be used such as the "retail network" that should be taken from Energopetrol Inc. Revenues from fees are significant and should be used for repair and modernization of terminals.

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APENDIXES

Table of Appendixes:

Table 1. Prices of fuel in Europe, Thursday, 22.01.2015.

COUNTRY	PETROL 95	PETROL 98/100	DIESEL
Albania	165 ALL (1.8 EUR)		162 ALL (1.15)
Austria	1.09 EUR	1.20 EUR	1.08 EUR
Belgian	1.31 EUR	1.37 EUR	1.18 EUR
Bosnia and Herzegovina	1.85 KM (0.95 EUR)		1.85 KM (0.95 EUR)
Bulgaria	2.29 BGN (1.17 EUR)	2.61 BGN (1.33 EUR)	2.22 BGN (1.14 EUR)
Czech Republic	31.52 CZK (1.13 EUR)		31.51 CZK (1.13 EUR)
Montenegro	1.07 EUR	1.10 EUR	0.99 EUR
Denmark	10.79 DKK (1.45 EUR)		9.59 DKK (1.29 EUR)
Finland	1.34 EUR	1,41 EUR	1.26 EUR
France	1.29 EUR	1.34 EUR	1.16 EUR
Greece	1.57 EUR		1.29 EUR
Croatia	8.52 HRK (1.11 EUR)	9.13 HRK (1.19 EUR)	8.12 HRK (1.05 EUR)
Ireland	1.32 EUR		1.24 EUR
Italy	1.47 EUR	1.57 EUR	1.41 EUR
Luxembourg	1.06 EUR	1.12 EUR	0.98 EUR
Hungary	325.00 HUF (1.03 EUR)		342.00 HUF (1.09 EUR)
Macedonia	60.50 MKD (0.99 EUR)	62.50 MKD (1.02 EUR)	51,00 MKD (0.83 EUR)
Germany	1.28 EUR	1.31 EUR	1.16 EUR
Netherlands	1.56 EUR	1.62 EUR	1.27 EUR
Norway	14.15 NOK (1.60 EUR)		13.20 NOK (1.50 EUR)
Poland	4.51 PLN (0.48 EUR)	4.79 PLN (1.11 EUR)	4.52 PLN (1.05 EUR)
Portugal	1.30 EUR	1.40 EUR	1.12 EUR
Romania	4.93 RON (1.09 EUR)		5.13 RON (1.14 EUR)
Russia	36.21 RUB (0.48 EUR)		34.65 RUB (0.46 EUR)
Slovakia	1.31 EUR		1.21 EUR

Slovenia	1.24 EUR	1.25 EUR	1.08 EUR
Serbia	129.90 RSD (1.07 EUR)	139.90 (1.15 EUR)	139.90 RSD (1.15 EUR)
Spain	1.12 EUR	1.39 EUR	1.22 EUR
Sweden	12.19 SEK (1.29 EUR)	12.69 SEK (1.35 EUR)	12.45 SEK (1.32 EUR)
Switzerland	1.47 CHF (1.47 EUR)	1.53 CHF (1.53 EUR)	1.54 CHF (1.54 EUR)
Turkey	4.11 TRY (1.51 EUR)	4.13 TRY (1.52 EUR)	3.59 TRY (1.32 EUR)
Ukraine	17.90 UAH (0.93 EUR)	19.00 UAH (0.99 EUR)	17.30 UAH (0.90 EUR)
Great Britain	1.08 GBP (1.41 EUR)	1.18 GBP (1.54 EUR)	1.16 GBP (1.51 EUR)

Source: *Cijene goriva u Evropi*,2015, n.p.

Table 2. Total non functional capacities

Blažuj				
Label	**Capacity [m3]**	**Tank type**	**Diametar [m]**	**Height [m]**
R-01	10,000	Floating	30,480	14.2
R-02	5,000	Floating	24,384	12.80
R-03	5,000	Floating	24,384	12.80
R-04	2,000	Fixed	15,240	12.80
R-05	10,000	Fixed	30,480	14.32
R-06	10,000	Fixed	30,480	14.32
TOTAL	**42,000**			
LPG	**1,000**	Sphere	**12,5**	
Živinice				
Label	**Capacity [m3]**	**Tank type**	**Diametar [m]**	**Height [m]**
T-01	1,000	Fixed	15	6
T-02	500	Fixed	10	7
T-03	500	Fixed	10	7
T-04	5,000	Fixed	24	12
T-05	5,000	Fixed	24	12
,T-06	2,700	Fixed	20	9
T-07	2,700	Fixed	20	9
TOTAL	**17,400**			
LPG	**1,000**	Sphere	**12,5**	
Mostar				
Label	**Capacity [m3]**	**Tank type**	**Diametar [m]**	**Height [m]**
R-05	6,800	Fixed	24,384	14,32
R-06	6,800	Floating	24,384	12,80
R-07	6,800	Floating	24,384	12,80
R-08	3,750	Floating	18,280	12,80
R-09	2,500	Floating	15,240	14,32
R-10	1,300	Floating	13,716	14,32
R-11	2,860	Floating	17,860	13,50
R-12	3,500	Floating	21,080	12,80
R-18	2,800	Fixed	17,188	12,80
TOTAL	**36,277**			
LPG	**1.000**	Sphere	12,5	
Bihać				
Label	**Capacity [m3]**	**Tank type**	**Diametar [m]**	**Height [m]**
R-01	2,700	Fixed	20,00	9,00

R-02	2,700	Fixed	20,00	9,00
R-03	5,000	Fixed	24,40	12,00
R-04	5,000	Fixed	24,40	12,00
R-05	2,700	Fixed	20,00	9,00
TOTAL	**18,100**			

Source: *Kapaciteti*, 2014, n.p.