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ENERGY, ENVIRONMENT and EUROPEAN SECURITY

Oil: six myths to Debunk

1st Myth : oil is found in large underground caves → it is not found in these places but is extracted from layers of porous rock, where it is dispersed into millions of tiny droplets. This makes it difficult to locate the deposits, evaluate their size and extract the oil.

2nd Myth : Oil is a homogeneous product → not true, there are many types of crude oil ,and the different qualities concur to set the price. Only the refining process allows to get homogeneous products.

3rd Myth: Oil is like “black gold” → false, one barrel of oil costs today 40US$
but how much oil contains one barrel? 159 litres: this mean that with a price of 40$ for one barrel, one liter of oil costs 0.25$ approximately 23 euro cents
Why do we say that oil is black gold if there is so little money from 1 liter of oil? the value of oil is not the cost, oil is valuable because they can sell 80 million/day.

4th Myth: Who finds oil, finds a treasure → Not always true, because there are some factors that can make no convenient the exploitation of new oil deposits, it depends on ground conformation, if you have hard rock, hard solid (?), it is very expensive to dig this soil, to open a new deposit, to reach new oils because ground conformation can be very difficult and hard. you can have environmental difficulties in finding new oils, also poor oil quality can make a field exploiutation not profitable. This is false unless the price goes up, cause if it is higher also those oils things that were not commercially advantages can became new oil activities, even if you have more expensive, and higher cost to get out oil from the ground, you can sell this additional oil at a higher price so it is more remunerative, the final price that change can affect production.

5th Myth: Opec controls the world oil production → Opec membership include some of the most relevant producer and exporter, but not all of them, so we cannot say that opec members are able to control the global oil production, today opec members have a capacity of 40% of the total world oil production.
(Algeria, Venezuela, Ecuador,Equatorial Guinea, Qatar,Gabon,Angola,Nigeria,Libya,Kuwait, Iraq,Iran, U.A.E, Saudi arabia) We cannot say that opec is a middle easter organization even if the most relevant producer in opec are middle east country in terms of quantity and potential capability to increase the production.

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Myth 5: Opec controls the world oil production → no more, the opec members' whole productive capacity is today 40% of the total world oil production. some relevant producing countries are not Opec members: Russia, US, Canada, Norway.

Slide : Global oil reserves (presumed amount of oil that each country has in its territory, in its oil fields) : blue is opec and grey is non opec. Opec members control approximately 80 percent of the total reserves of oil, not the total production.

Slide: Proved Oil Reserves: you can see the differences in oil reserves among the different producers countries. There are some countries who are very rich in terms of oil reserves, such as Venezuela, Saudi Arabia, Iran, Iraq, Canada and we have other countries who are relevant producers but they don't have such large reserves like Russia, Usa.
Slide: Oil production is different from oil reserves. Oil production is around 83 million barrels. In this slide you have a timeline spanning from 2006 to 2020. along this timeline you have the red line, that is the total world production of oil in barrels per day. There was an increase in oil production. The orange line is the non opec production of oil, there is an increase here too. Then the blue line is the Opec total production (decrees)

Slide: US tops in crude oil production. This slide refers to the 3 most important producers in the world which are Saudi Arabia, Russia and the United States. These 3 countries are in a very different position one compared with the other. There is a timeline from 1998 to 2018, 3 different colors for the 3 different countries. Today the 3 countries are producing more or less the same amount of oil date by date, there is approximately 10 million barrels per day each country. the USA are not exporting oil, they are producing and consuming the oil they produce for their domestic market, for their national consumption, so they are relevant producers, but they are not an exporter, so US oil does not reach any other country in the world, but is relevant for the national consumption, for the domestic need of the USA even if the domestic production of oil is not enough to cover the domestic need of oil, the domestic consumption of oil in the USA is much higher than the domestic production, so the USa are not only a producer but they are also an importer of oil. Saudi Arabia on the other side has a very different condition, they have large reserves but they are not producing at the maximum level, it is a very relevant exporter not only a producer. Most of the Saudi oil is for export, the largest part of the Saudi Arabia oil is for export to the european countries, but also to Japan and China. Russia is a relevant producer, has a good amount of oil reserves but not so much as Saudi Arabia or Venezuela. Russia is exploiting its oil reserves at the maximum level possible, because the russian government and the russian companies are willing to get the maximum advantage from oil production today, in this current time, even if this means that oil fields in russia will end the production in few years because if you exploit oil at a very high rate this will exhaust your oil fields in a shorter time that if you exploit the same oil fields with a lower rate. So Russia is not only a producer but also a relevant exporter, but not a global exporter as Saudi Arabia. Russia is exporting only mainly to the neighbouring countries, meaning some european countries, and China. This is because Russian export is due mainly to pipelines and not to takers or sea routes. If you refer to and use mainly pipelines as Russia is doing, it means that you can reach only the surrounding countries, you cannot reach for example Australia. Russian oil exports are relevant but mainly and exclusively for the surrounding countries, not for the region far away from russia.

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6th Myth : the producing countries get the highest share of revenues → not completely true, cause when we look to the oil market only 30%of the final cost coes to the producers. Another 10/15% is for transport and refining and 60% of the final cost goes to the consumers' governments.

Oil products:

- gasoline, diesel, Nafta, kerosene
- Fuel oil (thermo-electric power plants)
- Lubricating oil (car engines)
- Waxes and vaseline (industrial engines)
- Plastic
- Bitumen and asphalt

Oil and Gas: an essential glossary

Barrel: 159 liters
Chokepoints: are those narrows passages in the maritime route of energy transport, those passages such as channels or straights that are very sensitive for energy security at the global level (like Suez Canal, the Hormuz Strait (between Saudi Arabia and Iran) which is the exit way for the persian gulf (iran, iraq, kuwait, bahrain, qatar, saudi arabia and emirates) the strait of Malacca, between Singapore and Indonesia, connecting the middle east with Japan and China, so a large amount of oil consumed by japan, China and south korea as well passes through the strait of Malacca. Panama Channel in the western hemisphere.

- Suez canal: 162 km, 300 mt width
- Panama canal: 80 km, 40 mt width
- Bosphorus: 31 km, 550 mt width
- Malacca: 800 km, 55 km width

Coal: was the main source of energy before oil was discovered, the industrial revolution in Britain was possible because of coal, to have public transport in terms of train and in terms of shipping. Coal is still today a font of energy for some countries, such as china. China has a large quantity of coal in its mines, and so coal is largely used by chinese industrial activities. Also the USA has a large amount of coal, they still extract coal and consume it for energy production. In Europe we have some european countries that still have a relevant share of coal in the energy mix, such as Poland, Chech Republic and Romania (maybe). By the way, coal is very pollutive, and so when we use coal we impact the atmosphere much more than when we use oil or natural gas.

Combustion Engine (motore a scoppio): it is at the origin of oil use and oil activities because when combustion engine was introduced for private cars at the beginning of the 20th century, this made a push of oil industry, because it can work only with oil and so the widespread of private cars, the incredible increase in private cars during the 20th century was one of the reason why oil was preferred to coal. coal was not useful for private cars.

Corporations: Seven sisters: Standard Oil of New Jersey (esso), Royal Dutch Shell, Anglo-Persian Company (APOC), Standard Oil co. of New York (Socony), Standard Oil of California (Socal), Gulf Oil and Texaco

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Drilling: A drilling rig is a machine which creates holes in the ground.

Energy mix: referred to the different sources of energy we can use to cover our need in terms of energy. So there is european Energy Mix where all the european countries are considered as a whole, so we can describe an european energy mix in terms of different share of green energy, nuclear energy, natural gas, oil products and solid fuels meaning coal. so the energy mix for the european countries is composed of different shares of these energy sources. We also have a national energy mix and italian energy mix, etc.. and these can be different, one country from another. also in a relevant way italy has no nuclear power because the italian government and the italian population decided not to open any nuclear activities in italy, but our friends in France have a relevant amount of nuclear energy in their energy mix.

Field: can be oil field or gas field.

LNG (Liquified Natural Gas): natural gas is a gas, and to transport gas is quite difficult for long distances, because you need a pipeline to transport a gas in his natural state as gas. But modern technologies make it possible to liquify natural gas and to transport it as a liquid so it is much easier for the transportation of it.

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