



OIL PRICE OUTLOOK

*From Current Dynamics to
2100 Scenarios*

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Introduction

Oil prices are one of the most important items affecting the trends in the global economy. In addition to global effects, being the price levels directly influencing the individual budgets and preferences, sociological impact reaches much higher levels than the expectations.

To interpret the impact levels of price fluctuations for different social roles;

- Short term fluctuations are important nearly for whole different roles and groups, such as: consumers, governments, producers, traders, investors and ordinary individuals.
- But mid and long term projections are important for the investors, analysts and governments. For example, before taking a final investment decision (FID) for oil development projects, minimum 25 years of oil prices have to be estimated. And for governments to be able to plan successful budget policies, again long term estimations of oil prices are important.

In this regard, long term oil price estimations becomes substantial for mainly investors and the governments.

In order to make long term estimations for oil prices, initially we have to determine the roles and tendencies of main variables in the price equations. There are many different elements that are affecting the prices in the oil markets. To have a generalization, we can assume that;

- Supply - demand balances, including: new discoveries, stocks, number of drillings, production levels, interruption decisions, long-term contracts, development declarations and etc.
- Economic trends, like: global economic growth, GDP rates, substitution markets, us dollar parity, alternative investment opportunities, purchasing power and etc.
- Risks, such as: perceptions, political tensions, terrorism, security issues, natural disasters, unusual factors, biological or chemical treats and etc.
- Black oil capacity and their prices

are the main four categorized drivers in oil price equations. While sometimes, some of these elements have individual effects on the equation and sometimes they may also affect the other variables and have a bigger impact on the generalized equation. Such as, today's most popular issue: Corona virus!

Supply – Demand Side

Currently world is consuming around a 100 million barrels of oil per day. This means a very huge volume of economy. Some portion of this consumption (nearly %5) belongs to the unregistered black oil sales (which are mainly coming from Iran, Venezuela, Nigeria and Syria).

From the supply side, there are important suppliers, such as US, Saudi Arabia, Russia, Canada, Iran, Iraq, China, Kuwait, UEA, Brazil and etc., which are affecting the equation. OPEC (maybe we can say that OPEC+) as being an integrated group of producers, is the most influential structure in the supply side of the equation.

From the demand side, USA and China are the two biggest consuming countries. That's why, the acts, declarations or decisions of these players directly affect the price balances of oil.

Supply and demand trends can be affected by many different strides, such as:

- New discoveries usually means extra supply of oil.
- Conversely, while there was an important expectation for a huge structure to bear billions barrels of oil reserves and after the tests, the results are nothing, then this situation means less supply by comparing with the expectations, which affects the prices in upward direction.
- Declared stocks are the other factors. The difference between the reality and the expected volumes of stocks are also important issues directing the short term prices. Hence being the biggest consumers, US's and Chinese stock levels' positions are directly affecting the prices. In addition to these, new infrastructures to increase the stock capacity will also change the prices.
- Number of drilling rigs and continuing drilling activities are also important for the supply side of equation. Hence more wells mean more production levels.
- Increase in the production levels or possible decreases due to technical / non-technical problems directly affect the supply side, proportionally to the capacity.
- Interruption decisions, such as OPEC's agreed volumes of supply cuts directly affects the prices.
- New long-term sale contracts, which means further agreed of supply and demand volumes also have an effect on the prices.
- New field development declarations of companies and FID agreements are the other important issues affecting the oil prices.

All different kind of factors directly or indirectly affecting the prices have to be considered in analysis.

Economic Trends

Economic trends are also the other key drivers affecting the oil price. Global economic growth, GDP rates, substitution markets, us dollar parity, alternative investment opportunities, purchasing power and such economical facts have direct or indirect impacts on oil prices. For example:

- While the global economic growth is high, then the energy investments and indirect demand growth naturally be high.
- US dollar parity usually has a reverse acting tendency with oil prices. Hence, usually the brokers tend to cash out their shares in oil markets and put them in US dollar based stocks and bonds or vice – versa according to their expectations.
- Similar with the USD's situation, the same tendency occurs within the alternative investment opportunities while compared with oil markets.

Risks

There are also different kinds of risks affecting the oil markets, supply – demand balances and naturally the prices. For example:

- Perceptions sometimes may have resulted in higher effects on the prices while comparing with the reality. To give an example, after the negative results of the OPEC + meetings in the beginning of March 2020 (while the members couldn't agree on additional cuts to deal with the corona virus effects), initially Putin's and later Saudi Arabian's declarations made the prices collapse up to the 30 \$/bbl levels. In this concept, Saudi Aramco declared to sell crude oil to Chinese buyers with an additional 4 to 8 \$/bbl discount rates and to supply additional 2 million bbl to the global markets. In reality, neither agreed such a discount nor an additional volume of supply applied. However, due to the perceptual effects of these declarations, the prices collapsed into the annual lowest levels. For all that, we are sure these perceptual effects are short termed.
- Political tensions, terrorism, security issues, natural disasters, unusual factors, biological or chemical treats and such force majeure issues are also other risk bearing items affecting the oil prices.

Black Oil

There is a huge volume of unregistered black oil sales in the global markets. Currently the origins of these volumes are usually Iran, Venezuela, Nigeria, Iraq and Syria. The price levels of the black oil sales are usually 5 to 15 \$/bbl are lower than the normal registered volumes. That's why the volume of the black oil market directly decreases the price levels and supply expectations.



Corona Virus: A Versatile Sharp Effect on Oil Prices

Currently, Corona virus (which is a high influential biologic treat for the whole world) is the most effective item in the oil prices equation. Nearly, all these 4 main categories can be directly or indirectly to be associated with the corona virus effect on oil prices.

Nearly from the beginning of the 2020, in addition to oil markets, all the global economic balances have been shaken by a biological treat: Corona Virus! The Corona virus (which has started to spread in China and brought life to a halt) has caused oil prices to drop and then to remain at low levels despite all other enhancing factors.

Although there are many other elements which has to cause the prices up (such as the builds in US stocks, oil supply problems in Libya, Nigeria and Iraq, OPEC+ not to being able to agree on high levels of production cuts), Corona Virus by overturning all the balances, made the other effects nearly negligible.

But why? And how Corona Virus has such a great effect on oil prices?

The answer includes 3 types of effects, which are real demand drop, perceptual sight and indirect sight.

In addition, for the near future, we have to talk about other 2 types of effects, which are the global spread of Corona virus and unexpected halts in the producing fields.

From the sight of real demand drop, China (in the normal conditions) during pre-Corona Virus times used to have an average 13,5 million bbl/day oil consumption rates. This means nearly %13,5 of the global consumption is coming from the Chinese side. A sharp drop in China's consumption will naturally clutters the prices. In this case, at the initial days of Corona Virus, when the Chinese government proclaimed a long holiday for the whole country and declares a curfew, due to break down of industrial and transportation demand, total crude consumption fall down around %40's. This directly resulted in Brent prices to smashed to 50 \$/bbl levels. After the extended curfew period ended, except the quarantined cities, life expected to turn into normal levels in the other lower risked regions of the country. But the situation didn't go like that. These expectations initially made the prices up, but while the virus started to spread in a faster manner, nearly the whole country had to turn their houses and try not to go out as soon as possible. All economical acts, industrial production, meetings, trade flows and strategic plans shut down. Many countries canceled and suspended the flights with China. And this made the crude prices continue to drop, instead of the expected recovery period. In the February 2020, average Chinese daily consumption is estimated as being around 8 million bbl. Which means an average 5,5 million bbl/day drop in the direct global demand. This is the direct Chinese consumption drop effect on the crude prices.

Here we have to note that, the price reductions is continuing in spite of the Libyan supply cuts around 1,2 million bbl/day. If there were not cuts like that, then the prices would reach much lower levels and this would collapse (mostly US Shale oil producers) the supply side of the equation.

From the perceptual sight, apocalyptic scenarios related to the virus and fear of spreading to other countries can be accepted as the other type of (usually dropping) effect on the oil prices.

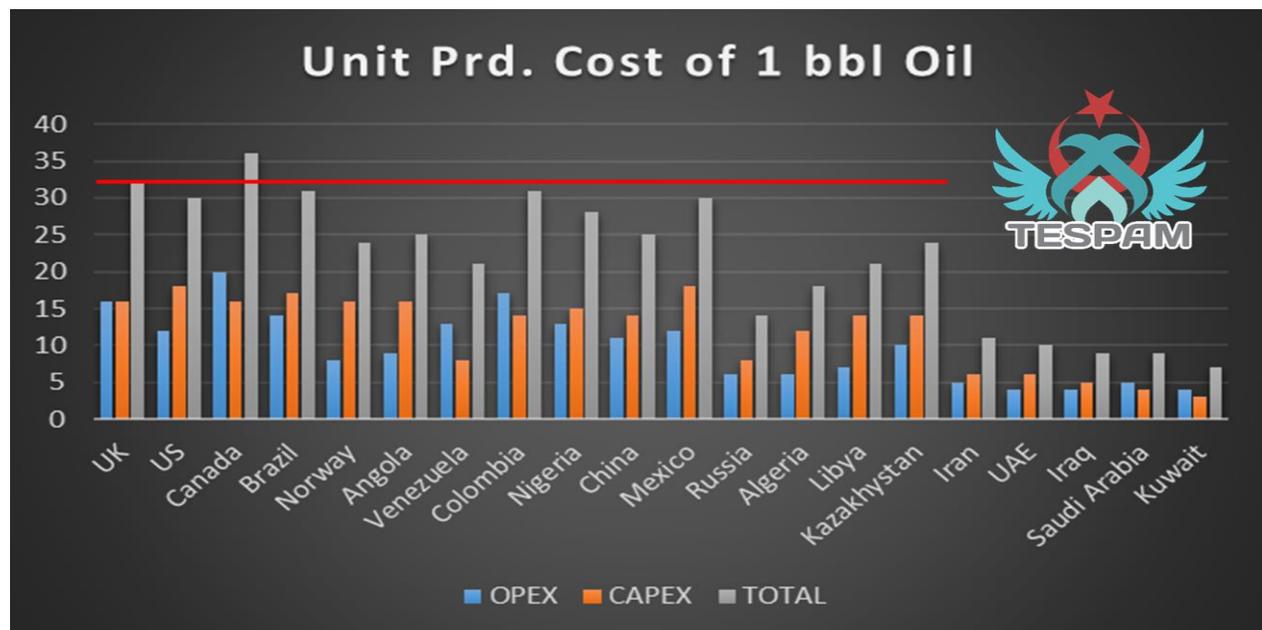
From the indirect sight, due to economic collapse and virus risks, all international transportation and trade flows badly affected and this resulted in an indirect global consumption decrease.

Currently, we are on the stage of a global spread and we are not sure how this period will affect the further scenarios. No one can model the biological risks and treat levels for different countries. Of course, the prices seem to continue to decrease due to additional demand risks and indirect or perceptual sights. But another important point is virus has started to spread in oil exporting countries also. This means the supply side of the equation will also start to decrease.

Virus spread risk will make oil companies to suspend their activities, delay their meetings, cancel their investments and in the worst case stop their productions. This will mean a break down in the supply side of the equation. In addition to this issue, the dropped levels of oil prices has also badly affected the smaller oil suppliers mainly in US and Canada. Nearly half of these types of companies are on the edge of bankruptcies. This means additional decreases in the supply side and in the further stages, we can expect some incremental fluctuations to reach the natural balanced levels.

Note: Due to disagreements (and the latest declarations) between the Russia and the Saudi Arabia on the additional cuts to handle the decrease in the oil prices, oil prices collapsed at the annual lowest levels. This is a short term situation. However, many producers will be affected because of these smashes mainly in Canada, USA, Britain, Brazil, Columbia and Mexico.

TESPAM’s estimations on the average unit production costs of 1 bbl oil in the current situations are given in the graph below:



Graph 1: Unit Production Costs for 1 bbl Oil in Different Countries

As can be understood from the table:

- NOTE: Transportation and tax costs are not included into the calculations.
- Many of the fields in some countries have to be stopped the production due to uncommercial conditions.
- Tight oil producers in US and Canada will be affected highly.
- The low level oil prices will directly affect the supply volumes and step by step, more companies will stop the existing producing fields due to not being profitable.
- This will affect the total supply volumes. Which means, the oil prices will increase up to a natural balance will be reached.

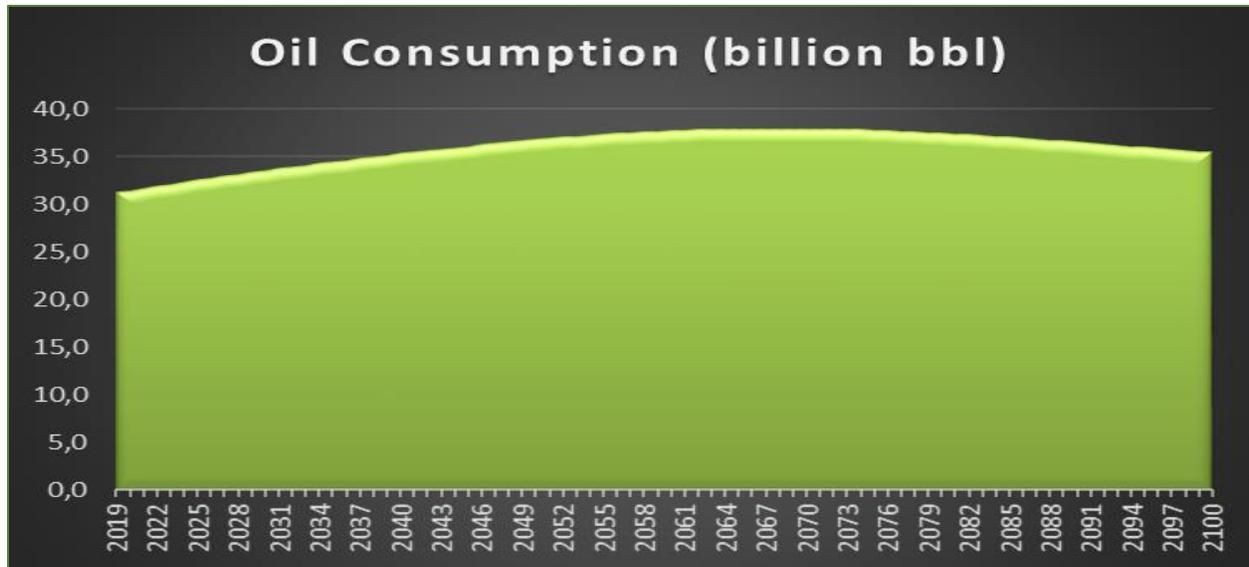
As a result, it is time to think about also the supply side of the global crude oil equation!

Long Term Estimations

Within the considerations above, we have studied nearly all possible variables in the oil price equations. Such as:

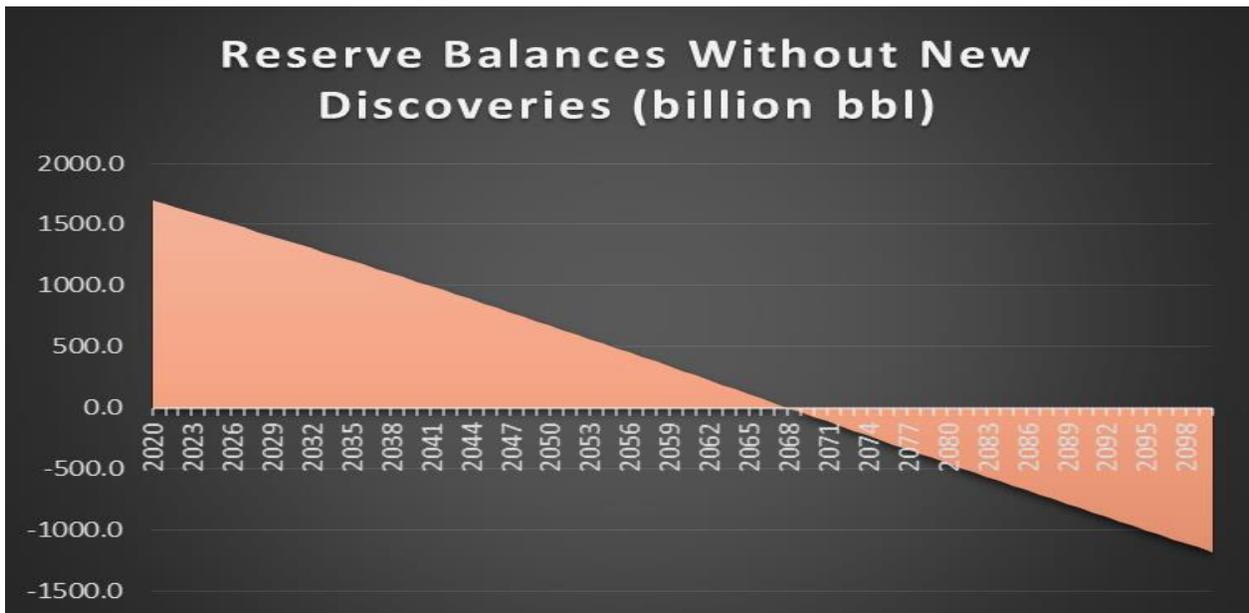
- Global demand projections
- Existing proved reserves volumes
- Possible new reserves to be discovered and commercially taken into production
- Global economy
- Inflation rates
- Corona virus effect for the short term
- Global supply balances within the consideration of:
 - o Unit costs and new technologies,
 - o Unconventional resources,
 - o Reserve balances,
 - o New possible infrastructures,
- Security issues

And as a result, according to our calculations (in the concept of some different assumptions) we have prepared the graphs below:



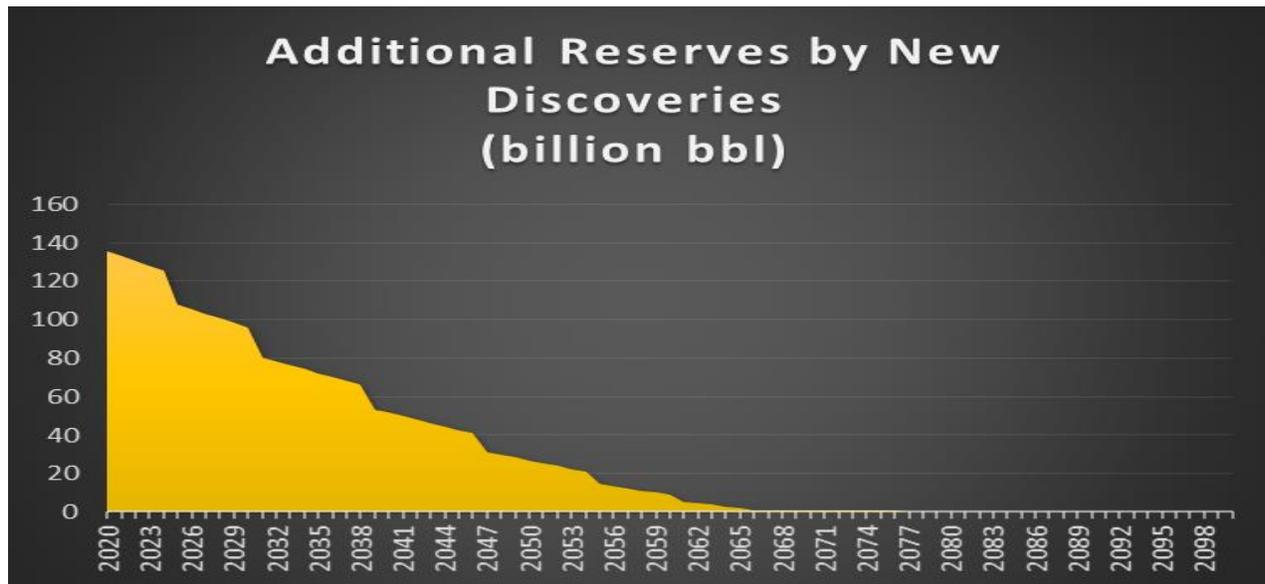
Graph 1: Oil Consumption Projection Up to 2100 (Source: TESPAM World Energy Outlook 2100)

The global oil demand is taken from TESPAM's World Energy Outlook 2100 Report. As can be seen from the graph that, consumption is increasing within a decreasing incremental rate and only after 2070's, the total decline starts.



Graph 2: Reserve Balances without New Discoveries

By taken the graph 1's data as the global consumption tendencies, current global proved reserves will be run out in 2068's. So, the world needs additional oil to consume!



Graph 3: Additional Reserves by New Discoveries

Every day the situation of the existing proved reserves are changing. Although there is a (continuing) high amount of consumption, new discoveries, new tests and new technologies (to get much more oil from the existing portion of the oil in place) make the global reserves to increase and keep plenty of oil for our future.

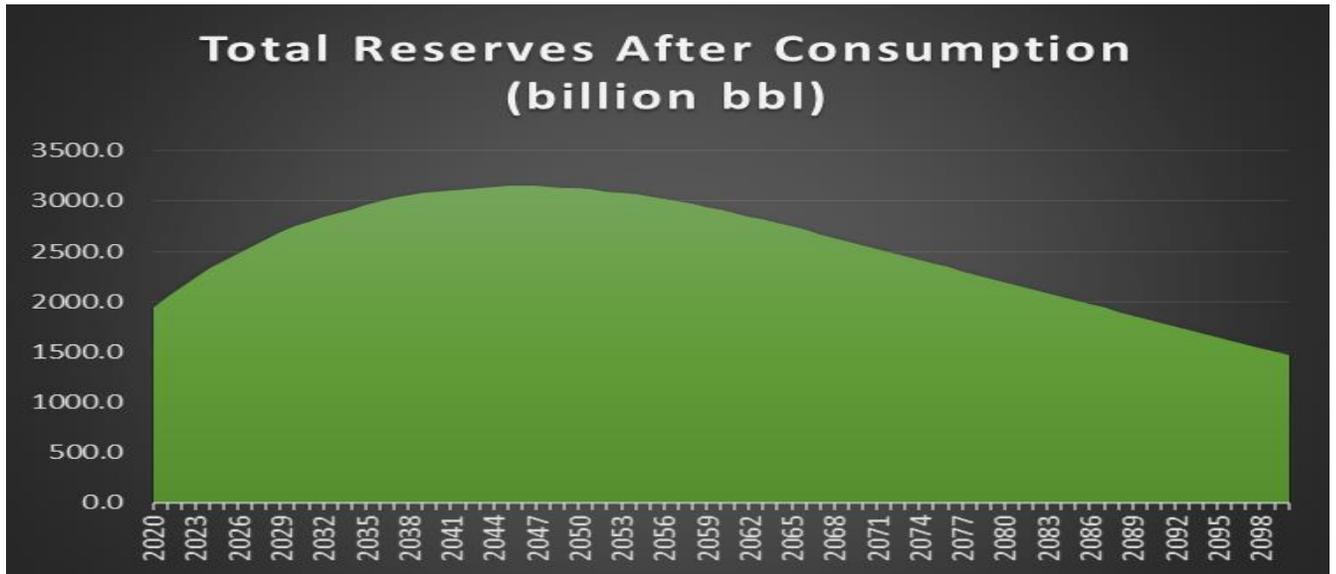
Every time there are some words like: “in 20 or 50 years oil reserves will run out!” but, this period never ends! There are much more:

- Discovered but untested,
- Tested but unshared with the international community,
- Not discovered,
- Waiting for new cheaper technologies,
- Waiting for higher oil price levels,
- Unconventional

Volumes of oil waiting to be considered as “proved”. So, we can easily say that, we will continue to add new proved reserves in our stocks!

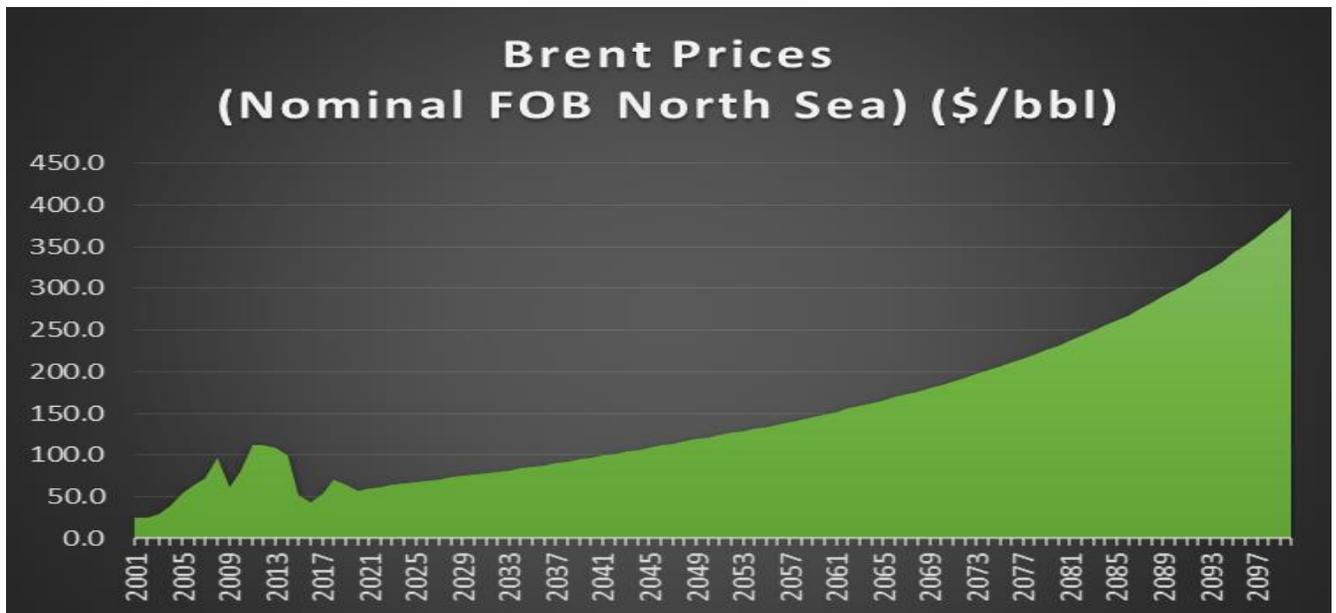
Within this consideration, by using some assumptions, our additional reserves coming from the new possible discoveries are given on the 3rd graph.

Then, after adding the new volumes to the existing portion, the remaining volumes of reserves after the projected consumption rates (Graph1) can be seen in the graph below:



Graph 4: Total Remaining Reserves after Consumption

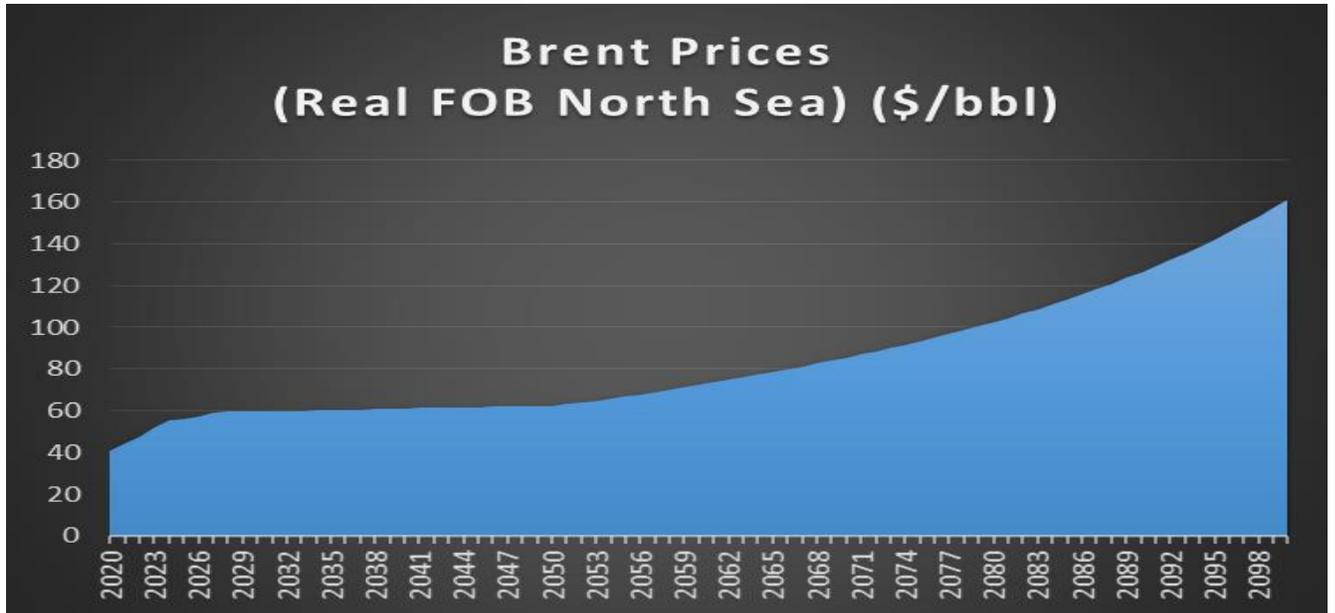
While comparing all the relevant variables, affecting the oil prices, calculated nominal Brent prices (FOB North Sea) are given in the table below.



Graph 5: Nominal Brent Prices up to 2100

As can be seen, by neglecting the possible short term influencing fluctuations, the general trend is expected to be an increase with a growing incremental rate.

By using the assumed inflation rates, the nominal prices are converted to the real ones, as given in the graph below:



Graph 6: Real Brent Prices up to 2100