

The year of grace 2013...

Two years to go before the grace period is over and the sulphur directive kicks in with full force ...
The strange thing is that it looks as if everyone is just waiting for a miracle...

It seems all are waiting for someone else to solve the problems. No one really grasps the problems at any level. Everyone seems to be more or less paralyzed...perhaps the truth is too tough to handle or to accept. Too tough to accept the fact that this is the beginning of the paradigm shift everyone has been talking about.

The project has made a study regarding the impact of the sulphur directive, looked at EU White Paper, looked at other studies and tried to figure out what the future might look like. We do not claim in any way to be the owner of the truth. We have simply tried in a pedagogical way to describe what it's all about, how it might affect individuals (people), companies as well as different nations. We have set out these possible developments in some scenarios to further exemplify our theories about the possible future.

The reactions to our study have been very variable...

- Some have cursed the study claiming that it is pure falsehoods
- Some have with curiosity read the information
- Some have contacted us and wanted to get more information
- Some have invited us to lecture
- Some intends to investigate the issue further
- And we have been published in various official occasions

The evil root to the current situation is that national levels of management (Government level) have handled the issues around the sulphur directive as a "One Case Issue"...as if it is all about changing vessel fuel when in fact the fuel change is just the action decided when the problem is the actual impact of the decision, not only creating ripples at sea but ocean waves.

We are in no way against the sulphur directive...

No one who still wants to create opportunities for future generations to exist can be against it. However since the sulphur directive will have such major impact on all levels it must be handled in a powerful way by the governments. We can't afford to jeopardize export companies competitiveness on the global market. The national welfare and in the next step individual welfare is at stake here.

The major problem right now is that it's not happening enough to solve the problem. Things proceed to slow. The low number of orders for remodelling existing vessels or orders of new vessels leads to the conclusion that marine diesel will be the short term solution. Why? It takes time to build or rebuild ships and the shipyard capacity isn't endless. So mainly looking at timeframes it's not possible to have enough amounts of new ships 'till 2015. This will lead to increased worldwide demand for diesel and probably higher fuel costs and higher freight costs.

Fuel question is a dear topic of debate. There are those who argue that one can only predict the price up to 3 months in advance. We looked at trends over time without any practically scientific analyse regarding all possible influencing factors. We simply added a trend line based on the

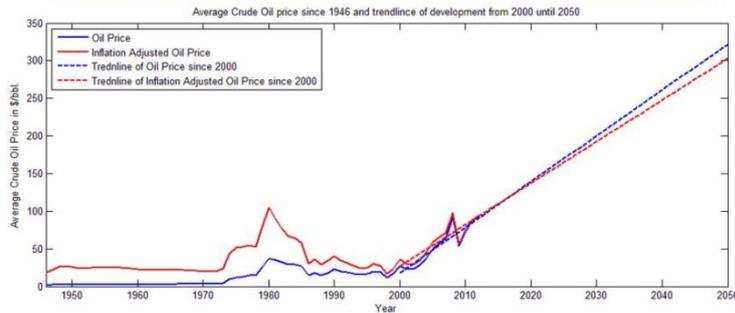
historical price development. We have not included the entire period since it is not considered as relevant in terms of availability of oil in the early part of the period.

Estimated oilprice year 2050

based on

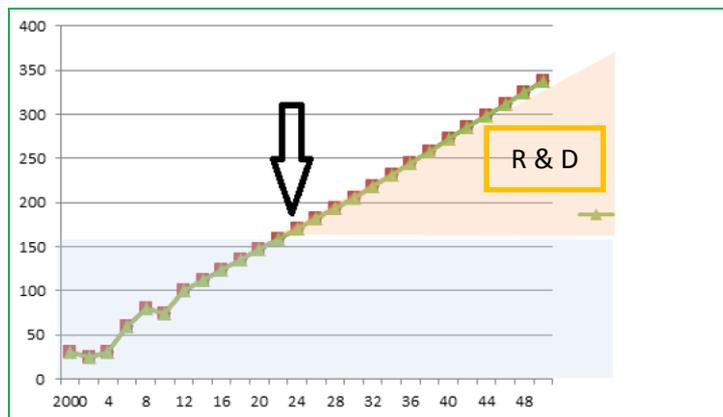
http://inflationdata.com/inflation/inflation_rate/historical_oil_prices_table.asp

The calculation is based on the theory that the oil price will continue to rise the way it has done between late 1990 'till todays level.



Looking at the picture above you can see that the price of oil, provided that progress continues in the same direction, will be around 300 USD per barrel in 2050. One can think the price is ok...looking the general price situation in 2050. The problem is that there are estimates clearly saying that the market cannot handle a price higher than 150-160 USD per barrel. So even if the price is not rushing up to 300 USD per barrel the price will most likely increase to more than 150-160 USD per barrel and the ultimate question then rising is: What do we do about that?

The answer is R & D. It is here the national innovation policies comes into play. One must realize politically, that we are not going to fix this without conscious political action. We have to counterweight the cost above 150-160 dollars per barrel with new technology ... R & D.



This picture is based on the curves in the picture above, showing that new technology must replace increased oil price from around 2025. Accepting it for a fact that there is a risk that this actually happens, you all realize we have not the time to 2050 to solve the challenges ahead.

There are no easy solutions, there are no shortcuts ... there is only hard work and bold decisions.

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