Consultation on an EU strategy for liquefied natural gas and gas storage

Marquard&Bahls response (including Mabanaft, Oiltanking and BominLinde JV)

***Question 1**: Do you agree with the assessment for the above regions in terms of infrastructure development challenges and needs to allow potential access for all Member States, in particular the most vulnerable ones, to LNG supplies either directly or through neighbouring countries? Do you have any analysis or view on what an optimal level/share of LNG in a region or Member State would be from a diversification / security of supply perspective? Please answer by Member state / region*

Ad. Question 1:

Yes, to a wide extent we agree with the assessment. In general, we believe that energy markets and energy source selection should be market driven. However, we also realize that in order to meet emission requirements, as well as securing and diversifying energy supply it is necessary to introduce incentive measures to ensure that natural gas from different sources becomes a viable option. Having in place a sound and efficient LNG system in operation across entire Europe will offer an additional tool to improve energy supply security. We do have a view on the optimal level of LNG in Germany: about 20 % of the gas demand, i.e. a regasification capacity of about 20 billion cm3 per annum, which translates into about 850,000 m3 of LNG tank capacity (4 tanks of 210,000 m3 each). A significant volume would be redistributed by barge, railcar and truck and would not be regasified at the terminal directly. Part of that volume could also be stored in an FSRU (see question 2.)

***Question 2**: Do you have any analysis (cost/benefit) that helps identify the most cost-efficient options for demand reduction or infrastructure development and use, either through better interconnections to existing LNG terminals and/or new LNG infrastructure for the most vulnerable Member States? What, in your view, are reasons, circumstances to (dis)favour new LNG investments in new locations as opposed to pipeline investments to connect existing LNG terminals to those new markets?*

Ad. Question 2:

In our view, one reason to invest into LNG infrastructure rather than connecting a Member State to existing gas infrastructure is overall supply diversification away from one single supplier of gas and therefore providing security of supply. In addition, adding LNG infrastructure to a Member State which is well connected to the existing gas grid infrastructure could lead to a downsizing of oligopoly structures the gas market. LNG infrastructure offers direct access to various worldwide LNG supply sources whereas gas infrastructure might connect the Member State to the gas grid but still limits the potential supply source dependent on the geographical location (i.e. the Baltic States). LNG infrastructure in the form of Floating Storage and Regasification Units (FSRU) offers a highly flexible solution as LNG receiving terminal as the FSRU could also be used as conventional LNG carrier in times of limited gas demand and low risk of supply interruptions. Furthermore, LNG infrastructure offers the possibility to develop additional business next to the traditional market of importing LNG in order to regasify LNG as gas into the gas grid. In the light of stricter global sulphur limits for the shipping industry LNG infrastructure does not only provide for supply diversification of the gas market but can also be developed into new business models for LNG. LNG break bulking concepts should be

developed on top of existing LNG infrastructure enabling small to mid-scale LNG supplier to provide LNG for the marine industry as shipping fuel as well as facilitating industrial off-takers which are either not connected to the gas grid or require a different gas quality than delivered via the gas grid (e.g. higher methane content).

Question 3*: Do you think, in addition to the already existing TEN-E Regulation, any further EU action is needed in this regard? Do you think the use of LNG gas and existing LNG infrastructure could be improved e.g. by better storage possibilities, better network cooperation of TSOs or other measures? Please give examples*

Ad. Question 3:

No, we do not believe that more regulation is the right approach. However, initial incentives for switching to non-pipe gas is necessary, also specific EU LNG trade agreements with the new producers of LNG (US et al.). Germany as greatest energy consumer in Europe should aim at a strategic reserve of LNG (see question 1.). The use of LNG and existing infrastructure need to be improved, by better storage possibilities, better network cooperation, longer supply lines, e.g. with intermediate storages and small scale infrastructures in the inland areas.

Question 4*: What in your view explains the low use rates in some regions? Given uncertainties over future gas demand, how would you assess the risk of stranded assets and lock-in effects (and the risk of diverting investments from low carbon technologies such as renewables and delaying a true change in energy systems) and weigh those against risks to gas security and resilience? What options exist in your view to reduce and/or address the risk of stranded assets?*

Ad. Question 4:

In our view the low utilisation rates of LNG receiving terminals especially in North West Europe is caused by a combination of

- In the past non-competitive LNG pricing into Europe compared to liquid gas hub pricing (will change!)
- the European status as the LNG market “of last resort”
- Decreasing gas demand on the back of efficiency measures and low running hours of gas fired power stations being priced out of the merit order curve in favour or renewables (heavily subsidized) and even coal.
- Scarce information about the availability of LNG, and its offered benefit, in public opinion, but also in the industrial sector
- Lack of research and studies to provide suitable tools to decision makers
- Reluctance to invest of operators, because of lack of confidence in favourable fiscal policies in the future
- Reluctance to invest of operators, because of the current decreasing trend of NG demand
- Reluctance to invest of operators, because of neither complete nor harmonised standard framework for LNG infrastructure
- Reaction to the increasing tendency of politics to consider NG (pipeline and LNG) as just another fossil fuel, overlooking its potential as decarbonisation tool (specifically when blended with biogas/PTG ((renewable)Power-to-Gas)
- common public misconception that gas is much more dangerous than other fuels

Given the mentioned uncertainties over future gas demand especially LNG infrastructure provider should aim to offer various services around existing and future LNG infrastructure, not solely relying on terminal throughput via the traditional LNG business model: importing large LNG cargoes for subsequent regasification. New markets for LNG as fuel (shipping, road transport) are evolving adding to terminal utilisation. Even more so are these new markets opening up the opportunity for LNG to be benchmarked for reasons of being competitive against a different alternative price. Whilst LNG could be uncompetitive in comparison to gas hub prices, it could still be favourably priced for LNG as fuel (benchmarked towards alternative oil products) and vice versa leading to a more stable utilisation rates of LNG terminals.

In our view, there has in many countries been a massive political focus on wind, solar and other renewable sources, which has discouraged most players from engaging in LNG, as this represents massive investments and it is still a fossil fuel. As a fossil fuel LNG and existing gas will not likely be the fuel of the distant future, but LNG installations can easily blend in biogas and eventually be used 100% for biogas and (renewable) power-to-gas methane.

Question 5*: The Energy Union commits the EU to meeting ambitious targets on greenhouse gas emissions, renewable energy and energy efficiency, and also to reducing its dependency on imported fossil fuels and hence exposure to price spikes. Moderating energy demand and fuel-switching to low carbon sources such as renewables, particularly in the heating and cooling sector, can be highly cost-effective solutions to such challenges, and ones that Member States will wish to consider carefully alongside decisions on LNG infrastructure. In this context, do you have any evidence on the most cost-efficient balance between these different options in different areas, including over the long term (i.e. up to 2050)?*

Ad. Question 5:

In the transport area (passengers and goods) hydrocarbon-fueled engines will certainly have high significance for the next 30 years because the use of renewable energy in the form of electricity in these fields will only slowly substitute fossil hydrocarbons. Therefore the use of natural gas (CNG and LNG) will be a very cost-efficient way to meet not only the ambitious EU GHG emission targets but also to reduce other emissions (particulates, NOx, noise!). Even when renewable energy is produced in vast surplus, this energy needs to be converted into a transportable fuel in a cost-efficient way. This can be done via PTG (power-to-gas). PTG-Hydrogen and –Methane can easily be transported via the already existing gas-infrastructure.

Question 6*: What in your view are the most critical regulatory barriers by Member State to the optimal use of and access to LNG, and what policy options do you see to overcome those barriers? Have you encountered or are you aware of any problems in accessing existing LNG terminal infrastructure, either because of regulatory provisions or as a result of company behaviour? Please describe in detail.*

Ad. Question 6:

The major commercial barrier to use Natural Gas in transportation is currently the low price of Diesel and oil products. For example extra investments for LNG trucks cannot be earnt back by hauliers. The same is true for the extra investment in an LNG refuelling station. Therefore we do need at least medium-term tax incentives (harmonized in the EU) and toll incentives to widen the spread between LNG and Diesel prices in transportation!

Also LNG infrastructure in Europe is not regulated in a consistent manner. As some LNG receiving terminals have been granted a third party access (TPA) exemption and some LNG receiving terminals are completely regulated the entry barriers for new LNG market participants are still very high. LNG entry strategies for new market participants are very much a case by case evaluation dependent on the individual Member State which increases complexity for identifying the right geographical point of entry. A standardised regulation of LNG receiving terminal would provide more transparency.

Furthermore, TPA exempted terminals in Europe are partially booked out in capacity but still heavily underutilised. Though the majority of capacity remains unused access possibilities for additional terminal users are limited as capacities could only be acquired via existing capacity users rather than contracting terminal capacities directly with the terminal operator. In addition, the existing UIOLI regulations only provide possibilities for spot LNG cargoes but cannot be used for long term strategies entering a terminal.

Additional transparency should be created by mandatory publication of e.g. LNG quality parameters contained in the LNG receiving terminals. We are actively working on creating a new market as LNG as shipping fuel. As such, the LNG quality is crucial as it affects the efficiency of gas engines of vessels. As the quality accepted into LNG receiving terminals varies from Member State to Member State but is often not published it creates additional hurdles for building up widespread infrastructure to supply LNG to the marine industry. Please also see answer to question number 13.

Another main barrier is the lack of harmonised standards for other parts of the infrastructure, to which CEN, the European organisation for norms, is going to provide some partial solution, by preparing European harmonised standards for CNG and LNG refuelling stations. Also the initiatives like the Directive 2014/94 (EU Deployment of Alternative Fuels Infrastructure) is heading to provide a solution to this lack of standards.

More barriers reside in the national regulation of some countries, prohibiting or restricting the transport of LNG on HD road vehicles on their territory, or in tunnels.

Question 7*: What do you think are the most critical commercial, including territorial restrictions and financial barriers at national and regional level to the optimal use and access to LNG?*

Ad. Questions 7:

Please also see response to Question 6.

One of the critical commercial barriers to LNG is the distance between coastal LNG terminals and the main LNG application areas. In many cases the transport must be done on trucks, which payload is limited. This has a negative effect on the viability of this kind of market; or requires special delivery prices at the terminal delivery point. This creates the need for the availability of different transport systems, i.e. inland navigation, and railroads, as well as the relevant normative framework, and a policy to foster and promote them.

Main financial barrier is the high Capex of the LNG appliances and installations, both on large and small scale.

Question 8*: More specifically, do you consider that ongoing EU policy initiatives and/or existing legislation can adequately tackle the outstanding issues, or there is more the EU should do?*

Ad. Question 8:

The EU should very much focus on implementing the Third Energy Package in all Member States as well as increasing the interconnectivity between local gas markets (especially the Baltics, Finland and Poland). We would furthermore appreciate stricter transparency requirements as well as a uniform regulation of infrastructure in order to simplify market entry for new participants.

For the NGV sector, it is urgent to settle a suitable LNG refuelling stations network at European level for HD vehicles, special vehicles (e.g. airport and port vehicles), off road vehicles in general, Marine and inland navigation vessels.

Question 9*: How do you see worldwide LNG markets evolving over the next decade and what effects do you expect this to have on EU gas markets? Do you expect a shift away from oil-indexed LNG contracts, and if so under what conditions?*

Ad. Question 9:

The upcoming predicted oversupply of LNG in combination with drastically decreased oil prices have led to a re-convergence of global gas prices eliminating broadly any price arbitrage possibilities for LNG especially between Europa and Asia. However, European spot gas prices have remained correlated with oil-indexed contract prices and a significant decoupling of oil-indexed supply and hub prices has not been established yet.

However, with a large number of LNG liquefaction capacity coming online by the end of 2015 and thereafter significant incremental volumes will enter the LNG and gas market. For the first time, LNG will be shipped from the US to Europe leading to a newly established interaction of European gas hubs (TTF, NBP) and Henry Hub (HH).

The additional LNG volumes will need to be absorbed. Europe can increase its LNG imports against the flexibility provided in pipeline contracts. As soon as more LNG will be supplied into Europe than the so called swing pipeline contracts can accommodate we would expect a decoupling of hub pricing against oil-indexation pipeline contracts. The floor on pricing could then be provided by additional demand coming in once gas fired power generation is back in the money or by HH indexed LNG being optimised against marginal costs.

Question 10*: What problems if any do you see with the functioning of the international LNG market, particularly at times of stress? Are there specific actions the EU should take, in dialogue with our international partners, including in trade negotiations, to improve its functioning and/or to make the EU market more attractive as a destination for LNG? Could voluntary demand aggregation be helpful in some way?*

Ad. Question 10:

The EU should definitely facilitate and attract more LNG business with any means available in competition with Asia and others. Europe must come back to the positive attitude it used to have towards Natural Gas in the past. A favourable strategy for Natural Gas would put the European energy market stronger as customer on the international arena.

Question 11*: What technological developments do you anticipate over the medium term in the field of LNG and how do you see the market for LNG in transport developing? Is there a need for additional EU action in this area to reduce barriers to uptake, for example on technology or standards, including for quality and safety?*

Ad. Question 11:

LNG could, if promoted by the EU and local administrations, already have made up a much larger part of the transportation market, and obviously, the Emission Control Areas for shipping will help this development. However, for land transportation focus has been given to transforming short-distance transportation, such as city garbage handling trucks, or city busses, whereas little or no focus has been on long distance trucking or converting trains. This needs to change, and incentive schemes could help this development along. In any case it would help if public enterprises would buy Natural Gas powered vehicles.

In the truck area OEM have already developed and will even focus more on developing high power high torque engines. As soon as these engines are available and produced in large numbers, they will have a significant market-share (estimated 10% in 2025). Quality and safety standards must be uniform in the EU (see also question 8.).

Question 12*: Do you think there are any sustainability issues specific to LNG that should be explored as part of this strategy? What would be the environmental costs and benefits of alternative solutions to LNG? Please provide evidence in support your views.*

Ad. Question 12:

As previously mentioned it is possible to blend Power-to-gas and Biogas into LNG to "green" it up, and eventually switch completely to Power-to-gas and Biogas using the same infrastructure. Investments into LNG infrastructure could, thus, be viewed not only as a temporary solution, but also as an investment into the future. Also, using fossil gas (CNG/LNG) already reduces GHG and other emissions. Often well-to-wheel calculations of LNG GHG emissions do not take into account that the alternative of liquefying methane, transporting it and using it as a fossil fuel was for most producing countries to blow off this methane into the atmosphere with the worst GHG effect, later it has just been flamed without using it! Gas-producing countries will not stop producing it because it is often their major income therefore we need to use it in the most efficient and sustainable way.

Sometimes the currently used studies seem to be biased. A more technology neutral approach could show different results in respect of some fuels like e.g. LNG and blends of NG.

Question 13*: What opportunities or challenges do the supply projections for different sources, in particular LNG and pipeline gas and low carbon indigenous sources, present for the use of gas storage / for gas storage operators?*

Ad. Questions 13:

Exactly the same as for oil products, local administrations should enforce Compulsory Stock levels also for gas. Gas infrastructure has too a large extent been limited to the very large (formerly mostly government owned) energy providers, and as a small market player it is very difficult to compete with such very large players with existing infrastructure (gas grids, gas storage, etc.) already in place.

Our subsidiary JV Bomin Linde LNG is a supplier of LNG as fuel for the shipping industry. As such, we can answer the question with regards to challenges for receiving LNG from LNG storage where LNG is received from different sources.

Across the European LNG terminals there is no uniform handling of LNG received from different sources, thus receiving LNG with different quality. Most terminals commingle LNG received which means mixing of LNG with different qualities whereas some terminals have enough storage capacity to separate lean and heavy LNG into different tanks.

For LNG being delivered as shipping fuel the Methane Number is highly important being a measure of resistance of fuel gases to engine knock. A low Methane Number can lead to a serious loss of engine power and efficiency and can cause engine damage. The Methane Number from lean LNG (less heavy components such as Ethane and Propane) is considered to be suitable for gas engines.

Currently, no regulation exists for a standard Methane Number.

Question 14*: Are, in your view, current market and regulatory conditions adequate to ensure that storages can fully play their role in addressing supply disruptions or other unforeseen events (e.g. extreme cold spells)?*

Ad. Question 14:

No, not entirely. It would still be necessary to add more small scale facilities spread across each country in order to ensure supply security in case of pipeline interruptions, etc. For Germany a large-scale LNG storage facility and regasification unit should be installed (see question 1.)

Question 15*: As an alternative to mandatory reserves, how could market based instruments ensure adequate minimum reserves?*

Ad. Question 15:

This is outside our area of expertise.

Question 16*: Do you have any analysis or view on what an optimal level/share of storage in a Member State or region would be? What kind of initiatives, if any, do you consider necessary in terms of infrastructure development in relation to storage?*

Ad. Question 16:

See question 1. For Germany it is a mandatory requirement for the national administration to determine the required infrastructure for the country.

Question 17*: Do you think, in addition to the existing TEN-E Regulation, any further EU action is needed in this regard?*

Ad. Question 17:

No further action required

Question 18*: Given uncertainties over future gas demand, how would you assess the risk of stranded assets (and hence unnecessary costs), lock-in effects, the risk of diverting investments from low carbon technologies such as renewables, delaying a transition in energy systems and how would you and weigh those against risks to gas security and resilience? What options exist in your view to reduce the risk of stranded assets?*

Ad. Question 18:

The balance between security of gas supply and costs of contingency stocks is always a political decision. The more a country depends on security of supply (households and industry) the less risk it can take. Investing in gas security would not delay low-carbon technologies because the infrastructure can be used for bio-methane and power-to-gas (see above).

Question 19*: What do you think are the most critical regulatory barriers to the optimal use of storage in a regional setting?*

Ad. Question 19:

We do not believe that the barriers are regulatory, but incentives should be put in place.

Question 20*: Do you think ongoing initiatives and existing legislation can tackle the remaining outstanding issues or is there more the EU could do? Do initiatives need to include additional issues further to the ones described here?*

Ad. Question 20:

The EU should put in place incentives, not more regulation, or for that matter interfere with rates.

Question 21*: Do you consider EU-level rules necessary to define specific tariff regimes for storage only or should such assessment be made rather on a national level in view of available measures able to meet the objective of secure gas supply?*

Ad. Question 21:

Nor the EU or the local administrations should interfere with storage tariffs, as they need to be completely market driven.

Question 22*: Have you ever encountered, or are you aware of, difficulties in accessing storage facilities? Has this concerned off-site or on-site storage facilities? Please describe the nature of the difficulties in detail.*

Ad. Question 22:

Not to our knowledge.

Question 23*: Have you ever encountered, or are you aware of, difficulties related to feeding LNG gas from the storage site back into the gas network? If so please describe the nature of these difficulties (regulatory provisions, company behaviour, technical problems) in detail.*

Ad. Question 23:

Not to our knowledge.