Follow-up Study on LNG and Storage Strategy

Enagás reaction

November 2017

Enagas appreciates the efforts and great work carried out by the European Commission (DG ENER – Unit B4) in coordinating the "Follow-up study on LNG and Storage Strategy" which was developed in a transparent manner and involving relevant market stakeholders. Enagas was contributing and participating at the different opportunities which DG ENER and the consultants gave us in order to provide input and share our views.

Enagas also participated in the stakeholder's workshop which took place on 27 September. At this workshop DG ENER and the consultants presented the final version of the report to a large audience of stakeholders. During that workshop intense and lively interventions took place, raising relevant comments on the final study. However, since the report had been already finalized some time ahead of the workshop, it was not possible for DG ENER to further work with the consultants in order to modify/amend the report based on contributions received from the stakeholders.

Following the indications given DG ENER at the end of the workshop, Enagas has prepared this document in order to share our reaction to the final report.

We fully understand that a change in the report is not possible at this time. We hope nevertheless that our reaction can be attached as a complementary element to the final study when sending it into the Quo Vadis process being managed by DG ENER - Unit B2.

As regards our reaction to the final report, Enagas will simply list the main concerns. Many of them have been already shared with the consultants although Enagas did not get convincing answers from them.

Enagas comments on the final study:

1. We believe that the final report still presents **deficiencies**. For instance the report is showing low understanding of existing legislation, mixing concepts, providing ambiguous recommendations, using inaccurate input data, or assuming incomplete assumptions.

   We provide here below some examples (not all) to substantiate this statement.

Low understanding of existing legislation.	In page 149, the report reads *"Many exempted terminals have derogations from implementing all aspects of the Third Package".* This is not true. Exempted terminals are not obliged to comply with certain third-party rules, but surely they are obliged to comply with several other aspects of the Third Energy Package.
Mixing concepts	In page 198, the study reads *"An important difference*

	between pipeline gas trading (such as at Henry Hub, NBP, TTF or others) and LNG trading is that pipeline gas trading hubs lie within national boundaries and jurisdictions and can be regulated. This cannot be done in the same way with LNG because LNG is a global business". We should not forget that today there are LNG trading operations being held at the LNG terminals (gas exchanges between users and capacity trading). These trading operations should not be forgotten. When talking about "LNG trading" in general terms, it should be acknowledged that different LNG trading activities are possible. It is advisable not mixing concepts.
Providing ambiguous recommendations	In page 145-146, the study suggests the establishment of LNG (off-shore) hubs for large scale/wholesale trading, but then suddenly it mixes it with LNG hubs for trading of LNG as fuel. ***2.*** *LNG Hubs:* *[…]* *(LNG) hubs become places where traders can buy and sell wholesale (large volumes), and are places where market prices are set.* *[…]* *The argument is that Europe (NW Europe at least) already has liquid onshore hubs and so there is no need for a further offshore (LNG) hub.* *[…]* *As LNG becomes increasingly used as ship fuel, physical places offering ship LNG fuelling facilities will become increasingly important and will become more widespread.* *Places with the physical benefits of large volumes of LNG storage and the opportunities for ship to ship bunkering provide potential sites for LNG hubs.* This recommendation seems ambiguous since it is using the term LNG hub when talking about two different

	things. Large scale LNG trading is totally different from the trading of LNG as a fuel, with all that implies on the definition of a hub. The analysis and recommendation should take this into account.
Using inaccurate input data	In page 19, Figure 8 describes the yearly utilization of LNG terminals in 2016. It can be observed how the modelled flows are, in some cases, very much diverging from the IEA facts and even more from real ones. For instance, in the Spanish case, the modelled utilization indicates an average utilization a bit over 15%, while according to official figures provided by Enagas, the real average utilization of Spanish LNG terminals in 2016 was 25% (Spanish Gas System Report 2016, Enagas, page 62). Even when this difference seems not to be significant, it is indeed, as we are talking of very high figures of regasification capacity is Spain. Regarding yearly utilization on LNG terminals, the modelled amount for 2016 was around 90 TWh/y, while the real figure according to the Spanish Gas System Report 2016 (page 61) is 153 TWh (≈70% higher).
Assuming incomplete assumptions	• In page 9, when talking about tariff for storages: the consultant is assuming, *"For modelling purposes, a maximum cap would be set on storage tariffs to 1 €/MWh (equal to the modelled winter-summer spread)"*. This was the figure agreed with GSE due to the fact that for UGS with negotiated access, it is not possible (commercial sensitive information) to know the negotiated prices. However, for regulated storages, the prices are public and it is therefore wrong to use an approximation tariff. If consultants were able to take regasification tariffs from LNG operators' website (as stated page 14 of the study), why not for regulated storage facilities? • In page 15 (model validation), it can be observed how the inclusion of Turkey in the model represents an increase of Russian supplies by 354 TWh/y (+24%), while according to Eurostat should be only 126 TWh/y.

2. We regret that the **gas market model used by REKK leads to an uncomplete or misleading results for concrete projects which are far from the real expectations**.

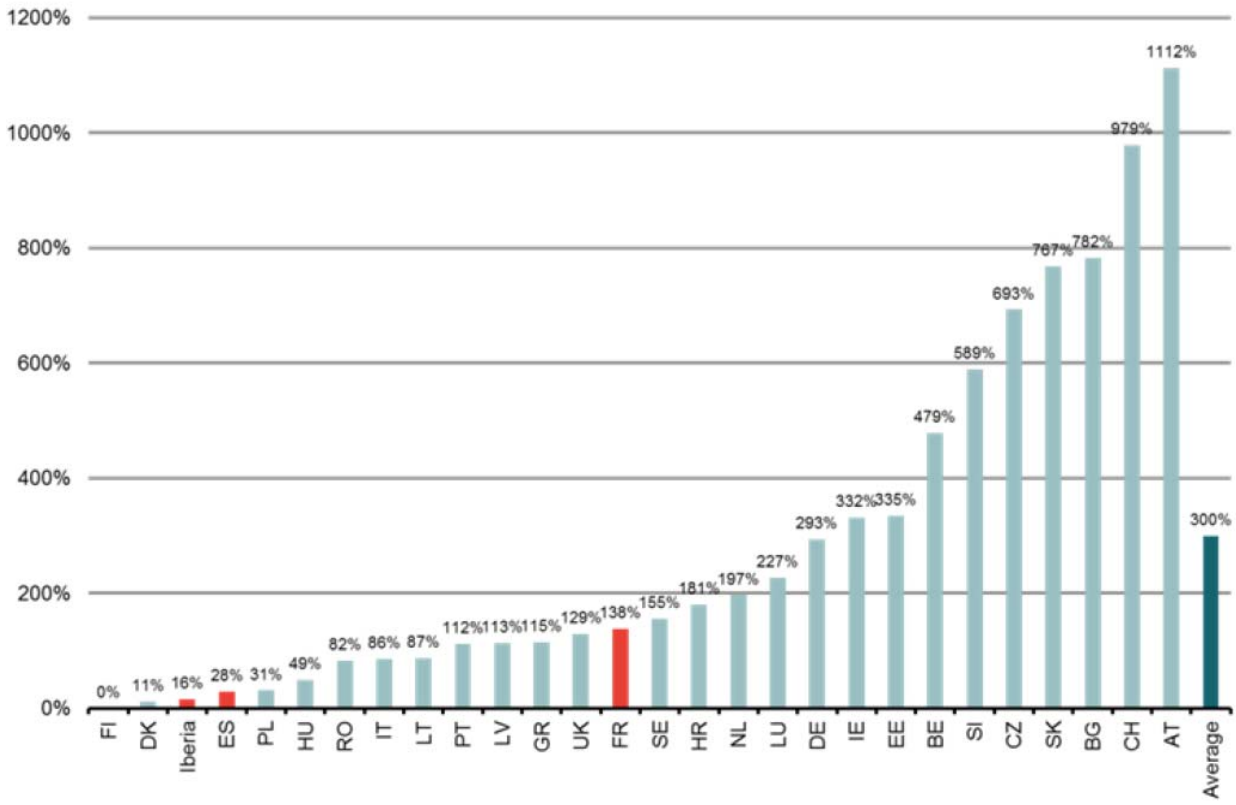
   For instance, in page 79 the study shows a "*lack of utilization (no flow) of MidCat in the 2025 scenario with the high LNG supply scenario. It is utilized only in the France to Spain direction in January in the low LNG scenario and in the 7-day peak (when spot LNG cannot reach Spain within 1 week), but then 100% in January".*

   The consultants recommend "*a detailed CBA to decide whether the investment is warranted or other mitigation measures for the peak demand (e.g. demand response) might be more efficient".*

   Although Enagas acknowledges that this result is due to the particular hypothesis/assumptions and general construction/design of the REKK gas model, we cannot avoid underlining that consultants' conclusion is directly conflicting with all the work and analysis done so far by the TSOs, NRAs and Ministries involved in the Regional groups, as well as in the High Level Groups. Furthermore, the conclusion on MidCat totally contradicts the CBA results for MidCat project obtained through the accurate application of the ENTSOG CBA methodology which gave positive results for MidCat. We must not forget that MidCat has been a PCI project since the TEN-E regulation was implemented (PCI lists adopted in 2013 and 2015) and most probably it will be part again of the 2017 PCI list.

   It should be also noted that, in page 11, the study explains "*that LNG terminal in the Iberian Peninsula (Portugal) is not responsive to high LNG supply scenario partly due to the low interconnectivity and isolated nature of this market"*. We should remember that there is no congestion or limitation between Portugal and Spain, and therefore, the lack of interconnectivity would be observed between the Iberian Peninsula and the rest of the EU gas market. In fact, as it can be noted in the graph 1, the interconnectivity between the Iberian Peninsula and France is one of the top-three lowest in the EU (16%). Another Peninsula, such as Italy, enjoys an interconnection level of 86%.

   Finally, it should be born in mind that maybe the ES-FR interconnection is presented as not congested, which from a physical point of view might be true. However, in order to correctly evaluate the use of the interconnection, it would be appropriate to reflect the physical congestion inside France, the price differentials within France and how this bottleneck will be moved to the ES-FR border after the unification of the French market in 2018.



Graph 1: Interconnection capacity between European Union countries as a percentage of average gas demand

Source: Frontier Economics, based on data from ENTSO-G

3. **We regret that the report does not include LNG storage capacities into the model**. Tractebel wrote in the final study (page 13) that *"the inclusion of LNG storage capacity into the model was considered but ultimately withheld based on the expert opinion of Tractebel. (see Annex 7)".* Based on Tractebel's experience, LNG storage capacity in Europe is not relevant enough to take it into account in the modelling exercise. Beyond this statement, and the annex 7, Tractebel does not provide any additional numerical justification for this decision.

   Enagas would like to highlight that not every country in Europe has the same level of LNG storage capacity in relative terms.

   The following table includes a comparison of "days of LNG autonomy" per country showing the ratio storage capacity/send out capacity, and resulting in very different figures.

	Max. Storage Capacity *(10^3 m^3 LNG)*	***Send-Out*** *(GWh/d)*	***Autonomy (nº of days)*** *[Conversion factors have been applied]*
Belgium	*382*	*444,5*	***6,1***
France	*1370*	*1252,7*	***7,7***
Greece	*130*	*205,5*	***4,5***
Italy	*455,16*	*542,5*	***5,9***
Lithuania	*167,07*	*125,5*	***9,4***
Netherlands	*540*	*461*	***8,3***
Portugal	*390*	*192,8*	***14,3***
Spain	*3308,68*	*1910,7*	***12,3***
UK	*1778,08*	*1294*	***9,7***

Data Source: ALSI / September 2017

It can be clearly see that Iberian LNG terminals have approximately double LNG storage capacity in relative terms than other European LNG terminals. The decision of not including LNG Storage capacity in the model is basically discriminating the contribution of the LNG terminals located in the Iberian Peninsula to the different scenarios, and distorting the modelling results for the disruption scenarios and infrastructure projects being analysed.

4. **We regret that the final study does not see LNG as a source of flexibility in case of supply shocks**. Consultants assume that no immediate reaction from LNG can be expected on a short notice for a 7-day demand peak, referring to a long reaction time from this source associated to the LNG logistic chain. This is not always correct. The flexibility of LNG terminals for short periods of time (like 7-days), is linked to its LNG storage capacity and the use of it.

   For instance, the LNG terminals in Spain have been designed to cope with large demand variations, being the main source of supply flexibility for the country. As described in the previous point, the storage capacity in the Spanish LNG terminals is designed to sustain their technical regasification capacity for more than 10 consecutive days. In view of a possible supply disruption it would be appropriate to take into account an average amount of LNG in the LNG tanks (based on historical data) to calculate which would be the immediately available LNG amounts in case of a sudden, unexpected disruption. This concept, already used by ENTSOG in their network modellings and supply disruption simulations, is commonly known as "LNG Tank Flexibility". It indicates which average amount of LNG could be considered as available at the LNG terminals for immediate use.

5. Regarding one of the main conclusions of the study which proposes to **use the Value of Lost Load (VoLL) as alternative to storage obligations and strategic stocks, this concept (its applicability and implications) remains unclear and should be further developed**. This mechanism has economic and legal implications associated to it which are not fully assessed in the study. For instance, what could happen if network users contract a insurance policy instead of buying gas? Would the individual mechanism (based on VoLL) allow the correct valuation of a supply disruption?