

Improving LNG logistics in Spain



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INTRODUCTION

Uniquely among European gas markets, Spain has successfully introduced an entry-exit transportation system with a single virtual trading point in a market which is importantly served by LNG imports. However, while serving the gas market in its regasified form, LNG is also traded in a liquefied form for supplying or balancing purposes, ship reloading, bunkering and truck loading. This raises challenges for the Spanish regulatory framework which should allow a transparent and reliable wholesale gas price to arise from a deep and liquid market, but also take advantage of Spain's position in the context of an LNG globally traded market.

EFET has raised concerns in the past highlighting that LNG terminal access terms and tariffs do not facilitate economic or efficient operations. One consequence of this is that the PVB growth in liquidity has been at a slower rate than its potential. Another is that the TSO has resorted to redirecting LNG cargoes, which can be a complex practice nonetheless requiring more transparency about its use and about how potential incurred costs would be recovered.

Partly in response to these challenges and in the context of Royal Decree 335/2018, Enagas has published proposals for five possible models of access to LNG terminals with a spectrum ranging from incremental improvements to the status quo, to a highly virtualised aggregated model across all terminals.

This discussion paper:

- i. provides an overview of the main concerns related to the Spanish LNG market
- ii. describes the advantages and disadvantages of the five models put forward by Enagas, as perceived by wholesale traders
- iii. makes suggestions about how efficiency and liquidity could be improved in alternative and simpler ways

OVERVIEW OF AREAS FOR IMPROVEMENT

Liquidity and transparency

Liquidity at PVB remains low relative to other Western European wholesale trading hubs, though recently there has been important growth. More than half of the liquidity in the overall Spanish market is from volume swaps at LNG terminals where no price is disclosed making a Spanish index only partially reliable. The decreased reliability of the Spanish market signals leads to worse market outcomes which will impact current and/or future consumers.

Access to flexibility in terminals

Currently LNG terminal utilisation is low on an aggregate basis. Notably, this low utilisation is due to global market prices: where European prices are below Asian levels, we should expect

lower levels of throughput. In addition, gas demand in Spain has trended downwards, due to economic crisis and a strong competition from other alternatives for power generation.

At this stage, next to regas capacity, large amounts of flexibility and short-term storage is available and could generate an interest in the market even in case of no additional LNG deliveries to Spain. Nevertheless, storage in tanks remains highly underutilised also because of the need to book regasification capacity in order to have maintain gas in store. This relationship is primarily driven by IET/2446/2013, which is huddling shippers together at more liquid terminals in search for swapping partners. More clarity on the future of this regulation would be welcome, particularly on how Enagas' models will operate under it - because IET/2446/2013 is a main driver of the current distortions in the way terminal capacities are booked and used today in Spain.

Moreover, unbundled products (storage only, regasification only) are not yet marketed as relevant tariffs and are yet to be defined. Finally, the introduction of market-based mechanisms for capacity allocation, such as auctions, could be explored.

Congestion management

Another feature to consider when looking at the Spanish LNG market is that there is a strong preference for certain terminals (e.g. Barcelona). This increases the risk of congestion both at that terminal and in the onshore transportation system whilst, leading to underutilisation of other LNG terminals. The risk of congestion could be reduced if the appropriate economic incentives or regulatory measures were set to increase the attractiveness of less utilised terminals, which would increase the geographic diversity of LNG deliveries.

Market based balancing

LNG importers (at least in part) wish to have certainty over where their cargo is going to land (or at least accessible from). This may be for minimisation of shipping costs (Atlantic Cargo to Atlantic terminal; Mediterranean cargo to Mediterranean terminal), or costs related to onward supply (ship reloading, bunkering, truck loading), for operational simplicity or to bypass constraints specific to given terminals.

However, in absence of liquidity at the PVB and of suitable short-term underground storage products (again not yet marketed as relevant tariffs and are yet to be defined), the TSO may need access to locational gas to effectively balance demand in its system.

When LNG is brought into a concentrated number of terminals, that differ from the geographical distribution of demand, the situation may become even more complex for the TSO and lead to the use of voluntary ship diversions, as it has indeed happened in Spain in several occasions. Diversions, besides lacking transparency about their governance, represent a non-market, second-best approach to locational balancing.

ADVANTAGES AND DISADVANTAGES OF THE ENAGAS MODELS

Partly in response to the challenges above and as further developments and implementation of the RD 335/2018 and RD 984/2015 are required (specifically with reference to the services listed in Annex I of RD 984/2015 as well as the local balancing actions and balancing services) five different LNG logistics models have been put forward by Enagas (see table).

Modelos	Contratación Servicios			Nominación Regasificación	Balance GNL	Transacciones Mercado	Facturación
	Descarga Buques	Almacenamiento GNL	Regasificación				
1 Actual			Por Planta	Por Planta	Por Planta	Por Planta	Por Planta
Según implantación de servicios RD 984	2 Servicios individualizados sin agregación	Por Planta	Por Planta	Por Planta	Por Planta	Por Planta	Por Planta
	3 Contrato único regasificación	Por Planta	Por Planta	Agregado Plantas	Por Planta	Por Planta	Por Planta*
	4 Tanque y regasificación únicos	Por Planta	Agregado Plantas	Agregado Plantas	Agregado Plantas	Agregado Plantas	Agregado Plantas*
	5 Planta única	Agregado Plantas	Agregado Plantas	Agregado Plantas	Agregado Plantas	Agregado Plantas	Agregado Plantas

In this section we provide an overview of the pros and cons associated with each proposal, and to comment on missing items which we feel should be considered.

1. Current

Users contract regasification (“regas”) capacity in each plant; tank-loading, ship loading, cold commissioning and ship-to-ship transfer additionally available; regas capacity includes an unloading slot and LNG storage capacity as bundled services; nominations and LNG balance is at a plant level

In principle, the current system entails leveled regasification of stock in tank as a trade-off to higher regas capacity charges. This encourages terminal users to trade out imbalances at the terminal, which is generally conducted through swaps on a bilateral basis without declared prices. Where terminals have multiple users, there is therefore a greater number of potential counterparties and liquidity.

Where there is unutilised regas capacity at a terminal, it should be available on a short term basis either on the primary market (where the product is not sold out), or on the secondary market (from a capacity holder who is not utilizing it). In case firm capacity is sold out, the sale of short-term interruptible regas capacity should be made available. This should not, however, compromise the revenues of a terminal by encouraging a “flight from firm”. LNG storage could better contribute to increasing available flexibility. The provision of such products thus represents the minimum necessary condition for model 1 to move to a better functioning market.

Further improvement to this model may come from the introduction of a secondary market, e.g. following the Fluxys LNG model for capacity trading between terminal users. At the start the secondary capacity platform may be limited to being a mere bulletin board, however over time, this should transition to a fully effective market.

PROs:

- If modified as per the recommendations above, it could reduce the cost of participating in the Spanish gas market. Specifically, by reducing terminal access costs and, the need for

swaps to manage LNG regas capacity charges. Depending on price elasticity, it may increase cost recovery for LNG terminals, by attracting LNG volumes

- The movement of trading from terminals to PVB would allow parties to concentrate on balancing their overall portfolio rather than balancing a position at each terminal through bilateral contracts or balancing LNG obligations separately. However, this should be achieved by voluntary means rather than a policy of constraining trading locations

CONs

- This will not resolve all the challenges with the Spanish system's, in particular the need to increase the use of less utilised LNG import terminals. This issue could be mitigated by the development of appropriate price signals at each terminal
- The regasification service would be (part-)interrupted if a primary holder of capacity required access, which means that there may still need to introduce additional congestion management measures such as oversubscription and capacity buy-back for significant benefits to materialise

2. Individual services without aggregation

Users contract regas capacity, unloading, LNG storage as separate services at specific plants; nomination and LNG balance is calculated at plant level; tank loading, ship loading, ship-to-ship transfer, cold start and bunkering are also procured at plant level

Under this model, it is presumed that unbundled services too can be acquired in the primary market as well as traded in the secondary market. It is also expected that parties would be able to trade regas capacity as well as other services in secondary markets. This would potentially represent a more attractive alternative to the interruptible service proposition. Inevitably, the attractiveness of this model will depend on the design of the tariffs.

PROs

- as for model 1 with the addition that, as storage in tank is marketed on an unbundled basis, flexibility available at terminals would be priced and allocated in a more efficient manner

CONs

- as for model 1
- The selection of bundled products is too constraining and a wider offer than what Enagas has proposed should be considered

3. Single regas contract

Users contract regas capacity for all plants, i.e. regas capacity is non-location-specific and may be used anywhere that the network user holds LNG stock; download capacity and LNG storage at specific plants; nomination and LNG balance is at plant level. Other services may be made available at plant level

Most of the benefits inherent to this model could be achieved simply by enhancing model 2 with the introduction of congestion management measures and/or provided that regas capacity is made transferable to another terminal on a secondary basis.

PROs:

- As for model 2 plus that market participants may be able to reduce costs by netting off their regas needs across terminals. Also, this may lead to contracts for smaller amounts of capacity, leading to more efficient operations. Finally, it simplifies regas contractual arrangement via the introduction of a single regas contract for all terminals. All together, these changes would reduce the barriers of entry to the market, as operational costs as well as the complexity of operating in the market will be reduced
- It incentivises the use of less utilised terminals

CONs:

- As for model 2 with several other critical aspects outlined below
- It requires detailed monitoring of the TSO's coordination activities, which underpinning the virtualisation of regas capacity. This to ensure that access to all services is not unduly constrained. The TSO may reduce the capacity commercialised to secure more room to manage congestion and this may lead to higher tariffs
- It could decrease the LNG trading in tank without necessarily increase liquidity at the PVB
- Increases the likelihood of congestion; this creates the need to have clear rules to define congestion management
- With current volumes, this could cause a decrease in LNG plant's revenues and therefore more under recovery, potentially leading to a rise in tariffs

4. Single tank and regas contract

Users contract unload slots at specific plants; regas capacity and LNG storage is virtualised across all plants; nominations and LNG balance done aggregated across all plants, and may be traded at this level; tank loading, ship loading, ship-to-ship transfer, cold-start and bunkering may be contracted at plant level

The implementation of this model is particularly challenging, and it would require a significant degree of coordination, which creates the risk of limited transparency and/or inefficient operations. Its limited desirability is due to the fact that, while attractive in theory, the model could only be reasonably evaluated and thoroughly assessed once more clarity emerges on the actual regulatory framework to deliver it.

The minimum questions which need to be answered are:

- If a shipper wants gas redelivered at PVB, would there always be matching virtualised entry capacity?
- How would the tariff of such virtualised entry capacity be defined?
- What mechanisms would be in place to ensure that this would not discriminate between pipeline entry, storage withdrawal entry and LNG terminal entry capacity?
- If due to TSO mismanagement of the system gas at (e.g.) Barcelona was not available for reloading as capacity was already taken, would market participants be compensated for any additional costs by the TSO or another party?
- For services which cannot be virtualised and require a physical location, such as truck loading and reloading – how can the none flexible characteristics be accounted for and guaranteed?

PROs:

- It may create a bigger market for LNG trading and it may encourage cargoes to be delivered into less utilised terminals
- It may resolve, although at a cost, most of the constraints to access to flexibility
- It may simplify terminal balancing allowing portfolio players to offset imbalances at different terminals against each other
- It may reduce congestion by creating a merit order of terminals going from the cheapest and more operationally friendly to the most expensive and complex as the entry to the transmission network will be indifferent to which terminal receives LNG. However, for this to work an inter-terminal operator compensation mechanism should be established

CONs:

- It may lead to further congestion at those terminals that entail less expensive and/or complex shipping operation as the entry to the transmission network will be indifferent to which terminal receives LNG. Importers will have no incentive to move to other terminals
- It removes some locational signals, moving to a more interventionist management of the system rather than a market-based solution (i.e. local balancing actions or balancing services). The onus to balance the system will fall more squarely on the TSO
- Questions remain on how importers would be compensated for any costs arising in case of redirections should this prove necessary
- It may create cross-subsidies between facilities, which would definitely be an issue for any private terminals/storage sites
- It may pose some challenges to availability of gas for ancillary services which require gas at a specific location
- The model does not address localised demand for LNG as required by LNG customers (where LNG is sent from a terminal by truck) and for reloads. More broadly, where the product maybe for use outside the PVB
- The fact that Enagas can choose where to withdraw gas from gives the TSO more flexibility to physically balance the system, rather than commercially, which may lead to a reduction in liquidity at PVB. If not effectively managed, this may even lead to balancing prices emerging which are less reflective of the actual system imbalance
- There is likely a need for the associated network entry capacity to be virtualised, which in turn would require one single virtual entry price. This would exclude auctions and auction premia as a means of managing congestion and signals for investments. Highly detailed operating terms and conditions from the operator would be required to ensure inter-

terminal management is comprehensive. Particularly where storage and delivery services are concerned

5. Single plant

Single regas contract for all plants; single users contract for download slots in all plants (indicating order of preference for discharge); single users contract for LNG storage capacity at all plants; users nominate total regas for the set of plants; a single LNG balance is made across all plants; capacity allocation rules will manage congestion through market mechanisms

This model is theoretically attractive and could be considered as a future aspiration. However, currently its implementation is not realistic as it ignores the underlying operational complexity it would entail. Nonetheless, its potential future realisation will depend upon the changes that will be implemented in the medium/long term.

Therefore, careful consideration ought to be given to considering this the target PVB market model. For its inherent low feasibility, it may actually become a distraction in the course of the discussion and should rather be parked for the moment. In particular, as its incremental value against the before presented alternatives may not be significant.

PROs:

- It reduces costs for market participants who can net off their regas needs across terminals and therefore contract for a smaller amount of capacity overall
- It would concentrate activities at a large virtual plant and it would allow LNG traders access to greatest pools of LNG liquidity
- It could help avoiding the concentration of users in specific LNG terminals and incentivises LNG to be unloaded/distributed among the different terminals as unloading cost would be equalised
- It may reduce congestion by creating a merit order of terminals going from the cheapest and more operationally friendly to the most expensive and complex as the entry to the transmission network will be indifferent to which terminal receives LNG. However, for this to work an inter-terminal operator compensation mechanism should be established
- Promotes trading in plants between users at an aggregated level

CONs:

- We do not expect this to be the case, however, we would like to note that giving the choice of delivery terminal to Enagas would be at odds with industry practice and conflict with ordinary shipping operations and with suppliers contractual commitments
- It is not clear how the issue of low utilisation of some terminals would be addressed. Detailed monitoring by the TSO would be necessary, to ensure the viability of the operations linked with the LNG stock at each terminal
- Congestion management within terminal for downloading, storage and regas would be the competence of the TSO, providing no visibility to market participants
- It creates separate markets for LNG import/reload/bunkering/truck-fuelling, and for pipeline gas/UGS/DSM
- Would require virtualisation of entry capacity and it would remove locational signals

- A mechanism to allocate LNG terminal slots would need to be created

CONCLUSIONS AND RECOMMENDATIONS

In general, we believe that any attempt to reform the LNG market in Spain should be first and foremost a response to the challenges identified in the first section of this paper (“improvement areas”). Furthermore, any reform should be gradual and based on a thorough impact assessment to minimise the risk of occurring in unintended and unforeseen consequences.

Spanish Institutions ought to clarify their overall ambitions: so far, the debate about the new Spanish LNG logistic model has lacked both direction and analysis leaving market participants with limited or no ability to build informed opinion. The Enagas scenarios for their lack of details risk to pre-empt the choice of optimal solution.

Based on the above and the considerations made in the previous sections, EFET would like to suggest a gradual approach having the following as initial incremental improvements:

- Implementation of Royal Decree 335/2018:
 - Regulated tariff setting of all unbundled products therein identified
 - Marketing of such products via competitive procedures, possibly having auctions as allocation method should be
- Modifications to current capacity allocation procedures should be introduced with sufficient notice and without putting extra costs on captive shippers
- Introduction of effective congestion management mechanisms at all terminal
- Establishment of a secondary capacity market for all services offered at LNG terminals

In parallel, short-term underground storage products should be made available to further improve access to flexibility and liquidity at the PVB.

Working on the key areas of improvement highlighted above already represent a considerable and ambitious improvement agenda. In particular, if these improvements were to be implemented in the next 12 months. The benefits of such changes would nonetheless be material while avoiding altering the fundamental structures of the LNG business in Spain.

After a test period of around two years the NRA, the LNG terminal operators, the TSOs and the market participants should reconvene to evaluate the impact of the initial reforms and consider whether any further improvement is appropriate.