

September 2015



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Transparency Register  
Identification Number:  
05032108616-26

September 2015

Dear Sir/Madam,

Shell welcomes this opportunity to respond to the Commission consultation on an EU Strategy for liquefied natural gas and gas storage. Where we have input, we have set out our views below for your consideration.

### **Background**

Shell is one of the most innovative independent oil and gas companies, and one of the most significant IOCs in terms of market capitalisation, operating cash flow and oil and gas production. Europe is a key region for Shell where we continue to explore for, produce and refine oil and gas into the building blocks of many everyday consumer products.

Shell has been at the forefront of LNG development for many years, including being involved in the world's first commercial LNG plant in Algeria in 1964. Shell is currently involved in every stage of the LNG chain; from the upstream to the downstream, shipping, turning the LNG back into gas and distributing to customers.

### **Summary**

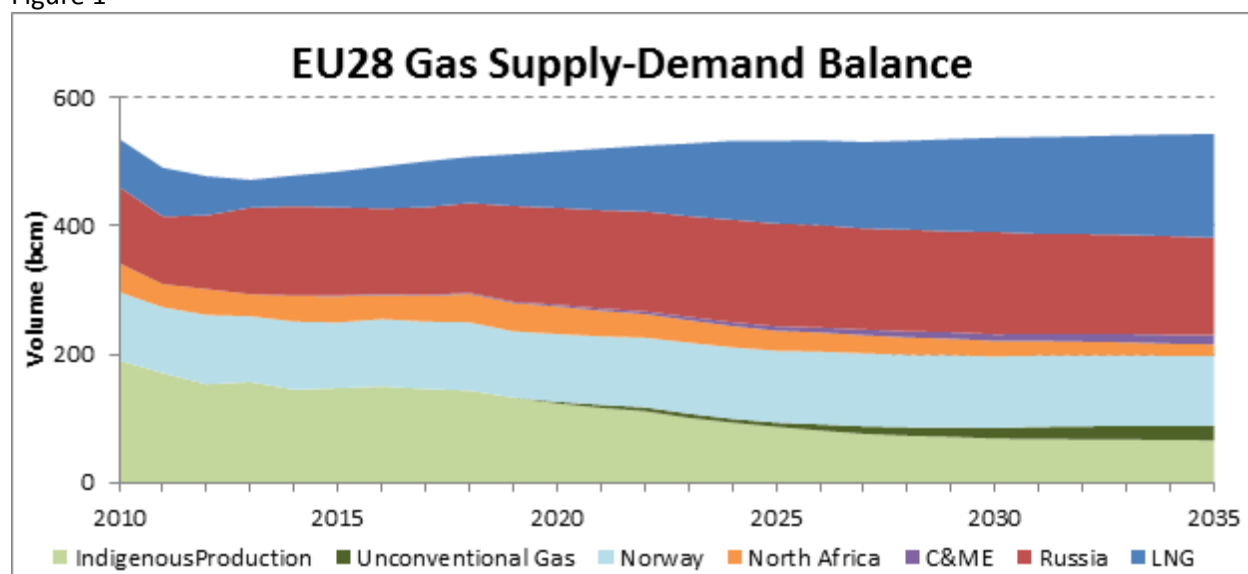
The Energy Union Strategy, published earlier this year, sets out the EU's energy priorities, namely providing secure, affordable and low carbon energy within the context of the emerging and future challenges to the EU's energy system. By 2030, the EU's indigenous production of gas will have dropped by 30%. In this context, the role of LNG in meeting the EU's energy security objectives, in a way that is consistent with decarbonisation goals, will be critical in the years ahead. It is our view that, even if the EU continues to import gas at the same rates as today from its existing suppliers there will be a significant gap in EU gas supply by 2030. A substantial part of this gap can be met through increasing LNG supply across the EU. Key to this is ensuring a stable and sustainable role for gas in Europe's energy mix through the following principles:

1. **Well functioning markets are the best way to deliver security of supply:** LNG and storage will continue to have a vital role to play in ensuring the EU's gas security of supply. Emphasis should be placed on the full implementation of the Third Energy Package and appropriate Network Codes aimed at creating and sustaining functioning, interconnected and competitive markets in which gas can move freely in response to price signals. Diversity of supply has been enhanced by significant investment in new infrastructure (refer to question 1 for further detail) and sources of supply. It can be further fostered by progress in the liberalisation of gas markets, particularly in Eastern Europe.
2. **Carbon pricing mechanism:** We believe that in order to catalyse the transformation to a low emissions future it is essential to put a meaningful price on Greenhouse Gas emissions. As such Shell supports the ETS as the central policy tool in the EU's climate and energy framework and welcomes the recent proposals to reform the ETS for the period post-2020 in order to meet the EU's GHG reduction targets for 2030. We believe that the proposed reforms to the ETS may not incentivize an early enough switch to lower carbon sources, including LNG, in the power sector to enable a cost effective transition. Additional time-limited measures, targeted at the power sector, where the abatement potential is greatest and the costs to do so lowest, should be considered. The Governance of the Energy Union, as well as the reform of the Electricity Market, should aim at the cost effective decarbonisation of the power sector alongside delivering security of supply.
3. **Security of demand:** Stable, long term policy frameworks underpin investment decisions. It is therefore important that there is a clear role for gas in the EU's framework to 2030 as a low carbon, flexible energy source. Gas provides a cost effective option for delivering the 2030 targets across different sectors of the economy including power, transport, and marine. LNG is increasingly influenced by global market dynamics and Europe is currently playing the role of global balancer.
4. **Diversity of supply:** Security of supply can be strengthened through multiple supply options which will compete to deliver optimal prices and. The Commission and national governments can play an important role in supporting the development of well-functioning markets where market players have the contractual freedom to deliver the EU's diversification objectives.
5. **Investments in infrastructure:** While there is sufficient, and in some cases excess, LNG regasification capacity and infrastructure in Western Europe, there remain significant physical infrastructure gaps in certain areas, for example the Iberian peninsula. In such cases, additional infrastructure investments may be required to ensure an effective internal energy market. As well as private investments, the funding via PCIs (Projects of Common Interest) provides potential options. In the case of both, it is critical that the overall investment climate, including a favourable market based regulatory regime and outlook for gas demand, are considered.

***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***

Shell agrees with the assessment on infrastructure challenges in the regions mentioned in the consultation. We believe that security of gas demand will be a means of underpinning diversity of supply and ensuring the long-term infrastructure investments. For Europe, a clear 2030 framework with a single CO<sub>2</sub> target supported by a robust ETS is the most effective way to ensure clarity of demand while meeting the climate ambitions. The security, affordability and sustainability of the EU gas system is critical to the success of the Energy Union as it will be of major importance to the transition to a low carbon future. Shell's outlook for gas demand (figure 1) to 2030 is in line with IEA estimates (2014 World Economic Outlook New Policy Scenarios), which describe a pathway for energy markets considering the 2030 Energy and Climate framework. Based on these assumptions, and taking into account global growth projections, Shell's current view is that gas can provide up to 28% of the EU's energy mix by 2030. It should however be noted that demand outlooks can vary considerably depending on overall economic growth assumptions among other factors.

Figure 1



We do not have a view on the optimal level of LNG in any particular Member State as security of supply can be delivered through a number of options depending on location, energy mix, degree of interconnection, indigenous resources etc.

Nevertheless, it can be noted that in Central and Eastern Europe increased diversification of supply has been addressed through increased pipeline interconnectivity.

- Since 1st April 2014, Poland implemented physical reverse flows on the Yamal pipeline, allowing Poland to cover half its imports through Germany and the Czech Republic. This is an important step in diversification of supply, allowing Poland to replace the >70% of Russian imports by internal flows from the EU.
- In Austria, reverse flow modifications between Baumgarten and the HAG and TAG pipelines allow countries adjacent to Austria to use Italian LNG terminals as a point of entry. Austria (and the Baumgarten hub) plays a key role in connecting the liquid NW European markets to the SE European markets.

The lack of market development in some Member States may lead to the adoption of alternative approaches that place more of an emphasis on a regulated rather than market approach. In that context, it is important to ensure that that: (i) this is not at the expense of the Third Energy Package being fully implemented, including the appropriate development of Network Codes, and the Regulation on Security of Gas Supply; (ii) on the contrary, security of supply issues in some European countries are created or exacerbated by the very slow adoption of the European Regulatory framework. Actions should be focussed on both increasing interconnectivity between grids and ensuring the development of market rules that optimise the efficient use of infrastructure and enhance cross-border trade. Additional infrastructure on its own will not be sufficient to guarantee more security of supply for Europe.

***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?***

#### **Demand reduction:**

Energy efficiency measures can be most effectively delivered, in the power and industry sector, through a functioning ETS market. A well-functioning EU ETS mechanism will deliver an incentive, via a long term price signal, to the power and industrial sectors to invest in energy efficiency projects and upgrades. In the non ETS sector, energy efficiency measures should be cost effective and technology neutral.

#### **Infrastructure Options:**

There is no one cost/benefit analysis available that would favour one alternative over another at an EU level. Depending on the country/region, investments in either LNG terminals or interconnectors may be needed.

Having said this, it is clear that development of grid infrastructure and regulatory reforms has, and will continue to, support the access to alternative supplies and increased intra-EU flows. In 2014, Lithuania launched the FSRU Independence as a means to diversify its supply sources. In Central and Eastern European countries, there have been increased developments in pipeline interconnectivity, allowing for further diversification of their import mix.

Some of these projects are currently facing investment barriers like a lack of market maturity, infrastructure, regulatory and permitting issues, as well as financing.

Shell continues to work on further analysis of the question of cost/benefit analysis at MS level and will be happy to engage further in due course.

***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?***

### ***Utilisation rates***

European utilisation of LNG regasification terminal in 2013 fared at an average of 26% vs. the global average of 34% (see figure 2)<sup>1</sup>. This reflects the wider challenges in the gas sector, which has seen over ~20 GW of gas fired power stations being mothballed over the past number of years. This has been driven by a number of factors including:

- A weak ETS, driven by an oversupply of allowances caused by a combination of the economic crisis and overlapping policies and targets. Combined with falling coal prices, this has led to lower than expected gas demand and, as a result, increased GHG emissions in some Member States.
- A lack of interconnections and infrastructure. For example the lack of physical interconnectors in e.g. the Iberian Peninsula prevents the emergence of a truly internal EU wide market.

Please also refer to question 5.

There is a lack of clarity regarding what constitutes a low, rather than appropriate, utilisation rate. The utilisation rate at a terminal and the difference with those in the same or other markets can be due to several reasons:

- a market may have several sources of supply. In such a scenario, an LNG terminal will face competition from pipeline gas or storage flows. It is rational and to the benefit of the end consumer that the utilisation rate of a terminal will be a function of this interaction; and
- 'low' utilisation levels also need to be considered against the reality of a situation in which import capacity will be significantly in excess of liquefaction capacity – this is what helps provide the optionality required to support international LNG trade.

### ***Investment costs & lock in effects***

The EU has a mature gas grid system. ENTSOG estimates that the total investment required in LNG/pipeline upgrades to deliver security of supply to 2030 is in the region of €4.5bln/yr over a 15 year time period. This compares with the total cost of energy in 2012 (excluding transport) of €335bln/yr<sup>2</sup>. Therefore gas system requirements are in the region of 2% of total investments required. In order to meet investments required, the PCI's will play a role in identifying the key projects to create an integrated EU energy market and help to alleviate future security of supply risks.

<sup>1</sup> [http://www.igu.org/sites/default/files/node-page-field\\_file/IGU%20-%20World%20LNG%20Report%20-%202014%20Edition.pdf](http://www.igu.org/sites/default/files/node-page-field_file/IGU%20-%20World%20LNG%20Report%20-%202014%20Edition.pdf)

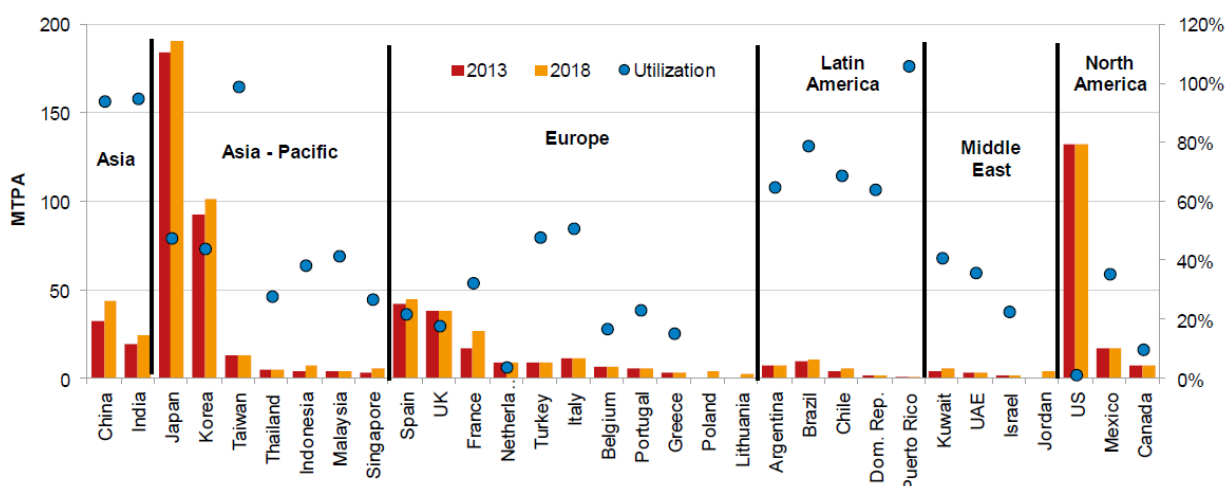
<sup>2</sup> [https://ec.europa.eu/energy/sites/ener/files/documents/ECOFYS%202014%20Subsidies%20and%20costs%20of%20EU%20energy\\_11\\_Nov.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/ECOFYS%202014%20Subsidies%20and%20costs%20of%20EU%20energy_11_Nov.pdf), pg 5.

In relation to the question of lock-in effects, in the case of a privately funded terminals operating under a Third Party Access exemption, such risks lie with the developers rather than end consumers.

However, where an import terminal is subject to regulated third party access and funded via regulated tariffs, the original investment and/or the subsequent decision to apply such tariffs will have been subject to regulatory approval. Consequently, any decision to continue funding infrastructure that might otherwise be locked-in will remain a decision for the regulator.

In the event that this did happen, it is not appropriate for any resulting costs to be reflected through system users as this risks wholesale market distortions.

Figure 2: Receiving Terminal Import Capacity by Country in 2013 and 2018 <sup>3</sup>



**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)?**

Even with similar import levels as today, and taking the IEA's assumption for domestic supply and demand, it is our view that there will continue to be a significant gap in gas supply to 2030. This is caused by a combination of declining indigenous production and decarbonisation policies. LNG will play an important role in filling this gap and delivering security and diversity of supply.

<sup>3</sup> [http://www.igu.org/sites/default/files/node-page-field\\_file/IGU%20-%20World%20LNG%20Report%20-%202014%20Edition.pdf](http://www.igu.org/sites/default/files/node-page-field_file/IGU%20-%20World%20LNG%20Report%20-%202014%20Edition.pdf), Figure 6.7, page 35

- By 2030, the IEA estimates the EU's indigenous production of gas will have dropped by up to 30% compared to total production in 2014 of 145 BCM.
- Furthermore, the IEA suggests that by 2025 a substantial increase in the EU's gas generation must take place in order for the EU to meet its 2030 targets in a cost effective way. The IEA World Economic Outlook 2014 expects that gas generation will grow to 134mtoe by 2025. This compares to the 2012 figures of 116mtoe of gas generation.
- An important dimension to the EU's Energy Union Strategy is an ambitious target to reduce GHG emissions by 40% by 2030. Power is the most critical sector for reaching the 2030 target. Here, we estimate, emissions will need to be cut by closer to 50 or 60% compared to 1990 levels.
- Alongside a rapid deployment of renewables, even beyond the target level of 27%, we believe this goal can only be met effectively by a switch from coal (currently producing 80% of power sector emissions) to gas. Shell supports a policy framework which enables decarbonisation to take place at the lowest overall cost to society. At current prices of around €8/tCO<sub>2</sub> (September 2015), the EU ETS is not driving a lowest cost solution to CO<sub>2</sub> reduction. Therefore, Europe's climate and energy goals are being met through a far less efficient approach, which in turn raises energy costs for business and consumers across all Member States. This is also distorting the energy system, bringing forward less mature but expensive technologies and locking in energy infrastructure for the most carbon intense fuel, coal.

Looking beyond 2030 and towards 2050, there will continue to be a competitive and important role for gas – in transport and, together with CCS, in power generation.

***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.***

While the definition of optimal in the context of use and access to LNG can be interpreted in different ways, we are unaware of any difficulties to date in accessing import infrastructure. However services offered by the terminal (for example storage services) may constrain opportunities to deliver spot cargos. This is the case when storage is not offered as a separate service, but is strictly dependant on how much regasification capacity the shipper has booked (for example in Spain). We would therefore urge the Commission to support regulatory regimes in Member States that encourage terminals to allow for the offering of separate storage services to allow greater utilisation of terminals.

In addition, experience shows that a regulatory framework that supports competition and access to LNG terminals for various suppliers is key in achieving an integration of the terminal assets into the wider gas infrastructure and optimise its use.

Lack of full implementation of the Third Energy Package or of European Network Codes may constitute a barrier to the optimal use of LNG infrastructure in some cases.

For example, in the case of the new LNG terminal in Poland, expected to become operational at the end of the year, existing regulatory barriers preventing the development of a liberalised market will have significant negative implications on the optimal utilisation of the LNG infrastructure. In particular, storage obligations and diversification requirements which discourage import and frustrate security of supply will discourage spot trade at the LNG terminal.

We also note that the current framework for accessing terminals may require further reassessment against the backdrop of an increasing role for LNG in the EU energy mix. For example, there may be merit in reviewing the market development impact of the duration of capacity rights granted under some RTPA (regulated third party access) regimes.

***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?***

The creation of a well-connected and integrated market will support the optimal use of LNG whilst further access to LNG will increasingly be influenced by global market dynamics.

***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?***

Beyond the overall price signals delivered via the EU ETS, the most significant barrier regarding LNG, or any other form of gas, is the efficient flow of gas between European grids. The levels of physical interconnectivity will also be an issue in some markets as referred to elsewhere in this document. Completion of the Internal Energy Market (IEM), mainly through the appropriate and timely implementation of the Third Energy Package, the associated Network Codes and the Regulation on Security of Gas Supply, is vital to overcoming this barrier.

In that context, we have concerns with the way in which the Capacity Allocation Mechanism (CAM) Network Code is being implemented. An area of specific concern is the bundling of capacity and the possibility that this may result in some capacity not being brought to market. For example, at some German/Dutch cross-border points where there is a technical mismatch of capacity, the way in which network operators are interpreting their obligation to bundle capacity runs the risk of available unbundled capacity not being brought to market.

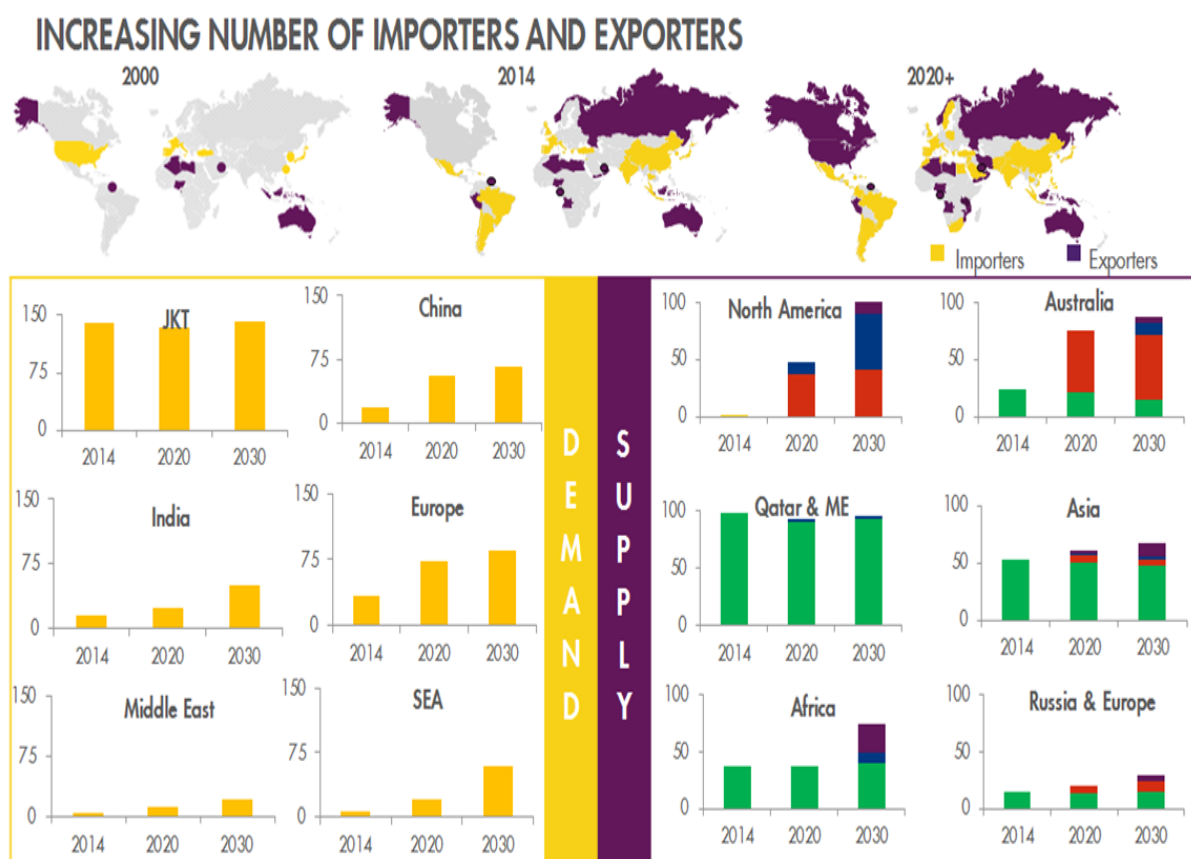
Shippers will either need to amend existing transportation contracts - despite assurances from regulators that they would be allowed to run to their expiry - or book new bundled entry/exit capacity rights, in part duplicating their existing unbundled entry or exit capacity rights. This is not conducive to cross-border flows. Network operators should therefore be required to continue offering unbundled capacity to shippers.

***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?***

We expect a robust growth of the global LNG market from ~240mtpa today to ~460 mtpa by 2030 – effectively growing twice as fast as that of other gas – ref figure 2. New markets continue to open up and so far in 2015, Pakistan, Jordan and Egypt have begun importing LNG. Within Europe, in 2014 Lithuania commenced LNG imports with Poland expected to do so later this year. By 2030, Shell expects 50 countries will be importing LNG – creating a truly global market.



Figure 3



JKT: Japan, Korea, Taiwan  
SEA: South East Asia

Demand growth in the last decade has been largely coming from Asian and European customers, primarily from demand for power generation and industrial use, with smaller contributions from residential demand. Future demand growth will mainly come from China's demand for cleaner energy as well as South East Asia's and Europe's needs for new power generation capacity. One area of LNG demand which has the potential for significant global growth is LNG-for-Transport, for example, in road and marine transport (the global heavy transport & marine market is in excess of 750 mtpa – a conversion rate of only 10% provides a LNG market equivalent to the current Japanese LNG market, the number one importer).

In the coming decade, the European gas market is expected to make a gradual recovery, primarily driven by the implementation of decarbonisation policies in the power sector.

Declining domestic production in Europe will increasingly necessitate alternative volumes to satisfy demand. North African supplies to Europe are expected to display limited growth in the short to medium term and, although volumes from Central Asia and the Middle East are expected to increase, together these will be insufficient to fill the indigenous production gap.

LNG should consequently play an ever increasing role in the European gas supply market. The continuously increasing global LNG supply capacity – both in terms of sheer size driven by not only North

America but also Australia and East Africa as well as diversity in terms of players – will provide the European gas market with the required security and diversity of supply.

***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?***

Shell welcomes the Commission's efforts to launch new energy dialogues with supplying countries with the objective of creating the right conditions for investment and security of supply. Countries such as Algeria and Iran or the wider "Southern Corridor" have an important longer term potential to further supply diversification. But they are post-2025 options. Algeria for example, which brings significant export capacity, will require considerable investment to maintain current supplies to Europe. It remains important that commercial negotiations and discussions are left to market participants. The EU should emphasise not only the ongoing role for gas in Europe but also on the continued role of the market.

With regards to the subject of demand aggregation, there is a lack of clarity as to what this would involve. The possibility of demand aggregation should be a choice left to market participants, subject to any legal considerations regarding the nature of the agreement.

Shifts in global market fundamentals, impact of shock events, and the possibility of a certain level of LNG "optimization" have allowed buyers and sellers to take advantage of price arbitrage.

To make the EU market more attractive as a destination for LNG, market fundamentals and policies supporting a credible role for gas are needed. Voluntary demand aggregation needs careful examination and consideration and would need to be fully aligned with the objectives of the internal market and competition law.

***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?***

LNG as a transport fuel is emerging as a prominent new fuel for marine (deep sea, coastal vessels, and inland waterway) and road applications (primarily heavy duty road transport). We also see it becoming an option in the rail, mining, and industrial sectors. The market is still developing and different regions and applications are seeing different triggers for this development. The principal benefits from LNG in transport are environmental and cost benefit factors – as a clean burning fossil fuel it can help meet regulatory requirements (for example, Marpol VI maritime sulphur reduction requirements). It can also offer a reduction in total cost of ownership.

Estimates vary on the expected volume of LNG in transport; Wood Mackenzie had estimated 40-60 million tonnes by 2030. In the marine sector, there are currently around 70 LNG fuelled ships in operation worldwide and 80 on order, excluding LNG carriers and IWW vessels (DNV GL). For road transport, there are currently about 1,500 heavy-duty trucks running on LNG with over 46 operational LNG refuelling stations in Europe (NGVA Europe). In the US, there are around 3,500 trucks powered by LNG, using the over 100 LNG stations (NGVA America). China is leading the way with more than 170,000

heavy-duty trucks and busses powered by LNG. These trucks receive the cleaner burning fuel from approximately 2,000 LNG refueling stations and more than 100 small scale liquefaction facilities.

LNG's development as a successful transport fuel option will depend on action across the fuel production and supply chain, as well as vehicle manufacturers and end users. It will require infrastructure, the right regulatory framework to foster growth, and a good business case for customers to invest in new vehicle technology, engines and/or modifications to their existing fleets and vessels. EU action can support the development of LNG through short term fiscal measures. Such measures could provide energy transition support to help ship and truck owner/operators de-risk their investment and support early adoption. Upfront investment costs still need to come down – the cost of cryogenic equipment for LNG for transport applications is still too high. Fiscal measures can be in the way of grants/subsidies or tax benefits – we see these as a short term need to help grow a fledgling market. On the standards side, much work is being done in the EU and within the global community to create operating standards, procedures, etc. for LNG in transport. Bodies like the International Standards Organization, the CEN, and IMO are all in progress on relevant standards for LNG in road and maritime transport. Industry groups like the European Sustainable Shipping Forum help to frame some of these issues and needs in the light of key stakeholders – such as ports, suppliers, ship owners/operators. The EU should continue to support these development programmes as well as those outside their scope – such as the Society for Gas as a Marine Fuel, an organization working to develop competencies for safety and training aboard LNG fuelled vessels.

Overall, developing a new fuel is a collaborative effort, and LNG in transport has significant potential, but does require support and focus from the EU (and other stakeholders) to make it a reality.

***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.***

Sustainability issues associated with LNG include the potential to significantly reduce CO<sub>2</sub> emissions as well as wider air quality benefits. Sustainability issues vary depending on the sector and application and should be addressed via sector specific regulatory frameworks (Industrial Emissions Directive, National Emissions Ceilings Directives, etc.) rather than within the scope of this strategy.

## **1. LNG in power**

Natural gas can be used as an alternative to pipeline gas in power generation. Gas emits less CO<sub>2</sub> than any other fossil fuel when burned. LNG has much lower GHG emissions than coal when used for power generation as many third party studies have demonstrated. Although liquefaction and regasification of LNG for natural gas infrastructure requires energy, the emissions from shipping LNG are much lower, per

unit, than transporting gas via pipeline<sup>4</sup>. Therefore, transport of LNG over long distances may have lower lifecycle GHG emissions than long distance transport by pipeline.

## 2. LNG in Transport

LNG fuel has the potential to provide environmental benefits for ships and heavy-duty trucks. It is cost-competitive, and can reduce sulphur emissions (virtually zero sulphur emissions), particulates and nitrogen oxides, and can help reduce well-to-wheel GHG emissions.

***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?***

Challenges for storage will be broadly two-fold. First, there will be the impact of changes in the level and volatility of overall gas demand, including key drivers such as the power generation mix, and what this means for the level and type of gas storage required. A key input in this area will be energy policy.

Second, storage will also face competition from other supply sources and demand-side response with regards to its position in the broader flexibility market. In that regard, it is important that storage should be provided with a level playing-field.

***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)?***

Storage should compete with other flexibility sources in the market to address volatility of gas demand and in reaction to possible disruptions. Storage operators should have commercial incentive to develop storage products that reflect market demand for flexibility services. This is not always the case.

For example, in the Italian gas market, there are significant administrative restrictions which limit the offering of innovative and more flexible storage services. In addition, the full regulatory guarantee of storage revenues leaves limited incentives to Storage Operators to offer innovative products to market participants or good quality storage services.

More generally with regards to a standard storage product made up of injection, capacity and withdrawal rights, shippers should have the right to trade each element separately. Shippers would not only be able to 'shape' their own storage rights but in a way that complemented their wider gas portfolio – a move that should enhance their ability to contribute to security of supply.

We are glad to see the issue of transmission charges to and from storage facilities being addressed as part of the Tariffs Network Code. Such charges should reflect the wider system benefits that a facility may bring to the network. For example, a facility may help reduce the need for network investment by the TSO. Additionally, having already paid system entry and exit charges, gas-in-store should not have to pay the same charges again on subsequent withdrawal/injection.

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<sup>4</sup> "Life Cycle Analysis of Natural Gas Extraction and Power Generation"; National Energy Technology Laboratory (NETL); May 29, 2014; see: <http://www.netl.doe.gov/File%20Library/Research/Energy%20Analysis/Life%20Cycle%20Analysis/NETL-NG-Power-LCA-29May2014.pdf>

Anti-market measures such as mandatory reserves or shipper/supplier obligations should be avoided and limited to extreme circumstances for a limited period of time. Where such reserves are considered to address specific issues in isolated areas with limited room for market development, the extent of the intervention should:

1. Be proportionate to the specific issue identified (for example a local or temporary issue should not be used to justify permanent widespread intervention);
2. Take into account the costs of mandatory reserves compared to alternative options (for example transport capacity expansion or reverse flow could be a more cost effective way to address a security of supply concern); and
3. Be structured in a way best designed to insulate its impact on the gas wholesale market or, in any event, minimize any negative impact on the wholesale market. Obligations on suppliers or traders that force certain booking behaviors or restrict certain types of access or usage of storage tend to reduce the value of storage and distort market behavior to the detriment of supply security and market efficiency. In addition, putting these obligations on importers or funding these obligations through levies on import significantly distorts cross- border trading.

The above conditions are often not met in markets where storage obligations have been introduced with a detrimental impact on cross border trading, security of supply and diversification of sources.

For example:

- In Poland a storage obligation on importers has prevented the diversification of gas sources and acted as a key obstacle to developing a well-functioning market. Aside from cost and operational complexity, the obligation created a disincentive for gas imports from nearby, different sources and enhanced supply security.
- In Italy storage auctions were a welcome development. Nevertheless, they were introduced alongside strategic stock obligations, which are managed in a centralised manner by the country's largest storage operator Stogit and used to be financed through a levy on gas volumes injected into the grid from import points (pipelines and LNG terminals) and domestic production fields. The overall impacts of strategic storage are therefore a lower incentive to import gas and higher than necessary costs to Italian consumers.
- Moreover other Member States, Germany for example, are currently considering the introduction of measures that may include a storage obligation. The introduction of a storage obligation will have a negative impact on the market and may undermine the benefits that Germany, and North West Europe more generally, have achieved through the liberalisation journey since the first Gas Directive. It also seems counter-intuitive to introduce administrative obligations and restrictions to the market in countries which enjoy high levels of interconnectivity, supply diversity and commercial storage. For example, in the case of Germany, a recent study carried out for the Federal Ministry for Economic Affairs and Energy confirmed that "The overall picture of the cases examined and documented within the scope of this study shows that there currently is a very high degree of security of gas supply in Germany."<sup>5</sup>

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<sup>5</sup> "Possibilities to improve gas security and crisis prevention via regulation of storage (strategic reserve, storage obligations), including the costs and the economic effect on the market", Becker Büttner Held (BBH) study for the

- The study recognises the possibility of stress of the system at regional level, however this would be created by a lack of transmission capacity as opposed to lack of molecules. In cases where possible system stress may be created by a network issue, the removal of the network constraint would be a much more effective way to address the concern with no unintended negative impact on the overall market.

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

An overriding principle is the need to ensure a level playing field that allows all sources of gas to compete fairly. This is what will help enable shippers to make the most efficient use of their portfolio of gas sources, a move that would be likely to reduce the need to resort to the use of any minimum reserves.

Moreover, whatever the level of any mandatory reserve, the TSO should not have privileged access to storage ahead of market participants; to do so would likely lead to an inefficient valuation of storage relative to other forms of gas.

Rather TSO's should either have access to storage on the same terms as shippers - ideally auctions - or be required to purchase storage on the secondary market from shippers. The latter would be our preferred option because it would be based on a market price for storage relative to other forms of flexibility and so help facilitate the efficient use of market based instruments.

On that basis, TSOs could tender for maintenance of a pre-determined mandatory minimum reserve in terms of –

- flow commitments;
- minimum physical stock or availability of gas obligations; or
- demand-side response, eg. gas-fired power stations, energy intensive customers.

## **Storage Infrastructure**

***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?***

There is no optimal level as such for storage. The optimal level of gas coming from any supply source, be it pipeline, LNG or storage, is most efficiently determined by the market. In that regard, we support the creation of a level playing field for all forms of gas and energy.

A pre-determined 'optimal level' for storage is likely to distort the market mechanism but also lead to increased costs for consumers. In the longer-term it could also potentially hamper security of supply by distorting investment decisions – see Q14 and Q19 for further details.

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

We have not identified the need for any further action.

***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?***

Refer to answers to Q 4 & 5

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

Despite developed third party access rules, there are areas where the effective access to storage remains an issue, for example, in markets with an in-country physical stock obligation. Obligations on suppliers or traders that force certain booking behaviours or restrict certain types of access or usage of storage tend to reduce the value of storage and distort market behaviour to the detriment of supply security and market efficiency.

In each of the examples mentioned (ref Q14), the measures are designed with a national market in mind. They are not designed to allow storage flows to be used in most efficient *regional* manner. On the contrary, some of the obligations restrict cross border trading and the movement of gas where it is most needed in case of a security of supply crisis. This is one of the most crucial barrier for regulators to address.

***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?***

A well-functioning, integrated energy market is key to enhancing energy security in a cost-effective way. Such an approach enables market-based responses to supply issues and in doing so provides for the most efficient use of commercial storage facilities. The speedy completion of the IEM based on the appropriate development of the various EU Network Codes is therefore a key requirement.

***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?***

We support the inclusion of discounted transmission tariffs to and from gas storage facilities in the EU Tariffs Network Code. That is not to say that discounted tariffs should be automatically applied or

considered mandatory. Rather, any decision should be on a case-by-case basis and reflect the extent to which a storage facility may help reduce the need for wider system investment.

Aside from tariffs, there may also be merit in considering the nature of a storage facility's access to the grid, in particular the use in some markets of temperature-related transmission capacity products.

***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.***

We are not aware of any such difficulties.

***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.***

We are not aware of any such difficulties.