EUROPEAN COMMISSION – CONSULTATION ON AN EU STRATEGY FOR LNG

GENERAL REMARKS

EDF/ Edison consider that an EU strategy for LNG needs to integrate both:

- the international features of the LNG market context, such as global supply and demand outlooks, including mid-term price forecasts and possible overcapacity, as well as
- the objectives of the Internal Market and the Energy Union, having in mind Climate Policy but also the risk of supply disruption and the variable degrees of dependence among European Countries.

In a broad perspective, LNG is for EDF/Edison an important and valuable asset as it:

- diversifies our sources of gas, reducing dependency on any single provider and increasing security of supply. LNG could further increase price-based competition by virtue of having more competing sources of gas, which should ultimately translate into efficient prices for customers.
- contributes to ensure the appropriate availability of gas for peak demand and consumption,
- increases the flexibility of our energy system (higher market liquidity, better opportunities for portfolio optimization, alongside other tools such as storage and interconnection).

For the aforementioned reasons, EDF/ Edison are in favour of supporting the development of the LNG market in Europe for both security and flexibility purposes. Nevertheless LNG developments in Europe should be assessed in a systemic way, taking into account relevant existing and planned EU energy infrastructure (storages, transport and interconnections), supply options and availability, and market / energy security needs at national and regional level, in order to take stock of possible synergies and complementarities. A thorough cost/benefit analysis needs to be performed for new projects, ensuring that the contribution of existing facilities is fully taken into account.

Also, in order for LNG to be a major tool for diversification, several prerequisites need to be fulfilled, notably access conditions to terminals and favorable market conditions (e.g. LNG availability on the global traded market). A fully integrated and interconnected Internal Gas Market is needed for gas flows to be able to reach all Member States, including the most vulnerable ones.

Moreover, overall LNG, storages and gas infrastructures are elements to take into account in the generation mix-since they can contribute the transition towards a low carbon energy system. This transition should be complemented by a strong EU ETS with stable, robust and long-term price signals.

Regional endeavors, such as the recently launched UfM Gas Platform with OME, represent positive and encouraging initiatives, marking a strong momentum to step-up cooperation in the Mediterranean region and seize opportunities for the European LNG future energy strategy and the broader Energy Union objectives.

LNG QUESTIONNAIRE

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.

Regional assessments and approaches may be useful to identify synergies and pursue cost efficiency, although any approach should also ensure the full recognition of the economic value of existing and new LNG infrastructure and duly take into account national circumstances.

The market environment is highly relevant when assessing the contribution of LNG to diversification and security of supply. For this latter we consider that LNG can provide flexibility to the system in a similar way to storage depending on facilities' characteristics in terms of send-out and actual level of gas in tanks. Thus we deem that LNG facilities must also be taken into consideration for security of supply purposes.

In regions that are scarcely interconnected, highly dependent on a single source and with low demand / limited offtake, the financial viability of new LNG investments may face tougher economics in spite of a substantial contribution to diversification and security, similarly to pipeline projects or interconnectors.

For this reason (see also answer to Question 3) the regional outset, the market environment, the re-load potential of LNG and the synergies with other infrastructure systems should be taken into account when assessing LNG security of supply perspectives.

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?

In a market driven environment, European demand scenarios remain crucial in supporting the business case for infrastructure use and development. Declining domestic production in the EU, leading to high dependency rates under all scenarios (including the ones with full implementation of climate policies), and the fact that several long-term contracts for gas supplies to Europe are approaching expiry date, are contextual elements that contribute to maintain a strong case for natural gas infrastructure development and use in Europe, including for LNG.

LNG infrastructures can substantially contribute to cover peak demand, grant both security of supply and flexibility of a gas system, and offer diversification options for scarcely diversified areas, provided that several prerequisites are properly taken into account and fulfilled: notably access conditions to terminals, favorable market conditions (e.g. LNG availability on the global traded market) and a fully integrated and interconnected Internal Gas Market, for gas flows to be able to reach all Member States, including the most vulnerable ones.

For diversification, security, and flexibility purposes, positive synergies and complementarities between LNG investments and interconnection endeavors should be fully exploited, especially in vulnerable areas.

LNG can in fact play a role in increasing the energy security and diversification of vulnerable regions with a high dependency from a single source, offering complementarity with a wide range of supply options and infrastructure, including PCI projects. Projects such as IGB, the Greece-Bulgaria gas Interconnection, represent a typical case of Project of Common Interest that could substantially increase the energy security and diversification of a vulnerable region through a wide range of supply options, including via LNG.

Accordingly, EDF/EDISON would like to stress the need to ensure a prompt development of PCI projects and emphasizes more globally their economic value / contribution to energy security within a broader assessment of infrastructure and supply options, including via LNG, especially when their financial viability would not be supported by market conditions only. This is particularly true in the case of infrastructures aiming at the security and diversification of vulnerable regions with high dependency from limited sources but limited offtake.

Furthermore, for vulnerable areas or small / isolated systems promising developments are observed with the fast development and up-take of small and flexible Floating Storage and Regasification Units (FSRUs), which in some cases have become a cheaper and quicker solution to implement than LNG import terminals, thus allowing in a limited number of years new countries/new players to enter the LNG market as buyers. Positive up-takes of this kind for LNG markets and infrastructures are already observed in Europe and abroad (i.e. Egypt, Jordan).

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

On top of ensuring full implementation of the Third Package provisions, a fully integrated and interconnected Internal Gas Market, for gas flows to be able to reach all Member States, including the most vulnerable ones, remains a crucial pre-requisite.

EU financial support may be needed in the context of a common interest or a public policy, such as in the case of the Connecting Europe Facility for Projects of Common Interest, to ensure the financial viability of projects otherwise not viable under current market conditions, and which can substantially contribute to the security of the overall system, including in emergency situations.

This is particularly true in case of infrastructures aiming at the security and diversification of vulnerable regions with high dependency from limited sources but limited offtake. Financial support should be based on transparent and robust Cost-Benefit analyses and in any case should be temporary and duly assessed in order to avoid distortions.

In general cooperation with and between TSOs is desirable and can prove to be a powerful instrument to ease national barriers and increase the attractiveness and use of LNG infrastructures.

Synergies between program and instruments, such as the TEN-T and CEF-T, should be further investigated as they carry a high potential to improve the use of existing LNG and support new developments, in particular in the long distance transport sectors (heavy duty trucks and maritime shipping). LNG use in the transport sector offers promising opportunities for both climate and environmental reasons, and the mobilization of both private and EU funds in this sector, would represent a positive and strong signal to the upstream segment of the value chain, increasing the attractiveness of the European market.

The use of LNG can be improved if LNG can be considered as a flexibility source to ensure security of supply. Indeed, we consider that LNG can provide flexibility to the system in a similar way to storage. We deem important that all flexibility tools – given their intrinsic characteristics – are able to compete in order to provide the targeted level of security of supply at the lowest cost. A supportive and conducive framework in this regard would certainly ensure a broader range of opportunities for LNG.

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?

In Europe, the bankability of capital-intensive gas infrastructure projects has been historically guaranteed by long term contracts. Favorable market conditions, including supportive gas demand scenarios, have also contributed to reducing the risk of "stranded assets".

As already expressed in Question 2, several concurrent developments in the European market (declining domestic production, several long-term contracts for gas supplies approaching their expiry date, etc.) contribute to maintain a strong case for natural gas infrastructure development and use in Europe in the future, including for LNG. Of course, in-depth and robust cost/benefit analyses need to be performed for new LNG-infrastructures, ensuring that the contribution of existing facilities is fully taken into account.

As per the use rates, various figures show positive trends in Europe already in 2015, with the first semester of 2015 posting a year on year rebound of +23% of LNG imports, and forecasts suggesting a return to average/medium use rates rather than minimum ones, after years of declining figures. In its last Gas Medium Term Report, the IEA anticipates that LNG supply to Europe will double by 2020, from 45 bcm to 90 bcm. Other forecasts predict even more important growth rates, depending on Russian Imports flows to Europe and internal production decrease.

However, it is worth mentioning that although long term contracts will continue to have an important role in reducing the risk of stranded assets, with current demand scenario, commodity price / spreads, and the evolution of contracts towards more short term and different features, there could be the need to ensure bankability of large scale new infrastructures in different ways in the future, especially for infrastructures

carrying a high strategic value for energy security purposes. The EU offers today a variety of instruments in this direction such as the Connecting Europe Facility and the European Strategic Investment Fund.

These investments remain consistent with the EU policy objectives for a low carbon economy, since LNG, storages and gas infrastructures positively complement this transition by ensuring at the same time flexibility and security to the energy system.

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)?

LNG, storages and gas infrastructures positively contribute to the generation mix–since they can complement the transition towards a low carbon energy system. Also, a strong EU ETS with stable, robust and long-term price signals is a necessary element for this transition to happen.

LNG as an alternative fuel can help reduce the environmental impacts of long distance transport, both from greenhouse gas (GHG) emissions and air pollutants. In comparison with Oil, the use of LNG as fuel reduces NOx, SOx and Particulate pollution by 85- 100%, and GHG Emissions up to 20-25%.

Synergies between LNG infrastructures (including small scale and Floating Storage and Re-Gasification Units) and the long distance transport sector (heavy duty trucks and maritime shipping) can concretely help to achieve EU environmental and climate targets, and we believe they should be fully investigated and exploited. Coherent reflections to fully exploit synergies with the TEN-T and CEF-T should be further investigated as they carry a high potential to improve the use of existing LNG in Europe and support new developments.

This will also be consistent with EU and global climate action, as the potential for emission abatement in the heavy transport and maritime shipping remains high, and a shift towards LNG can offer a concrete and substantial contribution to this aim.

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.

In general, we believe that the stability of the regulatory framework remains crucial, especially when the remuneration of capital intensive gas infrastructures is concerned, and with them the security and flexibility provided to national and sometimes entire regional systems.

European rules on TPA to date have been helpful in ensuring transparent and non-discriminatory access to LNG infrastructure. Transparency and fair rules for access to Liquefied Natural Gas (LNG) terminals in Europe are important to promote a competitive gas market in Europe, especially when seeking to increase Europe's security of supply in gas through diversification of our energy sources and routes. EU legislation requires these terminals to be 'accessible' to third parties through an efficient Third Party Access regime. Regulators therefore monitor how competition - including non-discrimination, transparency of information, contracting and trading mechanisms - is functioning at LNG terminals.

As experience was gained in Europe on the operation and use of LNG terminals, some elements can perhaps be identified today as areas of further improvement in the regulatory framework for LNG terminals.

A recent CEER report examined access to LNG terminals during the period 2009-2013, looking at the level of capacity utilization, spot contracting, secondary market functioning, application of Congestion Management Procedures (CMPs), as well as the new services offered in the terminals and the new uses of LNG. The analysis shows positive results. The analysis also shows that LNG terminals have adapted their facilities to market dynamics, e.g. cargoes reloading, truck loading and bunkering services among other services.

Indeed, the recent developments in the global LNG market have led to a lower utilization of current LNG terminals and fostered the development of new services in the European LNG facilities. The report also points that if LNG is to continue to play an important role in the European market, flexibility is paramount in the services provided by the terminals.

Regarding new services that could be offered, send-out capacities from LNG terminals can contribute significantly to the Security of Supply at the European Level.

Depending on their characteristics in terms of send-out and the level of gas in the tanks, LNG terminals' send-out can be adjusted in case of demand/consumption variation (e.g. within day or seasonal variation) or in the event of particular types of hazards (e.g. cold snaps or adverse weather conditions) in order to ensure the continuity of gas supply, in the same way as fast-cycling Storage for instance. This specific role for LNG as a security of supply tool, has been implemented in Italy as peak shaving services during winter time.

Where obligations at national level rely on a unique flexibility lever (e.g. storage in France), this is a barrier to competition between all available resources and a disincentive to exploit all the flexibility provided by LNG facilities. To this extent the regulatory framework should ease the use of flexibility tools, leaving nevertheless the possibility to take into account specific operational characteristics of each infrastructure. Besides, storage obligations (with minimum levels that shippers should dispose of) are sometimes defined in ways that discard other technically available flexibility options (LNG itself).

Other elements can emerge when assessing the regulatory environment for LNG in broad manner, taking into account simultaneously different regulatory domains such as re-gasification codes, balancing rules and access to storage capacity.

As a matter of example, re- gasification codes sometimes, through rigid timeframes, may restrict the offer of services the market may need as it evolves towards more flexible, short term features. Up to date regulatory framework has proven essential for the effective use of flexibility that LNG can provide.

Different connections and balancing rules across adjacent markets may sometimes undermine the possibility to exploit the full flexibility that could be offered by LNG facilities (e.g. Dunkirk LNG faces two different balancing regimes: hourly balancing in Belgium versus daily balancing in France). " In general balancing rules should therefore recognize the flexibility offered by LNG.

Having in mind the big opportunities for LNG access and use resulting from the exploitation of synergies with the transport sector (heavy duty trucks and maritime shipping), we believe that the development of a supportive regulatory framework in this direction will be key.

On a separate note, gas quality and odorization in some countries like France may represent a potential barrier to the optimal use / access to LNG facilities, as they could reduce the potential portfolio of eligible supplies for a given infrastructure. For this reason we believe the issue of gas quality should be addressed downstream.

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?

Permitting procedures should not last too long to ease an optimal use and access to LNG.

The opportunities offered by the fast development and up-take of small and flexible Floating Storage and Re-Gasification Units (FSRUs), which can offer in some cases cheaper and quicker solution to implement than LNG import terminals, should be fully explored and where possible exploited.

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?

Based on the answers to the previous questions, we believe some comments can be summed up as follows. A conducive and stable framework is crucial to give certainty to investors and market participants.

As stated in our answer to question 6, there are also some domains where improvement can be envisaged to support the use and access to LNG, such as more flexible re- gasification codes, evolving towards more flexible, short term features as the market evolves, a better recognition of the flexibility offered by LNG in the balancing rules, and broader options for shippers when dealing with storage obligations.

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?

The global scenarios for LNG remain encouraging, as the availability of volumes offers growing opportunities for the EU LNG market. The market environment will be crucial in determining to what extent the EU will be able to benefit from these opportunities. In addition, the sooner the Internal Market will be completed and fully integrated, the better LNG opportunities will be available to all Member States, including the most vulnerable ones.

The timing for the development of new projects will also affect this possibility. Prolonged low oil prices may postpone the FID on several new initiatives, and consequently the possibility to attract new volumes on the EU market. In this context the flexible nature of the global LNG should be fully understood, while reflections should probably be developed on how to ensure the bankability of large scale capital-intensive projects which carry a high strategic value for energy security and diversification.

In the meantime, price signals and supportive EU gas demand and market environment remain crucial for the EU to take full stock of these opportunities.

Concerning the question on oil-indexed LNG contracts, we believe that indexation and other commercially sensitive aspects related to contractual features belong and should remain a choice made between contractual parties, and as such should remain a competitive driver, subject to relevant market developments. Indexation should by no means be subject to policy intervention but should be up to the contracting parties.

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?

Like for other well-functioning markets, at times of stress on the international LNG market, the main possible effect that could be envisaged would be probably on prices, whereby price spreads will most likely set the relative market attractiveness of the different regions and physical flows accordingly.

Lacking clarity on what is practically envisaged by ”voluntary demand aggregation”, we can only raise some concerns and doubts linked to the compatibility of this kind of instrument, especially in the context of trade negotiations, with EU competition law , and anti-trust rules. EDF/EDISON does not see advantages in a policy instrument such as “voluntary demand aggregation” neither at times of stress, even less when considering the impact of this kind of initiatives on the normal market functioning.

In general we believe this kind of instrument would not improve the attractiveness of the European market for LNG supplies, nor it would help (as witnessed in previous occasions when similar instruments were being considered, such as the CDC) the development of new infrastructure.

Any attempt to facilitate exchanges between Europe and its Partners is appreciated, especially in the framework of the current discussions on TTIP.

Also, and on a separate note, EDF/Edison welcome the official launch of the UfM Gas Platform with OME, an initiative marking a strong momentum to step-up cooperation in the Mediterranean region with key energy partners relevant to the LNG opportunities for Europe. We welcome the fact that governmental and industrial representatives, with a much welcome and crucial political support by the European Commission, have agreed to move the gas platform initiative further and to establish a concrete roadmap before the end of the year. This is a positive and encouraging step that goes in the right direction to reinforce the image of Europe as a trustworthy and solid energy partner for key producing countries. Since 2009, the discovery of sizeable natural gas resources in the Eastern Mediterranean (of over 1160 bcm offshore Israel and Cyprus), together with the even more recent discoveries in Egypt, have significantly transformed the region's energy outlook, from a long-term importer of energy to a potential exporter of natural gas.

As EDF / Edison we believe the Euro-Mediterranean platform is an important political arena where we see concrete opportunities to participate in the shaping of a regional market in which we are actively present with several infrastructure projects and upstream endeavors such as IGI, IGB, East-Med pipelines and E&P activities in Egypt, Croatia, Israel, Greece and Algeria. Collectively, these initiatives can fit in the European LNG future energy strategy and in the broader Energy Union objectives.

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?

We believe there is a strong momentum in Europe to launch a reflection on the different possibilities to develop the LNG market in long distance transport, such as heavy duty trucks and maritime shipping, and welcome this consultation as a timely opportunity to do so. Synergies between LNG infrastructure (including small scale and Floating Storage and Re-Gasification Units) and the long distance transport sector (heavy duty trucks and maritime shipping) can concretely help in achieving the EU environmental and climate targets, and we believe they should be fully investigated and exploited.

There are many reasons to develop LNG in the aforementioned transport sectors. The first and the most obvious is sustainability. Switching away from oil and diesel, towards cleaner fuels such as gas and LNG would substantially reduce the environmental impact of heavy duty trucks and shipping vessels.

LNG with high energy density offers a cost-efficient alternative to diesel for waterborne activities, trucks and rail, with lower pollutant and CO2 emissions and higher energy efficiency. LNG is particularly suited for long-distance road freight transport for which alternatives to diesel are extremely limited.

LNG is also an attractive fuel option for vessels in particular to meet the new limits for sulphur content in marine fuels decreasing from 1 % to 0.1 % from 1 January 2015 in Sulphur Emission Control Areas (SECAs) in the Baltic Sea, North Sea and English Channel as set by the International Maritime Organisation (IMO). LNG

is an attractive economic alternative also for shipping outside SECAs, where sulphur limits will decrease from 3.5% to 0.5% from 1 January 2020, and globally.

We welcome in this sense the adoption of the European Commission proposal as Regulation (EU) 2015/757 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, as a first step in the wider European strategy on integrating maritime emissions into the EU's policy for reducing its domestic greenhouse gas emissions. We also welcome the mid-term review of the 2011 White Paper on transport and the underlying objectives to decrease the oil dependency ratio of transport-related activities by 2050 and the reduction of transport-related emissions of CO2.

A far reaching policy strategy is needed for the development of LNG in transport, together with a consistent, conducive and stable framework to support new industrial developments, take stock of the existing synergies and develop adequate infrastructures supporting logistics and the downstream demand and uptake (i.e. fuelling stations, modular and flexible solutions with simplified procedures for future upgrades as the market and technology evolve). Lack of fuelling infrastructure and common technical specifications on re-fuelling equipment and safety regulations for bunkering for instance hamper market uptake.

We believe a core set of actions can help already in the medium term for a successful diffusion of LNG in transport: a simplification of permitting procedures, the implementation and adaptation of sectorial technical rules, and the provision of an adequate, stable and supportive fiscal framework.

To trigger investments in sustainable transport and a sufficient penetration of alternative fuels, a consistent, conducive and stable framework is a necessary pre-requisite. The framework for energy taxation for instance, could be better aligned with the framework and the timeframes envisaged in the new Directive 2014/94/EU on the deployment of alternative fuels infrastructure, and in particular with the provisions and the timeframes envisaged in Article 6 thereof ("Natural gas supply for transport"). Member States could for instance use tax incentives to promote long distance transport (heavy duty trucks) using alternative fuels and the relevant infrastructure, and make use of the exemptions foreseen in the Energy Taxation Directive, in a consistent and supportive way with the timeframe and the objectives of Directive 2014/94/EU on the deployment of alternative fuels infrastructure.

Coherent reflections to fully exploit synergies with the TEN-T and CEF-T on one hand, and TEN-E / CEF-E on the other should be further investigated as they carry a high potential to improve the use of existing LNG in Europe and support new developments. They could also help in the identification of the most efficient solutions for the harbors, the loading and re-loading activity and the costal deposits.

Both private and EU funds under the CEF-T could be mobilized to support the transition of the heavy duty vehicles fleet towards the transition to gas and LNG equipment, and in general to develop the necessary infrastructure, both for logistic and fuelling stations, with a long term perspective, since the perspective for LNG in transport remains promising. These investments would also send positive and strong signals to the upstream segment of the value chain and therefore improve the attractiveness of the European market.

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.

For EDF/ Edison a strong EU ETS with stable, robust and long-term price signals is a preliminary for the transition towards a low carbon energy system to happen.

Nevertheless as stated in our answer to Question 5, we believe that LNG, storages and gas infrastructures can positively impact the generation mix, as a complement to this transition.

More specifically as stated in answer to question 11, there is a strong case to develop LNG in the long distance transport sector (heavy duty trucks and maritime shipping) due to the positive environmental advantages.

The environmental costs of alternative solutions to LNG (i.e. more polluting fuels) should also be taken into account when assessing the potential Floating Storage and Re-Gasification Units, which could offer small and flexible solutions to systems otherwise isolated (vulnerable areas or small / isolated systems) that typically resort to more polluting fossil fuels.