



GIE Response to Commission's Public Consultation on a "Roadmap for a Low Carbon Economy by 2050"

Introduction

In the first half of 2011, the Commission intends to submit a Communication on the development of a "Roadmap for a Low Carbon Economy by 2050" to the Council and the European Parliament. This roadmap will surely steer the transition to a more decarbonised EU economy. GIE appreciates the possibility to contribute to this public consultation in order to make the European Commission aware of the importance of natural gas infrastructure in the envisaged "Roadmap to 2050" as well as of the contribution of infrastructure operators to the reduction of greenhouse gases emissions.

What is GIE?

Gas Infrastructure Europe (GIE) is an association representing the sole interest of the infrastructure industry in the natural gas business such as Transmission System Operators, Storage System Operators and LNG Terminal Operators. GIE has currently 66 members in 26 European countries.

One of the objectives of GIE is to voice the views of its members vis-à-vis the European Commission, the regulators and other stakeholders. Its mission is to actively contribute to the construction of a single, sustainable and competitive gas market in Europe underpinned by a stable and predictable regulatory framework as well as by a sound investment climate.

GIE Answers to the Public Consultation's Questionnaire

Please note that, in order to provide you with concise messages, GIE has decided to answer only to those questions which are mainly related to its activities.

7. The EU has put in place a regulatory framework related to climate and energy. Which of the following EU legislations you expect to be the most effective in terms of delivering emission reductions by 2020 and beyond?

No response

8. Do you have any comments on the policies evaluated in the previous question? Do you have any comments on any other policies?

See response to question 9

9. The EU will need a diverse portfolio of technologies to build a low-carbon future. Some examples of potential technologies and energy efficiency solutions are carbon capture and storage, renewable energy technologies, electric vehicles, fuel cells, smart grids, heat pumps, cogeneration, next generation nuclear power, zero emission buildings, etc. Which technologies do you think will be the most important in achieving a low carbon economy by 2050 and how can the EU foster their development and deployment?



GIE is committed to contributing to a sustainable, competitive and secure EU gas market. This will undoubtedly mean reducing CO₂ emissions on an equitable way across the EU. GIE agrees with the 6th Fossil Fuels Forum that “a low-carbon economy does not have to mean a low-fossil fuel economy”¹. “Decarbonisation is a requirement on the energy produced and does not contradict a continued use of fossil fuels”. Therefore a low carbon economy does not mean the end of fossil fuels within the EU energy mix; rather, new ways need to be found to continue the use of fossil fuels but with greater efficiency and lower CO₂ emissions. Thinking about a future low carbon economy without fossil fuels would not be very realistic.

Natural gas is the cleanest, most efficient and versatile of the fossil fuels, making it a unique choice in the path towards a lower carbon energy mix and sustainable future. More importantly, the abundance of natural gas, its competitive cost of supply, its immediate availability and the flexibility to enable renewable energy clearly favours it as the best source to address emission reductions at the lowest cost.

The broad scale of already available high efficient technologies for gas needs to be highlighted. For instance, cogeneration or combined heat-and-power (CHP) have an efficiency higher than 80%. Gas technologies might be also favoured as they can be applied not only by the big industry but also by the SMEs as well as by the domestic consumers.

Whilst GIE has no comment on the likely effectiveness of the individual measures listed in question 7, GIE would like to underline the importance of the CCS directive.

CO₂ Capture and Storage is one option within the portfolio of measures to reduce greenhouses gases. CCS, in parallel with energy efficiency improvements or development of renewable energies, contributes to CO₂ reduction, and then to meeting the EU agreed climate targets. The European Commission considers CCS as a key element of its energy strategy and « believes that after 2020 all new power plants using coal, and most likely gas as well, should be built and operated with CCS, whereas capture-ready plants built in the previous period (before 2020) should be “retrofitted” »². This vision provides the advantage of a very strong support to European CCS projects in the years to come.

Indeed, the availability of CCS at competitive cost would allow developing not only economically competitive «clean coal» but also «clean gas». Moreover, as CO₂ formed by gas combustion is only the half of CO₂ formed by coal combustion, the need of CCS is divided by two when replacing coal by gas. In our opinion, «clean gas» would represent, without doubts, the cleanest fossil fuel option in the market. We have to consider that fossil fuels will remain necessary for several decades and consequently CCS has a strong role to play. CCS will be vital to sustain worldwide economic growth whilst mitigating the harmful effects of CO₂ emissions. As the International Energy Agency concluded, without CCS, the cost of achieving a 50% reduction in CO₂ emissions by 2050 will increase by 70%.³

¹ European Commission conclusions for the 6th European Fossil Fuels Forum [ener.ddg1.b.3/JP/sc A(2010)802203]

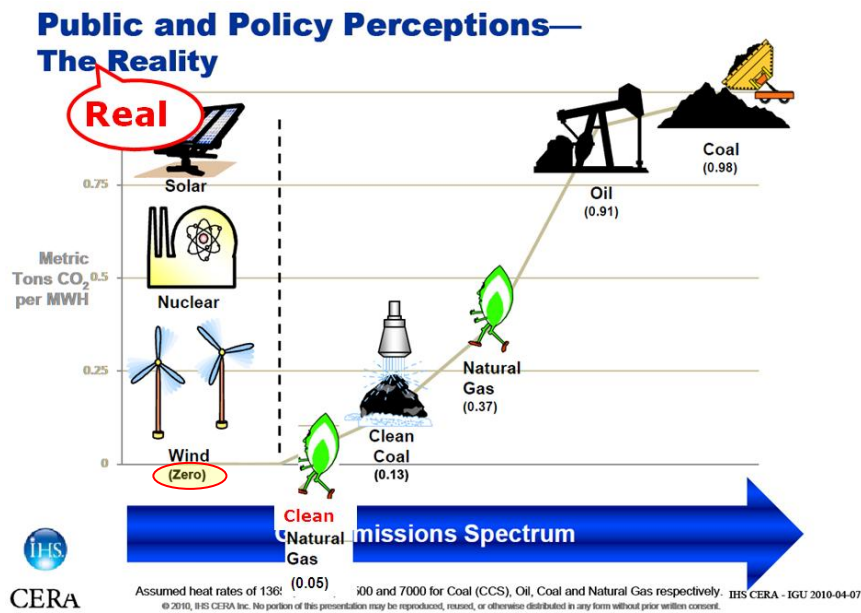
² Pg 10, Sustainable power generation from fossil fuels: aiming for near-zero emissions from coal after 2020 (COM 2006)843

³ From 2005 levels, IEA CCS Roadmap 2009



Considering the storage part of this new business to come, Storage Operators can take advantage of their existing competencies to build a new business line which is close to their current activity.

However, it is worthwhile considering that many problems, difficulties and threats have to be resolved when developing CCS activities; public acceptance, funding, CO₂ prices and a risk of over-regulation hindering the natural development of this technology are factors which should be carefully taken into account.



Natural gas is considered as the bridge fuel to a low carbon economy. As it can be seen in the above graph, clean gas is the fossil fuel with the lowest CO₂ emissions. Moreover, natural gas is providing the flexibility required to back-up the increasing amount of renewables. If we consider these two advantages for the clean natural gas (low emissions and flexibility) with the already well known three A's (Abundant, Affordable and Acceptable), definitely, natural gas not only must be considered as a transition fuel, but also as a destination fuel for the long run. Additionally, the carbon footprint of natural gas can be reduced by the use of biogas. Furthermore, new developing technologies, such as Compressed Air Energy Storage (CAES) or production of synthetic gas ("power to gas") would trigger new ways of using the existing and new infrastructure to provide low carbon energy storage using the know-how of UGS companies.

GIE considers that meeting the EU's very ambitious commitments towards a low-carbon economy by 2050 will require parallel development of energy efficiency measures, the development of renewable energy sources and the deployment of carbon capture and storage (CCS). Most importantly, these developments will have to be accompanied indeed by a significant development of new natural gas infrastructures.

By 2050, natural gas offers the opportunity to be used either alone or better in conjunction with CCS and new developing technologies to help decarbonise the energy sector and to provide an affordable flexible back-up to the increasing renewables sector.



10. What are in your opinion the most important initiatives the EU should pursue in the next five to 10 years to secure a successful transition towards a low carbon economy by 2050?

Over the next decade, significant investment will be needed to ensure a transition to a low carbon economy, most of those investments being in terms of energy infrastructure. In the context of the current economic crisis, this will be challenging, and requires that current low-carbon energy sources and technological solutions will need to take central stage.

In terms of initiatives, GIE considers that the following priorities have to be considered for a successful Roadmap 2050:

a) Completion of the internal market in electricity and gas

Development of the right electricity and gas infrastructures in a timely manner is critical. Gas infrastructures are needed to ensure a liquid, competitive and secure EU gas market. GIE would like to emphasise that gas infrastructures are “market facilitators” which enable the completion of the internal market. A real internal gas market is the key to a more sustainable and efficient market with lower CO₂ emissions.

A sound investment climate together with a stable and predictable regulatory framework providing the appropriate incentives for investment constitute the prerequisite for the development of new gas infrastructure which will trigger further market integration and enhance security of supply. A proper regulatory framework will help to respond to many infrastructure challenges without resorting to extraordinary tools.

GIE would like to reiterate that gas infrastructure investment entails long-lead times and thus requires long-term visibility. Regulatory frameworks should therefore be clear, in-keeping with the longer-term policy perspectives and consistent across borders. This should be recognized as a prevailing principle spanning to all infrastructure projects.

b) Consistency between the Climate and Energy Strategies of the European Commission.

Natural gas infrastructures require capital intense investments which are paid-back over a period of 30-50 years. The European Commission considers on one hand that there is a need for modernizing and developing gas infrastructures, but on the other hand it advocates at the same time scenarios with a decline in gas demand in the medium and long term, considering the role of gas only as a bridge fuel to a low carbon economy⁴. GIE would like to call for a more clear and coherent view from the European Commission in order to ensure a sound investment climate and avoid uncertainty. This uncertainty is damaging to investor’s confidence and restricts new investment.

Given IEA predictions⁵ that oil and gas will play an important role in the EU energy mix for decades, it is important, as outlined above, that clear and predictable demand signals are sent to the investment community now to allow for the diversification of routes and sources. Without these clear and predictable demand signals, investment will go elsewhere, leaving the EU with a potential energy shortfall given the dash for energy by China and India; for example, in back-up capacity of intermittent renewable energies for which gas is especially well-suited.

⁴ Pg 20-22, Energy infrastructure priorities for 2020 and beyond (COM 2010) 677

⁵ IEA WEO 2010



A consolidation of both EU energy and climate policies in order to set a clear long-term energy strategy that is realistic as a foundation for a low-carbon economy is therefore crucial.

- c) Recognition that gas will continue playing a critical role in the EU energy mix for decades. This is important given that one third of EU electricity generation capacity will need replacing by 2020 according to the Commission's own analysis.⁶ There must be recognition of the fact that gas:
- has a much lower capital cost per installed MW (50% the cost of a coal plant, 20% the cost of a nuclear plant and 15% of wind generated energy).⁷
 - Gas power plants can normally be constructed in about two years, much quicker than coal (52-58 months) or nuclear plants (54-60 months).⁸
 - Gas-fired power plants are much more flexible (higher energy efficiency) than nuclear plants.
- d) Measures to ensure clean, efficient and affordable back-up for intermittent renewable energy sources. This could mean replacing old coal-fired power plants by CCGTs. Moving from coal to gas in power generation is almost twice as big a step in terms of emissions reductions compared with moving from gas to carbon-free renewable energy sources.

11. The EU Emissions Trading Scheme is a central element of EU climate policy. The EU wants to foster international climate action by reinforcing international carbon markets, e.g. by making links among emissions trading systems and by further developing crediting systems. What elements do you think should go into the EU low-carbon roadmap? (e.g. bilateral agreements to recognise international allowances and credits, sectoral crediting systems, separate financing mechanism for the purchase of international credits from developing countries, etc.)

ETS should fulfil its role of moving the energy industry towards a lower economy. CO₂ prices should be at the right level to incentivise the development of low-CO₂ technologies, as for instance, CCS. However special attention should be paid to this mechanism in order to avoid excessive complexity and fragility as well as to avoid putting a serious strain on the competitiveness of the European economy in general and of the energy industry in particular.

12. Achieving a low-carbon future means investing in the medium to long-term. How can the EU roadmap help to create a stable environment to encourage investment in low carbon technologies? Would it be a good idea to consider a mid-term objective for 2030 and, if so, in what form?

GIE would like to stress, by way of example, that a switch from coal-fired to modern gas-fired power plants could alone meet the 2020 CO₂ emissions reduction target in the EU. Replacing coal fired power plants by gas fired power plants, results in significant emission reductions. In addition, gas fired power plants are a good response to the need of back up generation in the development of renewable energy production through wind and solar farm owing to the intermittency and unpredictability of these sources. Finally, with a possible extension of nuclear power generation in some of the Member States, gas fired power plants gain importance for peak shaving.

⁶ Pg 3, Energy 2020: A strategy for competitive, sustainable and secure energy (COM 2010) 639

⁷ Mott MacDonald for DECC, June 2010

⁸ From Royal Dutch Shell internal analysis



Due to their important variation of load factor, new gas fired power plants will need a high level of flexibility from gas infrastructure, which will require additional storage, LNG and transmission infrastructure

13. We want to cut emissions in the EU by 80% to 95% by 2050. Some of the measures needed to achieve this could bring about more sustainable growth, extra jobs, accelerated innovation, cleaner air, increased energy security and lowering our vulnerability to external energy shocks. Which of these do you think should be top of the list? What should the EU do to maximise the benefits you think should be delivered in priority by future climate action?

From the perspective of natural gas infrastructure operators, priority should be given to the following actions:

- ensuring a sound investment climate for energy infrastructure development
- replacing coal with gas as a source of electricity generation in order to quickly and cheaply lower CO₂ emissions within the EU.
- recognition of the benefits of natural gas within a low carbon economy. Natural gas is the cleanest fossil fuel and, if it is associated with CCS or other new developing technologies, it is without doubts, not only a transition fuel to a low carbon economy, but also a destination fuel for the long run.
- Recognition of the key role to be played by gas infrastructures. Gas infrastructures are market facilitators and therefore the backbone of a more interconnected, liquid, competitive, sustainable and secure EU gas market.
- Increasing amount of renewable energy is expected to be installed. In order to back-up the intermittent production, an enormous flexibility is necessary in both the electricity and gas networks. Gas is storable, that's why LNG and underground gas storages have a key role to play to provide this flexibility, both on gas and electricity networks (thought CCGT and other developing technologies using gas as an energy carrier). The Roadmap to 2050 should clearly recognise this requirement to achieve a successful low carbon economy by 2050.
- Diversification of routes and energy sources to the EU energy market are key policy elements within an inter-dependent environment.

14. What sectors do you think may be most vulnerable to the negative impacts of climate change, and what policies do you think the EU should pursue to help them to adapt? Do you have any suggestions on the integration of adaptation policies in the Common Agriculture Policy, civil protection, environment, energy, transport, research and development policies?

No response

15. Do you have success stories that could lead to new initiatives for steering EU transition to a low-carbon economy you wish to highlight? Please add other further comments or suggestions here if you wish.

As the example of the United States shows, the development of unconventional gas is an evidence of a successful story. This new technology has evolved very quickly during the last years and it accounts now for 50% of the total gas production. This is a good example of how new technologies can be commercially viable in a short period of time. If CCS could follow this example, the EU could more easily achieve its low-carbon target by 2050. Better promotion and incentives for CCS development would unlock the potential associated to clean fossils fuels. Clean gas, underpinned by the



appropriate gas infrastructure, would definitely help to drive the EU energy market into a decarbonised economy by using an abundant, affordable, competitive, flexible and acceptable fuel as natural gas. Natural gas, CCS and natural gas infrastructure would ensure low carbon emissions, back-up for renewable energy productions and competitive prices for the EU consumers.

It also has to be pointed out that the outcomes from research in new energy technology developments concerning gas will make a major contribution to achieve low-carbon targets. In this sense, new technologies, such as the production of synthetic gas (“power to gas”) and the compressed air energy storage (CAES), among others, will help define gas as an essential component in the future low-carbon economy framework by using existing and new gas infrastructure and the available technology developments.

These options would also bring new high-tech employment and would reinforce the energy sector as well as the associated manufacturing sectors.

Moreover, a special attention should be paid on how other countries in World, and in particular the major CO₂ emitters handle these climate issues.