

Integration of renewables under market conditions: IOGP response to the revised Renewables Directive

The International Association of Oil and Gas Producers (IOGP) welcomes the Paris Agreement and believes that the increase of renewables worldwide will contribute to achieving its objectives. Nevertheless other fuels such as natural gas will be needed to facilitate the integration of renewables into the energy system and to ensure energy remains affordable for consumers and industry.

IOGP represents companies producing a third of the world's oil and gas. A number of our members are also investing in renewable energies such as wind, solar and advanced biofuels. The oil and gas sector has more than 40 years of experience working in the UK and Norwegian Continental Shelves, and in other places around the world, building up a strong engineering, commercial and legal expertise.

We believe this expertise is a useful contribution to the implementation of a harmonized energy mix. In this spirit, we propose the following recommendations for the Commission's proposal on renewable energy.

1. General observations

- For the EU, investment needs are estimated to be around €1 trillion from 2015 to 2030 in renewable electricity generation alone.¹ Even though renewable investment in the EU has followed a downward trend in recent years, it nonetheless remained high relative to other regions in 2015: the investments in renewables were estimated at around \$55 billion or over 85% of **Europe's generation investment, \$7 billion was invested in coal, whereas only \$1 billion in gas.**²
- According to the study "FCH JU Commercialization of Energy Storage in Europe", if Europe is going to meet the target of 80% carbon reductions with the technology currently available, it will need 10 times the amount of storage it has today.³ Batteries alone, however, cannot cope with this challenge, especially considering seasonal variability⁴, due to limitations with regard to quantity and duration of electricity storage (toxicity and resource limitations are other concerns), not to mention the cost dimension. **Energy storage is, and will continue to be, a crucial element in energy policy. In this respect, gas can play a key role: storing gas underground and in already invested and largely amortised grid are sources of flexibility. Power-to-gas is also a process to create a way to store electricity under the form of gas (hydrogen).** Gas can come from an array of sources, from the traditional natural gas to the renewable forms, such as biogas, bio-methane, synthetic gas, and hydrogen. The gas grids become reservoirs of sustainable energy for intake and throughput in a continuous, flexible manner, able to handle short and long-term intervals (for daily and seasonal variations), as well as geographic transfer. These technical characteristics must be borne in mind when considering legislation that undergirds renewable energy deployment.
- EU policymakers should focus on the resilience of the energy system in addition to the concept of 'energy independence'. **Reduced import dependency should not be seen a desirable goal in itself, as it does not necessarily lead to lower energy prices or improved competitiveness. Such arguments also defy the efforts of the World Trade Organisation and those of the EU to negotiate Free Trade Agreements with other countries and regions. It is rather that security of gas supply and competition on the Internal Gas Market should be enhanced by indigenous production and diversification of gas sources.**

2. Phase out all forms of subsidies, unless supporting R&D and innovation

- **We encourage the EU to phase out all form of subsidies, unless supporting R&D and innovation.** IOGP believes that all forms of public interventions in the energy market by EU Member States as well as support provided at the EU-level should be phased out. These include regulated prices and subsidies for mature technologies (e.g. coal production, onshore wind, solar panels). Technologies are mature when they earn margins comparable to existing technologies. Low profitability due to excess supply and low market prices is not a valid argument for continued economic support. Continuation of support to mature renewables is likely to prolong over-capacity in the European power markets, weaken the CO₂ price, delay investments in flexibility solutions, and increase the need for

¹ Proposal for a RES Directive, COM(2016) 767 final.

² World Energy Investment 2016, IEA.

³ FCH JU Commercialization of Energy Storage in Europe, March 2015.

⁴ In countries experiencing cold winters, the energy demand in winter is a multiple of that in the summer.

other interventions, thereby permanently undermining the efficiency of European climate and energy policies.⁵

- In its documents on the RES Directive, the Commission refers to “externalities”/“external costs” that are associated with the electricity (and heat) generated from fossil fuels. However, one should remember that **externalities are costs (or benefits) resulting from an activity or market transaction**. Various externalities are often linked to activities along the value chains of different energy sources, some more directly than others. Examples of externalities include: emissions of “local” pollutants, security of energy supply⁶, innovation spill-overs, land use and loss of amenity value of wind farms and other generating capacity, water scarcity, road congestion, noise – and many others.⁷ **Governments charge for such externalities in a variety of ways, including taxes levied on fuels in heating/electricity sectors, taxes on vehicles (often with charges differentiated by vehicle type and technology), road pricing schemes, etc.**⁸

3. Keep flexible gas as an option alongside RES

- Gas can help the EU meet its climate and energy objectives, while also reducing energy poverty. Recent European Commission data show that, on average, EU consumers pay per kWh three times less for gas than for electricity (when all taxes, levies and network charges are included), and still twice cheaper before taxes.⁹ **EU policy makers should evaluate the impact of initiatives in various domains on vulnerable consumers and fuel poverty. The EU Survey on Income and Living Conditions (EU SILC) estimates that 54 million European citizens (around 11% of the EU population) were unable to keep their home adequately warm in 2012.**¹⁰ This definitely needs to be considered in the debate on promoting electrification in heating and cooling.
- As the EU approaches (by 2030) its target of generating 50% of all power from RES, mostly from variable solar and wind, it leads to a tripling of intermittent capacity (wind and solar). **The power system needs the availability of power plants ready to dispatch at a short notice when needed by customers. Gas-fired power plants are an affordable way to guarantee flexibility and reliability in the integrated power system, while meeting EU climate & energy goals.** Today in the most of EU Member States, we are facing overcapacity situations, while **coal and lignite power plants currently account for 77% of the sector’s emissions and only ¼ of generated electricity.**¹¹ These plants are generally old, inefficient, emitting many air pollutants and not sufficiently flexible to back up efficiently the quickly expanding renewable capacity¹² We therefore believe, where overcapacity exists, the most polluting and inflexible plants need to receive appropriate signals that should address the overcapacity problem. When the overcapacity issue is

⁵ “Time to phase out support to mature renewables? Approaches and options”, Thema, 2016.

⁶ For example, EU legislation (Directive 2006/67/EC followed by Directive 2009/119/EC) requires countries to retain minimum petroleum reserves with a view to maintaining security of supply. Individual member states use different approaches to maintaining strategic reserves. In some cases, the obligation is passed on to energy companies. The benefits accruing to society from energy companies holding such supplies represent a positive externality.

⁷ *Energy Taxation and Subsidies in Europe*, NERA Economic Consulting. The full report is available [here](#).

⁸ To read more please refer to [Questions & Answers on Energy subsidies in Europe](#)

⁹ Report ‘Energy prices and costs in Europe’, European Commission, COM(2016) 769 final. Figure 3 in this report shows that the energy component of average EU household retail electricity prices equals around 75€/MWh, and for industry – slightly over 50€/MWh (Figure 6). Figure 10 shows that the energy component of average EU household retail gas prices accounts for around 35€/MWh, and for industry – slightly over 25€/MWh (Figure 12).

¹⁰ ‘Energy poverty and vulnerable consumers in the energy sector across the EU: analysis of policies and measures’, Insight_E – EC think tank, May 2015.

¹¹ World Energy Outlook 2016, IEA, page 572.

¹² Global Market Outlook for solar power 2015-2019, SolarPower Europe, page 28.

addressed, and with the higher penetration of variable RES, gas-fired power plants will be even more needed to provide reliability and prevent the occurrence of black-outs.

- **Using electricity for heating (regardless of source) is less energy efficient than using gas.** As demonstrated by the European Environment Agency (EEA), the improvement in energy efficiency in the EU between 2005 and 2010 is explained by the increased use of natural gas (natural gas power plants have relatively higher efficiencies – 60%¹³) and the decreased use of coal, lignite and nuclear (coal, lignite and nuclear power plants have relatively lower efficiencies). Conversely, after 2010, the average efficiency of electricity and heat production diminished due to the increased use of coal, lignite and biomass, and the decreased use of natural gas. About half of the decrease in energy efficiency between 2010 and 2012 can be attributed to the changes in fuel mix, and led to a greater use of existing low efficiency coal plants.¹⁴ **Given the strategic value of hydrocarbons for energy security of EU Member States, a balanced and sustainable increase of gas utilisation, including a switch from coal to gas, should be endorsed as an important instrument to increase energy efficiency and reduce CO₂ emissions.**
- Gas to heat has a very high efficiency (around 80%), whereas gas to electricity for heat is less energy efficient overall, at only about 55% efficiency. Moreover, replacing coal plants with gas plants such as **combined cycle gas turbine (CCGT) and combined heat and power (CHP)** can halve EU emissions in the power sector and increase energy efficiency significantly. Further, CCGT plants can achieve conversion efficiencies in the order of 60%, with the prospect of even higher efficiencies in future plants¹⁵, compared with thermal efficiencies of 25 to 45% for coal¹⁶ and about 33%¹⁷ for nuclear generated power. When CCGTs are used in CHP systems they can achieve efficiencies of over 80%¹⁸. **Investing in high-efficiency gas-fired power plants today can bring immediate efficiency and significant GHG reductions, while improving the air quality. Increased utilization of modern gas-fired power plants could alone meet the EU 2020 CO₂ emissions reduction target and make significant progress towards the 2050 objectives.** Gas power plants with CCS could help reduce CO₂ even further. There are several positive characteristics compared to coal power plants with CCS. There is only half the volume of CO₂ to capture, transport and store: this will give a significant advantage to gas over coal for power generation in areas where CO₂ storage capacities are limited or far away from big emitters.
- Relying on renewable power to provide electricity for heat has further challenges. For instance, renewable sources are often not available at times of peak demand – and there is currently no effective power storage (not even seasonal storage). The cost implications of infrastructure investment for mass electrification, as well as the public opposition to a proliferation of overhead (high voltage) lines, deserve greater analysis. One needs to also consider the increased cost overall for consumers in terms of using electricity because they will need more of it to have the same level of heat.¹⁹

¹³ European Environment Agency, EN19 Efficiency of conventional thermal electricity and heat production, [here](#).

¹⁴ European Environment Agency, Efficiency of conventional thermal electricity and heat production, [here](#).

¹⁵ European Environment Agency: EN19 Efficiency of conventional thermal electricity production, Source: <http://www.eea.europa.eu/data-and-maps/indicators/en19-efficiency-of-conventional-thermal/en19-efficiency-of-conventional-thermal>

¹⁶ Energy Technology Perspectives (2012), p.66.

¹⁷ IAEA (2013), Source: <http://www.iaea.org/NuclearPower/Downloadable/Meetings/2013/2013-10-02-10-03-TM-NPTD/info-sheet.pdf>

¹⁸ Source: <http://chp.decc.gov.uk/cms/chp-benefits/>;
http://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/bbest_chp.pdf

¹⁹ Is it cheaper to heat my home with gas or electricity?, <http://www.thegreenage.co.uk/cheaper-heat-home-gas-electricity/>

4. Simplify the process

- For 2030, the European Commission has proposed a 27% renewable target binding at EU level. As emphasised by the Commission, we recommend that this target is not translated into national ones. We believe this would unnecessarily complicate the 2030 energy and climate policy and lead to market fragmentation, without delivering emission reductions. For this reason, **IOGP does not support the specific binding targets for renewables in the heating and cooling sector at Member States level.** An increase in the share of renewable electricity in this sector, in particular through the introduction of binding targets, is very likely to come at the expense of cost-effectiveness. We truly believe that affordability must play a crucial role in this as otherwise EU citizens will be discouraged from undertaking any measures. New targets for renewable energy sources would exacerbate the perverse outcomes already evident at the national level where RES and CO2 targets are overlapping and often in conflict.

ANNEX

Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources (recast)

Proposal by the Commission	Amendments proposed by IOGP
<p>Recital 56</p> <p>Representing around half of the final energy consumption of the Union, heating and cooling is considered to be a key sector <i>in accelerating the decarbonisation of the energy system.</i> Moreover, it is also a <i>strategic</i> sector in terms of energy <i>security, as it is projected that around 40% of the renewable energy consumption by 2030 should come from renewable heating and cooling. The absence of a harmonised strategy at Union level, the lack of internalisation of external costs and the fragmentation of heating and cooling markets have led to relatively slow progress in this sector so far.</i></p>	<p>Recital 56</p> <p>Representing around half of the final energy consumption of the Union, heating and cooling is considered to be a key sector <i>contributing to emission reductions in</i> <i>accelerating the decarbonisation of the energy system.</i> Moreover, it is also a <i>strategic</i> sector <i>with high energy poverty security, as it is projected that around 40% of the renewable energy consumption by 2030 should come from renewable heating and cooling. The absence of a harmonised strategy at Union level, the lack of internalisation of external costs and the fragmentation of heating and cooling markets have led to relatively slow progress in this sector so far. A stronger requirement in impact assessment guidelines should be introduced to evaluate the impact of policies on vulnerable consumers and the energy poverty.</i></p>

Proposal by the Commission	Amendments proposed by IOGP
<p>Article 23 Mainstreaming renewable energy in the heating and cooling installations</p> <p>1. In order to facilitate the penetration of renewable energy in the heating and cooling sector, each Member State shall endeavour to increase the share of renewable energy supplied for heating and cooling by at least 1 percentage point (pp) every year, expressed in terms of national share of final energy consumption and calculated according to the methodology set out in Article 7.</p> <p>2. Member States may designate and make public, on the basis of objective and non-discriminatory criteria, a list of measures and the implementing entities, such as fuel suppliers, which shall contribute to the increase set out in paragraph 1.</p> <p>3. The increase set out in paragraph 1 may be</p>	<p>Article 23 Mainstreaming renewable energy in the heating and cooling installations</p> <p><i>Delete</i></p>

implemented through one or more of the following options:

(a) physical incorporation of renewable energy in the energy and energy fuel supplied for heating and cooling;

(b) direct mitigation measures such as installation of highly efficient renewable heating and cooling systems in buildings or renewable energy use for industrial heating and cooling processes;

c) indirect mitigation measures covered by tradable certificates proving compliance with the obligation through support to indirect mitigation measures, carried out by another economic operator such as an independent renewable technology installer or energy service company -ESCO providing renewable installation services.

4. Member States may use the established structures under the national energy efficiency obligation schemes set out in Article 7a of Directive 2012/27/EU to implement and monitor the measures referred to in Paragraph 2.

5. The entities designated under paragraph 2 shall ensure that their contribution is measurable and verifiable and shall report annually starting from 30 June 2021, to the authority designated by the Member State, on:

(a) the total amount of energy supplied for heating and cooling;

(b) the total amount of renewable energy supplied for heating and cooling;

(c) the share of renewable energy in the total amount of energy supplied for heating and cooling; and

(d) the type of renewable energy source.

6. Member States shall ensure that the reports referred to in paragraph 5 are subject to verification by the competent designated authority.