COGEN Europe's submission to the public consultation on "A framework for 2030 climate and energy policies[1]"

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COGEN Europe, the European Association for the Promotion of Cogeneration welcomes the European Commission initiative to hold a thorough debate on the future framework for climate & energy policies in Europe. COGEN Europe would like also to take this opportunity to reaffirms its support for the full implementation of existing legislations, notably the Energy Efficiency Directive 2012/27/EU, and the rapid completion of the internal gas and electricity markets as laid out in Directives 2009/73/EC & 2009/72/EC.

COGEN Europe key messages:

- The existing 2020 framework did not work for the CHP sector of energy efficiency solutions, particularly due to a lack of high level commitment from governments, therefore a simple replication of the existing 2020 framework is highly likely to be equally unsuccessful;
- The 2030 climate and energy policies must be designed in a comprehensive and coherent manner;
- Nevertheless, the cogeneration sector strongly believes that an energy efficiency policy must be reinforced beyond 2020 irrespective of any climate or renewable policy developments. Energy efficiency because of its significance for security of supply, economic competitiveness and environmental protection merits more focus in its own right and a bolstered role in the upcoming EU legislative framework;
- The implementation of energy efficiency policies curbs energy demand therefore reducing energy imports and mitigating pollution. Furthermore it can contribute to overcoming the challenge of energy affordability for households and European businesses;

[1] COM (2013)169.

- The rolling out of more energy efficient solutions holds significant potential for net job creation -from the manufacturing of equipment down to the servicing of installations;

- In order for CHP plants to retain their high efficiency mode of operation, continuity of heat supply must be ensured today and in the future[2];

- It is of crucial importance to better integrate the heating and cooling sector into the analysis and into the design of the 2030 framework;

- Concerning the energy indicators to be considered by the EU, our sector recalls that the primary energy saving metric is the easiest to measure and most accurate one for the transformation sector.

Based on the 2020 framework, and given that current EU policy is led by targets and measures we recommend that:

- Future EU policies shall consist of objectives, targets, measures that are actionable and enforceable[3];
- The method leading to an agreed framework shall build on the technical-economical potential of energy savings and the contribution of all sectors of the European Economy in a bottom up approach. Furthermore, COGEN Europe believes that certain sectors are better placed than others to bear higher objectives;
- Using the above mentioned approach, COGEN Europe favours a binding energy efficiency target for 2030, to be expressed as an absolute amount of energy saved that will result in a reduction of energy consumption compared to an agreed modelled baseline[4] projection, as it provides a clear direction and a high degree of confidence to all stakeholders;
- Within any future legislative proposal setting a target, an objective or establishing measures, a mechanism shall provide for a dynamic link to the economic activity of countries/sectors (especially the level of activity of manufacturing/processing plants) as well as the ability of the economic agents to get projects financed;
- Ultimately, any resulting framework at EU and national levels must be stable once in place for the CHP operators/hosts.

[2] It is critical that the guaranteed grid access and priority of dispatch provisions for high efficiency CHPs in the Energy Efficiency Directive –EED- are maintained post 2020.
[3] In addition there is a need for clear guidelines from the European Commission for both implementing those objectives and on reporting rules.
[4] The definitions and principles of article 1 and article 2 of the EED 2012/27/EU are adhered to.

Competiveness of the European economy and energy affordability aspects

a. **improving energy affordability for citizens and fighting fuel poverty**

– In what regards the heating demand of homes, the delivering of heat by district heating networks supported by cogeneration units or the supplying of heat by on-site micro-cogeneration units represents in most instances a cost effective and a practical proposition.

b. **Competitiveness and job creation at the heart of the CHP supply chain and industrial CHP operators**[5]

– Operating CHPs already helps tens of thousands of industries Europe-wide to improve their competiveness and lower their energy input expenditures;
– COGEN Europe is of the view that implementing more energy efficient solutions holds significant potential for net job creation -from the manufacturing sector down to the servicing of installations- and economic growth while paving the way for a more sustainable energy system;
– It is crucial that future energy policy continue to ensure that the supply of heat from high efficiency cogeneration plants is maintained as any legislative change in this field would represent a blow to the competiveness of industrial sites[6];
– Designing a comprehensive 2020+ energy efficiency policy would create innovation in the sector and improve EU's technological leadership and its ability to further export technology and knowledge;
– It shall be brought to the attention of the European Commission that the European Union is currently losing ground in its leading role in CHP manufacture and design worldwide compared to other major world regions and that political engagement is needed to stop this devastating trend[7].

[5] One key barrier for the wider adoption of CHP is a lack of clear and bold political support. Because cogeneration plants adsorb more capital and are more challenging to operate than a conventional boiler, the massive fuel saving potential does not materialised (in the current business environment, investors are basing their decision on a very short payback time).
[6] Provisions for access to the electricity grid in article 15 of the EED shall be carried forward.
[7] The US and china have recently announced major plans to expand the penetration of CHPs in industries.

Interplay of the GHG, RES and EE policies:

- Climate and energy policies must be designed in a comprehensive and coherent manner[8];
- COGEN Europe members support the views that energy savings contribute to reducing the costs of decarbonisation by facilitating renewable energy uptake and making long term GHG targets cheaper for member states to achieve;
- It is widely accepted that a large fraction of the CHP fleet can accommodate bioenergy instead of fossil fuels. The lowering of the carbon footprint of cogenerated heat and cogenerated electricity could be swiftly achieved if there were a strong political will coupled with a sufficiently market oriented mechanism;
- Energy efficiency policies do have a pivotal role in easing the sustainability dimension of energy usage and in bringing a higher share of renewables into the power mix via notably minimised grid development costs and reduced congestion and generation costs;
- As most of the CHP plants are heat led, knowing and characterising this heat demand is of paramount importance. The European Commission has rightly begun to acknowledge the need to take full account of the heating/cooling market. Our sector believes that both the demand requirements and service requirements of the heat/cooling market should be considered in the 2020+ framework which should also assess the combined effects of energy efficiency and renewable policies for the heating and cooling sector.

Some recommendations with regard to the methodology leading to a 2030 framework:

- The European Commission shall work on a comprehensive strategy encompassing all energy sources and energy efficient solutions throughout the entire energy supply chain. It is of fundamental importance to better integrate the heating and cooling sector into the analysis, starting with a better understanding of the issue at stake and the solutions available now and in the future. An area which also deserves more attention from the EU is the contribution of local energy infrastructures, associated to power and/or heat production, to the three pillars of any EU policy -security of supply, affordability and sustainability;

[8] COGEN Europe does not believe that relying today on a CO_2 price policy only will trigger investment in low carbon solutions. This belief is supported by the findings of the Impact Assessment SEC (2011) 779 accompanying the proposal for an EED which say that a carbon price of 70€/ton would be necessary to drive investment in cogeneration plants.

- When running models and making assumptions, the Commission shall assess each technological path against its cost-effectiveness but also its bankability and acceptability;
- Our association is also supportive of some kind of flexibility for member states while ensuring an adequate level of ambition for them;
- Adopting the approach above could lead to sectoral, cross-technological or even sub-sectoral energy improvements which might vary even within the same sector.

Side comments

- Concerning the energy indicators to be considered by the EU, our sector recalls that the primary energy saving metric is of the easiest and most accurate one, notably if the preferred system-wide approach is taken;
- COGEN Europe recalls that in most national markets, CHP plants need a targeted and transitory support to compensate the imperfections remaining in the electricity and gas markets. Hence the need under certain conditions for support –which could be in the form of state aid, grants, feed in premium, etc…- to trigger the building of new CHPs or the replacement of poorly performing boilers/power plants by CHPs ones.

Final remarks:

- COGEN Europe insists that funding tools/streams must be made available to stakeholders in order to trigger energy efficiency improvements at local level;
- COGEN Europe would like also to recall that energy efficiency policies in virtually all cases lead to health and air quality improvements;
- There is a vast cost-effective potential attached to a greater penetration of CHP with estimates in the range of 35 MToe of savings economically at hand in the supply side sector[9], member states and the European Commission shall work on ways to realise that energy savings potential;
- It is absolutely vital that energy efficiency policies are pursued and reinforced in the future so that CHP stakeholders get the necessary legislative framework which would give market signals.

[9] based on member states reporting under the CHP Directive 2004/8/EC.

Annex I

Cogeneration (*Combined Heat and Power or CHP*) is a technique for the simultaneous production of both heat and electricity from a single plant, both of which are used.
The central and most fundamental principle of cogeneration is that, in order to maximise the many benefits that arise from it, systems should be based according to the heat demand of the application.
This can be an individual building, a factory or a city served by district heat/cooling.
Cogeneration therefore offers energy savings ranging between 10-40% when compared against the supply of electricity and heat from conventional power stations and boilers (and overall efficiency of up to 90% can be reached).

The role of cogeneration in total electricity generation in Europe:

The EU in 2010 generated 11.7% of its electricity using cogeneration. However, there is large difference between Member States with variations of the share of cogeneration between 0% and 42.8%. According to official Eurostat figures from 2007, there is no cogeneration in Malta, very little in Cyprus (*0.3%*) and Greece (*1.6%*). Denmark has the greatest share of cogeneration in total electricity generation (*42.8%*) followed by Latvia (*40.9%*).

Cogeneration, what it does:

Cogeneration optimises the energy supply to all types of consumers with the following benefits to both users and society at large:

- Increased efficiency of energy conversion and use
- Lower emissions to the environment, in particular of CO_2
- Large cost savings, providing additional competitiveness for industrial and commercial users, and offering affordable heat for domestic users
- An opportunity to move towards more decentralised forms of electricity generation, where plant is designed to meet the needs of local consumers, providing high efficiency, avoiding transmission losses and increasing flexibility in system use
- Improved local and general security of supply – local generation, through cogeneration, can reduce the risk that consumers are left without supplies of electricity and/or heating. In addition, the reduced fuel need which cogeneration provides reduces the import dependency – a key challenge for Europe's energy future
- Increased employment – a number of studies have now concluded that the development of CHP systems is a generator of jobs.

CHP fuel mix:

As a fuel, natural gas dominates the European CHP market (about 40%), followed by solid fossil fuels at 35%. Renewable fuels, mainly biomass, but also combustible waste, are becoming increasingly important and have now reached 12% of the market.
For most industrial CHPs that have a gas-fired CHP, further reducing their carbon footprint is conditional to the adoption of a bioenergy supply. In a large majority of cases this will not be a realistic option in the near term until security of supply, sustainability dimension and cost effectiveness aspects are not met.

Common CHP plant types are:

- Gas turbine CHP plants using the waste heat in the flue gas of gas turbines
- Gas engine CHP plants use a reciprocating gas engine of rather small size (could be fuelled by gaseous or liquid biofuels)
- Combined cycle power plants adapted for CHP
- Steam turbine CHP plants that use the heating system as the steam condenser for the steam turbine (could be fitted on a waste incinerator)
- Molten-carbonate fuel cells and solid oxide fuel cells that deliver a high electrical efficiency
- Smaller cogeneration units may use a reciprocating engine or Stirling engine (as small as 1 kWe output)
- It should also be mentioned that nuclear power plants can be fitted with taps after the turbines to provide steam to a heating system (few installations exist in the EU)