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The Clean Energy Package has three aims: put energy efficiency first, make Europe number one in renewables and empower energy consumers. Engaging consumers is a vital part of the clean energy transition, as ultimately it is all energy consumers from heavy industry, through to commercial and public sector users and to individual householders, who will make this transition happen. **Being consumer-led and using a range of traditional and renewable fuels, Cogeneration or Combined Heat & Power (CHP), can help engage consumers and make them the active beneficiaries of the energy transition, receiving value for their contribution to the system rather than just paying for it. In addition, cogeneration contributes to make the EU become number one in renewables, boost energy efficiency and ensure the security of both heat and electricity supply in Europe, in line with the Clean Energy Package aims.**

Key benefits of cogeneration for the Clean Energy Package objectives

Putting the energy efficiency first

Through the utilisation of the heat, the efficiency of a cogeneration plant can reach 90% or more, maximising the use of the energy content for a given energy source. Cogeneration is generally installed close to a heat demand point, thus reducing transmission and distribution grid losses.

- Cogeneration saves between 15-40% energy compared to the separate supply of electricity and heat from conventional power stations and boilers, saving 200 million tonnes of CO₂ per year. Applying cogeneration to thermal power generation technologies and conventional fuels already today is key to achieve immediate energy savings and CO₂ reductions, helping to meet the intermediary and long-term climate and energy efficiency goals cost-effectively.

Achieving global leadership in renewable energy

Cogeneration is dispatchable and predictable, thus playing a key role in enabling a higher share of renewable heat and electricity in the system, while ensuring grid stability

- 20% of fuels used in cogeneration are renewables. This figure has doubled in 10 years
- Cogeneration can be dispatched when intermittent renewables are not generating and will be key in providing system stability, as the share of RES will increase
- District heating connected cogeneration can leverage stepwise and meaningful de-carbonization of both heating and electricity sectors by using sustainable biomass and biodegradable waste

Empowering energy consumers

Located close to end-users (cities, homes, businesses or industrial sites), cogeneration is designed to empower consumers and local communities to produce their own low carbon heat and electricity, save energy and reduce energy bills.

- Used in single family homes, in the largest industrial complexes and in district heating, cogeneration represents 15% of the EU's heat and 10.5% of its electricity comes from high efficiency cogeneration
- Around 100,000 Europeans self-generate electricity and heat with on-site micro- or small scale cogeneration
- Cogeneration is widely used in refineries, paper mills and chemical manufacturing sites across Europe
- About 70 million Europeans use district heating, half of its heat is supplied by cogeneration today

Key benefits of cogeneration for the Clean Energy Package objectives (continued)

Cogeneration is vital to Europe's industrial competitiveness

- By saving energy, reducing energy bills and lowering CO₂ emissions, Cogeneration boosts the global competitiveness of EU industry
- 100,000 people are directly employed by the Cogeneration sector and millions of employees benefit from the use of Cogeneration in their businesses

Energy consumers interact with the energy system as a whole, driven by their specific needs, and do not focus on generation or demand, heat, power or gas in silos. To engage consumers, policy should take a comprehensive perspective and break the silos between energy conversion, transmission, distribution and consumption, as well as harness synergies between different energy networks (electricity, gas, heat), fostering consumer choice between different sustainable energy solutions. For this reason, **COGEN Europe recommends taking an integrated approach to the energy system for a cost-effective and secure energy transition.** This can only be achieved if energy and climate policy is based on a comprehensive policy framework that sets clear objectives and ambition, allowing for integrated planning at national and regional levels, through encompassing policy measures and policy signals. **Taking an integrated system's approach to setting objectives, energy planning, implementation and reporting is particularly important for customers to reap the full benefits of cogeneration, either connected to district heating or installed on-site in homes and businesses.** This approach fully accounts for the complexity of optimising a cogeneration system for two markets – heat and electricity – which often requires the aggregation of electricity and heat demand of different customers in a region. COGEN Europe believes that taking an integrated approach to energy and climate policy across all of the different legislative proposals in the Package will be crucial to ensure that the objectives of the Package are met. Only a comprehensive policy framework will unlock the full environmental and economic benefits of cogeneration for consumers and the economy in Europe.

The Clean Energy Package reviews key pieces of legislation, with a view to provide consumers and investors with policy signals for the 2030 time horizon. **While the Package addresses in depth the downstream of the energy value chain (i.e. energy consumption/final use), there is significant untapped energy efficiency potential at supply side level, in the conversion, transmission and distribution of energy.** In that respect, the comprehensive assessments on efficient heating and cooling, not addressed under the current revision of the Energy Efficiency Directive, are key to delivering the 2030 objectives and should thus be strengthened in the Clean Energy Package proposals. Moreover, the spirit of the Energy Efficiency Directive has been weakened, as key principles around ensuring the continuity of heat supply in Article 15 of the Directive were removed, while they should remain a central element of the package. This will ensure that the specific needs of domestic, commercial, public and industrial consumers are fully addressed in the most efficient, secure and competitive manner. Likewise, provisions relating to district heating and cooling systems with cogeneration are addressed in different directives (i.e. scattered across several articles in the Energy Efficiency Directive and now in the Renewable Energy Directive Recast), which will raise the need (and associated difficulties) to co-ordinate impact assessments across the different proposals to demonstrate the full benefits of cogeneration, installed on-site or connected to district heating, as energy efficient solutions delivering value in the local heating and cooling markets.

This position paper covers COGEN Europe's views on the following four legislative proposals in the the Clean Energy Package:

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Legislative recommendations on Energy Efficiency in the Clean Energy Package

Implementing energy efficiency across the whole energy value chain is cost-effective and associated with multiple additional environmental and economy-wide benefits¹. Putting “Energy Efficiency First” is a key principle which must be applied consistently and comprehensively across the different proposals in the Clean Energy Package, and especially the Energy Efficiency Directive (EED) and Energy Performance of Buildings Directives (EPBD). To this end, COGEN Europe calls on EU policy makers to take the following legislative recommendations into account:

Energy Efficiency Directive Review (EED)

- **Apply energy efficiency measures across conversion, transmission, distribution and consumption, as well as to all energy sources (including renewable energy), to fully realise the untapped potential for energy savings** still to be achieved at the different levels of the energy system. This implies:
 - **Reinforcing primary energy savings as a key objective for the Energy Efficiency Directive (EED, Article 3)**. Acknowledging the potential for demand reduction, the opportunities for supply side efficiency are equally important for achieving the energy efficiency objectives across the entire economy and can deliver important savings in a more systematic way. In addition, using primary energy as a metric ensures that upstream losses are accounted for, in the case of substituting one energy type with another at the end user level.
 - **Strengthening the flexibility for Member States to count supply side efficiency measures based on a clear and easy to apply methodology (EED, Article 7.2(c))**. These measures should include cogeneration, district heating as well as encourage waste heat recovery from thermal power generation for beneficial use, such as power production. As low-hanging fruit efficiency measures are exhausted under Article 7, more long term energy savings can (and should) be achieved cost-effectively through supply side measures.
 - **Reinforcing Member States’ activities and action plans for energy efficiency in heating and cooling by linking EED Article 14 with the new Energy Governance Regulation, thus allowing for thorough planning and implementation at national level**. Heat represents today more than 40% of EU’s energy consumption, which makes it a key sector for energy efficiency improvements, as highlighted in the European Commission’s Heating and Cooling Strategy. There is thus a need for continued and ambitious implementation of Article 14 in the EED, by tracking progress, updating and realising the energy savings potential identified by Member States in the comprehensive assessments on efficient heating and cooling. Requiring Member States to secure sufficient policy incentives and to remove regulatory barriers for energy efficiency and decarbonisation in this sector at Member State level will also be a key driver. This will require much deeper analysis than done insofar². Reinforcing the European Commission’s role in reviewing and making recommendations on the Member States’ assessments will be important in the respect.
- **Foster well-informed choices for energy solutions delivering real efficiency gains across the entire energy supply chain, carbon emission reductions and energy security at the lowest cost by**

¹ Showed by several studies: <https://www.docdroid.net/ZMVh0T8/energy-efficiency-policies-making-the-energy-union-work-for-citizens.pdf.html>

² See COGEN Europe Snapshot survey (2016), which revealed that a majority of Member States has showed a lack of ambition in identifying cogeneration potential and, when this potential has been clearly identified, have not taken the appropriate measures to further realise this potential and encourage energy efficiency, as prescribed by article 14.4 of the Energy Efficiency Directive.

- **Allowing Member States to apply an average EU primary energy factor for electricity (PEF) of no less than 2.3 in EED Article 7, reflecting the real energy efficiency of the current electricity system (Annex IV), while ensuring that marginal and seasonal approaches are encouraged for other pieces of legislation (see below point for EPBD).** The EU PEF should be based on a robust and transparent methodology, to be reviewed regularly. The PEF value proposed by the European Commission in the EED review is calculated based on projections, rather than reported energy statistics, resulting in unrealistic assumptions on upstream efficiencies of gas as well as accounting for efficiency gains from cogeneration. As PEFs have an impact on investment decisions, inaccurate values can mislead consumers to make inadequate choices and skew investments in the wrong direction, which would run counter to the achievement of the EU objectives. A more realistic PEF will thus help ensure that end users benefit from the energy efficiency improvements at all levels of today's energy value chain.
- **Ensure a level playing field and a fair comparison between all efficient solutions installed at the end user level by:**
 - **Counting towards Article 7 the significant efficiency gains delivered from on-site high efficiency cogeneration.** This can be done by clarifying in EED Annex V point 2 that the thermal output of high efficiency cogeneration installed on-site is considered as delivered energy and that energy savings shall be calculated by fully accounting for the avoided fuel input to a central power plant by generating electricity on-site with cogeneration. This clarification would ensure consistency with the eco-design and energy labelling measures on space heaters ((EU) Nr. 813/2013 und Nr. 811/2013) and allow for informed consumer choice.
 - **Maintaining the main principles underpinning article 15(5) in the EED to ensure the efficient, secure and competitive supply of heat and fully address the specific needs of domestic, commercial, public and industrial consumers.** This would increase the consistency of the Commission proposal to address efficiency in conversion, transmission and distribution, which if kept as proposed, would underestimate the fact that an important share of the heat is (and will continue to be) not supplied by electricity.
- **Empower energy consumers by**
 - **Facilitating the connection of cogeneration to the grid (EED Article 15.5),** with a view to remove existing administrative barriers to electricity self-production and -consumption.
 - **Introducing a default simplified notification process for cogeneration below 50 kW_e,** ensuring consistency with Art 17 of the Renewable Energy Directive Review and Electricity Directive Recast; for micro-cogeneration below 16 A per phase an "install and inform" grid connection procedure would be appropriate.

Energy Performance of Buildings Directive Review (EPBD)

- **Retain the references to the high-efficiency alternative systems feasibility analysis to support informed consumer choice (Articles 6 & 7).** Consumers have diverse energy needs, depending on their geography, preferences, available energy infrastructure, energy prices and affordability of new investments. For a consumer, improving the efficiency of their home should be an opportunity to choose the best mix of solutions for an optimal outcome that delivers long-term savings. Often building professionals prefer to implement one-size-fits-all efficiency measures, ignoring the latest technology developments or failing to take a holistic approach. The analysis of all alternative measures is a good way of ensuring that consumers get tailored and comprehensive advice, matching their needs and maximising the energy savings potential of a building.
- **Recognise in the smartness indicator for buildings the added benefits of self-production and -consumption of electricity and heat to stabilise the energy system, provide necessary grid services and increase the security of supply.** Consumers can become active contributors to the energy system, through demand response (reducing or shifting their energy demand) but also through self-production

and -consumption of electricity and heat. Innovative energy solutions for buildings, like on-site cogeneration, have the capability to self-produce electricity and heat, including at times of peak demand or when intermittent renewables are not generating; these appliances can be aggregated [e.g. to MWe-scale capacity] and remotely controlled and modulated, in the form of a flexible virtual power plant. The smart capabilities and attributes of on-site cogeneration should therefore be accounted for in the proposed smartness indicator.

- **Better reflect the real electricity generation mix displaced or used by different energy solutions in buildings, in particular with respect to heating and cooling, by encouraging a marginal and/or seasonal approach to primary energy factors (EPBD, Annex I).** While an average EU primary energy factor for electricity is appropriate as a conversion factor for energy savings measures deployed across different sectors, when it comes to policy measures addressing buildings, and in particular heating and cooling, the use of a marginal or a seasonal PEF must be considered to ensure a fair comparison between different energy efficiency solutions. Low electricity production from intermittent renewables often coincides with peak electricity demand (during particularly cold days), when the marginal electricity mix is especially carbon intensive and inefficient. Even as the share of renewable energy increases, the marginal electricity mix will be slower to change. It is therefore important that Member States consider the marginal electricity mix, which will ensure that consumers can fairly compare different heating technologies and which would incentivise further innovation in demand response and system optimisation.

Legislative recommendations on the Renewable Energy Directive in the Clean Energy Package

One of the main objectives of the Clean Energy Package is making Europe number one in renewable energy. Acknowledging that increasing the share of renewable energy is one of the key pillars of the energy transition, **COGEN Europe advocates for the promotion of renewable energy, in both electricity and heat, applying the energy efficiency first principle.** By maximising energy efficiency and enabling a higher share of renewable heat and electricity in the system, while ensuring grid stability, cogeneration plays a central role in achieving these objectives.

The Renewable Energy Directive review represents a unique opportunity to set an enabling framework where efficient and dispatchable energy solutions, including cogeneration and district heating, can play a key role in the energy transition. This will require **putting energy efficiency first and taking an integrated system approach, harnessing synergies between the different energy sectors and networks (electricity, gas, heat) and breaking the silos between energy conversion, transmission, distribution and consumption. In addition, rewarding both the efficient and flexible operation of dispatchable renewable technologies (e.g. biomass or waste-to-energy cogeneration) will further support the integration of intermittent renewable energy.** This will be key to deliver the most cost-effective energy transition and to allow energy consumers (domestic, commercial, public and industrial) the choice of how they can meet their energy needs, while actively contributing to the energy transition.

In order to maximise the potential of the energy transition towards a sustainable low carbon society, boosting green jobs in Europe and empowering energy consumers, the following legislative recommendations should be taken into consideration in the review of the Renewable Energy Directive:

- **Maximise the efficient use of biomass by supporting its use with cogeneration, taking into account the different operation modes and technical capabilities available (Article 26.8).** The benefit of using biomass with cogeneration to simultaneously produce electricity and heat are multiple: 1. biomass is used at its maximum efficiency, thus improving the sustainability of biomass use; 2. the generation of dispatchable and efficient renewable electricity, which can help provide balancing and grid services; and 3. biomass with cogeneration can ensure sustainable and secure heat supply to domestic, public and especially industry consumers, an area with very few cost-effective alternatives. By requiring that biomass plants above 20 MW thermal input can only be supported if done with high efficient cogeneration

technology, the proposal disregards the technical and market complexities associated with both the design and operation of cogeneration plants. In addition, some biomass cogeneration plants can reach electrical efficiencies of more than 40%, but may not generate enough heat or have access to the sufficient heat demand nearby throughout the year to be considered high efficiency cogeneration. COGEN Europe therefore recommends that biomass plants that are designed with the capability to operate in cogeneration mode should qualify to receive a basic level of support, while further support, or a bonus, is provided for high efficiency cogeneration operation. This approach will strike the right balance between supporting high efficiency cogeneration while still ensuring that the limited biomass resources are used efficiently.

- **Create an encompassing policy framework to increase renewable heat share in energy consumption through all available energy solutions, thus ensuring cost-effective, reliable and efficient supply of heat to different types of energy consumers (Article 23).** The new provisions promoting the use of renewable energy in heat supply are welcome, as long as Member States will have the flexibility to harness the cost-effective potential of the myriad of solutions and system integration opportunities that would boost renewable heat consumption. COGEN Europe thus recommends that the scope of Article 23 is wide enough to include the use of biomass and biogas to supply heat with cogeneration installed either on-site, in buildings or industry, or nearby, in combination with district heating.
- **Account for the particularities of the heat market, maximising the optimal use of renewable heat, energy efficiency at system level and cost-effectiveness for final consumers.** This will be achieved through integrated planning at the local level, based on the existing infrastructure in place. Especially in the case of existing district heating networks, often connected to high efficiency cogeneration, the full and unrestricted Third Party Access principle may become detrimental to both final consumers and district heating operators, since it could lead to higher heat prices as well as a sub-optimal use of efficient district heating and cooling, including high efficiency cogeneration, and allocation of renewable energy sources. Allowing third party access (Article 24.5) may represent a good solution under certain circumstances, but it should be carefully constrained to ensure the result is better value for all network users, ensures existing network asset owners are fairly compensated for the cost impacts to their asset, and based on a merit order that recognises the efficiency benefits of cogeneration (that might already be in place), waste heat and cold and other sustainable energy solutions.
- **Reward efficient and low carbon flexibility solutions that support the integration of electricity from intermittent renewable.** The additional intermittent generation creates the incremental need for flexible resources in the system and low electricity production from intermittent renewables often coincides with peak electricity demand (during particularly cold days), when the marginal electricity mix is especially carbon intensive and inefficient. It is therefore key that the low carbon and efficient solutions generating electricity, like cogeneration plants, during times of peak demand or at times of system imbalance are given priority for balancing and system services.
- **Truly engage consumer in the energy transition by facilitating all opportunities. This can be achieved by ensuring well-informed choices, which will lead to most cost-effective and flexible energy solutions.** In particular, Member States should ensure that DSOs carry out biennial flexibility assessments which are comprehensive enough to reflect the contribution of cogeneration and long-term/seasonal storage in addition to the balancing and system services potential of district heating (Article 24.8). While the integration of excess electricity from intermittent renewable electricity into heat networks is important to provide short term storage, DSO assessments should also equally consider the value of long term and seasonal storage making use of the vast capacity of gas grids.
- **Define an enabling framework for “sectoral integration” for synergies between electricity, heat, gas and possibly transport sectors, allowing for an optimal, secure and cost-effective integration of renewable energy in the energy system and in particular in electricity and heat sectors (Article 2 and subsequent articles).** Taking an integrated approach to the energy system with respect to balancing and system services will be key to cost-effectively address the growing flexibility challenge in Europe, emerging from the increasing share of intermittent renewables in the system and to meet the higher expected electricity demand. This approach will ensure a level playing field and a favourable framework

for all solutions that either facilitate the storage, in particular long-term, of excess electricity from intermittent renewables or which tackle residual renewable loads at the lowest cost for consumers and impact for the environment.

- **The provisions on support scheme stability for renewable energy should be extended to high efficiency cogeneration** (Article 6 & 13.3). Over the past years, retroactive changes to national support schemes have equally affected both renewable energy and high efficiency cogeneration. Therefore, the new provisions in the Renewables Directive should be consistently applied to all technologies covered by the State Aid Guidelines, including high efficiency cogeneration.

Legislative recommendations on the proposal for an Energy Union Governance Regulation in the Clean Energy Package

The proposed Energy Governance Regulation is key to establish an integrated approach on energy and climate policy planning, implementation and reporting at the national and regional levels. **The Energy Governance Regulation, should be comprehensive enough to ensure that the potentials for energy efficiency, renewable energy and GHG emissions reductions are identified across the whole economy, bridging the different energy sources, networks and carriers**, while ensuring an ambitious implementation at the national level of identified potentials.

To engage consumers, policy should reflect the consumer's perspective and **break the silos between energy conversion, transmission, distribution and consumption, as well as harness synergies between different energy sectors and networks (electricity, gas, heat)**. This way climate and energy objectives can be achieved at the lowest cost for consumers, while boosting business competitiveness.

- **Ensuring consistency in the application of the “energy efficiency first principle” between Energy Efficiency Directive, Renewables Directive and Electricity Directive and Energy Governance (Articles 2 & 4)**. Member States should take into account the energy efficiency first principle as part of their integrated planning and reporting across the different dimensions of the Energy Union within the framework of the Energy Governance, in order to ensure that the full and cost-effective potential for energy efficiency is identified and realised across the whole energy system.
- **Applying the energy efficiency first principle across energy conversion, transmission, distribution and consumption, as well as in key sectors**
 - Given the significant potential identified for energy efficiency in heating and cooling, as recognised in the European Commission's Heating and Cooling Strategy (COM (2016) 51), as well as in the first comprehensive assessments carried out by Member States pursuant to Article 14 of the Energy Efficiency Directive, the **Energy Governance planning and reporting guidelines should particularly prioritise the heating and cooling sector (Articles 4 and 19)**. This will ensure that the comprehensive assessments carried out by Member States, which are based on thorough territory level cost-benefit analysis (Annexes VIII and IX of the EED), are embedded in the Member States' future strategies on climate and energy.
 - **Member State's measures triggered by Article 15 in the EED to promote energy efficiency in conversion, transmission and distribution should be linked to the Energy Governance provisions on internal energy market aspects, especially with respect to adequacy assessments (Articles 4 and 21)**.

Legislative recommendations on the on the Electricity Market Design in the Clean Energy Package

Cogeneration is a consumer-led technology generating sustainable and reliable electricity and heat for domestic, commercial, public and industrial users. **It is one of the key distributed energy solutions that, with the right framework in place, can help meet the growing flexibility needs of an electricity system with an increasing share of intermittent generation and as well as higher electricity demand.**

Some cogeneration installations, especially existing plants installed on industrial sites, were designed to meet high efficiency cogeneration criteria³ rather than to operate flexibly. **These cogeneration installations will deliver higher value to the energy system and help boost industrial competitiveness in the medium term, improving the carbon footprint of energy intensive industry and ensuring the reliable supply of high temperature heat to these consumers.** While fostering a more flexible electricity system, the Electricity Market Design should also address the **need to ensure continuity of heat supply and maximise the efficient operation of cogeneration installations where electricity production is tightly coupled to the heat supply as part of an industrial process.**

Key policy recommendations

- Properly define “significant modifications” to existing plants in the context of priority of dispatch by providing a threshold for the additional significant capacity (i.e. more than 20% of the initial capacity of a plant). Ensure that the grandfathering clause allows that priority of dispatch is lost only on the additional capacity increase and not the overall initial capacity (Electricity Regulation, Art 11)
- Continue to provide priority of dispatch for small scale cogeneration to help realise the potential of this distributed generation solution, while preventing burdensome administrative procedures (Electricity Regulation, Art 11)
- Provide further guarantees that self-consumed electricity from cogeneration, especially installed in industry, is not curtailed without compensation and unless severe technical network issues arise (Electricity Regulation, Art 12)
- Recognise the important value of cogeneration embedded in the local economy as part of adequacy assessments
- Ensure that the methods to implement the Emissions Performance Standard (EPS), in the context of capacity mechanisms, account for high efficiency cogeneration producing both electricity and heat (Electricity Regulation, Art 23)
- Ensure that grid tariffs are smartly designed to account for the benefits of more active energy consumers, including self-consumption, including avoided or deferred electricity grid reinforcements. Capacity-based grid tariffs should therefore not be imposed on self-consumption indiscriminately.

³ High efficiency cogeneration methodology is defined in the Energy Efficiency Directive 27/2012/EU. As part of the EED framework, the reference values used to compare high efficient cogeneration with the separate production of heat and electricity are regularly updated to reflect state of the art technologies.

Policy Recommendations: Electricity Regulation

- **Take a balanced approach on priority of dispatch and guaranteed access to the grid⁴, ensuring that existing investments in high efficiency cogeneration are not at risk of decommissioning, while providing strong market signals for future investments in efficient, sustainable and flexible distributed generation (Electricity Regulation, Articles 11 and 12). In many European countries, important investments in high-efficiency cogeneration were made under the premise of **priority of dispatch and guaranteed access to the grid, aimed at enabling industrial sites (e.g. chemicals, pulp and paper, refineries, alumina) to improve their energy performance, ensure their reliable supply of electricity and heat and boost their competitiveness. These provisions also ensure the optimised operation of cogeneration for it to attain the highest efficiency possible, thus bringing wider benefits to the energy system, including primary energy efficiency and CO₂ emission reductions.** Ongoing discussions for a new Electricity Market Design are challenging priority of dispatch and guaranteed access to the grid for cogeneration and renewables, jeopardizing further investments in modernising existing cogeneration projects and undermining their the ability of industrial users to ensure the continuity of heat supply (e.g. to manufacturing processes or in hospitals), a key principle enshrined in Article 15 (5) of the Energy Efficiency Directive.**

COGEN Europe has the following policy recommendations for priority of dispatch and curtailment provisions:

1. It is crucial that **existing cogeneration projects should continue to be promoted through priority of dispatch**, re-assuring market operators that the business case for their investment will not be lost
2. **“Significant modifications” to existing generators should be more precisely defined, providing a clear threshold for significant capacity increases. The grandfathering clause should be strengthened by guaranteeing priority of dispatch on the capacity of the initial investment, with the possibility to only lose priority of dispatch on the additional significant capacity increase** (Please find specific text proposals in the Annex). The Electricity Regulation draft under discussion foresees the revocation of priority of dispatch following significant modifications when any capacity increase occurs. This condition creates legal uncertainty, as no threshold is provided. Furthermore, there is no grandfathering clause for the initial investment, as priority of dispatch would be lost for the entire capacity of the plant rather than the additional capacity. This discourages or delays any planned plant upgrades that would improve the efficiency and environmental performance of existing plants. The definition of significant modifications should therefore be addressed by adding a threshold above which an increase in capacity would represent a significant modification (e.g. existing EU and national legislation include thresholds of 20%). In addition, when an upgrade is carried out that increases capacity it would be only fair that the revocation of priority of dispatch applies only on the additional capacity and not on the existing (initial) capacity, which should continue to benefit from priority of dispatch.
3. **New small-scale cogeneration installations connected to the distribution network level should continue to benefit from priority of dispatch**, given their important potential to empower consumers and deliver on EU’s climate and energy objectives.
4. **The continuity of heat supply is a key principle that should be enshrined in the Electricity Regulation, in relation to high efficiency cogeneration provisions.** This will ensure that key European industries

⁴ Priority of dispatch allows high efficiency cogeneration to receive a better position in the merit order by receiving a fixed price (via a feed-in tariff) or bonus (via a feed-in premium added on the electricity market price) for the electricity put on the market. Guaranteed access to the grid ensures that the electricity produced at the same time as the heat in a cogeneration installation, can be self-consumed and/or injected on the grid rather than being curtailed. Curtailing the electricity production of a cogeneration plant entails also curtailing the heat supply, in critical situations when the cogeneration plant needs to deliver high temperature heat to an industrial site and cannot be stored efficiently.

continue to rely on their high efficiency cogeneration investments for secure, cost-effective and sustainable heat supply to key industries.

5. **Guaranteed access to the grid is necessary for high efficiency cogeneration and so curtailment should be limited as a last resort solution for technical network security issues.**

- **Recognise the important value of cogeneration embedded in the local economy as part of adequacy assessments** (Electricity Regulation, Article 19) (Please find specific text proposals in the Annex). COGEN Europe supports moving towards a EU wide resource adequacy assessment to correctly inform Member States on system adequacy levels. In our view, such a harmonised methodology should include energy efficiency as a principle and account for the contribution of embedded cogeneration (i.e. cogenerated electricity that is produced and self-consumed on site, without reaching the grid)⁵ now and in the future (e.g. identified potentials pursuant to Articles 14 Energy Efficiency Directive). Any power system adequacy methodology must factor in a possible increase or loss of such a way of generating heat and power, counting in the avoided grid losses and system operation costs, as well as delayed or avoided investments in additional grid and new generation capacity needed for flexibility purposes⁶.
- **Promote efficient and lower carbon generation, such as cogeneration, in capacity mechanisms. Ensure that the methods to implement the Emissions Performance Standard account for cogeneration efficiently producing both electricity and heat** (Electricity Regulation, Article 23) (Please find specific text proposals in the Annex). In those cases where capacity mechanisms are deemed necessary, they should avoid incentivising new generation capacity that is polluting and inefficient. Instead, capacity mechanisms should prioritise cogeneration, which is dispatchable and efficient. While being available at all times to support the electricity grids, cogeneration also saves energy and reduces CO₂. The emissions performance standard of 550 gCO₂/kWh, proposed as a condition to access capacity mechanisms, can help in supporting security of supply in electricity markets, while not undermining EU's environmental objectives. When applying this emissions performance standard, special attention should be given to the method to allocate CO₂ emissions for cogeneration. Since cogeneration produces both heat and electricity from a single energy source, taking a simplistic net electricity approach must be avoided when calculating CO₂ emissions from cogeneration technologies. The Electricity Regulation should therefore clarify that the method to assess the emissions from cogeneration does not ignore the heat produced at the same time as electricity. In addition, to ensure investor confidence, a harmonised method for cogeneration should be developed and applied consistently across the EU, on the basis of experts' and stakeholders' inputs.

⁵ Today it is estimated that around 40% of the cogenerated output (i.e. 50-55 GW electrical capacity or 150-180 TWh of electricity, COGEN Europe estimates) is produced and self-consumed on-site.

⁶ As part of EU project ene.field Imperial College London has estimated the average benefits of micro-CHP deployment for the EU distribution grids at between €1600 – €2600 per installed kW. Full report available on www.enefield.eu

Policy Recommendations: Electricity Directive

- **Taking an integrated approach to the energy system:** As pointed out in the recently adopted Heating and Cooling Strategy, “heating and cooling and the electricity system can support each other in the effort to decarbonise. It is essential to recognise the links between them and exploit the synergies”. **For these synergies to be fulfilled, the Electricity Market Design proposals should not only look at the electricity system in isolation, but consider heating and cooling, the gas infrastructure as well as enabling storage technologies – both electricity (batteries), heat storage (heat buffers), as potential sources of flexibility.** COGEN Europe would like to stress that unlike in the case of primary fuels, electricity and heat are secondary energy carriers and thus electricity, but also heat, balancing is inherently local. In this respect, the issue of **electricity balancing should be dealt with while taking local power systems and resources into account, with the involvement of DSOs and other relevant stakeholders, including aggregators,** which should be encouraged to participate in regional balancing markets.
- **Set an encompassing framework for all active energy consumers (domestic, commercial, public and industrial) as well as energy services companies that will enable them to fully benefit from emerging opportunities in electricity markets** (Electricity Directive, Article 2). The new electricity market design should accommodate the different ways in which flexibility can be delivered efficiently and cost-effectively either through controllable generation technologies like cogeneration or through demand response. **Renewable or cogeneration units installed in homes or businesses may be owned or managed by third-party energy services companies acting on their behalf for the installation, operation, including metering and maintenance. These aspects should be accounted for in the definition of active energy consumers.** In addition, the new provisions on renewable energy self-consumers and renewable energy communities outlined in Articles 21 and 22 of the Renewable Energy Directive Recast should be reflected in the Electricity Market Design and extended to also promote active consumers using high efficiency cogeneration for own electricity and heat consumption, which often encounter the same administrative challenges on interfacing with electricity grids.
- **Ensure transparent, cost-reflective and non-discriminatory network tariff structures recognising and promoting the value of generators embedded in the local economy and the real use of the grid** (Electricity Directive, Article 15.2,). Of notable concern to the cogeneration sector, especially for cogeneration systems designed for self-consumption, is the way power capacity at the point of connection is charged, irrespective of the actual use of the grid. Cogeneration plant operators should not have to pay all year long for a power capacity that is only used a few times per year (e.g. when the cogeneration plant is under maintenance). These periods can be scheduled in agreement with the grid operator and covered by special reserve contracts. **To this end, distribution tariffs should be set in a transparent and based on a real use of the grid basis.**

For more information please contact:

Alexandra Tudoroiu-Lakavičė, Regulatory Affairs Manager, alexandra.tudoroiu@cogeneurope.eu
François Paquet, Public Affairs Manager, francois.paquet@cogeneurope.eu
Tel : 0032 2 772 82 90

About COGEN Europe:

COGEN Europe is Europe's umbrella organisation representing the interests of the cogeneration industry, users of the technology and promoting its benefits in the EU and the wider Europe. The association is backed by the key players in the industry including gas and electricity companies, ESCOs, equipment suppliers, consultancies, national promotion organisations, financial and other service companies. More information on www.cogeneurope.eu

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