Taxonomy – Complementary Climate DA – Gas

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1. Executive summary

We fully support the development of a science-based EU Taxonomy. This tool should foster investments in activities which contribute and accelerate decarbonization and transition of the European economy.

We welcome the Commission proposal to issue a complementary Delegated Act (DA) that will address natural gas and blending. It is essential that this DA takes a fact-based approach that will deliver on the ground, the lowest possible GHG solution in the most cost-efficient way. It is important to realise that there is no 'one-size-fits-all' solution for Europe due to its large variety in energy mixes and planned coal/nuclear phaseouts across regions. Flexible power sources allowing for the mass penetration of intermittent renewables and replacing coal power and heat generation with fast and significant GHG reductions are needed. Natural gas and the use of renewable and low-carbon gases in blends are uniquely positioned to do so and support the EU on its pathway towards climate neutrality by 2050.

Therefore, it is of the utmost importance that the Complementary DA facilitates investment which contribute considerably to the achievement of the decarbonization targets in the most sustainable way possible. If not, investments will still take place - in particular for grid stability - but are likely to be significantly more expensive thereby making higher-emitting technologies/assets more attractive in the short term.

We believe that the Commission should seize the opportunity of the Complementary DA to cover:

- ✓ **Transitional and/or enabling activities** with appropriate and realistic technical screening criteria for gas-related economic activities that are transitional in the meaning of article 10.2 of the Taxonomy Regulation.

2. Background

The next decade will be crucial for obtaining a quick and significant decrease of CO2 emissions (particularly for coal and oil -to-gas switch) towards the 2030 objective and to transition the energy mix towards the EU's climate neutrality goals by 2050. A key challenge will be ensuring reliability and stability of the grid given the expected growing shares of intermittent renewable energy sources and the increases in heat demand, storage capacity and flexible electricity generation that will be required to provide cross-seasonal flexibility due to coal/nuclear phase-outs.

The Complementary DA that will include natural gas and blends needs to be compliant with the Taxonomy Regulation (EU 2020/852), and in particular with Article 10(2). It needs to demonstrate that for any investment *(i) there is no technologically and economically feasible low-carbon alternative, (ii) it supports the transition to a climate-neutral economy consistent with a 1.5°C pathway, (iii) it has GHG emission levels that correspond to the best performance in the sector or industry, and (v) does not lead to a lock-inof carbon-intensive assets."*

Gaseous fuels can comply with the abovementioned requirements for the following reasons:

- **Significant and quick decarbonization gains are possible until 2030 by switching away from solid fossil fuel**-based power generation and production of heating and cooling. Indeed, many Member States are still heavily reliant on coal and lignite. Their replacement will have an immediate positive impact on the health and living conditions of millions of Europeans through improved air quality (approx. 50% GHG emissions reductions from switching from coal to gas[1]). Investments should be recognized anywhere where quick emission reduction gains can be made (through fuel switch or replacements in more efficient assets) and thus without geographical restrictions (i.e. just transition regions). These quick wins should build on existing National Energy and Climate Plans (NECPs) which represent the most cost-efficient national pathways to decarbonization.

- **Dispatchable and flexible gas capacity is required as a complement to intermittent renewable electricity sources such as PV and wind energy to guarantee system reliability and stability (resilience) as well as overall security of electricity and heat supply**. Reliable and flexible generation capacities are necessary to ensure that Europe doesn't become vulnerable to low electricity generation from renewable sources. Heavy rotating equipment such as steam turbines and gas turbines driving generators also provide grid inertia, which helps keep power networks stable and avoids issues of power quality and susceptibility to blackouts. The penetration of renewable energy is increasing exponentially over time while in parallel older thermal and nuclear capacities (e.g. in Belgium and Germany) are being phased out[2]. Additionally, electricity demand is expected to increase significantly in the next years, due to the rapid electrification of transport and buildings. This creates an increasing need for dispatchable power, and readily available stored energy, to compensate for the intermittency and seasonal variations of renewables in the system towards 2030, 2050 and even beyond[3]. At the same time, the load factors of gas power generation will decrease progressively, the amount of renewable and low-carbon gas will increase while the role of gas-fired power plants will evolve from base load / mid merit to peaking units, which will correspondingly decrease their yearly CO2 emissions.

- With the uptake and deployment of renewable and low-carbon gases (hydrogen, biomethane, etc.), **the gas system will progressively decarbonize thus preventing the risk of carbon lock-in effects or stranded assets**. Moreover, **other abatement technologies such as CCUS are expected to be deployed at large scale with appropriate policy support and clear carbon pricing signals**. Measures carried by the "Fit for 55" and the "Hydrogen and decarbonized gas market" packages should lead to major progress on the availability and competitiveness of renewable and low-carbon gases, which will allow for a gradual replacement of natural gas for electricity and heat production. On the one hand H2 development will build on the European target of 2x40GW of renewable H2, both domestically produced and imported. In addition, the "Fit for 55" package should help biomethane development and strengthen carbon pricing signals (currently above

[1] IEA studies (2019) indicate that on average, the switch from coal to gas reduces emissions by 50% for electricity production and 33% for heat supply.
[2] According to some estimates, almost 70 GW of dispatchable capacity will get out of the European energy system from now to 2030.
[3] See also IEA WEO 2020 – Sustainable Development Scenario (SDS) compatible with the 2015 Paris Climate Agreement reflects a 12% share of gas-fired power generation by 2040 (in Twh) and the need for 172 GW of thermal gas capacity additions by 2040 in the EU to ensure system reliability.

50€/tCO2). As such, the concern of lock-in or stranded assets should be addressed in the technical screening criteria (TSC) by requiring that any new gas-fired asset should be H2 and/or renewable & low-carbon gases and/or CCS-ready as from commercial operation date. Additionally, the expected ramp-up of hydrogen production can be taken into account by including a clear decarbonization pathway for gas-fired power and heat production via decreasing emission thresholds that incentivize a rapid inclusion of renewable and low-carbon gases as soon as they become available in sufficient quantities.

- And finally, various studies[4] have shown that **leveraging existing gas and power infrastructure is the most cost-efficient and reliable EU decarbonization pathway** for the energy sector and society.

We are convinced that the decarbonization trajectory of transitional activities can be reflected in ambitious and realistic technical screening criteria under the Taxonomy framework. The Taxonomy should facilitate and incentivize all economic sectors to reach ambitious targets. In this context, gas-related activities should have access to green and transition finance so that they can fully take up their role as a powerful decarbonization lever to accelerate the transition of energy systems. This will benefit the entire European economy including hard to abate industrial sectors. The proposed 'stepwise' approach below (see section 3) allows for a case-by-case approach which takes into account the local needs of the energy system. It is aimed at ensuring that for any given future (unavoidable) investment in gas-fired generation, the lowest GHG option is used.

Recognition of the role of gas-related activities is urgently needed. Even more so due to the shortcomings of the first Climate Delegated Act which covers substantial contributions to climate change mitigation. This delegated act does not adhere to a level playing field approach as electricity generation from gaseous fuels when gas-fired power generation meets the 100gr CO2e/kWh threshold (e.g. as a result of natural gas being blended with renewable and low carbon gases and/or the operation of carbon capture and storage technologies) is not included on equal footing with other power generation technologies meeting the threshold.

The time to act is now. It would be a significant impediment to the energy transition if these transitional and enabling activities were not addressed in the upcoming Complementary Delegated Act. Whilst the level of technical criteria should be ambitious, they should also be technically achievable and ensure access to green and transition finance for those economic activities that progress towards the green thresholds over time and enable the further massive deployment of renewable energy sources (RES). Investment decisions for gas-based project, that are crucial for a successful energy transition are being taken as we speak, and the industry cannot wait potentially another 2 to 3 years to have an incentivizing framework in place as market players might refrain from investing in assets necessary for the energy transition.

[4] Cf EU Strategy on SSI/other, DNV GL, Gas for Climate

3. Proposal

Taking the above into consideration, we urge the Commission to:

A. **Introduce a category of transitional activity (covering both CCGT and CHPs) for investments in new best-available-technology (BAT) facilities or replacements of (inefficient) existing facilities using solid fossil fuels**.

Investments in assets need to meet the following criteria:

- Renewable and/or low-carbon gases and/or CCS readiness: t**he new asset** shall be capable to operate with **renewable and/or low-carbon gases and/or CCS**, when practically and economically feasible, or the business plan foresees amortization before 2050;
- **Replacement** of (inefficient) existing power generation facilities (power only and/or cogeneration of heat & power) using solid fossil fuels with a substantial decrease of GHG emissions compared to BAU;
- Or **Alignment** with the long-term trajectories set out in **National Energy & Climate Plans** (NECPs)

And, life-cycle GHG emissions from the generation of electricity need to be within the below value range (including for new assets commissioned within the respective time frame) during the respective 5Y period and declining each 5 years as a result of increased co-firingof renewable and low-carbon gaseous or liquid fuels which will be achieved through technological flexibility (i.e. renewable and/or low-carbon gases ready):

	LCA GHG emissions 5 yearly constant values **New CCGT (power only)**	LCA GHG emissions 5 yearly constant values **(energy output)** **New CHP (heat & power)**
2025-2030	415g CO2e/kWh	327g CO2e/kWh energy **output**
2030 -2035	408g CO2e/kWh	321g CO2e/kWh energy **output**
2035-2040	319g CO2e/kWh	251g CO2e/kWh energy **output**
2040-2045	189g CO2e/kWh	148g CO2e/kWh energy **output**
>2045	Technology neutral power generation threshold as per the Taxonomy Regulation	Technology neutral power generation threshold as per the Taxonomy Regulation

B. **Recognize the important role gaseous fuels will play in maintaining the reliability and stability of the grid with growing shares of intermittent renewable energy (RES).** To enable the uptake of such growing capacity of RES, gas storage and gas-fired power generation (with declining CO_2 intensity) will be required as the most cost-efficient flexibility tool to ensure and maintain grid stability[5], and as the only long-term energy storage technology to provide security of supply during longer periods (dark doldrums).

Any such transitional activity to enable a RES-based energy system should meet one of the following conditions:

[5] A CCGT ban would increase the cost by ~ 20% on 2020-2050 in Europe.

a) Average life-cycle GHG emissions from the generation of electricity / cogeneration of electricity & heat to be within the below value range during the respective time frame and decline each 5 years as a result of increased co-firing of renewable and low-carbon gaseous or liquid fuels

	LCA GHG emissions **averaged** over 5Y period **CCGT (power only)**	LCA GHG emissions **averaged** over 5Y period **CHP (power & heat)**
2025-2030	411g CO2e/kWh	324g CO2e/kWh energy **output**
2030-2035	363g CO2e/kWh	286g CO2e/kWh energy **output**
2035-2040	254g CO2e/kWh	199g CO2e/kWh energy **output**
2040-2045	136g CO2e/kWh	106g CO2e/kWh energy **output**
2045-2050	100g CO2e/kWh	100g CO2e/kWh

OR

b) respect the below declining carbon budget (CO2e/kW installed) reflecting lower operating hours:

	declining carbon budget averaged over 5Y period
2025-2030	1073kg CO2/kW/year
2030-2035	926kg CO2/kW/year
2035-2040	829kg CO2/kW/year
2040-2045	683kg CO2/kW/year
2045-2050	488kg CO2/kW/year

OCGTs are used for balancing purposes, as they can be ramped up very quickly. However, they emit more CO2/kWh of electricity than a CCGT (which is the most efficient gaseous fuel technology used for generating electricity for 'standard' market sale). In order to ensure that any Taxonomy compliant investment in OCGT balancing capacity meets the same total net annual GHG emissions mentioned above, a 'carbon budget' approach is suggested. Any new OCGT investment would only be Taxonomy compliant in the event that, on an annual basis, it could emit no more GHG than a typical CCGT, meaning that it would need to operate for fewer hours.

For both tables, a lifecycle assessment methodology will have to be further developed so it can serve as the basis for the assessment of threshold values.

C. **Modify DNSH criteria – if necessary**

Assets respecting the transitional and declining LCA GHG emissions or yearly carbon budget as set forth under paragraph B) above are not able to meet the DNSH set at 270gr CO2e/kWh direct emissions threshold during the first years of transitioning.

Hence, the DNSH could be modified for transitional activities to either:

1. be set at direct emissions below 270gr CO2e/kWh in average over the (remaining) economic lifetime of the asset, OR
2. provide a specific time-limited waiver for the DNSH criteria until 2035.