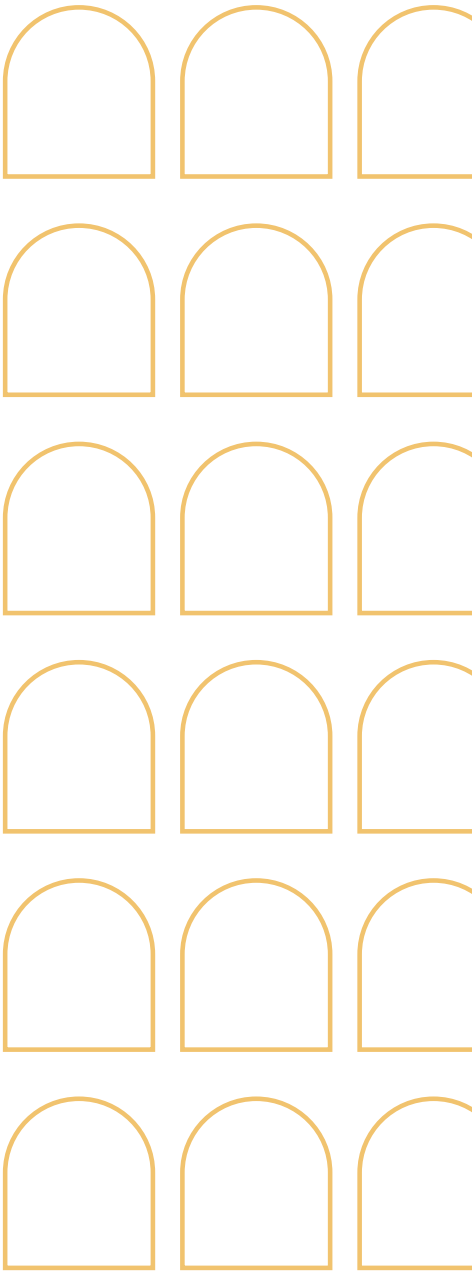
FLORENCE SCHOOL OF REGULATION

ROBERT SCHUMAN CENTRE

POLICY BRIEF

Taxonomy and natural gas: a fact-based approach to drive sustainable solutions



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1. Introduction

The EU Sustainable Finance Initiative[1] was originally developed to avoid 'greenwashing', by ensuring that investment products, such as green bonds and green funds, would only relate to assets falling within a specific list of activities (i.e. a taxonomy), certified to contribute to combatting climate change.

The initiative has by now grown and matured, and will have very important consequences for the entire energy industry. Financial investors as a whole, as well as large industrial companies, will most likely increasingly be required to report the share of their activities that are 'sustainable' or 'taxonomy-aligned'. Investors will increasingly put pressure on companies to become 'greener' and thus taxonomy-aligned, as the EU Taxonomy becomes the recognised green benchmark.

In addition, banks and investment institutions will also come under pressure to have an ever-higher share of their total loan portfolio being taxonomy aligned. Activities that are not taxonomy-aligned will thus, comparatively, become progressively more difficult, and more expensive to finance. This is the aim of the Sustainable Finance Initiative, and it is working.

Finally, the EU Taxonomy list is likely to have 'ripple effect' in other legal and policy areas, such as state aid and energy legislation, as it is generally viewed as a list of what is, and is not, compatible with the EU's Green Deal objectives.

The EU already adopted the basic framework for the EU Taxonomy

1 https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en

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in 2020[2], but for the system to 'go live' the Commission needed to adopt, by delegated act, the detailed criteria that would decide whether a given activity[3] is taxonomy-aligned. On June 4 2021, the first Delegated Act was adopted[4].

In order to be taxonomy aligned, a given activity must meet a two-step test:

- First it must contribute to one of (currently[5]) two objectives: climate mitigation (helping to reduce greenhouse gas ("GHG") emissions), or adaptation (e.g. protecting cities from rising sea levels, etc.).

  To do so it must meet highly specific GHG threshold and other criteria that are contained in the Delegated Act[6]).

  For example, if a hydrogen producer wishes to be taxonomy-aligned, it must meet specified requirements in terms of the maximum amounts of GHG emitted per kg of hydrogen produced.

- Second, it must 'do no significant harm' ('DNSH') to the other environmental objectives protected by the EU Taxonomy.

  For example, even if a hydrogen plant meets the above-mentioned GHG threshold, it should not cause water stress or be constructed in an environmentally sensitive place.

The current Taxonomy Delegated Act covers most energy relevant activities; renewable energy, hydrogen, as well as CCS used by industry.

However, it does not cover natural gas generation, nor nuclear power. The Commission decided to leave this question to a complementary delegated act and has committed to adopt this complementary delegated act on natural gas 'as soon as possible after summer 2021'.

The Commission has also indicated that will, 'if necessary', propose additional legislation, "*to support the **financing of** [natural] **gas (…)** that supports the transition".* However, no details have emerged regarding what such additional legislation might cover.

Given the high value of being taxonomy-aligned, it remains important to ensure that a correct, fact-based approach to natural gas is adopted in the complementary delegated act.

2. How to identify taxonomy-compatible natural gas activities?

To be taxonomy-aligned, an activity must substantially contribute to reaching the goals of the Paris Agreement. Thus, all existing natural gas-based power generation cannot be considered as taxonomy-aligned, notwithstanding its contribution to lowering GHG emissions compared to coal, and the fact that natural gas still plays an essential role as balancing partner to the increasing RES-E generation.

In order to determine which future gas-based power generation activities should be taxonomy-aligned, it is necessary first to have regard to the underlying legal framework.

Article 10(2) of the Taxonomy Regulation, which concerns 'transition' activities, provides as follows: "*an economic activity for which there is **no technologically and economically feasible low-carbon alternative** shall qualify as contributing substantially to climate change mitigation where it supports the transition to a climate-neutral economy consistent with a pathway to limit the temperature increase to 1.5 C above pre-industrial levels, including by phasing out GHG emissions, in particular emissions from solid fossil fuels, and where that activity: (a) has GHG emission levels that correspond to the **best performance in the sector or industry**; (b) does not hamper the development and deployment of **low-carbon alternatives**; and (c) does **not lead to a lock-in** of carbon-intensive assets, considering the economic lifetime of those assets*."

This is obviously relevant to gas-based power generation that is required to meet electricity demand, notably via Combined-cycle gas turbines (CCGTs).

Article 16 concerns 'enabling' activities and, combined with Article 10(1)(a), provides "*An economic activity shall qualify as contribut-*

2 The Taxonomy Regulation, which provides this framework, is available here.
3 It is important to note, in this respect, that a product cannot be taxonomy aligned, only an activity can.
4 This first delegated act can be found here.
5 This first delegated act concerns only the objectives of climate change mitigation and adaptation. Other delegated acts, with additional criteria, will be adopted in due course and are expected for the end of 2021.
6 These threshold and criteria were developed on the basis of a recommendation by the Technical Expert Group appointed by the Commission. Their final recommendations can be found here.

*ing substantially to [climate change mitigation] by **directly enabling [the generation, transmission and storage of renewable energy]**, provided that such economic activity: (a) does **not lead to a lock-in** of assets that undermine long-term environmental goals, considering the economic lifetime of those assets; and (b) has a **substantial positive environmental impact**, on the basis of life-cycle considerations*."

This is relevant to gas-fired power generation required to balance the electricity grid given increasing levels of RES-E penetration, notably via Open-cycle gas turbines (OCGTs) which emit more CO2 than CCGTs on a per kWh basis, but are flexible, fast start-up, plants that are not meant to be active for long period of time.

If the underlying aim of the EU Taxonomy is to push investments into the most sustainable option possible, given the current state of the decarbonisation cycle and technological development, then the list of activities and associated criteria to achieve this goal should be fact-based. Making taxonomy criteria too strict (e.g. requiring the use of only zero-carbon options that will be needed in 2050) could be counterproductive, since such options are currently technologically immature, or economically so expensive that – even if they are set as the standard under the EU Taxonomy – they would in any event not be used. The EU Taxonomy needs to drive investment into the most sustainable option available, and the factual circumstances existing at the time of investment need to be taken into account.

Thus, in proposing a standard for natural gas in the EU Taxonomy, we centre our examination around two key questions:

- First: 'Which investments in natural gas-based power generation will/can not be substituted by renewable-based alternatives and will thus be unavoidable over the next decades to ensure energy security?
- Second: having established which new investments in natural gas plants will be made, "How can the criteria of the EU Taxonomy drive this investment down the most sustainable path?"

The first question seeks to address the requirement that there will be no technologically and economically feasible low-carbon alternative to the investment in question, the second that, for this investment, the least carbon-intensive technology available is used, based on the factual situation pertinent to that investment (and not a theoretical investment that does not apply). Having an investment-specific approach is fundamental to a fact-based approach: natural gas generation investments are very different from most activities falling under that Taxonomy list, in that the choice of available technology will depend on where the investment takes place.

3. The four-step test for natural gas in the EU Taxonomy

In this light we would put forward the following 4-stage test for a natural gas taxonomy.

Step 1

Investments in natural gas-based power generation can only be taxonomy-aligned in the event that they are meeting a need for incremental electricity capacity that cannot and will not, as a matter of fact, be met from renewable energy sources, or from energy efficiency investments by/in a Member State.

Companies investing in new generation based on this fact will need to demonstrate it in their Taxonomy relevant reporting declarations. To facilitate this, and ensure full accuracy, Member States may, for example wish to entrust a national body, presumably the national energy regulator, with reporting obligations regarding the expected liberated demand that cannot be met through RES and energy efficiency efforts, based notably on comparisons of expected incremental electricity demand with National Energy and Climate Plans. In any event, investors and auditors will need to be certain that the criteria is fully met before accepting such an investment as Taxonomy compliant.

Incremental gas-based power generation can in reality be expected to emerge due in particular to coal phase out (where the speed of growth in renewable electricity generation and investments in energy efficiency cannot match liberated demand), or (ii) where additional gas-fired flexible generation capacity is needed for balancing purposes given the rapid increase in intermittent wind and PV electricity.

Step 2

This step focuses on the requirement in

Article 10(2) that "*greenhouse gas emission levels correspond to the best performance in the sector or industry"*. The lowest GHG option available should therefore be required for any 'certified' generation.

In other words, where from a factual and economic viewpoint, CHP or CC(U)S is available, it should be required to achieve taxonomy alignment. The technology that can be used depends on the geographic location, and the EU Taxonomy, to be effective, must take account of this. To be able to use CHP, one needs a source of demand for the heat and a heat network. To use CCS, one needs a CO2 network, and a sink sufficiently nearby.

If these do not exist, it makes no sense to require that CHP or CCs is used, as it will be economically impossible to do so. The 'economically possible' element of this test is important; it is technically possible to always use CCS/CHP for any CCGT/OCGT – one can theoretically build a new CO2 transport and storage system, or a new heat network. But unless it is economically possible to do so on the basis of the specific factual circumstances, it makes no sense to require this.

Failure to take into account the economic reality will just artificially push new projects out of taxonomy alignment, and investments will then be made ignoring the additional GHG minimising requirements outlined in steps 3 and 4 below. Such a policy would therefore simply result in higher GHG emissions from unavoidable investments in new natural gas facilities than taking a fact-based approach.

Thus, as with Step 1, any investor will need to prove whether CHP/CCS is factually and economically an option. Only if this is not the case, should a CCGT/OCGT be allowed to qualify as taxonomy-aligned without using the lower carbon options.

Step 3

This is an additional step designed to ensure that the investment adopts technology compatible with the best performance in the sector. Once the above-mentioned 'cascade system' for deciding whether (i) new gas-fired power generation is unavoidable and cannot be met from renewable sources, and (ii) whether CHP or CCS is available, the resultant solution must meet Best Available Technology levels for the GGCT (standard capacity) or OCGT (balancing) in terms of GHG emissions.

Since OCGTs are less carbon efficient than CCGTs, they are only justifiable for balancing purposes (which CCGTs cannot do properly). Since power generation units dedicated to balancing are, by definition, only active a small percentage of time, an overall annual GHG threshold should also apply when an OCGT is used for balancing. This annual budget could be based on the average annual emissions of a power plant that does no significant harm or contributes substantially to climate change mitigation and that runs for a very high proportion of the year, e.g. 8000 hours.

Step 4

This concerns the requirements regarding the absence of lock-in of carbon-intensive assets, provided by both Article 10(2) and Article 16.

In order to prevent any 'lock-in', which in this case means that new investments could result in (i) implicit legitimate expectations that the plant could still be producing electricity whilst emitting GHG post-2050, and (ii) that the plant would not be able to reduce emissions in line with the EU's needs to continually reduce emissions towards 2050, we suggest that:

- Either the operator of the plant would demonstrate the existence of a normal business plan that foresees the amortisation of the turbine before 2050 or the plant would be 'hydrogen-ready' (meaning that the turbine can be converted to 100% low carbon or renewable gas at moderate costs (for example, less than 30% of the original cost of the turbines) by 2050; and that
- Already now, a declining trajectory would be set for the GHG threshold applicable to the power generation activities, such that these would need to become progressively less decarbonised in order to benefit from taxonomy alignment in the future. This means that the operator would be aware, on investment, that it would need to continually reduce emissions to zero in 2050. Based on current technology, this would *de facto* mean increasing blends of low/zero-carbon gas (hydrogen, bio-methane…) into the feedstock mix or rely on increasingly efficient CCS (where available).

The delegated act could already set this declining threshold, requiring the blending of low/zero-car-

bon gas into the natural gas feedstock (or indeed any other GHG mitigation strategy available to the generator). We would suggest that such a threshold would increase every 5 years starting from 2030. Prior to 2030, any low/zero-carbon gases available in the EU should be used as a priority for displacing current EU demand for 'grey' hydrogen as a feedstock. There is reasonable expectation that by 2030, given the transparency and demand that would be created by such a provision, the market would deliver the necessary increased volumes.

By way of illustration (precise figures would need to be determined on the basis of a detailed cost-benefit study in an impact assessment), such a declining threshold could be based on the requirement that, to remain taxonomy aligned, an investment would need to reduce emissions every five years from 2030 onwards, to zero in 2050.

Conclusion

We suggest that the approach outlined here above complies with the applicable legal framework, meets the requirements of being fact-based, and would drive the greatest possible reduction of GHGs as a result of the operation of the criteria of the EU Taxonomy.

It would take as the starting point the question which unavoidable new gas generation (that cannot be met via renewable electricity) will enter into service. It would then require all the power generation that can, factually and economically, be met via CCS or CHP, to use these options. Only those plants where this is unavailable would be able to use 'standard' CCGTs or OCGTs, which would need to meet BAT requirements. They would need to demonstrate an exit strategy/hydrogen readiness to prevent lock-in, grandfathering or stranded costs. And finally, there would be an established trajectory for every new investment to gradually reduce emissions to meet the 2050 zero-GHG standard. Finally, it provides a model that guarantees that to remain taxonomy aligned, investors will need to ensure that zero-carbon solutions will be in place for the 2050 deadline.

Alternative models can of course be imagined, but we suggest that they should have to meet simple objective on which this proposal is predicated: they should ensure that any given new investment would be motivated to use the most GHG efficient solution available to it that is factually and economically available.

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