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A 2030 Framework for Climate and Energy Policies

The European Lime Association (EuLA) welcomes the opportunity to contribute to the development of a 2030 framework for Climate and Energy policies. The lime sector is committed to be part of the efforts for reaching a low carbon economy. With this paper we want to highlight a number of issues that need to be addressed for ensuring a successful transition.

1 General

For the lime industry the most important lessons to be learned from the experience with the 2020 climate and energy package are the following:

1.1 The EU ETS is effective and delivered reductions in production-related CO_2 emissions – which were however compensated by import-embedded CO_2 emissions

The total number of available carbon allowances is reduced each year so that the GHG reduction target is achieved, independent of the carbon price. However it is crucial to keep in mind the whole picture. Carbon Trust, amongst others, demonstrated that the reduction in production-related CO_2 is largely compensated by CO_2 embodied in imports.

1.2 Carbon leakage measures to maintain EU competitiveness were needed

Despite the high expectations in 2009 no international climate agreement was signed at the COP-15 in Copenhagen or afterwards that would bring a level playing field to EU manufacturing companies. More worrying is that several countries in the EU neighborhood did not follow the EU's climate leadership. They did not show similar ambitions to reduce CO_2 emissions.

1.3 Remaining potential for further GHG reductions in manufacturing industries differs from subsector to subsector

The Commission has calculated CO_2 benchmarks for a large number of products. These benchmarks are based on the average GHG emissions of the 10% best performers. A comparison of these benchmark values with the minimum values that are technically feasible shows that the remaining potential in some sectors, like lime, is actually quite low.

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1.4 The promotion of renewable energy sources reduced the availability of biomass for "small" users

National policies for stimulating the use of renewables increased the demand (and price) for renewables in some sectors. As a result the availability of biomass for relatively small industrial processes, like lime manufacturing, became a challenge.

2 Targets

2.1 Confirm to business that EU policymakers believe in EU-based manufacturing in order to attract the required (low-carbon) investments: set a 2030 re-industrialization target

EU policy makers should emphasize that they want to keep EU-based manufacturing competitive. This is only in the EU's strategic self-interest. Products of energy-intensive manufacturing industries will be required to build Europe's low carbon future, and from a societal perspective it is better to have these products produced in Europe rather than to have them imported from abroad. In that sense any "green" jobs should come in addition to current employment in manufacturing sectors. A strong signal in support of manufacturing is needed, which could be delivered by setting a 2030 re-industrialization target in addition to any climate or energy-related targets. A re-industrialization target should be supported by all EU institutions, and be on equal footing with all other 2030 targets.

2.2 The features of a "good" GHG reduction target

A "good" GHG reduction target has to meet a number of requirements:

2.2.1 A legally-binding international target for GHG reductions by 2030

In order to have a level playing field at international scale the EU should in the first place keep up its ambition to come to internationally accepted and legally-binding GHG reduction targets that impose a similar burden on production facilities.

2.2.2 A single EU-wide GHG reduction target to avoid inconsistencies

A level playing field – at least at EU-level should be maintained, hence EuLA favors an EU-wide GHG reduction target without any additional national initiatives that could actually distort the functioning of the carbon market.

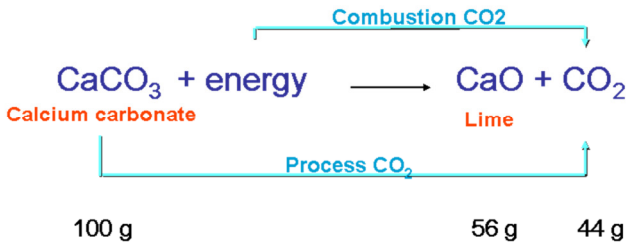
The targets for stimulating the use of renewable energy sources have in the past let to a reduced availability of biomass for kiln-firing. EuLA would therefore recommend to only set a GHG reduction target. No binding renewables target is necessary because the most competitive renewables should be considered as being at equal level as conventional energy sources and should play by the market rules. Alternatively, targets could be defined only for certain renewable energy sources such as wind and solar; while leaving out those renewable energy sources that are not sufficiently available or whose benefits are seriously questioned (for example: biomass).

2.2.3 A 2030 GHG reduction target should be feasible by 2030

In an open economy (with imports) a sector should never face a GHG reduction challenge which is technically and economically impossible to achieve. Therefore the remaining GHG reduction potential

of the major emitting manufacturing sectors should be examined in more detail. A GHG reduction target should be set on the basis of the results of such a bottom-up approach.

In case of the lime industry the potential for further GHG reductions is actually very limited. Around 70% of the total CO_2 emissions generated in lime production are so-called "process emissions": they originate from the decarbonisation of the limestone when it is transformed into lime as can be seen in the chemical reaction below. These GHG emissions cannot be avoided without changing the quality of the final lime product which is however essential to serve specific applications.



Reducing combustion emissions is possible in theory by switching to less carbon emitting fuels. However, it would be useful to identify first an "accessible" fuel mix – and compare its cost (including taxes) with the energy costs in competing economies. The EU GHG reduction target should also be fully aligned with the GHG emissions associated with this fuel mix. Moreover:

A. Several lime producers have no access to the **natural gas** grid due to their remote location. Also the uninterrupted and long-term supply of natural gas in all parts of Europe remains a key issue. So far, the EU remains heavily dependent on imports, not to mention the price disadvantage that EU producers face compared to their competitors in for example the US.

B. The implementation of the EU's renewable targets has led to a huge competition on the market for the limited amount of available **biomass**. Especially companies that can only use relatively small amounts of biomass face difficulties competing for the available biomass with big users.

Another way to reduce combustion emissions is by installing the best available and most energy-efficient kilns. The energy consumption of the best available lime kiln (a Parallel Flow Regenerative Kiln (PFRK)) is close to the **thermodynamic minimum** required for the chemical reaction needed for producing lime. In other words, no further breakthrough technologies in energy efficiency are expected. The drive towards the most energy efficient solutions can easily be explained by the fact that energy costs represent on average around 40% of the lime sector's production costs.

The PFRK with an energy efficiency close to the thermodynamic minimum is already the most widely spread kiln technology nowadays. EuLA calculated that if in a given year all lime would have been produced in the most energy efficient kiln – total GHG emissions for that year would only have been about 10% lower. However, one should keep in mind that horizontal rotary kilns provide a certain

quality of lime and permit to optimize the extracted limestone due to their ability to treat the different sizes of stones.

2.2.4 A constant emphasis on GHG reductions should be coherent with other EU priorities

The optimization of resource use is another major element that influences the operator's decision when designing a plant. Many lime producers have found that installing both vertical kilns and more energy-consuming horizontal kilns is in the end the most efficient and sustainable way to produce lime. Vertical kilns are used for larger grades of limestone and horizontal kilns for smaller sizes which results in a more sustainable valorisation of non-renewable resources.

2.2.5 A reduction target for 2030 should not assume the availability of CCS

As described above, the large share of process emissions seriously impedes significant further reductions of CO_2 emissions in the lime industry. Also other industry sectors face the same challenge. These sectors will be the first that will need CCS in order to be technically able to meet any future GHG reduction targets.

In 2012 TNO calculated for EuLA the costs of capturing CO_2 at different kinds of lime kilns. TNO concluded that the cost of capturing would be between 61 and 100 euro per tonne of CO_2 avoided (depending on the electricity price, and kiln size). These costs for capturing the CO_2 released during the lime production process would nearly double the production cost, which would, of course, have a huge impact on the sector's competitiveness. Moreover, the costs of CO_2 transport and storage still have to be added.

2.2.6 A GHG reduction target should take account of a sector's investment cycles

A GHG reduction target should foremost remain stable and unchanged during the period up to 2030, while incentivizing new investments in the EU manufacturing industries. The current economic crisis and the further shrinking of the demand for lime products makes that there is at the moment a lot of "idle" production capacity in the EU. These installations are completely amortized which makes production in these installations cheaper than in a new one. In that sense the current economic crisis will delay the shift to low carbon technologies. A higher carbon price would not be a solution, as it would only draw money away from producers without enabling them to make an investment.

When assessing the potential further GHG reductions in a sector one also has to take account of the lifespan and replacement rate of kilns. Kilns are factories in themselves and have a lifetime of easily 30-50 years. In that sense, investments made now should last till 2050.

3 Instruments

3.1 The EU ETS should remain the only instrument for reaching the GHG reduction target in manufacturing industries

The EU ETS is delivering, and provides flexibility due to the very nature of a cap-and-trade system. However the EU ETS will only remain the best solution for reducing CO_2 emissions as long as the

GHG reduction target is set at a level which is both technically and economically feasible. (see above 2.2.3)

3.2 Provide public CCS solutions

The costs for capturing CO_2 from a lime kiln are at the moment too high to be economically feasible. (see 2.2.5). Even if the costs of capturing CO_2 would significantly fall, the costs for transporting CO_2 as well as storage would still be huge. Also the public acceptance of CCS seems to be low in many EU Member States. Nonetheless if the EU wants to continue promoting CCS as a low-carbon solution, the Commission may consider investigating the possibility of providing public infrastructure for transporting and storing CO_2; while further research is required to bring the costs of capturing further down.

3.3 In order to decrease the costs of a low-carbon fuel mix, the EU should further explore the availability of shale gas

The development of shale gas in the US has led to a significant difference in energy prices between the US and the EU. Energy prices in the EU are now on average 3 to 4 times higher. A further shift towards a low-carbon economy in the EU is expected to further increase EU producers' reliance on natural gas in the mid-term which will result in further price hikes. Shale gas may keep these price increases under control, and may make manufacturing in the EU cheaper again. Moreover shale gas may be available in places not having access to natural gas at the moment. However, it remains to be seen if shale gas will be available at a commercial scale by 2030.

Decreasing the cost of natural gas may be the only way to actually achieve a fuel switch from more carbon-emitting solid fuels to natural gas. Under the current circumstances, the EU ETS will not be able to provide the right incentive for such a fuel-switch without making the EU industry completely uncompetitive. The carbon price needed to stimulate a fuel switch is different from sector to sector. While the usually used fuel switch price of around 40 euro / t of CO_2 may be applicable for the electricity sector, a much higher CO_2 fuel switch price would be needed for a sector like lime. (more than 100 euro / t of CO_2) . Such a high carbon price cannot be absorbed by EU producers operating in an open economy.

On the other hand, imposing an additional tax on coal would only increase the energy price in the EU, which is already high in comparison to our main competitors.

3.4 Integrate requirements on "energy and climate" in international negotiations

The EU should consider integrating "energy" and "climate" requirements in any international agreements with its trade partners. "Energy and climate" clauses should be part of any Free Trade Agreement, especially if the trading partner in question has not assumed any carbon reduction commitments. "Climate and energy" targets could be further promoted by means of the EU Neighborhood policy.

4 Competitiveness and Security of Supply

4.1 Keep the whole value chain in the EU

The lime industry usually operates close to its clients. In that sense its competitiveness largely depends on the presence of its clients in Europe (for example, the iron and steel industry). Further incentivizing a shift towards a low carbon economy may give new market opportunities, but at the same time the EU should safeguard that as many European companies as possible benefit and that production remains in the EU. Green jobs should not be seen as a substitute to current jobs in manufacturing. A win-win should be found by providing the right impetus.

4.2 Keep energy prices under control – what fuel mix for 2030?

Energy costs represent on average 40% of the lime industry's manufacturing costs. Like for any energy intensive industry, having access to energy at a reasonable cost is an essential condition for operating in the EU.

EuLA recommends that the EU defines a preferred "fuel mix" for 2030, assesses its accessibility and compares its costs with the costs of the fuel mix used by the main EU competitors. The results of such an exercise should be used to set an achievable GHG reduction target.

EuLA underlines in this context the potential for stimulating the exploration and use of shale gas. (see 3.3) In the short term however the EU and its Member States may think of lowering energy taxes, and making them more uniform throughout the EU.

4.3 Carbon leakage remains a concern, also after 2020

As it looks now Carbon leakage will remain a big concern after 2020 depending on how the GHG reduction targets for 2030 will be defined, and on the outcome of the international climate negotiations.

In order to get a good idea of the risk for carbon leakage, EuLA recommends that the assessment is based on:

- Comparative energy costs together with the carbon cost
- Transport costs from outside the EU to the EU

4.4 A "new" kind of carbon leakage risk may emerge: the GHG reduction deficit

For the lime sector it is quite likely that the number of free carbon allowances that the sector receives, will in the mid-term fall below the emission level that is technically feasible. From that moment on, even installations with the best GHG performance have to buy allowances. This cost will increase over the years as the level of free allocation further drops. (For example, due to the cross-sectoral correction factor). In the end this leads to a new kind of carbon leakage risk potential for which at the moment no solution exists.

In order to avoid that the EU ETS turns into a carbon tax, one may consider deleting the cross-sector correction factor; which may however be difficult to implement as in the long term it would mean that the cap cannot be respected. A more practical solution is having a certain level of GHG emissions excluded from the ETS (but they should of course still be reported). For the lime industry the exclusion

of the process emissions from the EU ETS until a solution is technically and economically available, makes sense.

4.5 Provide incentives for low carbon investments

Also in the post-2020 context part of the auctioning revenues should be used to encourage low carbon investments. As a general principle, revenues should go back to industry to enable investments in low carbon solutions. Part of the revenues could for example be used to provide cheaper loans for low carbon investments in installations falling under the EU ETS.

5 Capacity and distributional aspects

Especially given the free movement of goods in the EU, EuLA strongly favors a level playing field within the EU and outside Europe. The impact of granting exemptions to certain Member States may actually lead to distortions of competition.