MYTILINEOS

To:
European Commission
1049 Bruxelles/Brussel
Belgium

Maroussi, 2 August 2021

Mytilineos is one of the largest industrial companies in South-East Europe, with activities spanning numerous sectors:

- Our company owns and operates the **largest vertically integrated alumina/aluminium production facility in Europe**. We are also making significant strides in the field of **aluminium recycling**, including the takeover of *EPALME* (the largest independent producer of recycled aluminium in Greece).
- Our electricity generation portfolio consists of **1.2 GW of thermal generation** capacity (consisting of three gas-fired power plants, including an industrial-scale high-efficiency cogeneration plant) and over **200 MW of RES units**. A new 826 MW CCGT is currently being constructed and is expected to begin its operation in 2022. Over 1,5 GW of new RES projects are also in the pipeline.
- Mytilineos is also the **largest independent supplier of electricity in Greece**.
- Established experience **in constructing and operating low-carbon energy projects (including RES units and storage units)** across all five continents.
- The largest Greek importer of LNG and a leader in **natural gas trading/supply** within Greece.

Our company is fully committed to the EU's international climate objectives and recently announced an ambitious pledge to ensure that 100% of its aluminium production will be based on carbon-neutral electricity by 2030[1]. This constitutes an incredible challenge, which so far has only been possible for aluminium smelters that operate in very specific countries with access to massive volumes of hydropower and/or nuclear generation. Achieving the EU's climate targets will require massive investments in low-carbon technologies. According to the Commission's recent impact assessment for the increase in Europe's 2030 climate ambition[2], average investments of €336 billion will be required each year between 2021-2030 in order to achieve the current targets, whereas the investment needs will increase even further under a higher ambition scenario. Many of these necessary investments involve technologies that are still not mature, and therefore these investments will not be

[1] ClimateYourBusiness, 2020. Mytilineos: Green Aluminium by 2030.
[2] European Commission, 2020. Commission Staff Working Document - Impact Assessment - Accompanying the document 'Steeping up Europe's 2030 climate ambition: Investment in a climate-neutral future for the benefit of our people'.

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economically viable on purely market terms. In this regard, the possibility for public support under the Climate, Energy and Environmental Aid Guidelines (CEEAG) will play a crucial role in bridging the investment gap and facilitating the climate transition.

In view of the above, our company welcomes the Commission's proposal for the revised CEEAG, which constitutes a solid starting point for the revision of the Guidelines. We believe that certain targeted improvements can still be made to the draft text, in order to ensure that the resulting Guidelines are fit for purpose. To this end, our company would like to submit the following comments.

KEY MESSAGES

- The possibility of aid for the reduction/removal of greenhouse gas emissions from industry (*Section 4.1 of the draft Guidelines*) is an extremely positive (and necessary) development, given that the possibility of such aid is a key enabling condition for industrial decarbonisation. However, paragraph 100 of the draft Guidelines limits this possibility to emissions that result 'directly' from industrial activity. This provision unfairly discriminates against electro-intensive industries (such as aluminium), which are not characterised by high levels of direct emissions but instead face significant challenges in reducing/eliminating their indirect emissions (by switching to a low-carbon electricity supply). In order to facilitate the decarbonisation of these sectors, **the scope of Section 4.1 must be extended so as to also foresee the possibility of aid for the reduction of indirect emissions from industry**. This is necessary in order (i) to facilitate the decarbonisation of electro-intensive industry such as aluminium, and (ii) to enable other industrial sectors to electrify their processes, in line with the Commission's Long-Term Strategy for a climate-neutral Europe.

- It is extremely important that the draft Guidelines foresee the possibility of electricity surcharge reductions for electro-intensive consumers. Aside from RES surcharge reductions, the explicit acknowledgment of the possibility to grant reductions from levies that finance cogeneration and/or public service obligations is also crucial, both in terms of preserving the competitiveness of electro-intensive consumers and in order to reflect recent case law (thereby ensuring regulatory certainty). However, **the possibility for targeted reductions from levies financing capacity mechanisms should also be foreseen**. Capacity mechanisms are becoming increasingly necessary in order to facilitate greater levels of RES penetration, and therefore levies that finance capacity mechanisms must also be viewed as 'financing an energy policy objective', which would justify targeted surcharge reductions in line with the provisions of the draft Guidelines ("*Member States may grant reductions from levies on electricity consumption which finance an energy policy objective*").

We outline each of these points in more detail below.

1. Aid for the reduction and removal of greenhouse gas emissions in industry

Section 4.1 of the proposed Guidelines foresees the possibility of aid for the reduction or avoidance of emissions resulting from industrial processes. This is an extremely important (and also necessary) addition to the Guidelines, given that emission reductions in industry tend to require capital-intensive investments as well as increased operating costs (when compared to conventional industrial processes). Industrial producers are often unable to pass on cost increases to their consumers (especially in sectors where prices are set in global markets, such as aluminium), and therefore the possibility of aid to cover these incremental costs is a necessary enabling condition for the realisation of these low-carbon investments. Although in electro-intensive industrial processes the main challenge lies with cost-effectively reducing indirect emissions, support is still necessary to further eliminate residual direct emissions, through disruptive innovation and pioneering moves (CCS etc.).

Unfortunately, paragraph 100 of the draft CEEAG limits the scope of such aid by clarifying that "*aid for the decarbonisation of industrial activities must reduce the emissions directly resulting from that industrial activity*". This wording would seem to prohibit aid for the reduction of indirect emissions, **thereby creating significant (and unjustified) distortions between different industrial sectors**:

- Industries characterised by high levels of direct emissions (e.g. steel, cement, chemicals) would be eligible for decarbonisation aid.
- However, electro-intensive industries (such as aluminium) would not be eligible for decarbonisation aid.

Electro-intensive industries are indeed characterized by relatively low levels of direct emissions. Instead, the greater part of the carbon footprint (roughly 80% in the case of primary aluminium) consists of indirect emissions, i.e. the carbon footprint of the electricity consumed during the production process. Therefore, the decarbonisation challenge in these sectors is a matter of decarbonising the electricity supply, but this is not a solved exercise.

Electro-intensive consumers face **significant barriers to cost-effectively consuming renewable electricity**. In the non-ferrous metals sector, the only examples of producers that have been able to sign PPAs for renewable electricity are found in the Nordics (due to the extremely specific market conditions, and especially the access to abundant, captive hydropower generation). Across the rest of Europe, no non-ferrous metals producer has been able to sign a RES PPA, and even companies that have signed renewable PPAs for their plants in the Nordics have not been able to procure renewable electricity for their plants in other European countries[3].

The barriers preventing electro-intensive consumers from consuming renewable electricity are discussed (along with proposed solutions) in our company's response to last summer's consultation on the Renewable Energy Directive. Eliminating these barriers will require targeted support, and therefore **the possibility of aid for the reduction of indirect industrial emissions must be foreseen in the revised CEEAG**. This is important not only in terms of decarbonising industrial processes that are already electrified, but also in order to confirm electrification as a valid decarbonisation strategy. Electrified processes are only as 'green' as the electricity powering them. For as long as industrial

[3] European Commission, 2019. Competitiveness of corporate sourcing of renewable energy.

consumers remain unable to cost-effectively cover their supply needs with renewable electricity, the climate benefits of electrifying industrial processes will remain limited.

The draft Guidelines seem to justify the 'exclusion' of aid for the reduction of indirect emissions by stating that this is necessary in order to avoid double subsidies and to ensure the verification of the GHG emission reductions. However, it is perfectly possible to design schemes for the reduction of indirect emissions that **prevent** any possibility of double compensation while also ensuring **verified GHG emission reductions**.
For example, we have developed a solid proposal ('The Green Pool', which is described in more detail here and is also briefly analysed in the Annex) that would facilitate the wide-scale decarbonisation of Europe's electro-intensive industries, while also leading to the addition of massive levels of new (merchant) RES capacity to the electricity system. The electricity involved would be procured **solely from new-build RES capacity, exclusively financed through corporate PPAs with electro-intensive industries** (thereby ensuring **genuine additionality**), whereas the participating RES units **would not be eligible for support under a RES support scheme**. In fact, in most cases, the Green Pool would be far more cost-effective than subsidizing the same RES capacity under a RES support scheme, **but with the added benefit of actually helping the consumer procure renewable electricity as well**. In this regard, the Green Pool is undoubtedly a smarter, more targeted and more cost-effective support scheme for RES & industry decarbonization.

2. Aid in the form of reductions from electricity levies for energy-intensive users

The revised section on '*aid in the form of reductions from electricity levies for energy-intensive users*' (Section 4.11 of the draft Guidelines) contains various important improvements compared to the existing Guidelines.

Crucially, the possibility for targeted RES surcharge reductions is maintained. This measure is absolutely necessary in order to preserve the competitiveness of electro-intensive consumers. For example, without the RES surcharge reduction in Greece, our company's electricity price would increase by 16.7 €/MWh. **This constitutes a staggering 42% increase on the average all-in electricity price (*energy + regulatory charges*) paid by European aluminium smelters** as per the Commission's 2018 report on Energy Prices and Costs[4] (39.6 €/MWh; *for confidentiality reasons, we cannot reveal our actual electricity price, however our company contributed towards this report and therefore this average price partly reflects the price actually paid by our company*). As highlighted in a recent EWI report, a cost increase of just 10€/MWh **reduces the GVA of an aluminium smelter by 24%**, whereas abolishing the reductions to the regulatory charges paid by aluminium smelters (including RES support) would consume the entirety of such a consumer's GVA and turn it negative[5]. Given that electricity accounts for around 40% of an aluminium smelter's overall production costs, this 16.7 €/MWh increase translates into an incredible **16.8%** increase in the overall production cost for primary aluminium. It is clear that no company would ever be able to survive this sort of cost increase, particularly since we're discussing a price-taker global commodity, i.e. primary aluminium is traded at

[4] European Commission, 2018. Composition and Drivers of Energy Prices and Costs: Case Studies in Selected Energy Intensive Industries – 2018.
[5] EWI, 2019. Electricity costs in the non-ferrous metal industry.

the LME and effectively sold at 'LME prices', which positively prohibits passing-on additional costs exclusively faced by domestic (or EU) producers.

Just as importantly, the possibility for targeted reductions to other electricity levies has also been foreseen. This change was important in order to bring the Guidelines up to date with recent Commission case law (i.e. approval of such reductions based on Article 107 of the Treaty), and having this possibility explicitly mentioned in the CEEAG ensures the necessary regulatory certainty. In line with the current Guidelines, transitional provisions (par. 193-200) should also be foreseen, whereas par. 414 (a) should be deleted or amended in the interest of legal certainty excluding any retroactive changes of approved schemes under the current EEAG, upon which long-term, capital intensive investments may have relied.
Unfortunately, the draft CEEAG have not been extended to cover all relevant levies. Paragraph 354 of the draft Guidelines notes the following:

"*Under this Section, Member States may grant reductions from levies on electricity consumption* ***which finance an energy policy objective****. This includes levies financing support to renewable sources or to combined heat and power and levies financing social tariffs or energy prices in isolated regions. This Section does not cover levies which reflect part of the cost of providing electricity to the beneficiaries in question. For example, exemptions from network charges or from charges financing capacity mechanisms are not covered by this Section.*"

The distinction between levies that "*finance an energy policy objective*" and levies that "*reflect part of the cost of providing electricity to the beneficiaries in question*" is rather blurred to say the least. Specifically with regard to charges that finance capacity mechanisms, it is crucial to note that CRMs have become necessary precisely because of the policy objective to add (stochastic) renewables to the electricity system. This is explicitly acknowledged in the existing EEAG themselves:
"*(216) With the increasing share of renewable energy sources, electricity generation is in many Member States shifting from a system of relatively stable and continuous supply towards a system with more numerous and small-scale supply of variable sources. The shift raises new challenges for ensuring generation adequacy.*
[…] (218) As a result, some Member States consider the introduction of measures to ensure generation adequacy, typically by granting support to generators for the mere availability of generation capacity"

Whereas similar conclusions were also drawn in the European Commission's Final Report of the Sector Inquiry on Capacity Mechanisms (SWD(2016) 385 final):
"*More generally, Europe's electricity sector is experiencing an unprecedented transition. Market liberalisation and efforts to reduce greenhouse gas emissions have profoundly changed the way in which electricity is generated, traded and consumed. Electricity generation from renewable energy sources is growing rapidly.* ***This has resulted in lower wholesale electricity prices****, but has also reduced the use of conventional generation technologies, such as coal and gas, because renewable energy generally has lower running costs.* ***Declining demand, lower prices and lower utilisation rates have all reduced the profitability of conventional electricity generation*** *… Member States are concerned that existing electricity generation capacity, plus expected investment in new capacity, may be insufficient to maintain security of supply in the future*".

Given the variable nature of RES generation, controllable, low-carbon capacity (i.e. conventional generation, demand response, storage) will continue to play a crucial role in ensuring security of supply. Therefore, by ensuring that such technologies remain online and available, capacity mechanisms not only contribute towards security of supply, but also facilitate the further uptake of renewable energy, i.e. they contribute towards exactly the same objective of common interest as renewable support.

Simply put, capacity mechanisms are linked with the further integration of RES into the system, while also removing highly carbon-intensive coal and lignite-fired generation, which, on its own, exacerbates the need for added controllable and flexible low-carbon capacity. Therefore, the charges that fund capacity mechanisms cannot be considered levies that "reflect part of the cost of providing electricity to the beneficiaries in question", and should instead be considered levies that "finance an energy policy objective" (i.e. the integration of renewables). In this regard, **the possibility of targeted reductions to capacity mechanism charges should also be foreseen in the CEEAG**, given that these reductions would contribute towards exactly the same objective of common interest as the reductions to RES surcharges that are already foreseen.

Finally, the draft guidelines discuss the cumulative effects of all eligible levies inquiring about a "minimum cumulative level per MWh" as a 'necessary threshold' to allow the reductions. As fara as primary aluminium production is concerned, given that we're discussing a global commodity, priced on international markets (particularly the LME), with unparalleled sensitivity to even minor increases in power costs, even 1 additional EUR/MWh can have a massive adverse impact on its competitiveness[6]. To this regard, any debate around a "minimum cumulative level per MWh" appears rather confusing, considering that targeted reductions and proportionality thereof is already ensured by the provisions of par. 360 of the draft CEEAG. We therefore do not consider it appropriate to establish such a threshold. Should a minimum threshold be introduced, the CEEAG should explicitly clarify that Member-States shall retain their discretion to apply the GVA cap, completely overruling the minimum threshold, thus allowing for a sufficient cost reduction for the most affected sectors.

Yours sincerely,
For MYTILINEOS S.A.

Nick Keramidas
EU & Regulatory Affairs Director

[6] EWI, 2019. Electricity costs in the non-ferrous metal industry.

Annex 1: The Green Pool – a solution for the cost-effective decarbonisation of Europe's electro-intensive sectors

Despite the decreasing cost of renewable electricity generation[7], industrial consumers in particular, are still struggling to consume renewable electricity. This is due to a number of remaining barriers and hidden costs, many of which were identified in a report that was published by the European Commission in 2019[8]. Electro-intensive industrial processes tend to require an extremely steady and uninterrupted supply of massive volumes of electricity; this makes it very difficult -and expensive- to cover this demand using stochastic renewable electricity generation.

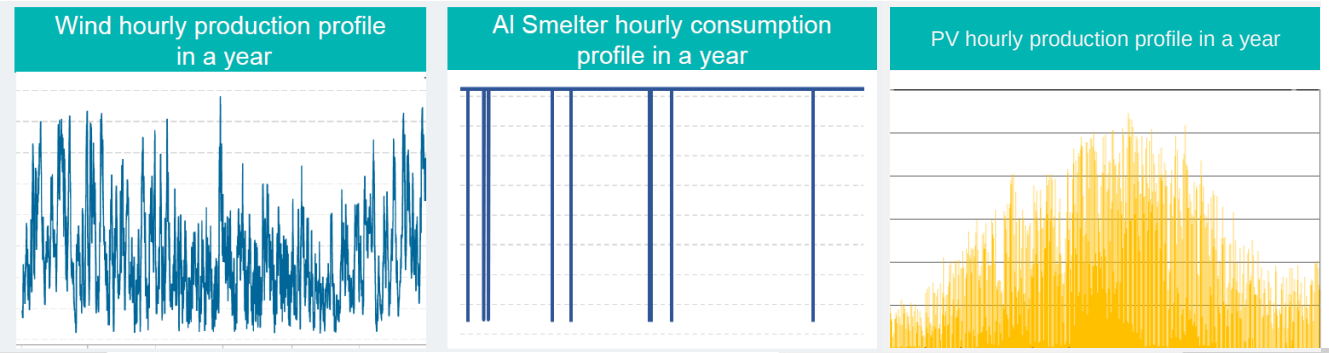


Figure 1: An aluminium smelter's consumption profile compared to the generation profile of a wind farm and a PV plant

In order to ensure an uninterrupted supply of electricity, the variable renewable generation has to be 'shaped', essentially covering the gaps in renewable generation. Thus, consuming renewable electricity leads to numerous additional costs (so-called 'firming' & 'shaping' costs, which are also discussed in the Industrial Transformation Masterplan[9]). This is particularly problematic for electro-intensive consumers, who are incredibly sensitive to electricity prices. For example, electricity accounts for around 40% of the overall cost of producing primary aluminium[10]. Indeed, the Commission identified firming/shaping costs as the most relevant obstacle preventing industrial consumers from signing RES PPAs[11].

The most efficient -and effective- way to facilitate industrial RES sourcing would be to solve the issue of firming/shaping costs. Providing compensation for the incurred firming/shaping costs would enable RES producers to conclude agreements with electro-intensive industrial consumers, which by definition aim for long-term price stability. RES units would not require further support in the form of a feed-in-tariff or a feed-in-premium, and the cost of providing compensation for firming/shaping costs would be considerably lower than the cost of supporting the same RES capacity via a support scheme. This would play an important role in limiting the overall cost of the energy transition.

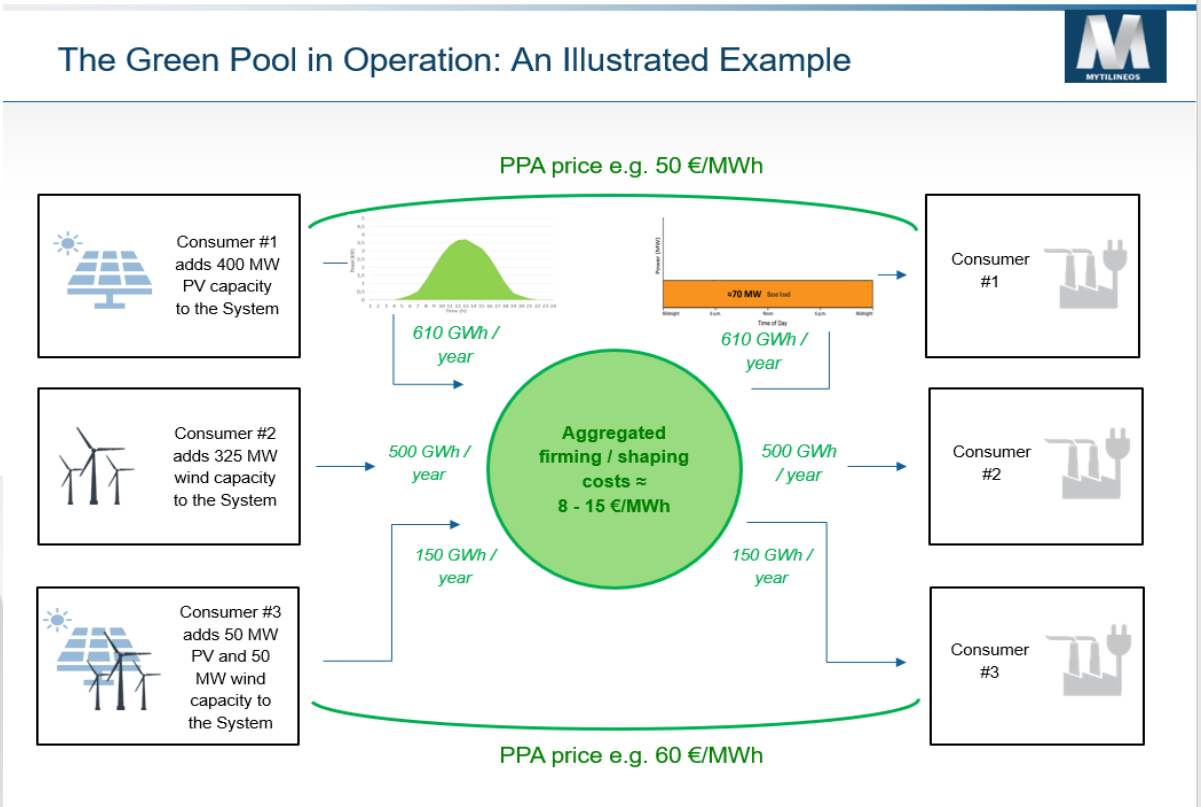
[7] According to the International Renewable Energy Agency (IRENA), the majority of newly commissioned RES capacities already produce electricity at a cost that is comfortably lower than the cheapest fossil fuel alternative.
[8] European Commission, 2019. Competitiveness of corporate sourcing of renewable energy.
[9] High-Level Group on Energy-Intensive Industries, 2019. Masterplan for a Competitive Transformation of EU Energy-Intensive Industries; Enabling a Climate-Neutral, Circular Economy by 2050.
[10] European Commission, 2018. Composition and drivers of energy prices and costs in energy intensive industries.
[11] European Commission, 2019. Competitiveness of corporate sourcing of renewable energy.

However, steps can also be taken to reduce the firming costs that are incurred in the first place, thereby minimising the required level of compensation. The proposed solution (i.e. the Green Pool) achieves this by reaping the benefits of aggregated RES generation, reducing the problems caused by the variability in each single RES unit's production and therefore also reducing the incurred firming/shaping costs. Numerous studies[12][13][14][15] have already assessed the complementarity that can be achieved via aggregated, dispersed RES production, especially when wind and solar generation are combined.

In short, the Green Pool works as follows (a full description of the proposed scheme is available here):

- Electro-intensive consumers participate in the Green Pool by **adding new RES capacity to the electricity system** (*e.g. by signing corporate PPAs with RES producers*).
- The electricity produced by these RES units is 'pooled' together by an aggregator. The aggregator undertakes all shaping responsibilities and supplies the consumer with a supply of electricity that matches its consumption profile (*typically baseload*).
- The firming/shaping costs are borne by the aggregator, and the aggregator is partially compensated for these costs via public funding (e.g. via a §4.1 EEAG compatible scheme). The benefits of aggregation ensure that these costs are minimized to the greatest extent possible. The aggregator only deals with volumes/aggregation/consumption profile, whereas the underlying -purely market- PPA prices are not communicated.
- In order to maximize both the efficiency and proportionality of the scheme, the aggregator can be selected through a **competitive bidding process for a duration of 2-3 years, so as to allow a dynamic nature of the scheme** and minimize exposure of the aggregator for a long period.
- **The consumer offtakes a volume of electricity matching the production of the RES units that the same consumer has added to the Green Pool.**
- **The RES units participating in the Green Pool would not be compensated under a RES support scheme. These units enter the system in a way that minimizes the total system cost** (*much lower than compensating the same RES capacity via a support scheme*) while also facilitating the decarbonization of European industry.
- In order to ensure proportionality from a state aid perspective, compensation is calculated strictly ex-post, based on the identified firming/shaping costs.
- In order to ensure that the Green Pool does not eliminate the incentive for industrial consumers to optimize their consumption profile, only a certain percentage (e.g. 95%) of the eligible costs are compensated, whereas the remainder burdens the producer/consumers.

[12] Slusarewicz, J.H., Cohan, D.S., 2018. Assessing solar and wind complementarity in Texas. *Renewables* 5, 7.
[13] Monforti et al., 2014. Assessing complementarity of wind and solar resources for energy production in Italy. A Monte Carlo approach. *Renewable Energy, 63*, 576-586.
[14] Liu et al., 2013. Analysis on the hourly spatiotemporal complementarities between China's solar and wind energy resources spreading in a wide area. *Science China Technological Sciences, 56(3),* 683-692.
[15] Shaner et al., 2018. Geophysical Constraints on the Reliability of Solar and Wind Power in the United States. *Energy and Environmental Science, 11,* 914-925.



The study conducted by the German consultancy *Enervis* concluded that **the Green Pool could facilitate the integration of a further 4.2 GW RES capacity into the Greek electricity system over the next ten years, purely based on corporate PPAs with electro-intensive industrial consumers**. Total firming/shaping costs could range between **5-15 €/MWh** depending on the volume of RES units in the Green Pool and the level of RES deployment in the broader Greek system. As the level of RES units in the system increases, the shaping costs also tend to increase due to 'cannibalization effect'. Indeed, the Enervis report shows how shaping costs are higher in countries with higher levels of stochastic RES penetration (e.g. Germany, Denmark). These results are also consistent with the literature review conducted by Enervis: Agora Energiewende estimates that firming/shaping costs tend to range between 5 – 13 €/MWh depending on the market situation, whereas the Potsdam Institute concludes that these costs could reach 20 €/MWh in markets with higher RES penetration.

These costs are comparable to (and in many cases significantly lower than) the compensation that is currently provided to RES units via conventional RES support schemes. However, the Green Pool entails the additional benefit of actually helping the end user to consume the renewable electricity, as opposed to the operation of traditional RES support schemes, which has been identified by the European Commission[16] as a major barrier to corporate RES sourcing.

Thus, the Green Pool should be viewed as a more cost-efficient, more targeted and more effective RES support scheme, which could play a crucial role in decarbonising not only European industry but also the electricity sector.

[16] European Commission, 2019. Competitiveness of corporate sourcing of renewable energy.