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Glossary

Term or acronym	Meaning or definition
AI	Aid intensity
BAU	Business as usual
CB	Competitive bidding
CBAM	Carbon Border Adjustment Mechanism
CCfD	Carbon contract for difference
CCS	Carbon capture and storage
CCU	Carbon capture and use
CEEAG	Climate, energy and environmental aid guidelines
CHP	Combined heat and power, or 'cogeneration'
DG COMP	Directorate-General for Competition of the European Commission
DNSH	Do no significant harm
EE	Energy efficiency
EEAG	Energy and environmental aid guidelines 2014-2020
EFTA	European Free Trade Association
EI	Electro-intensity
EIU	Energy-intensive user
ETS guidelines	State aid rules for indirect costs compensation for the fourth trading period of the EU ETS
EU ETS	EU Emissions Trading Scheme
FF55	'Fit for 55' legislative package
FG	Funding gap
GBER	General block exemption Regulation
GHG	Greenhouse gas
GVA	Gross value added
IA	Investment aid
LNG/CNG	Liquefied natural gas / compressed natural gas
OA	Operating aid
PV	Photovoltaic
RES	Renewable energy source(s)
RES-e	Electricity produced from RES
RRF	Recovery and Resilience Facility
SEIP	Sustainable Europe Investment Plan
TAM	Transparency Award Module
TFEU	Treaty on the Functioning of the European Union
TI	Trade intensity

1 INTRODUCTION: POLITICAL AND LEGAL CONTEXT

1.1 State aid control policy in the field of environmental protection and energy

State aid refers to selective financial support (subsidies in the form of grants, tax reductions, interest-free loans, etc.) granted by Member States to undertakings within the EU/EEA. State aid is an objective notion defined in Article 107(1) of the Treaty on the Functioning of the European Union (TFEU) and, as a general rule, the granting of State aid is in principle incompatible with the internal market where it distorts competition and trade within the EU. However, Articles 107(2) and 107(3) of the TFEU provide for some exceptions to this general rule.

State aid may be necessary to correct market failures that impede the timely achievement of objectives such as environmental protection (including greenhouse gas mitigation) or security of energy supply at a cost for society. For example, State aid may compensate for the costs of environmental benefits not covered by market prices, or correct for information asymmetries and misaligned incentives that would otherwise inhibit private investments that are beneficial to society. State aid can improve the efficient functioning of markets and contribute to the development of an economic activity where market forces alone would fail to deliver an efficient outcome. The financing of the Green Deal may also entail increased risk of relocation outside the European Union to other jurisdictions where environmental protection is absent or less ambitious, resulting in carbon leakage. State aid may be necessary to reduce this risk for the most affected undertakings, as in the case of levies on electricity that finance energy decarbonisation and social policies.

The objective of State aid control is to ensure that, when needed to achieve the objective pursued, such aid does not unduly distort competition and trade between Member States. State aid control contributes to public policy objectives such as the European Green Deal[1], making sure the aid is targeted where really needed and leveraging on the efficient functioning of markets including the European Energy Union and maintaining the integrity of the internal market.

In accordance with Articles 107 and 108 of the TFEU, State aid control is the exclusive competence of the Commission. As a result, the Commission defines the conditions under which State aid may be considered to be compatible with the internal market. In this respect, the Commission adopts horizontal and sectoral guidelines which set out the approach that it will take when assessing the compatibility of notified State aid measures. These guidelines are regularly revised to adapt them to technological, economic, legal and policy-related developments. In the field of environmental protection and energy, the relevant guidelines are the Guidelines on State aid for environmental protection and energy (EEAG)[2].

The Commission assesses the compatibility of measures involving large amounts of aid, or more complex measures, following a notification by the Member State. Simpler measures, for

[1] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – The European Green Deal (COM/2019/640 final) (the 'Green Deal Communication').

[2] Communication from the Commission – Guidelines on State aid for environmental protection and energy 2014-2020 (OJ C 200, 28.6.2014, p. 1).

which the Commission has developed enough positive enforcement practice, and which pose fewer challenges to the internal market, are exempted from notification subject to compliance with rules defined *ex ante*. Under Articles 36 to 49 of the General Block Exemption Regulation (GBER)[3], Member States can grant aid without the need to notify the aid measure to the Commission beforehand. The provisions of those articles of the GBER are based on those established in the EEAG.

The scope of the Impact Assessment covers both the revision of the EEAG and the parallel revision of the relevant parts of the GBER, as announced in the Inception Impact Assessment.

1.2 Relationship with other EU initiatives

The revision of the EEAG and of the accompanying provisions in the GBER aims to provide a modernised and simplified framework enabling public authorities to reach the EU objectives in a cost-effective manner with minimum distortions of competition. The revision will also facilitate measures to support the transition towards a climate neutral and circular economy. It should also ensure that the new rules are fit for new technological and market developments and ensure a fair transformation of the economy in the next years of economic recovery.

In addition to addressing the issues identified in the Fitness Check (see Section 1.3), the revision of the EEAG and GBER aims to respond to important changes in the EU's policy priorities. In particular, the EEAG and GBER should reflect the objectives of the Green Deal and the updated Industrial Strategy[4], which aim to transform the EU into the first climate neutral economy by 2050, as well as into a circular, climate resilient[5], and zero-pollution economy.

The Green Deal Investment Plan[6] has set out that '*the relevant State aid rules will be revised by 2021 in light of the policy objectives of the Green Deal and support a cost-effective and socially-inclusive transition to climate neutrality by 2050. State aid rules will be revised to provide a clear, fully updated and fit-for-purpose enabling framework for public authorities to reach these objectives, while making the most efficient use of limited public funds. State aid rules will support the transition by fostering the right types of investment and aid amounts. They will encourage innovation and the deployment of new, climate-friendly technology at market scale. They will also facilitate the phasing out of fossil fuels, in particular those that are most polluting, thus ensuring a level-playing field in the internal market. This will include, in particular, the Environmental and Energy State aid guidelines*'.

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[3] Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty (OJ L 187 26.6.2014, p. 1).

[4] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions – 'Updating the 2020 New Industrial Strategy: Building a stronger Single Market for Europe's recovery', COM(2021) 350 final.

[5] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions - Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate Change COM/2021/82 final

[6] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Sustainable Europe Investment Plan European Green Deal Investment Plan, COM(2020) 21 final (the 'Green Deal Investment Plan').

In this vein, the revised EEAG and GBER will need to complement and support the increasingly ambitious EU policies resulting from the Commission's 'Fit for 55' (FF55) legislative package[7]. In addition to the general goal of reducing greenhouse gas (GHG) emissions by at least 55% by 2030[8], among its key policy proposals, this package sets out ambitious targets for renewable energy and energy efficiency, buildings, including new industry and transport sector targets for the use of renewable electricity, renewable hydrogen and renewable fuels of non-biological origin, more stringent standards for district heating and the cogeneration of heat and power, measures to promote the development of (smart) recharging and refuelling infrastructure for clean transport, as well as the new Carbon Border Adjustment Mechanism (CBAM)[9].

The revised EEAG and GBER will also need to support the EU's commitments to phase out fossil fuel subsidies, which are not declining sufficiently according to the 2021 State of the Energy Union Report[10].

In addition, the revised EEAG and GBER must also take into account the economic and budgetary implications of the COVID-19 pandemic, including measures to support economic recovery in the EU. In this context, the green recovery is an important focus area of the Recovery and Resilience Facility (RRF)[11] which will mobilise €672.5 billion in grants and loans to help Member States repair the economic and social damage caused by the pandemic, and support economic recovery. At least 37% of Member States' spending under the RRF will have to be climate-related, making the future guidelines important for enabling the EU to quickly and decisively bounce back from the global public health and economic crisis[12]. Much of this spending will be aid that will be assessed under the revised EEAG and GBER.

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[7] See https://ec.europa.eu/commission/presscorner/detail/en/IP_21_3541.

[8] See https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1828.

[9] See proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652; Proposal for a Directive of the European Parliament and of the Council on energy efficiency (recast), COM(2021) 558 final; Proposal for a Regulation of the European Parliament and of the Council on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council, COM(2021) 559 final; Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions – 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality, COM(2021) 550 final. The FF55 package also includes the proposed revision of the Energy Performance of Buildings Directive, and proposed legislation on methane, which are yet to be adopted.

[10] State of the Energy Union 2021 – Contributing to the European Green Deal and the Union's recovery - COM(2021) 950.

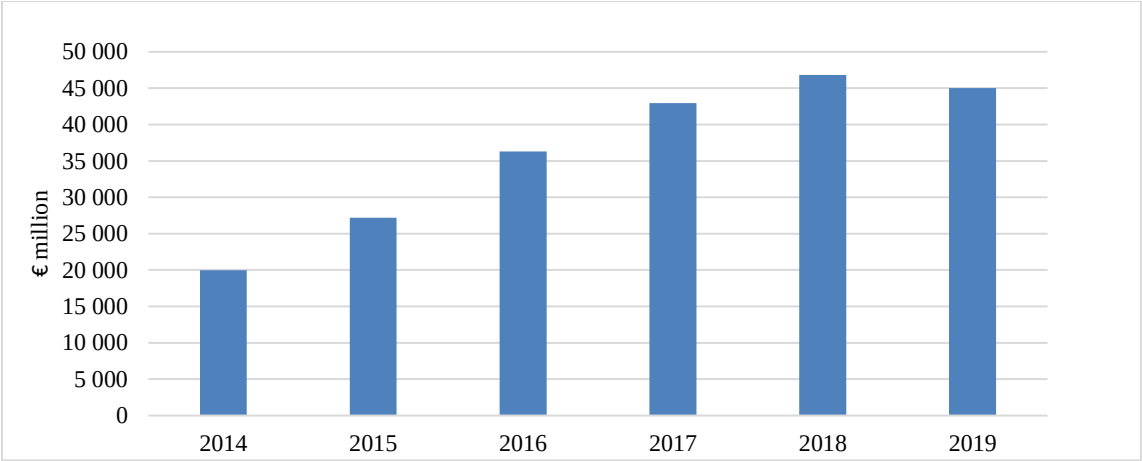
[11] Regulation (EU) 2021/241.

[12] All Member States have energy projects in their national Recovery and Resilience Plans aimed at increasing the share of RES in their energy mix, and to reach the energy efficiency targets. The majority of those investments and reforms consist in upgrading the electricity grids, investing in renewable installations including hydrogen, energy renovation in buildings, and district heating. In this regard, the revised guidelines should help ensure that Union funds are effectively spent, contributing to the Union's climate targets, fostering sustainable growth, creating jobs, and channelling funds towards investments that will maximise the EU's strategic autonomy the energy and environmental sectors.

1.3 Fitness Check

The EEAG were reviewed as part of the Fitness Check of the 2014 State aid modernisation package[13]. The Fitness Check has shown an increasing volume of energy and environmental aid granted in the period 2014-2019 (more than 180 decisions adopted under the EEAG and ±1 000 measures implemented under the GBER)[14].

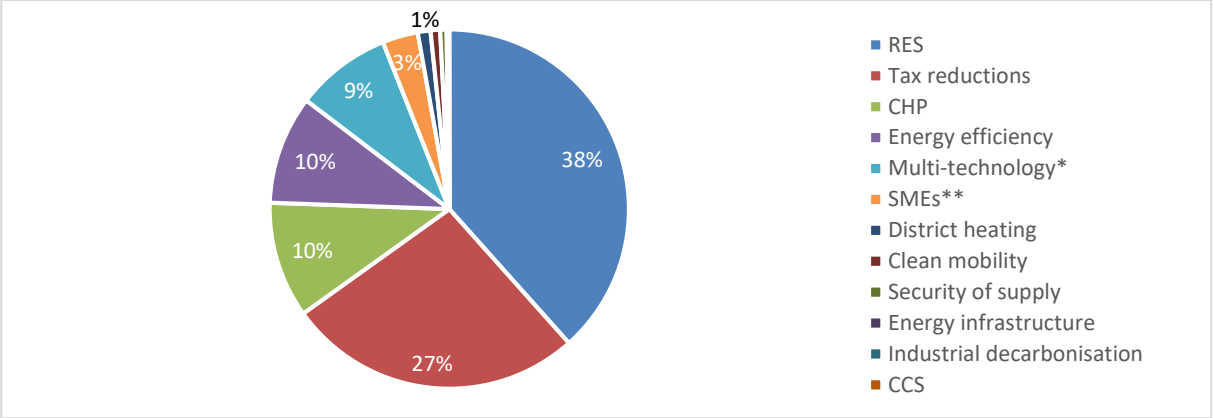
Figure 1: Aid expenditure under the EEAG, 2014-2019[15]



Around 51% of total State aid spending in the EU is attributed to State aid to environmental and energy savings. €202 billion of State aid was approved under the EEAG between 2014 and 2019. It is estimated that 38% of this aid was for support for renewable energy sources (RES), 27% was for reductions in environmental taxes, 10% was for energy efficiency, 10% was for combined heat and power (CHP)[16], 9% was for multi-technology schemes, 3% was for measures of all types where SMEs are the targeted beneficiaries[17]. The remaining types of scheme (carbon capture and storage, industrial decarbonisation, clean mobility, district heating, energy infrastructure, security of supply) each accounted for 1% or less of the aid approved under the EEAG in the period 2014-2019. During that same period, from a total of €227 billion of aid granted under the GBER, 34% (€78 billion) was granted as environmental aid.

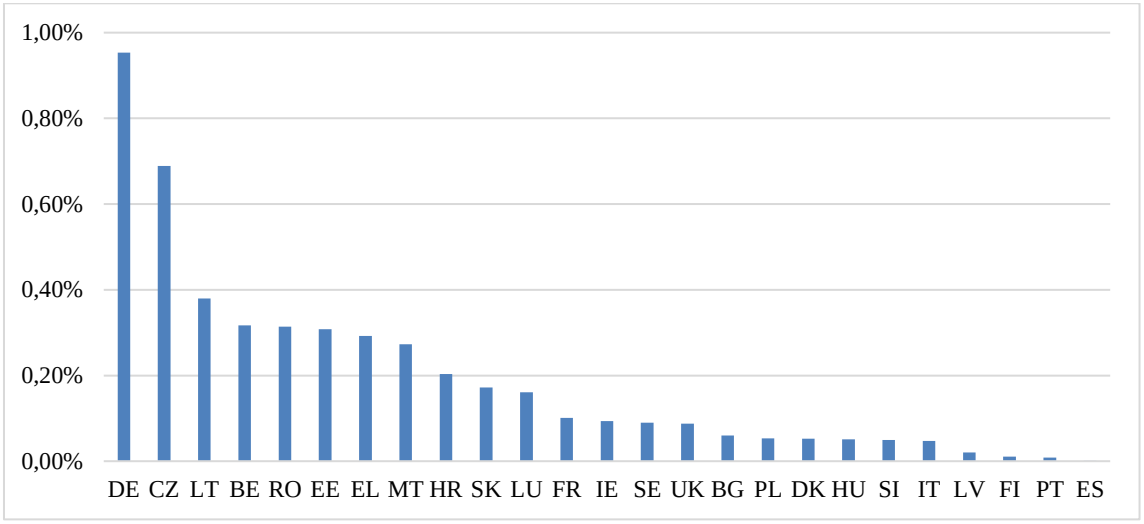
[13] SWD/2020/0257 final.
[14] This trend occurred during a period of technological progress and improvement in aid design (especially with a greater use of tenders) leading to significant cost reduction.
[15] Source: European Commission.
[16] CHP installations use heat generated as a by-product of the electricity generation process or employ industrial heat processes to generate electricity. This can reduce CO_2 emissions.
[17] Aid measures often include support for multiple categories of aid (e.g. RES and CHP). Where this is the case, it is assumed that the amount of aid is split equally between these categories.

Figure 2: Estimated types of aid approved under the EEAG, 2014-2019[18]



Germany was by far the largest provider of State aid under the EEAG between 2014 and 2019, accounting for over €177 billion[19]. France had over €7.8 billion of aid approved under the EEAG in the same period, the UK over €6.5 billion, the Czech Republic over €6 billion, and Italy almost €4.2 billion.

Figure 3: Aid expenditure under the EEAG as a percentage of GDP by Member State, 2019[20]



The Fitness Check has shown that overall, the EEAG (and the corresponding GBER articles) have worked well, but that they should be updated to reflect regulatory, technological and market developments. In particular, the Fitness Check revealed that the EEAG do not seem fully adapted to new technologies and novel support types, that they are not entirely coherent with more recent environmental and energy legislation, that some provisions have been less successful in promoting public policy objectives and that several provisions are unduly

[18] Source: European Commission. * denotes 3 or more categories/technologies. ** denotes measures of all types where SMEs are the targeted beneficiaries.
[19] The majority of this expenditure by Germany was linked to the energy Renewable Energy Act scheme (EEG), which totalled ~€72.5 billion in the period 2014-2019.
[20] Source: European Commission.

complex or can be further clarified. On the other hand, with the increasing role of public support in this area, the control of spending is even more important.

As regards energy charges imposed on economic operators, the EEAG have allowed Member States to lower energy charges for energy intensive users (EIUs) with the argument that this was necessary to enable the introduction of ambitious renewables policies by means of levies. The Fitness Check has shown that it is unclear whether this has been actually the case. With regard to the objective of avoiding relocation risk, the effectiveness of those reductions seems to vary across Member States, depending e.g. on the amount of RES financing, on whether this is financed by levies and thus on the proportion of the RES charge over the electricity charges for EIUs[21].

1.4 *Ex post* evaluation

The *ex post* evaluation conducted as part of the Fitness Check found that, partly as a result of the obligation set out in the EEAG[22] to gradually move to bidding processes such as auctions and tenders, rather than by the direct award of contracts, RES deployment costs had decreased. Within the sampled schemes, the weighted average price of wind capacity fell by 62% between 2015 and 2019, while the weighted average price of solar photovoltaic (PV) capacity fell by 51%, it was found to be unclear whether average prices are lower in multi-technology than single-technology RES auctions. The total volume of announced subsidy-free RES projects in the EU in August 2019 was approximately 18 GW[23] i.e. around 3.5% of total installed RES capacity. Large differences were found in the level of aid awarded for CHP technologies across different plant types and plant sizes, suggesting scope for improvements.

The cost of renewables and energy efficiency policies has been financed either by the national budget (i.e. general or specific taxes) or by specific levies such as RES and CHP levies. Where Member States have used levies, they often introduced large exemptions for EIUs, with an increasing charge for other users. The levy rate varies significantly across Member States. In Germany and Italy, the rising financing volume covered by levies implied that the percentage of the electricity bill represented by levies on non-EIUs has increased from under 15% in 2009 to more than 40% in 2018[24]. At the same time, the possibility of reductions for EIUs led to a more even distribution of effective levies (i.e. after reductions) for EIUs across the EU. Still, Member States with the highest levies also tend to show the highest average effective levies across Member States.

1.5 REFIT

The revision of the EEAG is part of the Commission's Work Programme for 2021[25].

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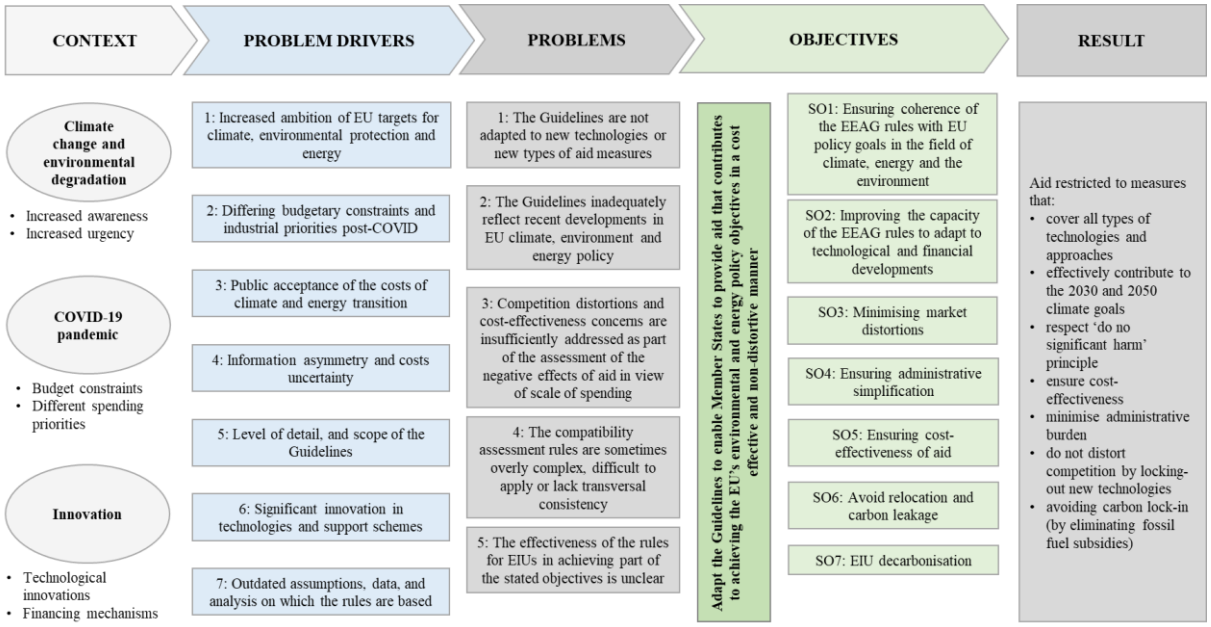
[21] SWD/2020/0257 final, p. 65.
[22] Building on the European Commission Guidance for the design of renewables support schemes, SWD (2013) 439.
[23] European Commission, 'Retrospective evaluation support study on State aid rules for environmental protection and energy – Final Report' (2019).
[24] Ibid, Figure 38
[25] Annex II to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Commission Work Programme 2021: A Union of vitality in a world of fragility, COM(2020) 690 final, p. 9.

2 PROBLEM DEFINITION

The problems set out in this section were identified using evidence from the Fitness Check (Section 1.3). There have been developments since the Fitness Check was published in 2020 that have reinforced the urgency of tackling certain problems. These include the COVID-19 crisis, and the various policy targets set out in the Green Deal and the FF55 package. Care was taken to distinguish problems from their symptoms, and to define problems without bias, including preconceived notions of what solutions might be.

Figure 4: Intervention logic



2.1 What are the problems?

The evidence presented in the Fitness Check suggests that the current EEAG were developed in a different market, regulatory and policy context, and provide a rather rigid framework which is not well-suited to addressing the present-day challenges linked to climate change, energy transition, and environmental degradation[26], and enabling Member States to implement the broad range of public financing measures needed to help achieve the objectives of the Green Deal and the NextGenerationEU recovery instrument (including through measures supported under the Recovery and Resilience Facility, InvestEU, the Just Transition Mechanism, the Innovation Fund, the Modernisation Fund, etc.).

Problem 1: The Guidelines are not adapted to new technologies or new types of aid measures

The evaluation conducted as part of the Fitnesss Check has shown that the current scope of the Guidelines and the coverage of the compatibility assessment rules do not enable to cater for the diversity of State aid measures that Member States may implement[27]. As set out above, the current guidelines (and the related provisions in the GBER) cover a limited catalogue of

[26] See the Intergovernmental Panel on Climate Change's Sixth Assessment Report.
[27] SWD/2020/0257 final p. 98-103 and 129.

policy measures and instruments. In addition, in relation to certain categories of aid, the EEAG and the GBER only cover measures resulting in an improvement in the level of environmental protection of the beneficiary itself[28]. Critical investments needed to reduce GHG emissions in the buildings and transport sectors are not appropriately addressed. This prevents recent regulatory changes, market evolutions and technological developments from being adequately covered. As mentioned, decarbonisation technologies such as carbon capture and use (CCU) or direct air capture of CO_2 are not covered by the EEAG. Moreover, the current compatibility rules do not enable new types of aid instruments and innovative scheme designs (e.g. aid for energy performance of buildings through the facilitation of energy performance contracting or using carbon contracts for difference for a variety of projects).

Problem 2: The Guidelines inadequately reflect recent developments in EU climate, environment and energy policy

Building on other major policy initiative introduced after 2014 (e.g. the Clean Energy for All European package, Clean Air Programme), the implementation of the Green Deal has led to significant legislative activity – most notably the FF55 package – which is likely to both increase the overall need for State aid to further reduce GHG emissions or otherwise increase the level of environmental protection in the EU (e.g. by increasing biodiversity and resource efficiency) and require Member States to support these efforts through new instruments and technologies and in other sectors.

The scope of the current guidelines does not fully enable Member States to present State aid measures that address the wide range of actions set out under the Green Deal. The set of measures covered in the current EEAG is relatively restricted[29], and their provisions are rather technology-targeted and prescriptive[30]. Key policy areas of the Green Deal such as biodiversity or natural habitat/ecosystem rehabilitation are not covered at all and others like clean mobility and resource efficiency are currently only partially covered. Moreover, some decarbonisation measures do not fall within the scope of the EEAG (e.g. carbon capture and use or clean mobility infrastructure) or require a convoluted assessment under multiple sections of the EEAG (e.g. hydrogen production) which have different compatibility conditions that are not very well-suited. A misalignment between the EEAG and the current EU priorities, including those put forward in the Green Deal, also emerged in the context of the public consultation on the Fitness Check[31].

As regards EIUs, since the adoption of the EEAG in 2014, two carbon leakage lists under the EU Emission Trading Scheme (ETS)[32] and the ETS State aid guidelines[33] (ETS guidelines)

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[28] See Section 3.2 of the EEAG.
[29] SWD/2020/0257 final, p. 129.
[30] The EEAG cover seven sectoral categories of aid: (i) aid to energy from renewable energy sources; (ii) energy efficiency, including cogeneration and district heating and cooling; (iii) aid for resource efficiency and in particular aid to waste management; (iv) aid to CCS; (v) aid to energy infrastructure; (vi) aid for generation adequacy; (vii) aid for the relocation of undertakings. In addition, the guidelines address two specific forms of aid: (i) aid in the form of reductions in or exemptions from environmental taxes and in the form of reductions in funding support for electricity from renewable sources; (ii) aid in the form of tradable permit schemes.
[31] 77% of the respondents that expressed an opinion on the issue considered that the objectives of the EEAG correspond only partially to the current EU priorities. See SWD/2020/0257 final, p. 98.
[32] Commission delegated Decision (EU) 2019/708.
[33] 2020/C 317/04.

have been updated. These rules aim at reducing the risk of carbon leakage and use a similar set of indicators to identify the sectors most at risk of relocation outside of the EU. Furthermore, the current rules risk to undermine other policy priorities and they need to be re-assessed in light of the new EU climate objectives, notably to ensure they do not undermine the decarbonisation of the EIUs and the implementation of the Green Deal.

Problem 3: Competition distortions and cost-effectiveness concerns are insufficiently addressed as part of the assessment of the negative effects of aid in view of the scale of the national spending in this area.

The provisions of the guidelines intended to ensure that aid is kept to the minimum level necessary to achieve the objective pursued have shown to be ineffective in certain situations, which has led to potential undue distortions of competition, both at national and cross-border levels, for example through possible overcompensation, crowding-out of private investment, deadweight losses or shortcomings in the design of the aid[34]. This may include aid unjustifiably creating different competitive conditions between Member States, for example where a limited number of beneficiaries are singled out for support despite the availability of more cost-effective alternatives. The support study for the revision of the EEAG[35] showed that the cost of different types of support for environmental protection is not usually identified (though Member States are in some cases starting to do this). When the cost of achieving one tonne of CO_2 reduction was identified for different measures in the study this showed that the cost varies dramatically, with CHP measures for example in some cases 5 times more expensive than RES measures (see Figure 5 in ANNEX 8). CHP measures are assessed under different rules than RES in the EEAG and have a lesser requirement for competitive bidding processes. Individual measures for CHP are also possible, enabling Member States to pick preferred projects for reasons other than cost effectiveness or environmental protection. This problem is made more relevant in view of the scale of national spending in this area which is expected to rise and to extend to new areas.

With regards to EIUs, the *ex post* evaluation and the support study found wide disparities in levies across the EU[36]. While in some Member States levies are high, other Member States grant reductions on already low levies. A company subject to high levies (or reductions from high levies) will bear a significant additional burden vis-à-vis a company from the same or substitutable sector in a country without or with very low levies. Levies and levy reductions therefore risk creating undue intra-sector competition distortion if not applied properly. The same holds true for competition between sectors with substitutable products (inter-sector competition). Competition distortions may also arise if certain companies belonging to the same sector benefit from reduced levies, while other companies operating in the same Member State do not. Under the current EEAG this is the case for a certain number of sectors, where particularly energy-intensive undertakings may receive levy reductions, while less energy-intensive undertakings in the same sector have to pay the full levy.

Problem 4: The compatibility assessment rules are sometimes overly complex, difficult to apply or lack transversal consistency

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[34] SWD/2020/0257 final, p. 129.

[35] E.CA Economics, UEA, LEAR, DIW Berlin & Sheppard Mullin (2021) *EEAG revision support study*.

[36] European Commission, 'Retrospective evaluation support study on State aid rules for environmental protection and energy – Final Report' (2019), pp. 86-91.

The content and structure of the compatibility assessment rules in the current guidelines are sometimes excessively complex[37], and therefore difficult to apply (e.g. determining eligible costs based on a counterfactual, determining the applicable emission levels and environmental performance from EU standards), both for Member State authorities when designing aid measures, and for the Commission when assessing the compatibility of notified aid measures. This even led in one case to misinterpretations in court judgments where the court has misunderstood when to apply the 'general' sections of the guidelines and when these are superseded by the specific rules applicable to a certain category of aid[38]. This problem is therefore already impeding the Green deal objectives, and could easily become worse as the number of technologies and sectors covered by the Green Deal continues to expand, possibly even ruling out aid for innovative projects because of arbitrary or outdated requirements that are binding on the Commission. There is margin for simplifying the rules, thereby reducing the administrative burden linked to the notification and the assessment of aid measures, while at the same time broadening the material scope of the guidelines and making the compatibility assessment rules more consistent between technologies, more systematic and more accurate where necessary.

Problem 5: The effectiveness of the rules for EIUs in achieving part of the stated objectives is unclear

The EEAG have allowed for reductions in levies funding support for electricity from RES for EIUs. At the time these reductions were introduced to address two main concerns. While a sufficient financing base for the development of RES and acceptance for ambitious policies was to be ensured, the rules also aimed at avoiding that undertakings particularly affected by these levies are put at a significant disadvantage vis-à-vis competitors operating in jurisdictions where RES policies are absent or less ambitious.

With regard to the former, the *ex post* evaluation has shown that overall for Member States there is not a conclusive correlation between the introduction of levies or reductions for EIUs and the introduction of ambitious renewables policies[39]. Moreover, EIUs reductions may shift the financial burden related to RES levies from one consumer group to another since some Member States finance reductions to EIUs by increasing levies on other consumers[40].

With regard to the latter, the *ex post* evaluation and support study have found that it is challenging to prove empirically that exemptions from RES levies reduce the relocation risk of EIUs, as relocation decisions are multifactorial and it is difficult to isolate the impact of the levy reduction or lack thereof on the decisions of undertakings to relocate outside the EU[41].

Nevertheless, the support study has shown that particularly electro-intensive firms are negatively affected[42] by high electricity prices (including levies) and firms more exposed to

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[37] SWD/2020/0257 final, p. 129.

[38] Judgment of the General Court of 12 July 2018, *Austria* v *Commission*, T-356/15, ECLI:EU:T:2018:439. Judgment of the General Court of 15 November 2018, *Tempus Energy Ltd and Tempus Energy Technology Ltd v European Commission*, T-793/14.

[39] European Commission, 'Retrospective evaluation support study on State aid rules for environmental protection and energy – Final Report' (2019), p. 65.

[40] Ibid, pp. 110-111.

[41] Support study, pp. 84-86.

[42] In terms of production, productivity, employment, probability of exit, exports and imports.

international trade are more likely to be subject to a relocation risk[43]. The higher the level of the levies, according to the support study, the higher the relocation risk[44]. EIUs have also argued in the targeted consultation that reductions on RES levies are indeed needed to limit their risk of relocation. The relocation risk due to high energy levies therefore remains a relevant factor that needs to be addressed.

2.2 What are the problem drivers?

Problem driver 1: Increased ambition of EU targets for climate, environmental protection and energy

The Green Deal significantly increases the climate and environmental protection ambition of the EU. More ambitious EU targets require environmental protection efforts on an unprecedented scale, including in hitherto overlooked 'hard-to-decarbonise' industrial processes and transport activities[45]. Although the bulk of the necessary capital will be mobilised by the private sector, the remaining market failures and barriers provide a rationale for public intervention and financing at EU level[46]. New areas and sectors will shift into the focus of decarbonisation support and new technologies will continue to emerge, and will therefore potentially be proposed as beneficiaries of support mechanisms[47].

As concerns EIUs, the recently updated ETS guidelines and ETS carbon leakage list, which aim at addressing the risk of carbon leakage stemming from the effect of rising carbon prices, determine eligibility solely at sector or subsector level and have stricter requirements to allow aid than the EEAG. In particular, although these two sets of rules use trade intensity as metrics to determine eligible sectors, the EEAG allow many sectors (including selected undertakings within 152 sectors) with a trade intensity of at least 4% to be eligible. On the other hand, the 2020 ETS guidelines require eligible sectors to have at least 20% of trade intensity while the ETS carbon leakage list is determined in a more flexible way, based on the multiplication of trade intensity and carbon emission intensity.

In addition, in the context of the European Green Deal the Commission has stated that energy efficiency must be prioritised ('Energy efficiency first' principle)[48]. Unconditional, unjustified

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[43] While confirming that trade intensity is a relevant factor for determining relocation risk, the support study suggests that the relocation risk is strongest for sectors trading with less developed countries, including China.
[44] Support study, pp. 112-113.
[45] The Commission assesses that, in increasing GHG ambition in the range of 50% to 55% reductions by 2030, overall energy supply side emissions reduce most, underlining large reduction potential through the deployment of renewables. On the demand side, reductions are highest in the residential, followed by the services sectors, with much more limited scope in the next decade for industry and transport. A large potential for emissions reductions remains for the EU building stock, which is relatively old and inefficient. For the industrial and transport sectors, lower emission reductions are projected for the next decade but much higher reduction rates after 2030. SWD(2020) 176 final.
[46] In-Depth Analysis in Support of Commission Communication COM(2018) 773.
[47] For example, the EU Hydrogen Strategy calls for the installation 6 GW of renewable hydrogen electrolysers by 2024 and 40 GW by 2030. COM(2020) 301 final.
[48] See Article 2(18) of Governance Regulation (EU) 2018/1999: "'energy efficiency first' means taking utmost account in energy planning, and in policy and investment decisions, of alternative cost-efficient energy efficiency measures to make energy demand and energy supply more efficient, in particular by means of cost-effective end-use energy savings, demand response initiatives and more efficient conversion, transmission and distribution of energy, whilst still achieving the objectives of those decisions".

or excessive reductions to the levies paid by energy-intensive industries risk undermining this policy objective.

On the other hand, the decarbonisation of EIUs has been identified as a policy objective in the Green Deal and in the European industrial strategy Communication[49]. As the electrification of industrial processes is one of the most important avenues for reducing the EIUs carbon footprint, energy levy reductions need to be properly designed in order not to weaken the achievement of this policy objective.

Problem driver 2: Differing budgetary constraints and industrial priorities post-COVID

It is budget-constrained Member States who will at least partially have to shoulder these investments. This is particularly difficult considering the recent strain on budgets stemming from the COVID-19 pandemic, during which all Member States have put in place support measures for impacted sectors and companies[50]. Besides having less means across the board, Member States have varying budgetary capacities to draw on to finance these investments[51] and different industrial priorities[52]. 70 out of 85 respondents on this point in the open public consultation questionnaire confirmed an increasing difference between Member States' resources to support environmental protection since 2019, due to the pandemic and the ensuing recession.

With the RRF, the funds mobilised for mitigating the economic and social impact of the coronavirus pandemic are an opportunity for Member States to increase their climate, energy and environment budgetary capacities to make their economies and societies more sustainable, resilient and better prepared for the challenges and opportunities of the green transition. Based on currently approved plans, Member States plan to allocate almost 40% of the available €723.8 billion to support climate-related measures,

Problem driver 3: Public acceptance of costs of climate and energy transition

Maintaining public acceptance for the green transition will be crucial, as the costs of financing it will be levied on taxpayers and electricity consumers. Commission analysis from 2018 suggested that, even before the increased climate ambition of the FF55 package, electricity consumer prices would increase by a further 1% of GDP equivalent until 2030 before stabilising. Achieving the newly increased 2030 climate and energy targets will require around €350 billion of additional annual investments[53]. Given that some Member States may

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[49] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions – A New Industrial Strategy for Europe, COM(2020) 102 final.

[50] According to the Commission's Spring 2021 Economic Forecast, the aggregate public deficit in the EU set to increase from 6.9% of GDP in 2020 to 7.5% of GDP in 2021 due in large part to the fiscal response to the economic fallout from the pandemic.

[51] '*The depth of the recession in 2020 and the speed of the recovery in 2021 and 2022 is expected to vary widely across Member States. This does not only reflect differences in the severity of the pandemic and the stringency of containment measures, but also differences in economic structures and domestic policy responses.*' 'European Economic Forecast: Autumn 2020', European Commission.

[52] Hydrogen and steel production, for example, is highly concentrated in a small number of Member States. In 2019, Germany and the Netherlands accounted for 59% of the EU's total hydrogen production (Source: Eurostat), whereas Germany and Italy accounted for 40% of the EU's crude steel production (Source: Eurofer).

[53] COM(2020) 562 final – SEC(2020) 301 final – SWD(2020) 177 final – SWD(2020) 178 final, p. 69.

be under political pressure to act against strong electricity price increases[54], ensuring the cost-effectiveness and proportionality of State aid would appear to be critical in maintaining support for the EU's climate ambitions.

Problem driver 4: Information asymmetry and costs uncertainty

There have always been information asymmetries between policymakers designing support schemes and market participants delivering decarbonisation. This was acknowledged in the Impact Assessment for the 2014 EEAG[55], which led to the introduction of competitive bidding processes in support schemes for RES and eventually to significant award price decreases for wind and PV generation. Such asymmetries are likely to remain important as decarbonisation efforts extend to new sectors and technologies whose costs are uncertain or prone to evolution.

Problem driver 5: Level of detail, and scope of the Guidelines

The EEAG contain a set of detailed and rather rigid rules which could be simplified to be more user-friendly and future-proof. For example, in contrast to the detailed conditions the Guidelines set out for aid to established technologies such as cogeneration, they lack any reference to hydrogen or carbon contracts for difference (CCfDs), among other key market developments.

Problem driver 6: Significant innovation in technologies and support schemes

Finally, the push to reduce emissions quicker, and in new sectors, is leading to significant innovation in technologies and support schemes. This makes necessary to have a broader and more flexible set of rules, which also cater for information asymmetries between policymakers and market participants, as there is now significant general uncertainty about the cost of new and emerging technologies.

Problem driver 7: Outdated assumptions, data, and analysis on which rules are based

The aforementioned problems are driven by the fact that the EEAG are based on assumptions and data that may no longer be accurate and up to date.

The lack of correlation between the public intervention and the introduction of ambitious and socially accepted renewable policies may be the result of an inaccurate assumption. In particular, allowing reductions from RES levies may shift the financing from one power consumer category to another, which may not contribute to greater public acceptance for such policies.

As confirmed by the results of the targeted consultation, the changes to trade intensity (TI) and electro-intensity (EI) of the eligible sectors in the EEAG, which are based on 2009-2011 data, seem to be substantial. The 2020 report 'Energy prices and costs in Europe'[56] confirms changes in the energy intensity of manufacturing sectors. In addition, in the context of the

[54] For example, in response to historic peaks in power prices driven by increased CO_2 costs, the Spanish Parliament proposed a law in 2021 that would claw back an estimated €1 050 million per year in revenues from renewable and low-carbon generators deemed to be enjoying 'windfall profits'. Although parliamentarians feared that high electricity prices would jeopardise post-COVID economic recovery, the move could undermine investor confidence in the sector, actually raising energy prices in the long-term.
[55] SWD(2014) 139, pp. 18, 44.
[56] COM(2020) 951.

Commission's case practice, several Member States have also argued that some sectors that are not eligible would now meet the requirements under the EEAG. As regards trade intensity, the data used for the revision of the ETS carbon leakage list adopted by the Commission showed considerable changes for sectors that are eligible under the EEAG.

The EEAG no longer adequately address their objectives and strike the right balance on the trade-offs of the pursued objectives, because there is a risk that the list of eligible sectors might be outdated or because the methodology to calculate reductions might be outdated.

It can also lead to a situation in which there is a risk of overcompensation, either because some sectors should not be eligible for reductions anymore or because some sectors need a lower aid intensity to alleviate relocation risks. Alternatively, sectors which were not eligible for compensation in the previous period may now require aid to alleviate relocation risks due to high levies as their electro-intensity has increased.

2.3 How will the problem evolve?

If no action is taken, the current EEAG will expire at the end of 2021. This would mean that any aid in the sector not covered by the GBER would have to be notified and assessed through the direct application of Article 107(3)(c) of the TFEU, and compatibility criteria would develop solely through case practice in the form of published decisions. That situation would lead to the 2030 objectives of the Green Deal not being addressed in a streamlined and comprehensive manner, as Member States would not have any comprehensive *ex ante* guidance on how to design those schemes, reducing legal certainty, as well as the predictability, transparency, and consistent application of the rules. It could also give rise to higher administrative burdens, as each individual assessment would require multiple exchanges between the Commission services and Member States' authorities to gather the necessary data to determine eligibility and proportionality. This Impact Assessment therefore does not consider the scenario of letting the EEAG expire.

If the current EEAG would simply be prolonged, the identified problems will also lead to a situation in which the 2030 objectives of the Green Deal would not be addressed in a streamlined and comprehensive manner.

Climate protection costs would increase, and the assessment of novel measures would increasingly have to be carried out under several (sub-) sections of the EEAG or directly under the Treaty. This could significantly delay the implementation of necessary measures and reduce public acceptance, which would have two main consequences. First, the achievement of the 2030 objectives would be more burdensome, less efficient, and less likely. Contributions to the objectives would disproportionately come from project categories already covered in the EEAG as newer or less common projects would be harder to accommodate, leading to competition distortions. Second, important preconditions for the achievement of the 2050 objectives would not be in place, as it would be more difficult to support the deployment of less mature and/or innovative technologies and approaches that could therefore be disincentivised.

These shortcomings would also spill over into the post-COVID economic recovery. With at least ~€250 billion of the EU's RRF earmarked for fighting climate change, inefficiencies in the State aid framework for energy and the environment would slow down and diminish the effectiveness of this economic and social support.

As concerns EIUs, the problems identified above are likely to persist throughout 2021-2030. The Green Deal Communication and the FF55 package have shown the EU's commitment to

climate change mitigation policies, in particular targeted towards decarbonisation. Implementation of these objectives may well in part be financed through levies on electricity consumption, which could lead to their further increase.

While the cost of renewables have been decreasing as a result of technological progress, several respondents to the targeted consultations argue that EIUs cannot yet benefit from falling RES costs and that the financing costs of ongoing RES schemes will continue to be charged to consumers for several years. In addition, stakeholders mentioned that the increasing RES penetration might lead to an increase in system costs and network charges.

In view of the ambitious decarbonisation targets set by policy makers, levies may be introduced to finance other measures contributing to the greening of the electricity sector. More than 80% of the business respondents to the public consultations expect electricity levies to increase in light of the EU's increased climate ambition, largely in the range of 0-20%. Public authorities and civil society share this expectation. Furthermore, all public authorities that contributed to the consultation anticipate that the expected levels of electricity taxes and levies carry a medium to high risk to impair the electrification of EIUs' production processes. Similarly, almost 90% of businesses consider the risk to impair electrification significant, against around 66% of the civil society contributors.

Since the adoption of the EEAG, various electricity taxes and levies continue to have a significant impact on electricity prices paid by end consumers and they remain by far the most important source of differences in retail electricity prices across Member States, displaying a dispersion that is three times higher on average than that of the network and energy components. This is due to the large differences in Member States' funding of energy policies affecting levies imposed on electricity consumption. Renewable levies ranged from 3€/MWh in Sweden to 67€/MWh in Germany in 2019. Several Member States did not collect them at all[57]. These differences primarily stem from public finance choices under Member States prerogative and fall outside the scope of State aid control. On the other hand, selective reductions in these levies are likely to entail competition distortions and need to be well justified and kept to a minimum in order to be compatible with State aid principles.

It is therefore likely that undertakings particularly exposed to the cost of electricity and to international competition will continue to face a significant additional burden, which may heighten the risk of their relocation outside of the EU. However, undertakings in Member States with low levies are less likely to face this relocation risk.

The current energy crisis, manifested by extreme spikes of electricity and gas prices, highlighted the importance of affordable energy supplies for the normal functioning of the economy. As businesses struggle with rapidly rising energy bills, which often threaten their livelihood, Member States are seeking various ways to provide some relief. Reductions from renewable levies could thus gain in importance as a tool to address heightened relocation risks and stabilize the economic outlook, at least in the short term perspective. Some Member States are taking more drastic measures, abolishing electricity levies completely and transferring the financing of renewable policies partially or fully to the state budget or various environmental schemes.

[57] COM(2020) 951, p. 3.

Changes that fall outside the scope of this Impact Assessment

In order to ensure that the analysis is focused on answering the most important questions, this report examines the impacts of proposed changes identified in the Inception Impact Assessment.

Changes that merely involve alignment with sectoral legislation – in particular the technical regulations related to the Green Deal and the FF55 – or that aim to broaden the technological and sectoral coverage of the Guidelines in line with the objectives related to the Green Deal and the EU policy initiatives that ensued fall outside the scope of this impact assessment[58]. This concerns in particular aid for biodiversity, aid for resource efficiency and circularity, and aid to tackle pollution other than from GHGs.

Changes imposed by developments in EU case-law are also outside the scope of the analysis. Recent Court judgments have nevertheless required important changes to the rules contained in the EEAG. In particular a series of requirements stemming from the *Hinkley Point C* judgment[59] have entailed adjustments to the structure of the Commission's compatibility assessment of notified measures. Such issues are however not examined in detail in this report as they arise from mandatory alignment to case-law.

This impact assessment focuses on the most contentious competition policy issues, namely aid for decarbonisation, the question of fossil fuels, and aid for EIUs. Amendments in the EEAG concerning aid for biodiversity, aid for resource efficiency and circularity, aid to tackle pollution other than from GHGs, which all feature in the proposed revision of the EEAG, have therefore not been examined as part of this report as they raise fewer policy issues (they merely concern technical adjustments or alignment with sectoral legislation) and have a less central role in addressing climate change (they are not specifically targeted at the reduction of GHG emissions), have less wide-ranging economic, social and environmental implications, and have more reduced potential impacts on competition (this is the case in particular of aid measures targeting biodiversity, environmental remediation, ecosystem management and nature-based solutions, which are less subject to competitive pressure on markets).

These topics do not raise major issues in relation to the three problem areas examined in this impact assessment. Whereas topics such as biodiversity, natural habitat preservation and restoration, nature-based solutions and the remediation of contaminated sites have an important role to play regarding adaptation to climate change, they have lesser influence on efforts to reduce GHG emissions (climate change mitigation) or to minimise reliance on fossil fuels, which are one of the main focuses of this impact assessment.

There seems to be general consensus among stakeholders that the proposed rules regarding these areas are relatively uncontentious and, unlike for other topics that are the subject of this impact assessment, the views on the State aid rules that should apply to these topics do not appear to be highly polarised. Compared to other sectors, respondents to the open public consultations have not identified the proposed rules relating to these topics as being particularly problematic (see ANNEX 2).

[58] The implications of the policy choices linked to those initiatives are or will be assessed in their respective impact assessments.

[59] Judgment of the General Court of 12 July 2018, *Austria* v *Commission*, T-356/15, ECLI:EU:T:2018:439.

Finally, the potential distortions of competition appear to be low for projects relating to areas such as natural habitat preservation, ecosystem management, nature-based solutions, remediation of environmental damage, etc. as many operators in these fields mainly pursue non-market activities.

Further information on these measures can be found in ANNEX 5.

3 WHY SHOULD THE EU ACT?

As indicated in Section 1.1, the Commission has exclusive competence for setting out the conditions under which State aid may be considered to be compatible with the internal market in the form of State aid guidelines. The subsidiarity principle therefore does not apply.

In the absence of new energy and environmental aid guidelines for the period after 31 December 2021, the Commission would have to assess the compatibility of notifiable State aid measures in the field of energy and the environment on a case-by-case basis in direct application of Article 107(3)(b) and (c) of the TFEU. This scenario would undermine the legal certainty and predictability that the EEAG have provided to date.

In this respect, EU action is necessary to ensure uniform conditions for the granting of environmental State aid (i.e. a 'do nothing' approach is not credible). The existence of a revised and extended GBER for the period as from 1 January 2022 would limit the requirement for Member States to notify aid for certain types of measures but it would not address the whole spectrum of potential aid measures. In addition, the revised GBER would not be an appropriate instrument to cater for competition concerns linked to large amounts of aid or for measures that are not suitable to be exempted from notification (e.g. new technologies, new forms of aid).

Other policy instruments than regulation at EU level (e.g. soft law) would not be effective. External rules controlled by a third party (the Commission) are needed to ensure transparent and equal treatment in the relations between aid granting authorities and aid beneficiaries. Therefore, rules on energy and environmental aid must be put in place as from 1 January 2022 and guidelines have proven to be an appropriate tool to address the need for comprehensive rules and to achieve the intended objectives.

4 OBJECTIVES: WHAT IS TO BE ACHIEVED?

4.1 General objective

The general objective of the revision is to adapt the Guidelines to enable Member States to provide aid that contributes to achieving the EU's medium- and long-term climate, environmental and energy policy objectives in a cost-effective and non-distortive manner between competing undertakings and across Member States.

For EIUs, the general objective of the revision is to ensure that the rules at stake contribute to the development of competitive, innovative and sustainable energy-intensive industries. This

will be achieved by limiting the levy[60] reductions to the minimum necessary to avoid both relocation and undue competition distortions, while preserving the incentive for a cost-effective decarbonisation of the economy[61].

4.2 Specific objectives

The revision will contribute to the achievement of the general objective by pursuing the following four specific objectives[62]:

Specific objective 1: Ensuring coherence of the EEAG rules with EU policy goals in the field of climate, energy and the environment (SO1)

The substantive rules contained in the EEAG should be made coherent with the Green Deal, including the legally binding objective to achieve climate neutrality by 2050. This requires the State aid guidelines to be broadened to include new measures and technologies that require public support to deliver on the increased general climate ambitions, as well as to make them more flexible to strengthen public support toward political priorities (e.g. investments toward energy efficiency), while ruling out interventions that are incompatible with the Green Deal.

Specific objective 2: Improving the capacity of the EEAG rules to adapt to technological and financial developments (SO2)

The rules in the EEAG should be redesigned and made future-proof to respond dynamically and effectively to technological changes (e.g. the electrification of the mobility sector, the use of hydrogen in industrial processes and as an energy vector, smart grids, renewable feedstock, nature-based solutions, etc.) and innovation in financing mechanisms (e.g. CCfDs). While some developments can be anticipated, others may be unexpected, requiring the identification and codification of common principles that can be flexibly applied.

Specific objective 3: Minimising market distortions (SO3)

Certain rules in the EEAG should be redefined to ensure that State aid in the field of climate, the environment and energy continues to enable certain activities or projects without undue distortions of competition (e.g. undue preference, windfall profits, negative spill-overs, deadweight effects – including greenwashing), lock-in effects or adverse impacts on trade within the internal market (market partitioning, locational effects, overprotective regimes, etc.). Adaptations could be warranted by information gained through the experience of applying the current rules, or by changes in the technological and regulatory landscape affecting the balance between the benefits of certain aids and their impacts on the market.

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[60] For the purpose of this assessment, 'levies' correspond to levies on electricity consumption financing energy decarbonisation and social policy objectives, excluding essential parts of the electricity prices such as network charges or capacity mechanism charge.

[61] In this regard, the general objective is complementary to that of the proposed CBAM, as both aim to prevent carbon leakage. At the same time these initiatives do not overlap since, whereas the CBAM aims to provide this protection as regards ETS emission costs, the revised guidelines concern relocation risk due to levies as defined in the above footnote.

[62] These strategic objectives are cross-cutting and are equally applicable to policy questions or aid categories not discussed in detail in the report (see ANNEX 5).

Specific objective 4: Ensuring administrative simplification (SO4)

The rules contained in the EEAG should be revised in order to facilitate the design and implementation of more effective aid schemes by Member States, as well as to further simplify the compatibility assessment of notified measures by the Commission, while ensuring that State aid control in the fields of energy and environmental protection remains focused on those intervention areas or types of projects that are most likely to require specific scrutiny because of their potential to distort competition.

Specific objective 5: Ensuring cost-effectiveness of aid (SO5)

The rules in the EEAG should be remodelled to improve the cost-effectiveness of State aid. This will help ensure that the most environmental protection (including reducing GHG emissions) can be achieved with finite public resources, and minimise the costs to consumers and taxpayers.

Specific objective 6: Avoid relocation and carbon leakage (SO6)

Reducing the risk that, due to the burden stemming from levies on electricity financing decarbonisation policies, EIUs move outside the EU and create carbon leakage.

Specific objective 7: EIUs decarbonisation (SO7)

Preserving the incentives for a cost-effective decarbonisation of energy-intensive industries.

5 WHAT ARE THE AVAILABLE POLICY OPTIONS?

The scope of the Impact Assessment covers the central principles along which the future guidelines will be revised, not the precise drafting of those future guidelines.

The following five policy questions are relevant for identifying the options which address how to achieve the specific objectives set out in Section 4.2:

Policy question	Main purpose	Specific objective(s) addressed
(A) Scope and harmonisation of rules: Should the rules for granting aid for the reduction of GHG emissions be aligned across different technologies or sectors, including for new technologies or sectors?	How to ensure the coherence of the EEAG rules with EU policy goals in the field of climate, energy and the environment How the guidelines can best accommodate technological and financial innovations. How to simplify the design and implementation of aid measures.	SO1 SO2 SO4
(B) Facilitation and safeguards: How to facilitate the granting of aid for measures that contribute to the Green Deal, while minimising distortions of competition and trade?	How to prevent undue distortions of competition and adverse impacts on trade within the internal market. How to simplify the design and implementation of aid measures. How to increase the cost-effectiveness of aid.	SO3 SO4 SO5
(C) Tendering: Should tendering be extended to become the default option for aid for the reduction of GHG emissions, and if so, how broad and encompassing across technologies and sectors should tenders be?	How to minimise market distortions when granting aid. How to maintain the cost-effectiveness of aid.	SO3 SO5
(D) Fossil fuels: Should projects be differentiated based on their environmental merits to be aligned with the Green Deal? If so, how?	How to ensure the coherence of the EEAG rules with EU policy goals in the field of climate, energy and the environment.	SO1
(E) EIUs: How to strike the right balance across different levy levels and difficult trade-offs (e.g. relocation risk vs. competition distortions; electrification vs. energy efficiency)	How to prevent undue distortions of competition and adverse impacts on trade within the internal market. How to reduce the risk of carbon leakage. How to preserve incentives for the decarbonisation of EIUs.	SO3 SO6 SO7

The dependencies between options have been assessed to be marginal, such that the identification of a preferred option in one policy area can be assumed not to decisively affect the assessment of the options in another.

All options examined would affect decisions on aid measures adopted by the Commission as from the entry into force of the revised guidelines[63] (proposed: 1 January 2022). All options would also affect existing aid schemes after the expiry of the transition period set out in the CEEAG (proposed: 2 years), but would not affect aid already granted to individual beneficiaries (e.g. long-term subsidy contracts would not be affected), and would therefore not involve retroactive changes that could undermine investor certainty.

As explained in Section 2 and further detailed in ANNEX 5, the proposed changes to the rules regarding other policy areas which are not addressed in detail in this report are all incremental and of a relatively minor importance and therefore not sufficiently relevant. They include, for example, alignment with sectoral legislation, alignment with EU case-law, measures to improve the consistency of the provisions with the experience of case practice, and measures with a less central role in addressing climate change or reducing fossil fuel use, less wide-ranging economic, social and environmental implications, and reduced potential impacts on competition. This report therefore does not examine the impacts of those proposed changes.

[63] The revised guidelines will be denominated 'Guidelines on State aid for climate, environmental protection and energy 2022' (the 'CEEAG').

This report focuses on answering the most important questions, as laid out in the Inception Impact Assessment, which would lead to the greatest impact and benefit.

5.1 What is the baseline from which options are assessed?

In the baseline scenario the current EEAG would be extended without modification. The rules for the measures or technologies which can receive aid, such as RES and Carbon capture and storage (CCS), would be maintained. Aid for other measures or technologies would need to be assessed directly under the TFEU. This would also mean that **operating and investment aid** would generally be subject to different compatibility conditions and that operating aid would only be allowed for a limited number of measures or technologies. The application of the funding gap and maximum aid intensity approach would also vary[64].

Under a baseline scenario of the current EEAG extended without modification, investment aid for productive investments would continue to be limited to maximum **aid intensities**, which can be increased if a tender is conducted. Investment aid would continue to be the only generally allowed form of aid for environmental protection (including industrial decarbonisation) and resource efficiency (including waste heat recovery and circular economy). Operating aid would continue to be allowed for RES and CHP until depreciation of the investment and for energy efficiency for a maximum of five years, with the possibility to extend it in case of a tender. For RES and CHP, operating aid would be possible after depreciation only for biomass and gas-fired CHP used in district heating. A tender would continue to generally be required for the award of operating aid, which would not be the case for investment aid.

Furthermore under the baseline scenario, the **GBER** would continue to provide exemptions from notification to investment aid for environmental protection below €15 million per undertaking per investment project – a level below which aid for the eligible projects was deemed to be minimally distortive. Moreover, investment aid for energy efficiency and remediation of contaminated sites would be exempted from notification respectively below the thresholds of €10 million and €20 million per undertaking per investment project. Investment aid for district heating and cooling distribution network would be exempted from notification below €20 million per undertaking per investment project and for energy infrastructure below €50 million. Operating aid for the production of electricity from renewable sources and for the promotion of energy from renewable sources in small scale installations would be covered by the GBER up to €15 million per undertaking per project.

For energy infrastructure, district heating networks, CCS, and recently also for generation projects, after the Sustainable Europe Investment Plan (SEIP)[65], aid would be allowed up to the funding gap without distinction based on the form of the aid.

As regards the **quantification of the environmental benefits**, a potential safeguard which increases the transparency of measures, this would continue to be required in some limited instances. For RES and CCS, for instance, the current EEAG does not require the

[64] See ANNEX 6 for an explanation of operating aid, investment aid, aid intensities, and funding gap.

[65] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Sustainable Europe Investment Plan European Green Deal Investment Plan, COM(2020) 21 final.

quantification of the contribution of support measures to CO_2 emission reductions. However, this would be required for certain categories of aid, such as aid for environmental protection going beyond EU standards or increasing environmental protection in the absence of EU standards, for aid for the early adaptation to future EU standards, and aid for resource efficiency.

Concerning **requirements to consult stakeholders on the design of aid schemes**, a potential safeguard enabling stakeholders to flag up competition and other concerns, Member States would not be obliged to do so with a simple prolongation of the current EEAG. However, the Commission would have the possibility to seek information from stakeholders after the opening of a formal investigation into a support measure in cases where it has doubts on its compatibility with the internal market.

As regards **tendering**, which helps to channel support towards the most (cost-) effective projects and ensure the proportionality of the aid, the allocation of aid through a competitive bidding process would only be required for operating aid to RES and CHP.

With respect to **broadening** (which means increasing tender eligibility to encompass competing projects that can deliver the targeted objective – e.g. opening a renewable electricity generation (RES-e) scheme to PV as well as wind generation), this would continue to be required only for RES-e, increasing participation and exerting downward pressure on costs. However, there would remain a number of exceptions allowing Member States to derogate from multi-technology schemes.

Regarding **fossil fuels**, the technologies currently eligible for aid under the EEAG are clearly defined in the scope and no further differentiation is made within a support scheme. The main areas where fossil fuels have been eligible for support under the EEAG are through measures for energy infrastructure, mobility and various energy efficiency measures including those involving CHP. Under infrastructure rules in the EEAG, infrastructure including for the most polluting fossil fuels could potentially be supported, for example oil pipelines. In the case of mobility, aid could be possible for mobility solutions involving fossil fuels where they would exceed the level of environmental protection required by applicable Union environmental standards (e.g. gas-fuelled buses). In relation to energy efficiency including district heating and CHP, no differentiation is made between coal-fired, gas-fired, oil-fired or renewables-based generation or energy equipment, meaning that State aid can be channelled to the most polluting fossil fuels, regardless of consistency with the long-term climate ambitions of the EU so long as the projects deliver primary energy savings. Under these circumstances, it is therefore very questionable that the current rules are aligned with the policy objectives of the Green Deal and with the phasing-out of fossil fuels, in particular those that are most polluting.

Concerning **EIUs**, Member States would be able to grant reductions from levies financing RES to undertakings in 68 sectors, and to undertakings with high electro-intensity in additional 152 sectors. The aid intensity would remain at a level of 85%, with the possibility to apply a cap on the levy payment at the level of individual undertakings equal to 4% of its GVA, or to 0.5% of its GVA for undertakings with at least 20% of electro-intensity. Reductions on levies would be allowed regardless of the level of the full levy. The aid would not be conditional to the fulfilment of any environmental action.

5.2 Policy options: Differentiation or harmonisation of rules per category of aid (A)

	Option A0: BAU	**Option A0+**: BAU approach extended to new technologies	**Option A1**: Partial harmonisation according to sectoral characteristics	**Option A2**: Partial harmonisation according to EU policies
Scope	Narrow and fixed	Wider but fixed	Wider and open for new technologies in the future	Wider and open for new technologies in the future
Rules (level of harmonisation)	Differ per technology	Differ per technology	Same for majority of technologies. Specific rules for areas where the general criteria would unduly preclude aid.	Same for many technologies. Specific rules for areas that are EU policy priorities, and areas where the general criteria would unduly preclude aid.

Option A0 maintains the structure of the current guidelines, which entails of one section which sets out general compatibility provisions, and three different, technology-specific sections that deal with individual technologies/approaches for reducing GHG emissions.

Table 1: How technologies are treated under Option A0

Dedicated rules	**Technologies falling under common harmonised rules for decarbonisation**
Renewable electricity, heat and gas	CCU
Energy efficiency, district heating and CHP	Industrial decarbonisation
CCS	Electricity storage
	Methane emissions reduction
	Energy performance in buildings
	Renewable hydrogen
	Clean vehicles
	Recharging and refuelling infrastructure
	Coal closures

Option A0+ would also involve continuing with the current approach in the EEAG which generally involves separate rules based on technology. However, to accommodate market developments, separate new rules would be created for all new foreseeable technologies[66], yielding a structure of one section for general compatibility provisions and 12 technology-specific sections. This updates the approach in the current guidelines to reflect changes observed in the market since 2014.

Option A1 would involve harmonising the rules everywhere this could simplify the guidelines and facilitate schemes involving a wider variety of project types that primarily deliver GHG emissions reductions. The same rules would apply to most measures that primarily aim to reduce GHG emissions, such as clean renewable energy of all types, CCS and CCU, energy storage, CHP and industrial process energy efficiency including the production of low carbon hydrogen. The left column of Table 2 shows the technologies for which rules would be harmonised. Under this option, the list in the left column is open and can potentially accommodate other technologies including any new technologies.

[66] Indicatively comprising CCU, industrial decarbonisation, electricity storage, methane emissions reduction, energy performance in buildings, renewable hydrogen, clean vehicles, recharging and refuelling infrastructure, and coal closures.

However, under Option A1 there would still be specific sections of the guidelines for certain technologies/approaches where specific different rules need to apply. The technologies listed in the right-hand column of Table 2 require a different approach to facilitating the granting of aid, preventing distortions of competition or maintaining the cost-effectiveness and proportionality of aid, due to certain specificities inherent to these technologies or sectors.

Table 2: How technologies are treated under Option A1

Technologies falling under common harmonised rules for decarbonisation	Not part of general rules (but still as close as possible)
Renewable electricity	Clean vehicles
Renewable heat	Recharging and refuelling infrastructure
Renewable gas	Energy performance in buildings
Energy efficiency (production process)	District heating
Non-district heating CHP	Coal closures
CCS	
CCU	
Industrial decarbonisation	
Renewable hydrogen	
Electricity storage	
Methane emissions reduction	

Specific rules are necessary for aid for clean mobility (vehicles and infrastructure) and energy efficiency in buildings for several reasons: (i) GHG reductions are measured using different methods than for applications in the energy or industrial sectors (e.g. emissions abated per passenger-km or tonne-km, energy performance levels of buildings); (ii) sector-specific rules and definitions are required (e.g. definitions of types of vehicles, notion of energy performance); and (iii) the level of GHG emissions is a not a direct function of output (as is generally the case for energy production or energy efficiency in production processes).

District heating cannot be accommodated under the general decarbonisation rules for several reasons: (i) district heating projects in different cities or regions cannot be compared homogeneously only on the basis of decarbonisation because of the local character of heat markets and of local planning considerations; (ii) there may not be a level playing field between district heating and more polluting heating solutions, e.g. individual wood stoves or gas boilers, due to differing regulatory standards, including emissions standards, energy-efficiency requirements, and emissions reduction targets at EU level[67].

Support to close down coal, peat and oil shale activities requires specific provisions for several reasons: (i) the general rules for GHG emissions reductions are too general to fit the specific objective of phasing-out the most polluting energy sources; (ii) there may be a very small number of power plant operators (especially those burning lignite, peat or oil shale) in individual Member States; (iii) power plants burning these fuels very often constitute an integrated system together with mines in their proximity from which the fuel is sourced, which requires additional considerations to be taken into account.

[67] For example, whereas EU requirements for alternative heating solutions are set out in the Energy Performance of Buildings Directive (EPBD, Directive (EU) 2018/844), district heating systems are subject to the Energy Efficiency Directive (EED, Directive (EU) 2018/2002).

Renewable Energy Communities

The 2018 Renewable Energy Directive requires Member States to ensure that renewable energy communities can participate in support schemes on an equal footing with other participants, and confirms that they would be eligible to receive support under the rules for renewable energy generation. In line with this, it is not proposed to include specific rules for renewable energy communities in the right-hand columns of Table 2 or Table 3 below.

From a competition point of view, renewable energy communities are undertakings and, as such, they have the potential to distort competition in the internal market in the same way as other market operators. The role of State aid policy is to ensure an effective and efficient use of public support to achieve environmental protection. Creating more favourable compatibility criteria for community projects that might be characterised by higher costs compared to their commercial counterparts could increase the cost of the energy transition with negative impacts on the overall level of environmental protection that can be achieved for the available budget.

Nevertheless, the draft guidelines on which the public has been consulted (see Section 4.3 of ANNEX 2) allow Member States to include non-price related selection criteria in competitive bidding procedures and also provide for exceptions for small projects below a certain size to benefit from direct price support – non-discriminatory measures that allow Member States to favour renewable energy communities, in particular smaller ones. Member States could, for example, include community-focused criteria in tenders or provide direct support to renewable energy communities that qualify as small.

Option A2 would involve maintaining separate rules for GHG reduction technologies that have deployment targets set out in EU legislation – namely RES and energy efficiency – while harmonising the rest of the rules to the greatest practicable extent where this can simplify the guidelines and facilitate schemes involving a wider variety of project types that primarily deliver GHG emissions reductions. Compared with Option A1, a number of additional sections would be created to cover the technologies set out in the leftmost column of Table 3 below. This would streamline the guidelines to some extent, while still providing tailored rules for technologies that are EU policy priorities and for which specific targets are defined. However, under Option A2 there would still also be specific sections of the guidelines for certain types of projects/measures where specific rules need to apply, and where accommodating these technologies under a single general section would lead to unclear or impractical rules. For instance, common rules for decarbonisation may not fit the specific role of aid for clean mobility even if such aid aims at the reduction of GHG emissions, as the technologies are too diverse and cannot be brought in competition with investments such as CCU which are complementary approaches for GHG emissions reduction rather than substitutes.

Table 3: How technologies are treated under Option A2

EU policy priorities with dedicated rules	Technologies falling under common harmonised rules for decarbonisation	Not part of general rules (but still as close as possible)
Renewable electricity	Non-district heating CHP	Clean vehicles
Renewable heat	CCS	Recharging and refuelling infrastructure
Renewable gas	CCU	District heating
Energy efficiency (in production processes)	Industrial decarbonisation	Coal closures
Energy performance in buildings	Electricity storage	
Renewable hydrogen	Methane emissions reduction	

Under all options, we assume that the Commission would continue with the current practice of issuing guidance to clarify how the rules in the guidelines apply to specific technologies, where necessary.

5.3 Policy options: Facilitation of the award of aid and related safeguards (B)

The relevant parameters for the policy options are:

- The form of the aid, i.e. whether investment aid and/or operating aid should be allowed for certain types of measures or projects;
- The method for determining the aid amount, i.e. through fixed aid intensities (administrative rationale) or through a funding gap calculation (economic rationale), including ;
- Whether individual projects should be notified above a certain size (e.g. amount of the investment or aid amount);
- The threshold above which measures must be notified to the Commission for scrutiny, and which types of measures this threshold should apply to;
- Whether specific safeguards are necessary to ensure that aid is allocated in a non-discriminatory way, that Member States quantify the costs of the level of environmental protection that the planned measure is expected to achieve or that granting authorities should have to conduct prior public consultations on planned aid schemes.

	Option B0: BAU	**Option B1**: More facilitation	**Option B2**: Facilitation with safeguards
Aid form: operating aid (OA) / investment aid (IA)	IA everywhere, OA only in certain areas	OA and IA everywhere	OA and IA everywhere
Aid amount: funding gap (FG) / aid intensity (AI)	FG only for OA, otherwise AI	FG everywhere	FG everywhere
Individual notifications	Required as of certain size	Optional (based on case-by-case assessment of notified schemes)	Optional (based on case-by-case assessment of notified schemes)
Block exemption	€15 million threshold and narrow scope	€20 million threshold and broader scope	€20 million threshold and broader scope
Safeguards (quantification of environmental protection cost; public consultation)	No	No	Yes

Option B0 would involve continuing with the current approach in the EEAG and GBER. In terms of facilitation, this means:

- Investment aid would be allowed for all activities, but operating aid would only be allowed for RES-e and CHP. This restriction on reflects the consideration that operating aid is more likely to cause market distortions by directly supporting variable production costs.
- A funding gap approach to awarding aid would only be used together with operating aid, i.e. limited to RES-e and CHP. Otherwise, aid would be required to be granted based on maximum aid intensities. This would help to simplify the granting of the aid, but to the detriment of some projects not being able to recover all their costs and therefore not being realised.
- Moderate notification thresholds (€15 million per undertaking per project) and a relatively circumscribed range of project types eligible for block exemption[68] would ensure that the Commission scrutinises a greater number of measures, albeit with greater administrative burdens.

In terms of safeguards:

- Aid awarded to large projects under an approved scheme would have to be individually notified to the Commission for additional oversight of parameters and assumptions leading to the aid award that could cause significant distortions.
- Member States would not generally be required to quantify the estimated cost of the GHG reductions expected to be achieved by measures that primarily target a decrease in GHG emissions.
- Member States would not be required to consult the public on competition or other issues caused by proposed subsidy schemes that primarily target a decrease in GHG emissions.

Option B1 would involve facilitating investment in aid measures supporting the Green Deal without putting in place any additional competition safeguards. This would provide Member States with maximum flexibility and minimise administrative burden. In terms of facilitation, this means that:

- Investment aid and operating aid would be allowed for all measures primarily reducing GHG emissions, subject to specific conditions.
- A funding gap approach to awarding aid could be used for all measures primarily reducing GHG emissions, subject to specific conditions.
- Individual notifications for large projects within approved schemes would not systematically be required, except in specific cases where it appears appropriate upon assessment of the notified scheme.

[68] Investment aid enabling undertakings to go beyond EU standards for environmental protection or to increase the level of environmental protection in the absence of EU standards, investment aid for energy efficiency measures, investment aid for energy efficiency projects in buildings, investment aid for high-efficiency cogeneration, investment aid for the promotion of energy from RES, operating aid for the promotion of energy from RES, operating aid for the promotion of energy from RES in small scale installations, aid in the form of reductions in environmental taxes under Directive 2003/96/EC, investment aid for remediation of contaminated sites, investment aid for energy efficient DHC, investment aid for waste recycling and re-utilisation, investment aid for energy infrastructure, aid for environmental studies.

- Notification thresholds would be increased to €20 million[69] per undertaking per project, and a broader range of project types would be made eligible for block exemption under the GBER[70], to reduce administrative burden.

In terms of safeguards:

- Member States would not generally be required to quantify the estimated cost of the measureable GHG reductions expected to be achieved by measures that primarily target a decrease in GHG emissions.
- Member States would not be required to consult the public on competition or other issues caused by proposed schemes that primarily target a decrease in GHG emissions.

Option B2 would involve facilitating investment in aid measures supporting the Green Deal but with additional safeguards to reduce competition distortions. This would provide Member States with increased flexibility, while reducing administrative burden by reducing the number of measures that have to be notified to the Commission. In terms of facilitation, the approach would be the same as for Option B1.

In terms of safeguards:

- Member States would be required to quantify the estimated cost of the measureable GHG reductions expected to be achieved by measures that primarily target a decrease in GHG emissions.
- Member States would be required to consult the public on competition or other issues caused by proposed schemes involving the granting of €150 million per year or above of State aid. The rationale is to improve transparency of planned schemes for stakeholders, and to create a better factual decision base for the Commission – something that is limited today due to the confidentiality of exchanges between Member States and the Commission regarding specific State aid measures. This measure would also be useful to test the proposed eligibility for schemes, and ensure they do not unduly exclude direct competitors.

[69] The €5 million increase in the notification threshold compared to BAU was determined by taking into account observed aid volumes in the 2014-2019 period, and adapting to external factors such as baseline inflation and the evolution of prices. This increment was chosen to enable a double-figure increase in the reduction of notified cases to 2030 – a significant reduction in administrative burden without what was deemed to be an excessive risk of non-compliance.

[70] The revised GBER is expected to cover, among others, investments in zero emissions vehicles, recharging and refuelling infrastructure, rehabilitation of natural habitats and ecosystems, circular economy. The GBER will also introduce a new category of exemption for aid in the form of reductions in environmental taxes or levies, which are needed for certain resource-intensive sectors.

5.4 Policy options: Aid award through administrative rules or through competitive bidding (C)

	Option C0: BAU	**Option C1**: Administrative	**Option C2**: Competitive bidding	**Option C3**: Multi-technology competitive bidding unless justified	**Option C4**: Cross-border opening
Competitive bidding (CB) requirement	CB only required for RES-e and CHP	CB not required	CB generally required for all measures primarily reducing GHG emissions	CB generally required for all measures primarily reducing GHG emissions	CB generally required for all measures primarily reducing GHG emissions
Participation	RES-e CB generally must cover all RES-e technologies	N/A	CB can be restricted to specific technologies without justification	CB must generally cover all competing technologies unless justified (e.g. based on long term potential of a specific technology or the need to meet another environmental objective)	CB can be restricted to specific technologies without justification, but must be open to projects in all Member States

The options described below address Problem 3 as identified in Section 2.1: that competition distortions and cost-effectiveness concerns are insufficiently addressed in view of the scale of the national spending under the guidelines.

Option C0 would involve competitive bidding processes only being required for measures supporting RES-e and CHP, with RES-e tenders generally required to include all RES-e technologies to foster participation. Certain exceptions from competitive bidding are available in these areas – notably for small installations and where there is insufficient competition to ensure competitive price setting. Likewise, Member States are able to support specific RES-e technologies with justifications, including to develop immature technologies with long-term potential. For measures supporting other activities that primarily target a reduction in GHG emissions apart from RES-e and CHP, aid can be calculated and awarded administratively, for example in schemes that offer a set level of aid per unit of output or unit of investment, and select beneficiaries on application. For projects not subject to tenders, aid proportionality can only be assessed on the basis of a conservative aid intensity approach or by way of a case by case funding gap approach, which entails more administrative burden, less accurate aid proportionality, and less cost-efficiency.

Option C1 would allow Member States to choose whether or not to conduct a competitive bidding process for any measure that primarily targets a reduction in GHG emissions, regardless of the eligible technologies/approaches. This would give Member States the broadest scope possible to pick 'winning' technologies/projects/companies, allowing them the full freedom to channel funding, at the risk of cost inefficiencies and competition distortions.

Option C2 would extend the requirement to conduct a bidding process to all measures that primarily target a reduction in GHG emissions, regardless of the eligible technologies/approaches. Member States would have full freedom to conduct technology-specific tenders (i.e. onshore wind only, or floating PV only) without the need to justify this restriction of the scope of the tender. This provides some scope to pick 'winning' technologies, but reduces the possibility of Member States pre-determining the specific projects or companies that would receive support. The possibility for technology-specific

tenders enables Member States to avoid inframarginal rents being earned by cheaper technologies in a multi-technology approach[71].

Option C3 would extend the requirement to conduct a bidding process to all measures that primarily target a reduction in GHG emissions, regardless of the eligible technologies/approaches. Tenders would generally need to be open to all competing technologies/projects that contribute to the objective – e.g. a measure for supporting electricity storage would need to be open to electricity generation and demand response too. Tenders could however be limited if necessary to achieve a specific EU objective, but would then generally need to include all relevant competing technologies. As with Option C0, exceptions to competitive bidding would be available where justified, as a strict tender requirement may not be appropriate in all situations (e.g. where there are demonstration projects and too few potential projects to enable effective competition, or to be in line with sectoral legislation[72]). In addition, where the estimated costs of different decarbonisation approaches eligible for support differ significantly (by 15%), Option C3 would make it simpler to have separate bidding processes, e.g. in a renewable electricity scheme, offshore wind could benefit from a specific tender separate to RES-e technologies with a lower estimated cost such as PV and onshore wind. This would address the risk of a multi-technology approach increasing costs, due to the inframarginal rents earned by cheaper technologies. Specifically in relation to RES-e therefore, this would provide additional flexibility compared to Option C0, which includes a relatively strict principle of technology neutrality.

Option C4 would be identical to Option C3 (extending multi-technology competitive bidding to all GHG reduction technologies), but with an additional obligation for Member States to open tenders to potential bidders in other Member States. This cross-border approach would increase participation in tenders and enable GHG emission reductions to be achieved at a lower cost, while fostering the development of the internal energy market.

5.5 Policy options: Approach to fossil fuels (D)

The options described below focus on the question of how to differentiate projects based on their environmental merits. Alongside the Green Deal, there are numerous initiatives at EU and national level to come up with a relevant methodology or taxonomy. However, all approaches are still in development and there is therefore no robust experience with their implementation and results. Of particular relevance are the work on the implementation of the 'do no significant harm' (DNSH) principle in the context of the RRF[73] and the EU Taxonomy[74].

[71] For more on inframarginal rents, see support study, pp. 16, 27, 29, 41; and Kitzing, L., Islam, M. and Fitch-Roy, O. (2017) *Comparison of auctions and alternative policy options for RES-E support*.
[72] For example, Article 4(5) of Directive (EU) 2018/2001 states that Member States shall be able to limit tendering procedures to specific RES technologies under certain conditions.
[73] Regulation (EU) 2021/241; C(2021) 1054 final.
[74] Regulation (EU) 2020/852.

Option D0: BAU	**Option D1**: Fuel type	**Option D2**: Taxonomy Regulation	**Option D3**: New methodology
No horizontal approach to fossil fuels	Flexible alignment with the technical guidance on the application of DNSH under the RRF Regulation, with further safeguards	Alignment with the criteria for determining whether an economic activity qualifies as environmentally sustainable under the EU Taxonomy Regulation	Development of a new full lifecycle emissions approach to fossil fuels for State aid control

Option D0 would involve not putting in place any system to address fossil fuel subsidies in the future guidelines. The signal to limit investment in fossil fuels would therefore have to come from the market and EU and national laws governing environmentally harmful pollutants, including the EU Emissions Trading System (EU ETS).

Option D1 would involve generally aligning the future State aid guidelines with the RRF Regulation in terms of how the DNSH principle is applied to projects seeking funding in the context of a balancing test[75]. This would generally exclude measures for power and heat generation based on fossil fuels from support, except for some projects based on natural gas under specific conditions. To prevent lock-in effects, support for measures involving new investments in natural gas (both in generation as well as infrastructure) would be possible only insofar as it is demonstrated that the investments are compatible with the EU's 2030 and 2050 climate and energy targets or there is no feasible alternative with lower environmental impact. For natural gas infrastructure, investments would be required to be 'fit for hydrogen'. The application of these requirements would take into account how close the aided investment is to the relevant target date, as well as key developments in relevant EU legislation. In addition, this option would foresee a partial lifecycle approach in specific cases to ensure that aid for the electrification of industry and hydrogen production does not lead to increased demand for fossil fuel projects, and therefore overall emissions increases.[76] Regarding renewable hydrogen and other renewable fuels of non-biological origin, these requirements are codified in secondary legislation[77], and so this element of the option is also necessary to ensure its coherence with rules outside the scope of this impact assessment. Under this option, the Taxonomy may also be relevant for assessing whether aid contributes positively to Green Deal objectives, as aid for investments which are deemed sustainable under the Taxonomy may often be presumed to have beneficial environmental effects.

Option D2 would involve aligning the future State aid guidelines with the Taxonomy in excluding support for projects that do not qualify as environmentally sustainable activities according to the criteria set out in that regulation. As the Taxonomy is not yet fully developed, the criteria that will be adopted could eventually diverge from those in Option D1. Moreover, this would not allow aid for projects that might be environmentally sustainable, but were not yet assessed for the purpose of the Taxonomy, and relevant technical screening criteria were not yet developed for them.

[75] The balancing test is the part of the State aid compatibility assessment where the benefits of a proposed measure are weighed against its costs, notably in terms of distortions to competition and trade.

[76] For example, support for electricity-based hydrogen production in an area where the electricity is produced from fossil fuels would increase electricity demand, increasing demand for fossil fuels. Although emissions would be reduced by avoiding the use of natural gas for hydrogen production, overall emissions may be increased as a result of the increased fossil fuel based electricity production.

[77] Article 27 of Directive (EU) 2018/2001.

Option D3 would involve the development of a new full lifecycle approach to quantifying GHG emission reductions, or even accounting for all types of pollution.[78] This would go much further than the approach adopted until now for environmental protection aid, which is to allow aid that only reduces one type of direct pollution from a specific beneficiary without usually considering related pollution that may be created or reduced.

5.6 Policy options: EIUs (E)

	Option E0: BAU	**Option E1**: Sector list	**Option E2**: ETS guidelines list
Eligibility	1) Type A sectors Sectors with at least: - 10% of EI and 10% of TI, or - 7% of EI and 80% of TI, or - 20% of EI and 4% of TI, or - substitutability with eligible sectors 2) Type B sectors Undertakings outside type A sectors with 20% of EI at individual level (for sectors with at least 4% TI) *Applying these criteria would result in 70 sectors (Type A) and certain companies from additional 159 sectors (Type B) being eligible for levy reductions.*	Eligibility defined at sector-level, based on: - a minimum level of the multiplication of EI and TI at sector level (factor threshold), and - minimum levels of EI and TI at sector level (individual thresholds). The impact quantification is based on the following calibration: - a factor threshold of 0.6%, and - individual thresholds of 5% EI and 4% TI. *Applying these criteria would result in 116 sectors being eligible for levy reductions.*	Sectors eligible for indirect cost compensation under the revised ETS guidelines *Applying these criteria would result in 11 sectors being eligible for levy reductions.*
Aid intensity: Aid reduction level	85%	Aid intensity is modulated based on the risk of relocation. For sectors above (EI*TI) factor threshold of 2% (91 sectors): 85%, with a minimum contribution to a reduced levy of 0.5 €/MWh For the rest of the sectors (25 sectors): 75%, with a minimum contribution to a reduced levy of 0.5 €/MWh	75% and scaled by efficiency benchmarks

[78] Taking into account emissions of pollutants other than GHG.

	Option E0: BAU	**Option E1**: Sector list	**Option E2**: ETS guidelines list
Aid intensity: Cap on the amount of payable levy	- 4% of GVA - 0.5% of GVA for undertakings with at least 20% of EI	Aid intensity is modulated based on the risk of relocation. For sectors above (EI*TI) factor threshold of 2% (91 sectors): 0.5% of GVA, with a minimum contribution to a reduced levy of 0.5 €/MWh For the rest of the sectors (25 sectors): 1% of GVA, with a minimum contribution to a reduced levy of 0.5 €/MWh	1.5%
Environmental conditionality	No	Yes	Yes
Green bonus	No	Yes	No

In order to address Problem 2 presented in Section 2.1, options E1 and E2 take elements to different degrees from the methodologies used to determine the two carbon leakage lists under the EU Emission Trading Scheme (ETS) and the ETS State aid guidelines (ETS guidelines). One the one hand, the ETS carbon leakage and the ETS guidelines lists also aim at addressing relocation risk for EIUs stemming from the effect of the carbon market, due to the increased costs of direct emissions and/or to the indirect impact on electricity prices. In this context, the ETS Guidelines in particular have stricter requirements than the EEAG in terms of eligibility, aid intensity and attached conditions. On the other hand, the increased electricity prices stemming from the existence of the ETS are not fully comparable to electricity levies covered in the EEAG: the aim of the ETS is to put a price on a negative externality in a continental-wide market and across different fuels. Direct emissions from fossil fuels used in industrial sectors are priced by the ETS directly. Indirect emission costs in the electricity sector are mainly driven by the price of emission allowances, which is the same in all Member States. While the relief from direct ETS cost is addressed through free allocation of allowances, indirect cost compensation is covered by the ETS guidelines. Levy exemptions addressed by the EEAG, on the other hand, only concern electricity, not other energy carriers, and are but one possible tool of raising finance for support schemes for renewables and other decarbonisation measures; other financing means are for example (specific energy) taxes with their own distribution of tax burden. Where Member States impose electricity levies to finance support schemes, these are set at national level and differ extensively from case to case, also depending on past and current levels of renewables support, and can considerably exceed indirect ETS costs (see Figure 12 and Figure 13). In this context, Option E1 also

includes a minimum level for reduced levies in line with the minimum rates for taxes on electricity consumption provided for under the Energy Taxation Directive[79].

In order to address Problem 3 presented in Section 2.1, the three Options present different methods and degrees of restrictions in eligibility for the aid and related aid intensity, which affect the degree of competition distortions and of cost-effectiveness of the intervention. Moreover, levies vary greatly across the EU and are particularly high in Member States with increased climate ambitions or with many large legacy support schemes. In other Member States, a tax imposed on electricity consumption finances decarbonisation policies. While these differences have an impact across undertakings located in different Member States, they primarily stem from public finance choices under Member States prerogative and fall outside the scope of State aid control. On the other hand, selective reductions in electricity taxes or levies entail State aid are likely to lead to competition distortions and need to be well justified and kept to a minimum in order to be compatible with State aid principles. Option E1 introduces mitigating measures to address the risk of competition distortions across undertakings located in different Member States with different levy or tax rates, in line with the minimum rates for taxes on electricity consumption provided for under the Energy Taxation Directive.

Problem 5 presented in Section 2.1 relates to the objectives pursued by the rules, which need to be fine-tuned. The analysis takes into account this aspect by adjusting the specific objectives of the intervention, which are used to assess the effectiveness of the three Options.

Option E0 would maintain the current rules for granting levy reductions, while the methodology to determine eligibility would be based on the most recent sectoral data currently available.

Option E1 would provide for a single eligibility list based on sectors, with aid intensity modulated according to the level of their relocation risk. For this purpose, it applies the methodology used to determine the carbon leakage list under the EU Emission Trading Scheme (ETS), which is based on a minimum level of the multiplication of the two relevant parameters to assess the risk of relocation and carbon leakage at sector level. In addition, minimum individual levels for both EI and TI indicators are included, in order to subject eligibility to a sufficiently high level in each individual parameter and avoid the possibility of sectors with extremely low values of either indicator to pass the multiplication threshold.

This approach has been selected to take into account the results of the targeted public consultation on the draft CEEAG, which proposed an eligibility list based on minimum individual EI and TI levels. The draft CEEAG set the benchmark for TI at 20% (as in the ETS guidelines and substantially higher than in the current EEAG) and the benchmark for EI at 10% (as in the current EEAG and substantially lower than the equivalent threshold in the ETS guidelines[80]). There are differences in the underlying components of the cost of electricity between levies and the indirect cost of emission allowances (which is measured by the EI), as the national electricity levies are not fully comparable to the increased electricity prices stemming from the existence of the ETS, both in magnitude and heterogeneity. On the other

[79] Council Directive 2003/96/EC.

[80] It is not possible to compare EI to the carbon emission intensity, used as eligibility parameter under the ETS carbon leakage list.

hand, the exposure to international competition measured by TI does not depend on the underlying costs and therefore the case for alignment with existing EU rules is stronger. Based on the draft CEEAG for consultation, 51 sectors would have been eligible for levy reductions.

The Commission explicitly invited stakeholders to provide feedback on that methodology to determine eligibility. The vast majority of private sector respondents as well as several Member States found the proposed methodology overly restrictive and rigid (see ANNEX 2). Many of these respondents argued that the rules to grant levy reductions should remain unchanged. Another frequent comment received was that the methodology proposed in the draft CEEAG should be reconsidered in order to apply the two eligibility indicators in a more flexible way.

With this in mind, the quantification of the impacts is made by applying a minimum threshold to both to the multiplication of EI and TI indicators and to these indicators individually. A minimum factor of 0.6% is proposed, corresponding notionally to 15% for EI and 4% for TI and taking into account the results of the public consultation which called for a more flexible calibration of eligibility. In addition, this basic threshold is augmented by the minimum individual levels for EI (5%) and TI (4%). The slightly lower minimum individual levels for TI is in line with the lowest required level of TI currently applied in EEAG methodology. In other words, a sector with 4% TI (the lowest level possible for this indicator) has to display an EI of at least 15%, which is above the basic value that was put forth in the CEEAG draft for consultation.

The application of the proposed criteria would result in 116 sectors eligible for levy reductions. Following the public consultation, this option E1 allows for the possibility to include further sectors or sub-sectors as eligible, provided that they meet the above eligibility requirements. This must be demonstrated by robust, validated data that are representative for the EU. Since it cannot be foreseen at this stage which sectors or sub-sectors would meet these criteria, the analysis in the impact assessment abstracts from that and bases itself on the data that have been collected via the data collection exercise for the review of the ETS carbon leakage list.

In order to account for the fact that the risk of relocation is not uniform across sectors, the maximum proportion of aid allowed and the maximum GVA cap on the amount of payable levy by the most affected companies would be graduated.

For the most at risk sectors displaying a multiplication of EI and TI of 2% and higher (corresponding to the threshold proposed in the draft CEEAG for consultation), the GVA cap is kept at 0.5% for the beneficiaries that reach it and the standard aid intensity cap is kept at 85% (in line with the EEAG). Beneficiaries from eligible sectors which display a multiplication of EI and TI of less than 2% are considered to be at a lower risk of relocation and can apply a GVA cap of 1% if they reach it or a standard aid intensity cap of 75%.

However, in order to mitigate the impact on competition distortions across undertakings located in different Member States, levies reduced under the standard aid intensity would not be able fall below 0.5 EUR/MWh. This implies that 0.5 EUR/MWh will effectively become the minimum contribution for all levies. This value has been selected following the results of

the public consultation, which explicitly invited stakeholders to provide feedback on this proposal, as well as by taking into account the minimum rate for taxes on electricity consumption provided for under the Energy Taxation Directive[81].

In order to strengthen interlinkages of levy reduction schemes with Green Deal objectives, this option would subject aid to the same environmental conditionalities that are in the ETS guidelines in terms of energy efficiency investments, electricity consumption from carbon-free sources, or reductions of GHG emissions by beneficiaries.

Moreover, undertakings falling in the less advantageous category of aid intensity would be able to reach the higher aid intensity levels in order to reward for a meaningful contribution to the development of renewable energy sources. This green bonus would be optional and in order to achieve it, aid recipients would have to cover 50% of their electricity consumption from carbon-free sources. To ensure that the measure directly contributes to the development of renewable and other carbon-free generation capacities, a part of the required green electricity procurement obligation will have to be met either through power purchase agreements (10%) or on-site or near-site generation (5%).

Option E2 would fully copy all the provisions of the ETS guidelines in terms of sector eligibility, levels of allowed aid and related conditionalities.

5.7 Options discarded at an early stage

One option concerning the scope and harmonisation of rules (see Section 5.2) was discarded before an in-depth assessment of its impacts. This option would involve harmonising the rules for *all* aid measures that primarily target a reduction in GHG emissions, including those listed in the right-hand column in Table 2. Under this option, it would be necessary to draft the general rules in such a manner as to be able to meaningfully accommodate all relevant sectors and technologies, including those with very particular specificities, such as energy efficiency in buildings, clean mobility, district heating, and coal closures.

Having the same general compatibility rules for all sectors and technologies would lead to excessively detailed and lengthy guidelines, as a complex set of caveats and criteria would be needed in order to accommodate a very broad range of diverse approaches to reducing GHG emissions. It would be difficult to anticipate how these provisions would interplay with hitherto unforeseen measures and technologies. Alternatively, finding a common denominator for such different sectors and technologies would require to render the provisions more general, to the detriment of clarity, legal certainty and predictability of the Commission's assessment. This option would therefore hinder rather than help the attainment of both SO2 and SO4.

One option concerning competitive bidding (see Section 5.4) was also discarded. This would involve requiring Member States to conduct competitive bidding processes for reducing GHG emissions that included all technologies *and all sectors*, i.e. RES-e projects would compete with industrial decarbonisation projects in terms of a common metric comparing their potential to reduce emissions, such as euros per tonne of CO_2 avoided (€/tCO_2). This technology- and sector-neutral approach would increase participation in tenders, identifying

[81] Council Directive 2003/96/EC.

the most cost-effective technologies regardless of the sector, and exerting downward pressure on costs. As with Option C2, exceptions to competitive bidding would be available, as well as the possibility to have separate bidding processes where justified.

This option would also put downward pressure on the costs of measures, and some Member States have put in place such schemes to good effect[82]. However, generally requiring this approach would be in strong tension with the EU's climate and energy objectives, some of which are codified through specific binding targets set out in EU law. Impeding Member States' ability to support measures to meet such binding targets would therefore neither be coherent with other EU policies nor legally feasible. In addition, the Commission's mandate under competition rules is to prevent competition distortions. Where supported projects are not in competition, as may be the case e.g. when comparing renewable energy generation and the installation of a more energy efficient steelmaking process, the Commission does not therefore have a strong basis under competition rules to further regulate these activities. This is why Option C3 is limited to a general requirement to open tenders only to those projects that are in competition with one another.

6 WHAT ARE THE IMPACTS OF THE POLICY OPTIONS?

6.1 Differentiation or harmonisation of rules per category of aid (A)

The assessment of the impacts of the options for whether the rules for granting aid for the reduction of GHG emissions be aligned across different technologies or sectors is presented in greater detail in ANNEX 7.

6.1.1 Methodology

To assess the impacts of the options for how the rules for granting aid should be aligned across different technologies or sectors, a multi-criteria analysis is performed to compare each of the options against the following criteria, which stem directly from the specific objectives pursued: SO1 (alignment with EU policy); SO2 (future proofing); SO3 (minimising market distortions); and SO4 (administrative simplification):

1. The number of technology-specific groupings of provisions, generally reflected as separate sections or subsections, that the guidelines would have under each option. This can be considered a negative indicator of the degree of administrative simplification (SO4).
2. The number of sections or subsections in which rules are duplicated. This can be considered a negative indicator of the risk or regulatory inconsistency (SO3).
3. The indicative number of technologies that must be accommodated within the general rules. This can be considered an indicator of the breadth and flexibility of the general rules, as well as an indicator of their ability to account for future innovation (SO1, SO2).

Each of the criteria are equally weighted. However, as innovation is essential in decoupling growth and consumption from environmental degradation and resource use, the ability of the guidelines to accommodate and foster innovation could be considered the most important of the criteria when considering the results of the analysis.

[82] See SA.49001 and SA.53525.

6.1.2 Economic impact

The analysis suggests that **Option A0** would lead to the shortest guidelines. However, they would neither be able to accommodate all current technologies nor anticipated technological and financial innovation. The presence of some duplicated rules increases the risk of regulatory inconsistency and other unintended consequences.

Option A0+ would lead to the lengthiest guidelines, without increasing their ability to accommodate technological and financial innovation. The absence of duplicated rules reduces the risk of regulatory inconsistency and other unintended consequences.

Option A1 would lead to relatively short guidelines that are most able to accommodate technological and financial innovation. The absence of duplicated rules reduces the risk of regulatory inconsistency and other unintended consequences.

Option A2 would lead to lengthy guidelines. It would be somewhat able to accommodate technological and financial innovation. However, the presence of some duplicated rules increases the risk of regulatory inconsistency and other unintended consequences.

It is not possible to reliably quantify costs or benefits of these options; their direct and indirect influence on aid schemes is too speculative. Nevertheless, aid amounting to around €202 billion was approved under the EEAG between 2014 and 2019. So even very small increases or decreases in the effectiveness and efficiency of aid schemes approved under the future guidelines could result in very significant economic and social impacts. This is particularly true in terms of the extent to which the future rules are able to accommodate and foster technological and financial innovation. The options could also have an impact on the administrative burdens associated with implementing the schemes, as there were 243 measures approved under the EEAG between 2014 and 2019.

National authorities can be expected to most greatly benefit from any administrative simplification the options bring. Market participants and equipment suppliers (in particular those who have an interest in innovative technologies) can be expected to most greatly benefit from any improvements the capacity of the rules to adapt to technological and financial innovations. Stakeholders that may in the past have been negatively impacted by the misalignment of rules for specific technologies/approaches stand to benefit most from a reduction in the number of sections or subsections in which rules are duplicated, as this would create a more level playing field for access to funding that would benefit them. This may include in particular demand-side measures, including energy efficiency and demand response providers, as these have proven to be cost-effective alternatives to other heavily supported GHG reduction technologies. On the other side of the coin, the proposal for a single set of rules for most GHG technologies was criticised by a number of special interest groups. Whereas many sets of individual rules may indeed have better served their narrow interests, the analysis demonstrates that this fragmented approach would not be in the interest of consumers, taxpayer or the environment.

6.1.3 Environmental impact

Insofar as the guidelines' ability to accommodate innovation can be assumed to result in more effective environmental protection, the analysis suggests that **Option A1** would lead to the greatest positive environmental impact. Another benefit of A1 compared to A0, A0+ and A2 is that it will encourage a more pro-competitive scheme design by making schemes more modular. For example, it would be easier for Member States to combine CHP and RES and electricity storage in one scheme if the rules are the same. Combining these different

competing technologies in the same scheme can be expected to lead to increased competition within the scheme. This may lead to cost savings and therefore to increased environmental benefits as more could be done with a given budget. Regarding the other options analysed, **Option A2** can be expected to lead to greater environmental benefits than **Option A0** or **Option A0+** as the analysis suggests it will be more able to accommodate innovation.

6.1.4 Impact on SMEs

More than 90% of construction, architecture, and civil engineering firms are SMEs. In the construction sector in particular, they amount to more than 99% of the firms[83]. Most of those firms are engaged in energy efficiency works. Options A1 and A2 would therefore have important benefits for these SMEs as they would enable these firms to benefit from energy efficiency being able to compete for funding on a more level playing field with other technologies/approaches.

Stakeholder views: Overall, the stakeholders that participated in the public consultation of the draft guidelines (see Section 4.3 of ANNEX 2) welcomed the enlargement of the scope of the guidelines to all the technologies that can deliver the Green Deal and ensure alignment with EU legislation. However, some of the contributions received, including public authorities from Spain, Luxembourg and Germany, considered the inclusion of measures for renewable energy and for the reduction of GHG emissions under a single section as a detrimental approach. In fact, it was suggested that this approach could disincentivise investments in renewable energy which would be crucial for the achievement of the climate neutrality objectives. More than half of the stakeholders that expressed their views on this point were in favour of a dedicated chapter on renewable energy. However, while public authorities and NGOs are more strongly in favour of differentiating renewable energy sources from other technologies for emissions reductions, companies and associations have mixed opinions on this point. The topic of renewable energy communities (RECs) was also mentioned several times, mostly by NGOs which argued that the revised guidelines should better acknowledge their role in the energy transition.

6.2 Facilitation of the award of aid and related safeguards (B)

The assessment of the impacts of the options for how to facilitate the granting of aid, and whether this should be accompanied by safeguards, is presented in greater detail in ANNEX 7. It is recalled that details on how the cross-cutting parameters that are relevant for policy options B apply for each of the types of aid covered by the Guidelines but not examined in detail in this report are presented in ANNEX 5.

6.2.1 Methodology

A semi-quantitative cost-benefit analysis has been performed to compare each of the options. Nevertheless, the speculative nature of the estimates must be stressed, given that Member

[83] Source: European Commission. https://ec.europa.eu/growth/sectors/construction_en#:~:text=Up%20to%2095%25%20of%20construction,job%20creation%20in%20this%20sector.

States, rather than the Commission, decide the actual aid amounts and are subject to various budget constraints.

6.2.2 Economic impact

	Option B0: BAU	**Option B1**: More facilitation	**Option B2**: Facilitation with safeguards
Aid form: operating aid (OA) / investment aid (IA)	No change	~€32 billion of aid to 2030 benefits from the possibility to shift to OA or hybrid OA/IA	~€32 billion of aid to 2030 benefits from the possibility to shift to OA or hybrid OA/IA
Aid amount: funding gap (FG) / aid intensity (AI)	No change	~€32 billion of aid to 2030 benefits from additional funding for costs that hitherto could not be covered	~€32 billion of aid to 2030 benefits from additional funding for costs that hitherto could not be covered
Block exemption	No change	A reduction of 20-50 notified measures in 2022-2030	A reduction of 20-50 notified measures in 2022-2030
Individual notifications	No change	A reduction of ~43 notified measures in 2022-2030	A reduction of ~43 notified measures in 2022-2030
Safeguards (quantification of environmental protection cost, and mandatory public consultation)	No change	No change	An additional ~41 Mt of CO_2 being saved to 2030 Improvements in scheme design Reductions in competition distortions Modest increases in administrative burdens to firms and public administrations

Regarding **aid form**, the support study found that, in the field of support for RES production, operating aid is more effective at securing investment than investment aid. In practice, operating aid seems more frequently awarded, while investment aid, under the existing rules (maximum aid intensities), can fail to cover the increased costs of investment.

Regarding **aid amount**, the support study found that investment aid at about 40% of eligible costs (i.e. extra investment costs) is unlikely to achieve substantial incentives for large and expensive investment. One solution is to provide support for new projects that takes account of the lifetime relation between investment, operating costs and revenues (i.e. a funding gap approach). This mode of support could cost-effectively incentivise investments in new technology if combined with competitive bidding processes.

The proposed measure essentially extends the possibility for Member States to use operating aid and a funding gap approach to projects for energy efficiency, industrial decarbonisation, and CCS, unlocking extra funding for projects in these categories if necessary. In the period 2014-2019, 46 measures approved under the EEAG, amounting to an estimated combined total of €21.5 billion of aid, was allocated to these technologies/approaches i.e. an average of €3.6 billion annually. If we conservatively assume that these funding levels are maintained, we would expect around €32.2 billion of aid to benefit from the change to 2030. However, as the measure will unlock funding for costs that hitherto could not be covered, we can expect it to result in the realisation of a broader variety of projects than would be possible at present. Combined with the EU's more ambitious climate targets, we can therefore expect funding levels (and emissions reductions) to increase substantially more.

Regarding **block exemption**, the purpose of the GBER is precisely to relieve Member States of the obligation to notify new aid measures, thereby facilitating the granting of aid. There is administrative burden associated with notifying aid schemes, which notably includes extensive correspondence with the Commission on measure design and commitments, which

requires human resources and may delay measures being put in place. Block exempting aid to a greater number of 'routine' GHG reduction measures that are least likely to create market distortions is expected to result in net benefits in light of the EU's increased climate ambitions.

In the period 2014 to 2019, six measures approved under the EEAG, amounting to a combined total budget of €125 million of aid, would have been eligible for block exemption under the broadened criteria proposed in Options B1 and B2. If we assume that Member States will make use of the increased scope and coverage of the GBER, we would expect approximately 20 to 50 additional measures to be block-exempted to 2030 as a result of broadening the block exemption criteria in the proposed ways (not including measures exempted on the basis of the current thresholds and rules).

Regarding **individual notifications**, 29 measures approved under the EEAG in the period 2014-2019, amounting to a combined total expenditure of €20.7 billion of aid, were notified to the Commission although they were part of a scheme that was already approved by the Commission. None of these measures proved to be problematic. If the trend continues, we would expect around 43 additional measures to be block-exempted to 2030 as a result of no longer requiring the individual notification of large projects within schemes.

Regarding the requirement pertaining to the **quantification of environmental protection cost**, the support study found large variations in support costs of different approaches to decarbonisation. As well as finding that CHP was generally a much more expensive way to decarbonise than renewables, the support study also found that in some cases, CHP support may not lead to any emissions reductions at all.

48 measures for CHP amounting to an estimated €22.0 billion of aid were approved under the EEAG from 2014 to 2019, i.e. around €3.8 billion of aid annually. If we conservatively assume that: (i) average annual aid expenditure to CHP would remain unchanged in the 9 years from 2022 to 2030 under a BAU scenario; (ii) CHP technologies have a cost-effectiveness of €70/tCO_2 throughout this period; (iii) quantifying the environmental protection cost leads to just 3% of the public funds that would have been spent on CHP being spend on more cost-efficient technologies such as RES and energy efficiency throughout this period under a BAU scenario; (iv) these alternative technologies have a representative cost-effectiveness of €45/tCO_2 throughout this period[84]; then quantifying the estimated cost of expected GHG reductions would result in the aid granted under the revised guidelines to 2030 leading to the equivalent of an additional 41 million tonnes of CO_2 being saved.

Quantifying the estimated cost of expected GHG reductions will initially involve a cost for public administrations. However, we estimate this cost to be below €100 000 per Member State.

The second safeguard is requiring a mandatory **public consultation** of at least 8 weeks for schemes in which Member States anticipate granting over €150 million of aid per year. It is not possible to quantify the benefits this could bring, which are expected to include:

[84] Based on the results set out in Figure 5 in ANNEX 7.

- Identifying competitors to beneficiaries of a proposed scheme, helping to ensure that competitors to the beneficiaries are eligible to receive support and not discriminated against;
- Supporting the development of scheme design (particularly technical parameters on which the Commission is not expert) to ensure these do not unduly discriminate between beneficiaries;
- Increasing the legal robustness of State aid decisions and reducing the need for the Commission to use the formal investigation procedure, which adds around 18 months to the State aid approval process[85].

Likewise, the administrative burdens of an 8-week mandatory public consultation period have not been quantified[86]. It is not believed that these will be significant given the fact that these can be carried out online. However, if the average efficiency of a 10-year scheme that awards €150 million a year increased by just 0.1% as the result of a public consultation, then this would justify additional administrative burdens of €1.5 million to conduct that public consultation. This measure can therefore be deemed to be a proportionate safeguard.

6.2.3 Environmental impact

Insofar as facilitating the granting of aid for GHG emissions reductions, and accompanying this with appropriate safeguards can be assumed to result in more effective environmental protection, the analysis suggests that **Option B2** would lead to the greatest positive environmental impact. Regarding the other options analysed, **Option B1** can be expected to lead to greater environmental benefits than **Option B0**.

6.2.4 Impact on SMEs

Increasing the aid notification thresholds under Option B1 and Option B2 would be more favourable for SMEs than for large enterprises, because investments by SMEs are, in proportion, more likely to be affected than large enterprises by the increase in the notification threshold from €15 million to €20 million due to the smaller average size of those investments. Similarly, extending the possibility for Member States to use operating aid and a funding gap approach to projects for energy efficiency will benefit the many SMEs engaged in this work (see Section 6.1.4). These same firms are expected to benefit from the quantification of environmental protection cost, as energy efficiency is one of the most cost-

[85] For example, in its judgment in Case T-793/14, the General Court considered that the UK's national consultation on its capacity mechanism '*did not relate to the matter of compatibility of that measure with the applicable rules on State aid*' (recital 99) and annulled the State aid decision, finding that the Commission should itself have opened a consultation to examine the same questions. In fact, the UK's consultation covered the precise issues contested before the court. However, State aid rules had no basis to refer to or rely on that consultation. By requiring a consultation in State aid rules, the results of that consultation will become a legally relevant part of the State aid assessment process, which should add legal weight to State aid decisions without requiring the Commission to open the formal investigation procedure in complex high budget measures.

[86] Costs incurred by the national administrations – who would bear the brunt of the burdens – are difficult to estimate precisely. A survey of national authorities was not deemed to be a reliable methodology in this case, as there may have been an incentive to inflate cost estimates to avoid new requirements. Similar surveys aimed at estimating the total administrative burdens of on administering State aid cases in the field of broadband infrastructure have varied by a factor of four depending on the Member State. SWD(2021) 195 final, pp. 61-64.

effective decarbonisation approaches. SMEs may be differentially impacted by the choice of the aid award method.

Stakeholder views: Some stakeholders expressed concerns over the administrative burden of these safeguards. In particular, the requirement for a public consultation was considered particularly burdensome by public authorities, associations and companies. On the other hand, 80%of the NGOs that expressed their views on this point saw this safeguard as a useful tool to facilitate the cooperation of different stakeholders in the design of support measures while streamlining the State aid assessment process and, therefore, proposed to extend it to all the types of aid covered by the Guidelines. The introduction of a requirement to calculate the cost of reducing GHG emissions, was generally positively received but perceived as unclear in a third of the comments received.

6.3 Aid award through administrative rules or competitive bidding (C)

The assessment of the impacts of the options for whether tendering should be extended to become the default option for aid for the reduction of GHG emissions, and if so, how broad and encompassing across technologies and sectors tenders should be, is presented in greater detail in ANNEX 9. It is recalled that details on how the cross-cutting parameters that are relevant for policy options C apply for each of the types of aid covered by the Guidelines but not examined in detail in this report are presented in ANNEX 5.

6.3.1 Methodology

A semi-quantitative cost-benefit analysis has been performed to compare each of the options.

6.3.2 Economic impact

Option C0: BAU	**Option C1**: Administrative	**Option C2**: Competitive bidding	**Option C3**: Multi-technology competitive bidding unless justified	**Option C4**: Cross-border opening
No change	**Reduced cost-efficiency** Net increase in administrative burdens to public authorities and firms	**Increased cost-efficiency** Net decrease in administrative burdens to public authorities and firms	**Increased cost-efficiency** Net decrease in administrative burdens to public authorities and firms	**Increased cost-efficiency but reduced MS willingness to support GHG reductions** Net decrease in administrative burdens to public authorities and firms

The use of competitive bidding processes for the award of aid has contributed to significant cost reductions in the areas where it has been required. The weighted average award price for wind generation in the EU fell by 62% between 2015 and 2019, and the weighted average award price of PV fell by 51% in the same period, following the introduction of tendering requirements for RES in the 2014 EEAG. This trend was observed for both single- and multi-technology auctions.

When applying tenders, one has to define the group eligible for participation. To maximise participation and avoid hidden favouritism, tenders should be broad and organised in an encompassing way across areas and technologies that are in competition. This helps to ensure that the most efficient technologies and firms are selected, and that the cost to consumers and taxpayers is minimised.

Nevertheless, although multi-technology auctions can lead to cost minimisation, at least in the short term, they may also lock out the most expensive technologies and generate windfall profits for the least expensive ones (inframarginal rents). Technology-specific auctions may therefore be useful for fostering technology diversity, and can also be a useful tool to allow Member States to achieve additional objectives, e.g. dealing with local air or water pollution, or supporting security of supply.

Option C1 would essentially involve removing the competitive bidding requirements for RES and CHP introduced in the 2014 EEAG, allowing Member States to choose whether or not to conduct a competitive bidding process for any measure that primarily targets a reduction in GHG emissions. 179 measures amounting to an estimated €106.6 billion of aid to RES and CHP were approved under the EEAG in the six years from 2014 and 2019 i.e. an average of €17.8 billion of aid annually. If we conservatively assume that (i) average annual aid expenditures for these technologies remains unchanged in the 9 years from 2022 to 2030; (ii) removing the competitive tendering requirement would result in marginally lower aid efficiency in terms of €/tCO_2, with symbolic efficiency losses of 0.5% compared to a BAU scenario[87]; (iii) RES and CHP technologies have a cost-effectiveness of €45/tCO_2 and €70/tCO_2 respectively throughout this period under a BAU scenario[88], then this option would result in the aid granted under the revised guidelines to 2030 leading to the equivalent of an additional 16.3 million tonnes of CO_2 being emitted. In addition, administrative award entails a higher risk of overcompensation, of aid exceeding the minimum necessary, and thus a higher risk of competition distortions between companies located in different Member States.

Option C2 would essentially involve extending the competitive bidding requirement from RES and CHP to all GHG reduction technologies, notably including non-CHP energy efficiency, industrial decarbonisation, and CCS. However, Member States would be free to restrict tenders to specific technologies without a need to justify this choice. 46 measures amounting to an estimated €21.5 billion of aid to non-CHP energy efficiency, industrial decarbonisation, and CCS were approved under the EEAG between 2014 and 2019 i.e. €3.6 billion of aid annually. If we conservatively assume that: (i) average annual aid expenditures for these technologies/approaches remain unchanged in the 9 years from 2022 to 2030; (ii) the introduction of a competitive bidding requirement would increase the cost-effectiveness of aid for non-CHP energy efficiency, industrial decarbonisation, and CCS by 5%[89]; (iii) these technologies have a cost-effectiveness of €50/tCO_2[90], €70/tCO_2[91] and €80/tCO_2[92] respectively throughout this period under a BAU scenario, then this option would result in the aid granted to 2030 leading to the equivalent of an additional reduction of 33.9 million tonnes of CO_2.

Option C3 would essentially involve extending the competitive bidding requirement from RES and CHP to GHG reduction technologies notably including non-CHP energy efficiency

[87] I.e. moving back to administrative price setting in RES and CHP would result in a 0.5% efficiency loss. Given the data presented in Figure 6, Figure 8, Figure 10, this is a conservative assumption.
[88] Based on the results set out in Figure 5 in ANNEX 7.
[89] A very conservative assumption given that the weighted average award price for wind and PV generation in the EU fell by over 50% between 2015 and 2019, following the introduction of tendering requirements for RES in the 2014 EEAG.
[90] Based on the results set out in Figure 5 in ANNEX 7.
[91] In analogy from the CHP values.
[92] Bui et al. (2018) 'Carbon capture and storage (CCS): the way forward', *Energy & Environmental Science*.

and CCS. Tenders would generally need to include all competing technologies, however Member States could restrict tenders to specific technologies if this was justified (e.g. based on the anticipated long term potential of a technology). The support study showed that, depending on the circumstances, selecting a technology-specific or multi-technology auction could result in an additional 1% cost-effectiveness gain. If we assume that the requirement to justify restricting auctions to specific technologies leads to the better design of aid measures, and therefore an additional 0.5% of cost-effectiveness when compared with Option C2 (i.e. a 5.5% cost-effectiveness benefit compared to BAU) then Option C3 would result in the aid granted to 2030 leading to the equivalent of an additional reduction of 37.5 million tonnes of CO_2, keeping all other assumptions equal[93].

Option C4 would essentially involve extending the competitive bidding requirement from RES and CHP to all GHG reduction technologies, and requiring the mandatory opening of tenders to potential bidders in other Member States. The mandatory partial opening of support schemes to cross-border participation was recently analysed by the Commission in the context RES-e schemes[94]. This analysis found that the measure would, in theory, put downward pressure on the costs of GHG emissions reduction. However, the co-legislators rejected a similar proposal for cross-border opening by the Commission in legislation adopted in 2018, opting instead for voluntary measures to facilitate the cross-border financing of RES-e deployment[95]. Issues cited included the inability of Member States to support measures to meet binding targets set out in EU law, the loss of control Member States may experience over their own energy systems. The benefits in terms of increasing participation in tenders and enable GHG emission reductions to be achieved at a lower cost could therefore be outweighed by reducing the willingness of Member States to support GHG reduction.

Regarding administrative burden, competitive bidding tends to reduce the burden associated with selecting beneficiaries and setting aid amounts, as well as with the State aid process and also with legal disputes over whether an administratively set aid amount was the right amount. National authorities can be expected to benefit from this most, although burdens can also be faced by beneficiaries needing to justify eligible costs as part of the process to access aid or in subsequent legal disputes. Competitive bidding may, however, result in increased administrative burdens on firms participating in selection processes. In addition, the need for justification of the proposed scope of a measure where competitors are excluded under Option C3 would increase the administrative burden on public authorities, as would coordinating cross-border cooperation under Option C4.

Option C1 can therefore be anticipated to lead to a net increase in administrative burdens to public authorities, and a net decrease in administrative burdens to firms. **Option C2** can be anticipated to lead to a net decrease in administrative burdens to public authorities, and a net increase in administrative burdens to firms. **Option C3** can be expected to lead to a neutral impact on the administrative burden to public authorities, and a net increase in administrative burdens to firms. As with the impacts analysed in Section 6.2, however, theses impacts are anticipated to be greatly outweighed by the benefits of the measures examined, and are not

[93] I.e. the assumptions used for Option C2.
[94] SWD(2016) 418.
[95] See Article 5 of Directive (EU) 2018/2001.

therefore anticipated to alter the ranking of options examined. This would not be the case for **Option C4**, as the economic benefits of cross-border opening are uncertain.

6.3.3 Environmental impact

Option C0: BAU	**Option C1**: Administrative	**Option C2**: Competitive bidding	**Option C3**: Multi-technology competitive bidding unless justified	**Option C4**: Cross-border opening
No change	~ +16.3 Mt CO_2 emitted	~ -33.9 Mt CO_2 (net avoidance)	~ -37.5 Mt CO_2 (net avoidance)	Uncertain impacts on environmental aid

Competitive bidding enables granting authorities to incentivise projects that are capable of generating higher outputs in terms of environmental benefits per unit amount of aid. Insofar as effectively harnessing the power of competitive bidding in this context can be assumed to result in more effective environmental protection, the analysis suggests that **Option C3** would lead to the greatest positive environmental impact (although the difference between Options C2 and C3 is small in terms of CO_2 emission avoidance). Regarding the other options analysed, **Option C2** can be expected to lead to greater environmental benefits than **Option C0**, which in turn can be expected to lead to greater environmental benefits than **Option C1**. **Option C4** may have a negative impact on environmental protection by undermining the willingness of Member States to support measures for GHG reduction.

6.3.4 Impact on SMEs

SMEs may be disadvantaged by the technical and financial requirements for competitive bidding as they may lack the capacity to develop projects to the stage necessary to qualify for participation in an auction without a guarantee that the projects will be successful.

This impact will be reduced for small projects with the proposed exemption for them[96]. In addition, the draft guidelines include further mitigating measures by encouraging Member States to put in place more lenient pre-qualification requirements for SMEs and/or new market entrants. These mitigating measures would accompany all options including the broadening of competitive tendering requirements.

Stakeholder views: The requirement for technology neutral competitive bidding processes as a standard method for the allocation of aid was considered by most stakeholders too strict to ensure a diversified energy mix and reduce system costs. On the contrary, it was proposed to grant more flexibility to Member States over the organisation of technology-specific procedures. This view was shared by around 40% of the public authorities, 80% of the associations, and 30% of the companies that addressed this point in their submission. The inclusion of non-price selection criteria was also mentioned as a way to grant more flexibility. While some contributions to the public consultation underlined the potential lower transparency of non-price criteria, the majority of Member States proposed to increase the weight of these criteria in the selection process up to 40%. Overall, almost 80% of the stakeholders mentioning this topic in their contribution asked for increasing the share of non-price selection criteria above the 25% proposed.

[96] See the text box on renewable energy communities in Section 5.1.2.

6.4 Exceptions to the general rules on GHG emissions reduction (A-C)

As explained in Section 5.2, certain technologies/approaches to GHG reduction require a different approach to facilitating the granting of aid, preventing distortions of competition or maintaining the cost-effectiveness and proportionality of aid, due to specificities inherent to these technologies/approaches which require maintaining specific rules.

Further information on the advantages of this can be found in ANNEX 10.

6.5 Approach to fossil fuels (D)

It is recalled that details on how the cross-cutting parameters that are relevant for policy options D apply for each of the types of aid covered by the Guidelines but not examined in detail in this report are presented in ANNEX 5.

6.5.1 Methodology

To assess the impacts of the options for how the rules for granting aid should differentiate projects based on their environmental merits, a multi-criteria analysis was performed to compare each of the options against the following criteria, which stem directly from the specific objectives pursued – SO1 (alignment with EU policy) and SO4 (administrative simplification):

1. Ease of understanding and application for both the national authorities designing and implementing aid measures, and the EU competition authorities assessing their compatibility.
2. Coherence with sectoral legislation. This may include both legal definitions and methodologies which define technologies/approaches that legally contribute to the achievement of an objective enshrined in EU policy.
3. Process alignment i.e. the extent to which the option can be put in place in a timeline that is compatible with the policy cycle of the revised EEAG.

Each of the criteria are equally weighted.

6.5.2 Economic impact

	Option D0: BAU	**Option D1**: Fuel type	**Option D2**: Alignment with the EU Taxonomy Regulation	**Option D3**: New full lifecycle emissions methodology
Ease of understanding and application	+2	+2	+1	+1
Coherence with sectoral legislation	-2	+1	0	+1
Process alignment	+2	+1	0	-2

Option D0 would entail relying on the market, as well as EU and national laws including the EU ETS, to deliver the signal to limit investment in fossil fuels. As this requires no further action on the part of EU or national authorities, it scores relatively well in terms of ease of understanding and application, and top marks in terms of process alignment. However, it would not be easy to explain why we would continue to allow aid for measures based on the most polluting fuels in light of the EU's commitment to phase out fossil fuel subsidies, as well as its climate ambition. Also, it is not neutral in terms of its coherence with sectoral legislation because permitting subsidies to certain fossil fuels under the pretext of, for example, energy security or energy efficiency can counteract the market and regulatory

signals that would otherwise prevent inefficient investments in polluting projects. It would therefore be in strong tension with the objectives of the Green Deal.

Under **Option D1**, measures for power and heat generation based on the most polluting fossil fuels such as coal, lignite and oil would not be eligible for support under the guidelines, except for projects based on natural gas under specific conditions intended to prevent lock-in effects.

Since the most polluting fossil fuels result in roughly twice the GHG emissions as those from natural gas when used for power generation and industrial processes, polluting fuel types are relatively simple to identify, and the system is easy and intuitive to explain, also to the wider public. Nevertheless, there may be some interpretation required around how to gradually phase out support for natural gas projects in light of looming climate targets and the need to avoid carbon lock-in. As such this option scores fairly well in terms of ease of understanding and application.

In terms of coherence with sectoral legislation, preventing investments in projects involving the most polluting fossil fuels acts as a strong safeguard against aid that contradicts the objectives with the Green Deal. However, this may sometimes be stricter than sectoral legislation. An example is clean mobility, where until now any alternative fuel to diesel or petrol (including LPG or LNG/CNG) is viewed as delivering an environmental benefit, even if limited, and the environmental impact of vehicles is generally considered based on the level of CO_2 and other pollutants emissions, rather than on the basis of the fuel used for their operations. As such, this option scores fairly well in terms of coherence with EU policies.

Option D2 would involve excluding support for projects that do not qualify as environmentally sustainable activities according to the criteria set out in the EU Taxonomy Regulation, which is designed to identify investments that can be considered as 'sustainable'.

This approach would be more challenging to apply than Option D1 because a project's characteristics in terms of the fuel it uses are easier to identify than specific emissions thresholds, and there are multiple thresholds and rules applicable to a broad variety of technologies set out in the Taxonomy (cf. the necessity of tools such as the EU Taxonomy Compass to help users 'navigate' the various criteria). Nevertheless, the Taxonomy would represent a comprehensive and precise reference for environmental sustainability when it is completed, giving this option some merit in terms of ease of understanding and application.

Regarding this option's coherence with sectoral legislation, some proposals are still in development, and so there is a risk that this option would be overly strict on certain projects that could be beneficial in the transition away from fossil fuels in the medium-term, including the upgrade of heat infrastructure connected to fossil fuel based heating plants, which can reduce wasteful losses and support environmental protection. Moreover, the Taxonomy was designed for lenders for new investments, and therefore may not be suitable for defining eligibility for environmental State aid. For example, it would be difficult for the approach to cover upgrade or extension investments, and situations where installations based on fossil fuels may still play a cost-effective and environmentally beneficial reserve function. Option D2 could rule out, for example, allowing coal and oil based plants to benefit from support to remain in reserve with very low running hours if this can avoid new plants being constructed,

which avoids the environmental harm from the construction of a new power station, and potentially avoids a longer-term lock-in to fossil fuels[97].

Regarding process, the Taxonomy is not yet fully developed (and will only be so in a number of years), and so adopting this option would involve proposing eligibility rules without knowing which projects would be able to receive aid. Indeed, the responses to the consultation during the Conference on 'Competition policy and the Green Deal'[98] indicated that there would be significant criticism for using the Taxonomy for something well beyond what it was initially intended for, and before there is experience from its application.

It could be assumed that **Option D3 –** developing a new full lifecycle emissions methodology for State aid **–** would be comparatively easy to apply, as this is the only approach that would be tailor-made to defining eligibility for State aid, and so it would be adapted to the specific needs of practitioners in this field. Despite this, its methodological complexity means that it would likely be difficult for even relative experts in the field to understand, mitigating this option's score in this area.

Regarding coherence with sectoral legislation, whereas this option would be tailor made, a new lifecycle emissions methodology could introduce inconsistencies with other legislation such as the RRF or EU Taxonomy Regulation.

As regards process alignment, this option would require creating a separate new methodology from scratch just for State aid purposes, as the lifecycle approach has not been chosen in any of the ongoing efforts to develop a sustainability methodology, including under EU law. Given the time required to develop the Taxonomy, it can be anticipated that this ambitious and methodologically complex option would also entail several years of work, meaning that it would not be able to be applied to a significant amount of aid granted under the future guidelines.

6.5.3 Environmental impact

Option D2 can be considered to have the greatest positive environmental impact, as the application of the Taxonomy criteria would exclude the greatest number of fossil fuel projects. Insofar as the approach to fossil fuels' ease of understanding and application, coherence with sectoral legislation, and alignment with the timing of the adoption of the guidelines can be assumed to result in more effective environmental protection, the analysis suggests that **Option D1** and **Option D3** can be expected to lead to greater environmental benefits than **Option D0**.

6.5.4 Impact on SMEs

The simpler options, and also the most coherent options (**Options D0, D1, and D3**), may have a benefit for SMEs, since these reduce complexity and the need for expensive expert advice.

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[97] This is case specific, but for example if renewables and storage can be developed in the next 5 years, then it may be possible to definitely close the coal plant after 5 years, avoiding the need for the gas plant that might otherwise have been supported. So long as the running hours – and therefore emissions – from the coal plant are limited, this may deliver a better environmental result (as well as being more cost-effective) than locking in a new gas asset for 10-15 years.

[98] https://ec.europa.eu/competition/information/green_deal/index_en.html.

Stakeholder views: In the context of the public consultation on the draft guidelines, the vast majority of stakeholders, including a number of Member States, remarked on the need to phase-out fossil fuels subsidies in order to meet the EU's climate goals. With respect to the approach to natural gas, around 30% of the public authorities and of the companies that commented on this point and around 50% of the associations highlighted at the need to support natural gas at least as a transition fuel if not in the long term. In addition, the majority of NGOs and citizens proposed the possibility to support natural gas investment subject to clear and stringent safeguards to prevent lock-in effect. This view was shared by around 20% of public authorities, 30% of associations and 40% of companies that addressed this point in their submission.

On the possibility to create a link between the State aid guidelines and the EU Taxonomy Regulation, the majority of companies and associations oppose it on the basis of the different objectives underpinning the two documents and the uncertainty over the development of the Taxonomy. On the other hand, public authorities were more evenly divided, with the Belgian and Spanish authorities supporting the use of the DNSH principle in the assessment of measures for environmental protection, and the Czech Republic, Slovakia, Poland and Ireland opposing it. In addition, around 30% of NGOs and citizens that provided comments on this point proposed the use of the criteria laid down in the EU Taxonomy as one of the component for the State aid analysis.

6.6 General social impacts (A-D)

6.6.1 Costs

Minimising the cost of environmental protection, which is financed by the taxpayer or by energy consumers via their bills, could increase the amount of environmental protection achieved, and could reduce the burden on taxpayers and consumers which could be important for ensuring public acceptability of the green transition.

6.6.2 Employment

In general, allowing more projects to be developed by allowing Member States to choose the most appropriate one among all types of aid and instruments available in turn should have a positive effect on employment.

The transition will spur growth in new sectors. 'Green jobs' already represent 4 million jobs in the EU. Further investment into the industrial modernisation, the energy transformation, the circular economy, clean mobility, green and blue infrastructure and the bio-economy will create new, local, high quality employment opportunities. Actions and policies to implement the EU's 2020 climate and energy targets already added between 1% and 1.5% to the EU labour force and this trend will continue. Whereas the number of jobs increases in construction, farming and forestry and renewable energy sectors, for a number of sectors the transition can be difficult. Particularly affected could be the regions whose economies depend on activities that either are expected to decline or will have to transform in the future. Areas such as coal mining, oil and gas exploration are likely to be negatively affected. Energy intensive sectors such as steel, cement and chemicals as well as car manufacturers will see a

shift to new production processes with new skills required.[99] Compared to 2008, direct and indirect employments in renewable energy more than doubled, increasing from 660 000 to 1.43 million jobs[100].

The impact assessment accompanying the 2021 Renewable Energy Directive legislative proposal revealed that up to 48 000 new direct jobs could be created by the options under examination. The largest increase is expected to be created in the production of advanced biofuels followed by hydrogen-based synthetic fuels[101].

The modelling for the impact assessment accompanying the 2020 proposal to increase the EU's 2030 climate ambition to the range of 50% to 55% considered that the aggregate impact on employment could range between a loss of around 494 000 jobs and to an increase of around 412 000 jobs[102]. Impacts on the sectoral composition of employment are very varied. Whereas employment in the coal sector, in particular, is expected to be around 50% below baseline by 2030, the electrification of the economy and the switch to renewables, which tend to be relatively labour intensive, are expected to generate higher employment.

6.7 Impact on Recovery and Resilience Plans (A-D)

The Recovery and Resilience Facility is essential in rapidly mobilising the necessary funds to foster post-COVID economic recovery and increase the resilience of national economies. Whereas the information provided by Member States on their Recovery and Resilience Plans (RRPs) is sometimes not detailed enough to preliminarily assess State aid compatibility, the screening of the RRPs has identified a certain number of energy measures within draft or adopted RRPs that may contain elements which render the swift approval and implementation of the measures, in line with the timing of the milestones and targets that Member States committed to respect in their RRPs, more challenging under the preferred options B2, C3 and D1[103].

In order to allow for the timely implementation of the projects eligible for financial support under the Recovery and Resilience Facility, and to complement the assessment conducted on the RRPs, the revised Guidelines will take due account of the need to ensure a proper phasing in of some of the new compatibility rules, by including possible derogations for certain RRP projects or the phased-in application of certain provisions to facilitate a swifter assessment of the State aid compliance of the aid measures underlying those RRP projects, and speed up their implementation. However, the potential solutions under consideration at the time of drafting –, for instance a phasing in of the public consultation requirement to give Member States more time to set up the conditions needed to conduct those consultations –, do not fall within the scope of this Impact Assessment, which addresses the central principles along which the Guidelines will be revised, and not the details of how the provisions in the future guidelines will be drafted.

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[99] COM(2018) 773 final.
[100] In-Depth Analysis in Support of Commission Communication COM(2018) 773.
[101] SWD(2021) 621, p. 106.
[102] SWD(2020) 176 final, pp. 84-88.
[103] One measure concerning gas power plants, two measures containing electricity storage elements, three measures containing hydrogen measures, and four measures concerning renewable generation. Other decarbonisation measures may also be affected (e.g. industrial decarbonisation, CCS/CCU, etc.).

6.8 EIUs (E)

6.8.1 Scope, challenges and methodology

Many Member States have put in place levies on electricity consumption which directly finance decarbonisation and social policies, while other Member States finance these policies through different means. This choice, which primarily belongs to the Member States, affects how the related financial burden is distributed across the economy as well as the degree of State aid control. As the rules at stake regulate the conditions for granting reductions on levies, the scope of this assessment is limited to levy reductions[104].

There are empirical challenges when measuring the actual risk of relocation outside the EU due to levies, which the Commission faced when revising the ETS guidelines[105]. These challenges are even greater in this exercise, since the number of sectors currently covered by levy reductions is very large. Furthermore, levies vary significantly across Member States, making it very difficult to conduct an analysis at EU level. Lastly, there are significant limitations in terms of data availability.

A multi-criteria analysis was performed to compare each of the options against criteria stemming directly from the specific objectives pursued. The assessment of the impacts, alongside the related challenges, assumptions and data sources, are presented in greater detail in ANNEX 11.

As to the whether the topics addressed under policy options A, B and C should also be considered under the policy area of EIUs, some of the issues addressed under the policy areas of GHG emission reductions and fossil fuels would not appear to be applicable to EIUs:

- Competitive bidding is not a relevant tool for aid awarded to EIUs as such aid can in principle be granted to all eligible undertakings in each sector concerned (with justified exceptions being possible) and it aims at addressing relocation risk due to the levies.
- Likewise, the use of public consultation would not be expected to bring significant advantages in terms of transparency of aid or policy design as regards aid for EIUs, as the sectors eligible and the method for awarding and calculating the aid are set directly in the Guidelines.
- On the issue of notification thresholds, levy reductions for EIUs are granted through schemes open to undertakings operating in eligible sectors (or a subset of them) and are always subject to notification.

Regarding policy options D (fossil fuels), an effective and useful appreciation of levy reductions for EIUs according to DNSH principles would present several challenges. In particular, measures for EIUs influence mainly the electricity sector and the taxonomical assessment according to DNSH principles of important electricity generation technologies such as gas and nuclear has not been completed yet.

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[104] Currently, 14 Member States have a scheme in place for levy reductions in favour of EIUs.
[105] SWD(2020) 190 final - Section 2.2, p. 20.

6.8.2 Economic and social impact

The main trade-off analysed in this section is the risk of relocation due to a high levy burden versus the risk of competition distortion by granting reductions that are selective and/or granted to companies for which the risk of relocation is less significant.

6.8.2.1 Relocation risk

The impact of the options depends: (i) on the probability of relocation outside the EU of sectors at risk; and (ii) on the impact on electricity consumption, employment and GVA that would move out of the EU in case such relocation materialises.

The current rules (Baseline) allow to grant levy reductions to all undertakings operating in 68 sectors ("type A" sectors). It is also possible to grant levy reductions to highly electro-intensive undertakings operating in additional 152 sectors ("type B" sectors)[106]. Only 11% of sectors for which data is available are not eligible.

	Baseline	**Option E0**: BAU	**Option E1**: Sector list	**Option E2**: ETS guidelines list
No of type A (type B) sectors	68 (152)	70 (159)	116	11
No of employees in type A (type B) sectors	4.18 Mio (20.44 Mio)	4.85 Mio (21.45 Mio)	9.60 Mio	1 Mio
GVA of type A (type B) sectors	€ 375 bln (1.28 tln)	€ 421 bln (1.32 tln)	€ 695 bln	€ 107 bln
Electricity consumption in type A (type B) sectors	435 TWh (167 TWh)	453 TWh (161 TWh)	521 TWh	186 TWh
Estimation of budget	€ 7.35 bln	€ 7.47 bln	€ 5.03 bln	€ 2.70 bln

Under **Option E0**, the number of type A sectors slightly increases, resulting in a broader coverage in terms of electricity consumption (+4%), GVA (+12.3%) and employees (+16%) compared to the baseline. Under this option, the number of type B sectors slightly increases as well. Overall, under only 7% of sectors for which data are available are not eligible. The rules concerning aid intensity are unchanged relative to the baseline.

Option E0 maintains a broad eligibility system and the same levels of aid, which hence offers strong protection against relocation risk. The effectiveness and efficiency of this option is comparable to the baseline. Moreover, no minimum level of reduced levy is in place.

Under **Option E1**, the number of eligible sectors changes from 68 (type A) + 152 (type B) to 116 type A sectors. On the one hand, this implies a higher coverage in terms of electricity consumption (20%), GVA (85%) and number of employees (130%) compared to the 68 type A sectors in the baseline. On the other hand, this option would not allow for eligibility of undertakings in 101 type B sectors that are currently eligible.

The modulation of aid intensity according to the level of relocation risk of sectors implies that lower aid intensities are applicable to 25 sectors with a GVA amounting to €166 billion, a number of employees at EU level amounting to 3 million and an electricity consumption amounting to 47 TWh. Based on the findings of the support study, the impact on relocation

[106] Due to the lack of data on the aid granted at sector level, it is not possible to estimate the coverage of the aid within these sectors. However, as 92% of these sectors have an average electro-intensity below 10%, it is safe to assume that the current aid covers only a small fraction of GVA and employees for these sectors.

risk due to these lower aid intensities is estimated to be small, since such level of aid reduction is likely to entail on average limited effects on sectors that are much exposed to relocation risk. The same holds for the impact of the introduction of a limit of 0.5 EUR/MWh to reduced levies under option E1. On this basis, it is safe to assume that changes in aid intensity introduced in Option E1 entail negligible effects on profitability and relocation risk.

The introduction of environmental conditionality would be neutral as regards its impacts on the risk of relocation for SMEs, as they would not incur any additional costs. However, this would imply additional costs for non-SMEs.

The effectiveness of option E1 in avoiding relocation risk is equivalent to the baseline. The changes in sector eligibility sharpens significantly the sectoral scope of protection against relocation, as they discontinue the possibility to provide aid to undertakings operating in 101 type B sectors. The changes in the aid intensity point at a slightly lower protection against relocation but they apply to sectors that are less at risk, and on the basis of the analysis in the support study it can be inferred that the impact would be small. The efficiency of option E1 increases compared to the baseline, as reductions are modulated according to the relocation risk of sectors and reductions to very low levels of levies would be eliminated. Lastly, option E1 enhances policy consistency compared to the baseline, as it would result in a convergence with the ETS carbon leakage list and ETS guidelines while also catering for the differences of the underlying cost components and its heterogeneity across Member States.

Under **Option E2**, eligible sectors would reduce to 11, resulting in a much lower coverage in terms of electricity consumption (-57%), GVA (-71%) and numbers of people employed (-76%). This option would not allow for eligibility of type B sectors.

Based on the findings of the support study, the impact on the profitability of the sampled sectors stemming from the reduction in the rate of levy reduction is estimated to be moderate. The introduction of efficiency benchmarks is expected to increase relocation risks for some undertakings, but this could not be quantified.

The effectiveness of Option E2 in avoiding relocation is assessed to be significantly lower than the baseline. This is notably due to the radical changes in eligibility that exclude a large number of sectors with high EI levels, for which the risk of relocation is more likely to be significant, notably in Member States with high levies. The changes in the aid intensity also point at a lower protection against relocation, but are likely to be of a lower magnitude. The efficiency of Option E2 increases compared to the baseline, as resources are focused solely on the top exposed sectors. The inefficiency due to reductions to very low levy levels would persist, but be relevant for a small number of sectors only. Lastly, Option E2 would result in a full alignment with the ETS guidelines, thus not catering for the differences in heterogeneity and magnitude of the two underlying cost components.

Stakeholder views: A majority of submissions argued that the EEAG eligibility criteria and aid intensity caps should be maintained, citing as a reason the significant additional burden not only vis-à-vis competitors in third countries, but also compared to market players located in other Member States where levies are significantly lower. Several participants suggested basing the eligibility on a multiplication of TI and EI indicators as way of addressing the alleged shortcomings stemming from looking at each indicator separately. A small number of participants expressed their support for a minimum size of the levy before reductions can be granted, provided that reductions based on GVA cap would allow to reduce levies below such level.

6.8.2.2 Competition distortions

In any eligible sector, companies that do not receive compensation compete with companies that benefit from it (intra-sector competition). Moreover, competition between companies active in sectors producing substitutable products can also be distorted (inter-sector competition).

In the baseline scenario, the annual aid at EU level to type A sectors amounts to €4.2 billion. Aid granted to type A sectors is considered to entail risks of moderate competition distortions[107]. Moreover, annual aid at EU level to undertakings in type B sectors amounts to €3.2 billion. Aid granted to type B sectors entails risks of higher intra-sector competition distortions, as within the same sector only highly electro-intensive undertakings would benefit from the reductions.

Under **Option E0**, the rules related to the level of allowed aid are the same as in the baseline. Aid to type A sectors is expected to increase by 13% compared to the baseline, thereby increasing competition distortions. Moreover, as 97% of type B sectors have an EI below 10%, the likelihood of granting very selective aid within a sector is high.

Option E0 is slightly less effective than the baseline in minimising competition distortions. The main distortive elements stemming from eligibility and levels of allowed aid would remain in place, while distortions would increase due to the slightly broader eligibility and associated budget. Lastly, Option E0 has the same low degree of policy coherence as the baseline, since it allows aid on significantly different terms than the ETS guidelines, despite the similar objective and metrics used to assess relocation risk.

Under **Option E1**, the changes in the number of type A sectors increases, which may lead to an increase in aid in the future. However, as no aid to type B sectors is foreseen, €3.2 billion of annual aid (based on current approved schemes) entailing risks of significant competition distortions would be discontinued.

The modulation of aid intensity according to the risk of relocation of sectors also reduces competition distortions by enhancing aid proportionality. The introduction of a minimum reduced levy reduces distortions across undertakings located in different Member States and eliminates the possibility of reductions from very low levels of levies. Lastly, competition distortions are reduced also by discontinuing the possibility of more favourable GVA cap rates based on company-specific EI.

All in all, Option E1 appears as effective as the baseline in minimising competition distortions as it addresses the most distortive elements stemming from eligibility and levels of allowed aid, while it significantly increases the magnitude of the moderate distortions of competition.

Under **Option E2,** the number of eligible sectors decreases to 11 and the related aid granted would shrink by 63%, based on current levels. Aid could be granted only to a few sectors with high levels of EI and TI, thereby reducing the risk of competition distortions. Contrary to the baseline, no eligibility of type B sectors is foreseen.

[107] Intra-sector competition distortions within a Member State are limited, since all undertakings operating in the sector are in principle eligible. Nonetheless, such aid still entails risks of intra-sector competition distortions across the EU and inter-sector competition distortions between sectors with substitutable products.

Due to the change in the allowed aid, annual aid would be further reduced by 5% (as the lower aid intensity applies to a limited number of sectors). The move to a single cap also entails a lower risk of intra-sector competition distortions.

Option E2 is significantly more effective than the baseline in minimising competition distortions as it removes most of the main distortive elements stemming from eligibility and levels of allowed aid, while it also greatly reduces the magnitude of the moderate distortions of competition. Compared to the baseline, option E2 does not significantly enhances policy coherence as it would entail treating two different cost elements in the same way.

6.8.3 Environmental impact

	Baseline	**Option E0**: BAU	**Option E1**: Sector list	**Option E2**: ETS guidelines list
Electricity consumption when eligible at sector level	435 TWh	453 TWh	521 TWh	186 TWh
Share of products with fuel-electricity substitutability eligible[108]	100%	100%	100%	68%
Estimation of budget	€7.35 bln	€7.47 bln	€ 5.03 bln	€2.70 bln

The absence of reductions could deter investments in new technologies leading to electrification of production processes. At the same time, a too generous reduction system would have a negative impact on the incentives to become more energy-efficient. A positive environmental impact can also materialise should an environmental condition be attached to the aid. Lastly, relocation risk as presented in section 6.8.2.1 has an environmental impact as it is linked with carbon leakage.

Option E0 is as effective as the baseline in preserving the incentives for a cost-effective decarbonisation of EIUs. It has a slightly broader coverage in terms of electricity consumption and in terms of electrification, while it implies negative impacts with regard to the distortion of electro-efficiency incentives by allowing levy reductions that are not strongly justified and by subjecting a significant share of aid to high levels of EI at undertaking level. Option E0 is also slightly less efficient than the baseline, since the same level of effectiveness comes with a slightly higher budget. Lastly, option E0 has the same degree of policy coherence as the baseline.

Option E1 is significantly more effective than the baseline in preserving the incentives for a cost-effective decarbonisation of EIUs. It still ensures a perfect coverage of products with electrification potential while the coverage of electricity consumption increases by 20%. Hence, compared to the Baseline this option entails a broader coverage against carbon leakage and it also reduces the risk of undermining electrification of EIUs' production processes. The risks of distorting electro-efficiency incentives are broader but less acute, as eligibility and more favourable GVA cap rates based on company-specific EI would be discontinued.

Moreover, the introduction of environmental conditionalities and of higher aid subject to high shares of carbon-free electricity consumption further ensures that levy reductions play a role in the decarbonisation of beneficiaries. The green bonus in the form of aid increase applies to

[108] Based on the list of 59 products with fuel-and-electricity exchangeability under Annex I, title 2 of the Commission Delegated Regulation (EU) 2019/331 of 19 December 2018, which implements the current ETS.

25 sectors consuming 47 TWh of electricity annually and requires that beneficiaries cover part of their consumption through a forward instrument such as a power purchase agreement or by on-site or near-site generation. Such green bonus can thus spur not only the consumption of carbon-free electricity by beneficiaries, but also encourage the development of the nascent market for renewable power purchase agreements and the market-based development of new renewable sources. Investments by beneficiaries in own production of electricity from carbon-free sources can also strengthen local stakeholder involvement in the energy transition and can contribute to easing electricity grid congestion.

Option E2 is less effective than the baseline in preserving the incentives for a cost-effective decarbonisation of EIUs. On the one hand, it carries a significantly higher risk of carbon leakage and of undermining electrification of EIUs' production process by reducing by more than 57% the coverage of electricity consumption and by 32% the coverage of products with electrification potential. At the same time, it also greatly reduces the risk that levy reductions undermine incentives to enhance electro-efficiency. The introduction of environmental conditionalities increases the contribution of levy reductions to the decarbonisation of beneficiaries, however they apply to a limited number of sectors.

Stakeholder views: Reductions in electricity levies were described as promoting electrification of industry and thus contributing to decarbonisation of the economy in the long-term. Feedback on the introduction of environmental conditionality in the first public consultation is mixed but reasonably favourable, with 80% of civil society in favour, public authorities perfectly split, and business representatives opposing. Business stakeholders reiterated their opposition in the second consultation, arguing that the proposed conditionality counteracts the purpose of the reductions, limits entrepreneurial freedom or does not reflect different starting levels of individual companies in terms of energy efficiency. Public authorities did not raise fundamental concerns over the environmental conditions proposed in the draft guidelines for consultation.

6.8.4 Impact on SMEs

Compared to the baseline scenario, the impact of Option E0 on SMEs is expected to be neutral as it would merely update current rules. With regard to Options E1 and E2, the support study shows that the profitability of small undertakings is less elastic to electricity prices than larger firms. Therefore, the lower levels of support under options E1 and E2 are expected to affect SMEs to a lesser extent than larger undertakings, but it should be emphasised that the options do not discriminate against SMEs, and the environmental conditionality linked to the audit applies to large undertakings.

7 HOW DO THE OPTIONS COMPARE?

The options identified in Section 5 are compared on the basis of their effectiveness, efficiency and coherence.

Effectiveness: the options are scored against the specific objectives identified in Section 4.

Efficiency: the options are also scored on the basis of the analysis in Section 6, which includes any additional identified environmental costs and benefits as well as SME impacts.

Coherence: SO1 already specifically addresses coherence with related sectoral legislation. The options under consideration are considered to be equally coherent with the REFIT agenda. None of the options considered have impacts regarding fundamental rights, although

it could be argued that the public consultation requirement in Option B2 may have positive effects regarding aid transparency and accountability.

These scoring criteria are not weighted. However, where an aspect of the scoring is considered more or less important this is described in Section 6. All policy options have been scored on a scale from +2 (very favourable) to -2 (very unfavourable). A '0' indicates a neutral or no impact.

Regarding interlinkages between options, the five problem areas and the associated policy options are naturally sometimes interlinked. For example, block-exempting a greater number of State aid schemes will reduce the amount of aid that falls under the revised Guidelines, or removing the competitive tendering requirement may allow more technologies to be accommodated under the harmonised rules for decarbonisation. However, the dependencies between options have been assessed to be marginal, such that the selection of an option in one policy area would never change the preferred option in another. As such, the task of identifying the preferred option in each policy area can be likened to answering independent policy questions.

7.1 Differentiation or alignment of rules per category of aid (A)

Table 4: Comparison of options for differentiation or alignment of rules per category of aid (A)

	Option A0: BAU	**Option A0+**: BAU approach extended to new technologies	**Option A1**: Partial harmonisation according to sectoral characteristics	**Option A2**: Partial harmonisation according to EU policies
SO1 (alignment with EU policy)	0	0	+2	+1
SO2 (future proofing)	0	0	+2	+1
SO3 (minimising market distortions)	0	-1	+2	-1
SO4 (administrative simplification)	0	-2	+1	-1
Additional identified costs or benefits	0	0	0	0
Additional environmental costs or benefits	0	0	0	0
SME impacts	0	0	+2	+1
Score	**0**	**-3**	**+9**	**+1**

In relation to **SO1**, Options A0, A0+ and A2 can be considered to align with today's EU policy framework but the framework is developing fast. Neither of these approaches is robust to changes in the legislative framework, while Option A1 is more robust because it includes a set of general rules and envisages within these general rules the possibility for specific support to enable the achievement of EU targets without predefining specific rules and sections based on current EU targets. This means specific support schemes to support the achievement of new EU targets will also be possible under these general rules. In addition, Option A1 will most enable Member States to support the innovative flanking measures that may be necessary to the achieve the increase climate ambition of the FF55, including in the industry and transport sectors.

Similarly, in relation to **SO2**, Options A0, A0+ and A2 do not provide sufficient flexibility for accommodating new technological developments as they emerge. Option A1 however avoids naming technologies. It can therefore accommodate new technologies as they emerge.

In relation to **SO3**, Option A0 and A0+ are vulnerable to circumvention effects, where Member States choose a certain measure because it would be subject to less stringent requirements rather than because it is the best way to achieve environmental protection or other objectives. Options A2 and particularly A1 are more robust to this because they involve more harmonised rules.

Option A1 also scores better under SO3 than A0, A0+ and A2 because it will help ensure that competition distortions are treated in the same way regardless of the type of technology supported, and ensure that areas where the Commission has extensive case practice (e.g. RES-e) are not treated more strictly or more leniently than areas which were so far not covered by the Guidelines (e.g. electricity storage and hydrogen).

Another benefit of Option A1 compared to A0, A0+ and A2 is that it will encourage a more pro-competitive scheme design by making schemes more modular. For example, it would be easier for Member States to combine CHP and RES and electricity storage in one scheme if the rules are the same. Combining these different competing technologies in the same scheme can be expected to reduce competition distortions in the electricity market where they are all operational. It can also be expected to lead to increased competition within the scheme. This may lead to reduced competition distortions, to cost savings and therefore to increased environmental benefits.

In relation to **SO4**, as identified in Section 6.1, reducing the length and complexity of the rules as proposed under Option A1 should make the use of the guidelines simpler for Member States dealing with a range of different project types, as well as more comprehensible for stakeholders, thereby increasing the level of legal certainty and predictability of the Commission's assessment. This simplification should also lead to a slightly reduced administrative burden for Option A1 compared to options A0, A0+ and A2.

No **additional costs or benefits** have been identified for these options. As described in Section 6.1 and above in relation to SO3, Option A1 may have environmental benefits compared to Options A0, A0+ and A2. These are not considered additional though as these benefits are already accounted for in the scoring under SO3. They are not therefore reflected in the 'Additional environmental costs or benefits' row in the table above.

In relation to **SME impacts**, we identify a slight benefit for Option A1 as a result of reduced complexity. In addition, more than 90% of construction, architecture, and civil engineering firms are SMEs that may be engaged in energy efficiency works. Options A1 and A2 would benefit these SMEs as these options enable energy efficiency to compete for funding on a more level playing field with other technologies/approaches.

7.2 Facilitation of the award of aid and related safeguards (B)

Table 5: Comparison of options for the facilitation of the award of aid and related safeguards (B)

	Option B0: BAU	**Option B1**: More facilitation	**Option B2**: Facilitation with safeguards
SO1 (alignment with EU policy)	0	+1	+2
SO2 (future proofing)	0	+1	+2
SO3 (minimising market distortions)	0	+1	+2
SO4 (administrative simplification)	0	-1	-2
SO5 (cost-effectiveness)	0	0	+1
Additional identified costs or benefits	0	+1	+1
Additional environmental costs or benefits	0	+1	+2
SME impacts	0	+1	+1
Score	**0**	**+5**	**+9**

As regards **SO1**, Option B1 would somewhat ensure alignment with current EU policy and technical regulatory requirements, although Option B2 would best reflect the increased climate ambition of the FF55 as it foresees additional decarbonisation stemming from the quantification of expected GHG reductions. The current EEAG rules (Option B0) would rapidly become outdated and poorly-adapted, which would therefore represent a significant disadvantage.

As regards **SO2**, Options B1 and B2 would ensure improved adaptability of the EEAG rules to technological and financial developments, principally due to the requirement to individually notify aid for projects would primarily apply for novel or very large-scale projects. Option B2 would add a further dimension of future-proofing through the systematic requirement to conduct public consultations, which ensures that a wide group of stakeholders and interested parties may identify potential concerns.

As regards **SO3**, the generalised use of the funding gap approach under Options B1 and B2 and the higher notification threshold and broader scope of exempted measure would entail comparative advantages for those options. The public consultation requirement under Option B2 also ensures a higher score in this respect.

In relation to **SO4**, under all of the options considered, in terms of administrative simplification, the revision would entail the altogether removal of certain current provisions. For example, the provisions of the current EEAG regarding aid in the form of tradable permit schemes (Section 3.10) will be integrated into the provisions concerning aid for the prevention or the reduction of pollution other than from GHG. Also, the provisions of the current EEAG regarding aid for the relocation of undertakings (Section 3.11) will be abandoned as they were seldom used during the period 2014-2020. There are no corresponding provisions in the GBER. Any aid that Member States may wish to award for the relocation of undertakings for environmental reasons will have to be assessed directly under Article 107(3)(c) of the TFEU.

In relation to **SO5**, the facilitation measures in Option B1 are not expected to lead to any net improvements to cost-effectiveness, whereas Option B2 scores well in this regards. This is

because the quantification of decarbonisation costs is likely to nudge policymakers towards selecting schemes that deliver more decarbonisation for the aid awarded. In addition, any improvements to scheme design resulting from stakeholder input gained through public consultations are also expected to result in greater decarbonisation for the aid awarded.

Options B1 and B2 would induce less administrative burden to public authorities, due to the higher block exemption and individual notification thresholds and the broader scope of exempted measures, which would increase Member States' flexibility to implement measures that are unlikely to unduly distort competition, while allowing the Commission to focus its *ex ante* scrutiny on novel and large measures. As regards Option B2, however, the administrative facilitation for public authorities resulting the increase of the block exemption and individual notification thresholds would be slightly offset by the increase of administrative burden linked to the public consultation requirement.

In addition, the generalisation of the funding gap represents a higher administrative burden for aid applicants who must provide detailed financial data and profitability calculations, and credible explanations of counterfactuals to the aid granting authorities. The scores of Options B1 and B2 as regards the administrative simplification criterion are therefore negative overall.

In relation to **additional costs or benefits**, as the analysis in Section 6.2 shows, compared to Option B0, Options B1 and B2 could lead to significant budgetary and financial impacts in terms of improved facilitation of aid authorisation and increased cost-efficiency.

All options seem somewhat neutral as regards **additional environmental costs or benefits**, as compared to Option B0 the other two options would lead to higher environmental benefits simply because of the much broader scope of the revised guidelines compared to maintaining the current EEAG in place. Option B2 would lead to the greatest positive impact because it couples the facilitation of aid with safeguard to ensure this aid leads to the greatest environmental benefit.

As regards **SME impacts**, Options B1 and B2 would have a proportionately more adverse impacts on SMEs than on larger enterprises, because of the complexity of the economic and financial documentation required from applicants when aid is awarded on the basis of the funding gap approach, as explained above, which represents, comparatively, a higher barrier for SMEs due to their generally lower administrative and financial capacity. Nevertheless, this would be greatly offset by the facilitation of aid for energy efficiency, as well as the quantification of decarbonisation costs, which is also likely to lead to greater support for energy efficiency. This will benefit the many SMEs engaged in the energy efficiency sector. Raising the notification thresholds will also benefit SMEs by encouraging Member States to put in place smaller aid schemes which SMEs will have a greater relative advantage in compared to larger firms.

7.3 Aid award through administrative rules or competitive bidding (C)

Table 6: Comparison of options for aid award through administrative rules or through competitive bidding (C)

	Option C0: BAU	**Option C1**: Administrative	**Option C2**: Competitive bidding	**Option C3:** Multi-technology competitive bidding unless justified	**Option C4:** Cross-border opening
SO1 (alignment with EU policy)	0	0	+1	+1	-2
SO2 (future proofing)	0	+1	+1	+1	+1
SO3 (regulatory effectiveness)	0	-1	0	+1	+2
SO4 (administrative simplification)	0	-2	+1	-1	-2
SO5 (cost-effectiveness)	0	-1	+1	+2	+3
Additional identified costs or benefits	0	-1	+1	+2	-2
Additional environmental costs or benefits	0	0	0	0	0
SME impacts	0	+1	-1	-1	-1
Score	**0**	**-3**	**+4**	**+5**	**-1**

In relation to **SO1**, Option C4 would impede Member States' ability to support measures to meet binding national climate and energy targets set out in EU law, and would therefore not be coherent with other EU policies. All other options can be considered to align with today's EU policy framework. However, Option C3 has the benefit of more effectively harnessing the power of competitive bidding for the reduction of GHG emissions to most effectively achieve the increased climate ambition of the FF55. Under Option C3, specific support can easily be granted to support specific EU targets where they exist, but otherwise specific support will require a justification from the Member State. This can be expected to support the channelling of State aid towards the achievement of EU targets in the FF55.

In relation to **SO2**, aside from Option C0 the options are considered equivalent and to have a neutral impact. C0 scores negatively here because it links competitive bidding to specific technologies only, and the technologies needed for implementing the Green Deal (and possibilities for competition between these technologies) are evolving over time.

In relation to **SO3**, Option C0 would allow Member States to continue supporting specific technologies and projects except for RES, where competitive bidding processes would be needed. This provides some but limited protection against Member States arbitrarily supporting their preferred factory or technology but is not considered to be sufficient in the context where huge investments are anticipated in RES but also in many other technologies.

Option C1 scores negatively because it allows Member States to support specific technologies with administrative price setting. Based on the analysis and experience presented in Section 6.3, this can be expected to increase costs. It can also be expected to increase competition distortions as competitors could very easily be excluded from support measures.

Option C2 also does not score well, because while competitive bidding would be required, Member States could limit the eligibility for the bidding processes with no justification making it simple to exclude competitors. This can also be expected to increase costs. Finally, case practice suggests such limitations could be open to abuse, since Member States could limit eligibility to the point where there is insufficient competition to run a competitive process, ending up with a similar result to Option C1. This has been the case, for example, in some of the CHP schemes where administrative support was used and the support study suggests the emissions reduction cost was much higher (see the administrative support for CHP in Figure 2 which resulted in costs more than 4x higher than the costs of achieving emissions reduction through PV and wind). Option C3 may also enable more of the benefits that have been seen in capacity mechanisms, where open auctions that did not pre-judge the technologies that should benefit have led to significant discounts in the US and UK (see capacity mechanisms box in Section 6.3).

Option C3 is expected to reduce the potential for Member States to 'pick winners' without justification, while still allowing more specific measures where justified, e.g. in relation to EU objectives, an environmental objective other than GHG emissions reduction, or to support the long term potential of a particular technology. It should also make the most of market forces to determine where subsidies can most cost effectively be allocated, increasing the possibility of competitive new entry.

Option C4 maximises participation in tenders by opening all tenders to projects in any Member State, enabling GHG emission reductions to be achieved at low cost, while fostering the development of the internal energy market.

In relation to **SO4** there are trade-offs between allowing Member States to pick and choose the projects eligible for support without justification, which simplifies the State aid process and removes the need for rules, and the complexity of administrative price setting which makes the proportionality assessment more difficult and can lead to ongoing disputes and court cases (cf. the renewables bubble cases presented in Section 6.3).

Option C0 scores neutrally and is the baseline against which the other options are compared.

Option C1 scores very negatively because it will require detailed assessment of the assumptions and calculations used to set the level of aid administratively.

Option C2 can be considered the simplest option since it avoids the need for any justification by the Member States of the proposed scope of their measures and should still generally involve the use of competitive bidding processes, avoiding the need for detailed assessments of the level of aid to be awarded.

Option C3 scores negatively because the requirement for justifying the scope of proposed aid measures will add complexity compared to a situation in which no such justification is required.

Option C4 scores very negatively as it will be complex to manage the loss of control Member States may experience over their own energy systems under this option, and coordinating the cross-border cooperation necessary to make this option feasible would also be challenging.

In relation to **SO5**, Option C1 is the only option expected to result in a net reduction to the cost-effectiveness of aid.

Option C2 results in a net increase in cost-effectiveness, as expanding the competitive bidding requirement to new technologies/approaches is expected to drive costs down.

Option C3 harnesses the power of competitive bidding to improve the cost-effectiveness of aid by increasing participation in tenders at the national level while reducing the risk of inframarginal rents where needed.

Option C4 however, is expected to most effectively harness the power of competitive bidding to improve the cost-effectiveness of aid by maximising participation in tenders while reducing the risk of inframarginal rents where needed.

In relation to **additional costs or benefits**, as the analysis in Section 6.3 shows, compared to Options C0 and C1, Options C2 and C3 could lead to significant reductions in GHG emissions as a result of the improved efficiency from the use of competitive bidding processes open in general to all competing technologies/projects. The extent to which Option C2 achieves this depends on whether the flexibility is abused as described above, however. Despite increasing the cost-effectiveness of aid, Option C4 could lead to significant increases in emissions, as the obligation to open tenders to cross-border participation could undermine the willingness of Member States to support GHG reduction.

Beyond these environmental costs and benefits, no **additional environmental costs or benefits** have been identified for the different options.

In relation to **SME impacts**, SMEs may be disadvantaged by the technical and financial requirements for competitive bidding under Options C2, C3, and C4 as they may lack the capacity to develop projects to the stage necessary to qualify for participation in an auction without a guarantee that the projects will be successful. This impact will however be reduced by mitigating measures such as tendering exemptions for small projects and more lenient tendering pre-qualification for SMEs and/or new market entrants.

7.4 Approach to fossil fuels (D)

Table 7: Comparison of options for the approach to fossil fuels (D)

	Option D0: BAU	**Option D1**: Fuel type	**Option D2**: EU Taxonomy Regulation	**Option D3:** New methodology
SO1 (alignment with EU policy)	0	+2	+1	+2
SO2 (future proofing)	0	+2	+1	+2
SO3 (minimising market distortions)	0	+1	+1	+1
SO4 (administrative simplification)	0	0	-1	-1
Additional identified costs or benefits	0	0	0	-2
Additional environmental costs or benefits	0	+1	+2	+1
SME impacts	0	+1	+1	-1
Score	**0**	**+7**	**+5**	**+2**

In relation to **SO1**, as explained in Section 6.4, Option D0 is considered incompatible with the Green Deal because this would involve continuing to allow State aid for new projects based on the most polluting fossil fuels. Option D2 scores positively but does not get the maximum score because the Taxonomy is not yet complete, was designed for lenders, and could be overly strict on certain projects that could be beneficial in the transition away from fossil fuels. Option D1 scores positively since preventing investments in projects involving the most polluting fossil fuels would safeguard against aid that contradicts the Green Deal and the

FF55. However, this would be stricter than some sectoral legislation, in particular for clean mobility. Option D3 also scores positively because it is assumed that a new methodology could be designed to be compatible with sectoral legislation, and support the FF55.

In relation to **SO2**, Option D0 scores negatively because it would continue to allow aid for activities that are not compatible with the Green Deal, and potentially slow down the deployment of more ambitious solutions. Option D2 scores positively but does not get the maximum score, because whereas stricter sustainability criteria would be more appropriate in the longer term, it would prevent certain investments that may be needed in the medium term, for example, allowing coal and oil based plants to benefit from support to remain in reserve with very low running hours if this can avoid new plants being constructed which also supports cost effective (and environmentally beneficial) security of supply, and allowing the upgrade of heat infrastructure connected to fossil fuel based heating plants, which can reduce wasteful losses and support environmental protection in the short term. Option D1 scores positively because it enables investments in line with the Green Deal while preventing those that contradict it, and Option D3 scores positively because it is assumed that a new methodology would also achieve this.

In relation to **SO3**, Option D0 scores negatively because it would continue to allow support for new projects based on the most polluting fuels, which would distort the market by counteracting the price signals from other climate and environmental interventions, such as the EU ETS. The other options are considered to have a neutral impact against this objective.

In relation to **SO4**, as explained in Section 6.4, Options D0, and D1 are relatively simple to apply and understand so score strongly. A benefit of Option D2 is that it would use another piece of EU legislation as a basis, which in itself contributes to simplicity. However, because of the complexity of the Taxonomy it would still be expected to be more complicated overall than the other options. Methodological complexity is also inherent to Option D3 (developing a new lifecycle methodology).

In terms of **additional identified costs or benefits**, Option D3 has the important additional cost that, because of its complexity and because it would not be possible to develop a new lifecycle approach without several years of detailed work, it would be impossible to implement on time.

In relation to **additional environmental costs or benefits**, compared to Option D0 all options score positively because all would reduce the possibility of State aid for the most polluting projects. Option D2 can be considered to be particularly strong against this criterion because the Taxonomy is expected to be relatively strict (although this is not certain until it is finalised).

In terms of **SME impacts**, compared to Option D0, Option D1 scores positively because it is relatively simple. Option D2 scores 1 because the simplicity benefit of using another piece of legislation is offset by the complexity of that legislation. Option D3 scores negatively because a new methodology would also be expected to be complex.

7.5 EIUs (E)

Table 8: Comparison of options for approach to EIUs (E)

		Option E0: BAU	**Option E1:** Sector list	**Option E2:** ETS guidelines list
Effectiveness	SO6 (avoid relocation risk)	0	0	-2
	SO3 (minimise market distortions)	0	+1	+2
	SO7 (EIUs decarbonisation)	0	+2	-1
	SO1 (alignment with EU policy)	0	+2	+1
Efficiency (SO5): Annual estimated budget reduction compared to Baseline (€7.35 bln)		+2% (€7.47 billion	-32% (€ 5.03 billion)	-63% (€2.70 billion)

In relation to **SO6**, as explained in Section 6.2.2, Option E0 would maintain a strong level of protection against relocation risk and carbon leakage without improving the currently low levels in its efficiency. Such level of protection is comparable to the one provided by Option E1, which entails a broader sectoral coverage while it discontinues aid to undertakings operating in 101 Type B sectors that are not eligible under this option. The efficiency of protection would be enhanced due to the changes in eligibility and limits in aid levels. Option E2 would imply a significantly lower degree of protection against relocation risk and carbon leakage, notably due to the very restrictive eligibility conditions which exclude a large number of sectors that are more likely to face increased relocation risk, especially where levies are high.

In relation to **SO3**, Option E0 would maintain a high risk of competition distortions, including that of discriminating between companies at sector level. Option E1 would greatly reduce the most distortive and undue competition effects (notably on intra-sector competition) and the overall estimated aid budget would fall by a third compared to the baseline. Option E2 also addresses most of the main distortive and undue competition effects, mainly by substantially reducing the eligibility list.

In relation to **SO7**, Option E0 would ensure total coverage of EIUs with electrification potential and strong protection against carbon leakage, however it also threatens to undermine incentives for electro-efficiency among EIUs and, besides, it does not introduce any green condition to the levy reductions. Despite the larger coverage in terms of electricity consumption, Option E1 still scores relatively well in preserving incentives for electro-efficiency improvements. Furthermore, it is consistent with the promotion of industrial electrification at large and it ensures a total coverage of products with electrification potential. Option E1 also provides strong protection against carbon leakage and introduces environmental conditionalities as well as aid top-ups for beneficiaries with high shares of carbon-free electricity consumption, with positive spill-over effects for the development of market-based production and consumption of renewable energy. Option E2 scores last in the coverage of EIUs with electrification potential and in flanking industrial electrification, while it is best at preserving incentives for energy efficiency improvements. Also option E2 introduces the same green conditionalities to the levy reduction as the ones introduced by the ETS guidelines, which increases the effectiveness of these options.

In relation to **S01**, the level of coherence with the Green Deal of Option E1 is higher than for Options E0 and E2, as both as both energy efficiency and industrial electrification are two essential components of the Green Deal and Option E1 better balances out the effects on them. Option E0 would not entail any convergence with recently updated EU policies that address relocation risk and carbon leakage. Option E1 increases consistency with different elements of the EU carbon leakage list, the ETS State aid guidelines and the Energy Taxation Directive. By fully aligning with the rules of the ETS guidelines, Option E2 fails to cater for the differences in magnitude and heterogeneity between indirect effects of EU carbon pricing and non-harmonised levies set at Member State level.

8 PREFERRED OPTION

8.1 Differentiation or alignment of rules per category of aid (Option A1)

Option A1 is proposed. As shown in Sections 6.1 and 7.1, Option A1 scores well against all SOs compared to Options A0+ and A2, in particular ensuring the rules can accommodate innovation and ensuring through greater harmonisation that State aid is based on its cost-effectiveness and not on the specific rules that Member States prefer. This makes it most able to accommodate both the increased climate ambition of the FF55, and the new measures necessary to decarbonise all sectors of the economy.

8.2 Facilitation of the award of aid and related safeguards (Option B2)

Option B2 is proposed. As shown in Sections 6.2 and 7.2, Option B2 scores well enough against SO1, SO2 and SO3 to make it the most efficient option despite the modest increase in administrative burdens the competition safeguards entail. In particular, the additional decarbonisation and reduced market distortions stemming from transparency and consultation requirements make it preferable when to compared to Options B0 and B1.

The quantification of expected GHG reductions would help verify that proposed measures indeed lead to significant CO_2 emission reductions, as well as increase transparency and publicity regarding the decarbonisation merits and costs of pursued policies. This will help to ensure that the aid is directed to where it is most effective, supporting the increased climate ambition of the FF55.

The systematic requirement to conduct public consultations on larger GHG reduction schemes would improve transparency of planned schemes for stakeholders, ensure schemes do not unduly exclude direct competitors, and reduce the need to open formal investigations.

8.3 Aid award through administrative rules or competitive bidding (Option C3)

Option C3 is proposed. As shown in Sections 6.3 and 7.3, compared to Options C0, C1 and C2, Option C3 is expected to have significant benefits in terms of minimising market distortions and ensuring cost-effectiveness – in particular by ensuring that State aid is used to support cost-effective projects that deliver environmental objectives and making it more difficult for Member States to use aid to support preferred projects and industries for other reasons such as national industrial policy. As a result, the analysis in Section 6.3 indicates significant potential environmental benefits as a result of this better-targeted and more cost-effective use of State aid. This makes it most able to accommodate the increased climate ambition of the FF55. While Option C2 scores better against SO4 (administrative

simplification), this is outweighed by the environmental and economic/regulatory benefits of Option C3.

Justified exemptions from the general requirement for inclusive competitive schemes would need to remain possible, e.g. as regards schemes designed to deliver specific EU sub-targets in the FF55 such as for renewable energy or energy efficiency, to support small installations/projects, to support technologies with long-term potential, to take into account the very different cost level and structure, or to enable particular environmental objectives to be met (a local or regional scheme for local/regional pollution).

Whereas option C4 scores well in terms of minimising market distortions and ensuring cost-effectiveness, it entails much complexity and may undermine Member States' willingness to support GHG reduction.

8.4 Fossil fuels (Option D1)

Option D1 is proposed. As shown in Sections 6.4 and 7.4, compared to Options D0, D2 and D3, Option D1 allows alignment with the FF55 package and other sectoral legislation by limiting the possibility of aid for new projects based on the most polluting fossil fuels and delivering benefits for environmental protection, while allowing aid for necessary transition projects. Option D1 also scoring well in terms of its relative simplicity, and being deliverable on time.

8.5 EIUs (Option E1)

As shown in Sections 6.8 and 7.8, the pursued objectives show significant trade-offs that are difficult to balance out. First, restricting levy reductions would increase the risk of relocation and carbon leakage of EIUs while it would reduce competition distortions. Second, restricting the rules on levy reductions can also hamper the electrification of EIUs, while on the other hand it enhances the incentive for electro-efficiency investments. Compared to Options E0 and E2, Option E1 manages to strike the most appropriate balance on these trade-offs. While it ensures a strong level of protection against relocation and carbon leakage and it is best at promoting electrification, it also allows to keep in check the negative impacts on competition distortions and on electro-efficiency incentives by moving to an eligibility system solely based at sector level and by strengthening aid proportionality, thereby addressing the most distortive elements of the current regime. Overall, an equivalent level of protection against relocation and carbon leakage can be achieved with a lower level of competition distortions. Furthermore, the environmental impact of Option E1 scores highly as it promotes the decarbonisation of EIUs as well as the development of power purchase agreements and self-consumption of electricity from carbon-free sources.

Distortions to competition and trade

High amounts of aid in the sector could lead to distortions to competition and trade within the EU. Indeed, the selected Option B2 is indeed intended to allow Member States to allocate aid in a more effective manner and therefore to significantly increase expenditure compared to current levels. Nevertheless, this feature of the selected options is counter-balanced by a number of safeguards intended to ensure a level playing field and avoid distortions of competition between undertakings within the internal market. These include the broader use of competitive tendering, a new public consultation requirement for large schemes, and a new requirement on Member States to quantify decarbonisation costs.

With regards to the competition between Member States in terms of attracting or supporting investment, the 'deep pockets' problem (i.e. that Member States have different spending capacity), the purpose of State aid control is not to restrict Member States' fiscal policy, but to prevent any undue distortions to competition between undertakings from a given aid measure. Indeed, in the case of the present Guidelines, the Commission cannot impose a ceiling on climate ambition in the EU.

Nevertheless, the draft guidelines under consultation at the time of drafting, as well as the GBER, contain a number of 'regional bonuses', which are intended to reinforce cohesion in the Union[109]. These were not identified as a problem and therefore not examined in this Impact Assessment. In addition, there are other EU instruments that have as their explicit aim the cohesion in the Union, such as the European Structural and Investment Funds, the Recovery and Resilience Fund, Just Transition Fund, and the Modernisation Fund.

9 HOW WILL ACTUAL IMPACTS BE MONITORED AND EVALUATED?

The success of State aid guidelines depends on the extent to which they are effective at inducing Member States to design aid measures that are capable of achieving the desired policy objectives in a cost-efficient manner while minimising distortions of competition. In the case of the present guidelines, success criteria can be derived by examining overall aid amounts in the sector, how effectively Member States have been able to contribute to the Union's climate and environmental objectives, market functioning indicators, and the cost-effectiveness of aid schemes notified under the future guidelines, amongst other indicators.

In this vein, the Commission intends to begin an evaluation of these guidelines by 31 December 2027, to examine their effectiveness, efficiency, relevance, coherence and Union added value.

In accordance with Article 108 of the TFEU, '*the Commission shall, in cooperation, with Member States, keep under constant review all systems of existing aid in those Member States*'. Article 21(1) of Council Regulation No 659/1999 of 22 March 1999 laying down detailed rules for the application of Article 93 (now Article 88) of the EC Treaty[110] provides that '*Member States shall submit to the Commission annual reports on all existing aid schemes with regard to which no specific reporting obligations have been imposed in a conditional decision […]*'. DG COMP implements a State aid control system based on three main elements: transparency, monitoring, and *ex post* evaluation.

9.1 Transparency

Transparency ensures the publication of individual aid awards to allow for peer review, public control and greater accountability. Under the transparency requirement, Member States must publish all individual aid awards exceeding a specified threshold in a publicly accessible

[109] Under the draft guidelines, certain notified projects in assisted areas may benefit from 5%-15% higher aid intensities, including projects for the energy and environmental performance of buildings, deployment of recharging or refuelling infrastructure, resource efficiency, or the prevention or the reduction of pollution other than from greenhouse gases. GBER articles 37, 40, 41, 46 and 47 contain similar regional bonuses for energy and environmental projects.
[110] OJ L 83, 27.3.1999, p. 1.

repository. The publication of the information under the transparency requirements must occur within 6 months from the date of granting, with the exception of fiscal aid awards, whose publication must be ensured within 12 months from the date of the last fiscal declaration.

9.2 Ongoing annual monitoring of selected State aid cases

DG COMP currently monitors every year a sample of existing aid schemes (covering notified and block-exempted schemes). This *ex post* monitoring exercise involves a check of the legal basis and of the list of beneficiaries, and a review of the implementation of the scheme for a sample of beneficiaries. This enables to detect and correct irregularities in the implementation of schemes by Member States and to therefore monitor Member States' respect of the EEAG rules (not its quality). The scope and methodology of the monitoring exercise has been evolving and the number of measures monitored has increased in recent years.

9.3 Mandatory *ex post* evaluation of certain State aid measures

Ex post evaluation provides analysis on the effectiveness and efficiency of an aid measure to enable Member States to improve the design of future schemes by making them less distortive and more effective. State aid evaluation should in particular allow: (i) to verify that the assumptions underlying the approval of the scheme on the basis of an *ex ante* assessment are still valid; (ii) to assess whether the scheme is effective in achieving the direct objective for which it was introduced; (iii) to cater for unforeseeable negative effects, in particular the potential aggregated effect of a large scheme.

Evaluations are carried out for schemes where the potential distortion of competition is particularly high, i.e. those that may risk to significantly restrict competition if their implementation is not reviewed. The evaluation requirement therefore concerns in particular schemes with an annual budget exceeding a certain threshold, or containing novel characteristics, or related to areas in which significant market, technology or regulatory changes are foreseen. These evaluations are carried out for the Member States by independent experts and are based on a common methodology. The results of the evaluations are published and shared by Member States with the Commission.

9.4 State Aid Scoreboard

The State Aid Scoreboard[111], which is maintained by DG COMP and published annually, provides information on the overall situation of State aid in each Member State and on the Commission's State aid control activities. The information published in the Scoreboard is based on the annual reports submitted by Member States. The Scoreboard provides information on State aid expenditure and State aid measures and describes the trends and patterns of State aid expenditure per sector, per Member State and per type of aid measure. The Scoreboard also contains information on the number of aid measures or aid amounts per sector, per form of aid or aid instrument, etc. That information makes it possible for the

[111] See http://ec.europa.eu/competition/state_aid/studies_reports/studies_reports.html.

Commission to assess and monitor progress towards the specific objectives set out in Section 4.2 of this Report.

ANNEX 1 PROCEDURAL INFORMATION

1. Lead DG, Decide Planning/CWP references

Lead DG: European Commission Directorate-General for Competition (DG COMP)

Decide Planning Reference: PLAN/2020/8023

2. Organisation and timing

The Inter-Service Steering Group (ISSG) was set up in October 2020 and gathered representatives from the Commission's Secretariat General, Legal Service, Joint Research Centre (JRC), and twenty-one Directorates-General: AGRI, BUDG, CLIMA, CNECT, EAC, ECFIN, EMPL, ENER, ENV, FISMA, GROW, HOME, JUST, MARE, MOVE, OLAF, REGIO, RTD, SANTE, TAXUD and TRADE. The ISSG was consulted on the Inception Impact Assessment and the questionnaire for the public consultation. Furthermore, the ISSG received a debrief from the results of the public consultation and the conference on greening of competition policy, as well as a preview of the proposals developed for the draft guidelines.

DG COMP organised four ISSG meetings on 7 October 2020, 17 March 2021, and 8 and 14 September 2021. On a number of deliverables, the group was consulted in writing.

The Inception Impact Assessment was published in November 2020 for four weeks. It set out the context, purpose and scope of the evaluation exercise as well as objectives of the intervention and policy options. It also contained information on the planned consultations, the data collection and methodology.

The revision of the Guidelines was also supported by an external study. The purpose of the study was to provide the Commission with factual, analytical and data input that is relevant for assessing a number of pre-defined options for revising the EEAG and Section 7 of the GBER. It covered a literature review and further analysis on various safeguards against competition distortions via the award procedure of aid (multi-sector and -technology tendering, quantifying environmental protection cost), on various aid forms (in particular investment and operating aid, also looking into various aspects of CCfDs and zooming in on industrial decarbonisation) and on various aspects as regards surcharge reductions for Energy Intensive Users. Also, the development of the evaluation section of this Impact Assessment Report was supported by the JRC.

Table 1: Overview of the timing

Date	Description of the activities
29 September 2020	Launch of the Decide Entry
30 September 2020	Setting up of ISSG and invite to 1st ISSG meeting
6 October 2020	Letter to Member States with questionnaire about Energy Intensive Users
7 October 2020	1st ISSG meeting: - general overview of the initiative and timeline - discussion of the interactions with the consultation on Competition policy and the Green Deal

	- discussion on Inception Impact Assessment and the draft questionnaire for the public consultation
12 November 2020 - 7 December 2020	Publication of the Inception Impact Assessment
12 November 2020 – 7 January 2021	Open public consultation
26 November 2020	Upstream meeting with the Regulator Scrutiny Board (RSB)
17 March 2021	2nd ISSG meeting: - Debrief about the results of the consultation on the Inception Impact Assessment and the public consultation - Debrief about the results of the conference on greening of competition policy - Preview of main contents and discussion of the draft Guidelines
7 June 2021 onwards	Targeted consultation on the draft Guidelines of Member States and interested stakeholders
12 – 13 July 2021	Multilateral meeting with the Member States
8 September 2021	3rd ISSG meeting: - debrief about the results of the targeted consultation on the draft Guidelines - discussion on the draft final version of the Impact Assessment Report
14 September 2021	4th ISSG meeting: - discussion on outstanding comments to the draft final version of the Impact Assessment Report from other Commission Services
13 October 2021	Meeting with the RSB

Certain exceptions were made to the Better Regulation Guidelines[112] during this impact assessment:

- Given the commitment taken by the Commission to finalising the revision process by end 2021, the consultation on the Inception Impact Assessment and the public consultation on the basis of a questionnaire took place simultaneously.
- The public consultation on the basis of a questionnaire was limited to 8 weeks (instead of the standard 12 weeks) due to the following reasons: The timing publicly

[112] https://ec.europa.eu/info/better-regulation-guidelines-and-toolbox_en

announced by the Commission was extremely ambitious and further urgency arose due to the need to facilitate a sustainable recovery from the COVID-19 crisis and to deliver rules that are better adapted to recent and new developments. Moreover, additional specific requirements to the process of the revision of the Guidelines and in particular the GBER were anyway foreseen (such as an addition 8 week consultation on the draft regulatory texts).

3. Consultation of the Regulatory Scrutiny Board

An upstream meeting with the Regulatory Scrutiny Board (RSB) took place on 26 November 2020 to discuss the DG's impact assessment of the EEAG. The RSB members and DG COMP discussed the scope of the Impact Assessment, i.e. the focus on two main areas for change: reviewing the compatibility criteria for environmental protection and reviewing State Aid to energy intensive users to compensate for energy costs linked to decarbonisation policies. Board members recognised that the DG is operating with a degree of uncertainty. The DG may be moving from something narrow to something broader and more objective-driven: it is important to pay attention to whether this openness and less rigid regime comes with risks and could lead to unintended consequences in the future. This should feature in the section on safeguards. An important point raised by DG COMP and taken up by several RSB members was coherence with further Green Deal initiatives. They stressed the need to stay in close contact with other DGs, because whatever is decided in other files can affect this initiative.

The RSB meeting took place on 13 October 2021. In summary, the Board stated that the report contained significant shortcomings, and gave a positive opinion with reservations and expected the following aspects to be rectified:

(1) The report did not clearly justify the scope of the impact assessment and its limitation to the analysis of aid for decarbonisation, fossil fuels and EIUs. The relevance of the objectives and the scope of application and impact of the measures remained unclear.

(2) The report did not clearly explain the preferred policy option for reductions in levies funding support for electricity from renewable energy sources for EIUs. The report did not assess and specify the final parameters of the preferred option.

RSB comment	Action taken
(1) The report should clarify and justify the scope of its analysis. It should demonstrate that further considered changes to the EEAG that are not presented in the report are less contentious or involve no real policy choices. These should nevertheless be mentioned in the report and explained in an annex. The report should explain how cross-cutting issues that are now analysed with regard to decarbonisation and fossil fuels would apply to other categories of aid covered by the Guidelines (e.g. competitive tendering, public consultations, and thresholds). Where the application of such horizontal measures is likely to lead to meaningful impacts (e.g. administrative and	Section 2 has been amended to address this comment and a new ANNEX 5 has been added to analyse the extent to which issues relating to decarbonisation and fossil fuels would apply to other categories of aid covered by the Guidelines.

compliance costs) these should be assessed. The report should also clarify the link between the evaluation (in the context of the State aid fitness check) and the problem analysis.	
(2) Regarding reductions in levies for EIUs, the report should present the recalibrated preferred policy option and assess it in the analysis of impacts. It should also describe how the revised policy option takes into account stakeholders' concerns (reflecting the most recent stakeholder input).	Section 5.6, Section 6.8, Section 7.5 and Section 8.5 have been amended to address this comment. ANNEX 11 will be amended accordingly.
(3) The report should present the impact of the policy options on small and medium-sized enterprises (SMEs) in a more comprehensive way. It should show how some measures, such as competitive tendering, could increase their administrative burden, while other measures, such as those for energy efficiency, will mainly benefit SMEs. The report should highlight the measures taken to mitigate the impact on SMEs, including the modification to the thresholds of the General Block Exemption Regulation.	Section 6, Section 7, and ANNEX 3 have been amended to address this comment.
(4) The report should use the 'business as usual' options as the baseline. They should be the reference point for the impact analysis and comparison of options.	Section 5.2, Section 6.1, Section 7, and ANNEX 7 have been amended to address this comment.
(5) The report should explain how it incorporates the Fit-for-55 proposals. This includes both how the increased climate ambitions are reflected in the general approach to fossil fuels and promoting green aid, and individual measures taken to enable the Guidelines to support the new policies of the Fit-for-55 package.	Section 6 and Section 7 have been amended to address this comment.
(6) The report should explain how support measures included in approved Recovery and Resilience Plans would be compatible with the requirements under the preferred policy options.	A new subsection has been added to Section 6 to address this comment.
(7) Among the policy options for the approach to fossil fuels, the report should better justify why the alignment with the Taxonomy is not retained. It should explain how the Taxonomy is designed for a different purpose than pursued by the Guidelines.	Section 6.5 has been amended to address this comment.

In addition to the abovementioned points, the Board also provided other comments of a more technical nature to DG COMP.

4. Evidence, sources and quality

The Impact Assessment on the revision of the EEAG was supported by an external study. The study was procured under the Framework contract COMP/2017/013 for the provision of support studies for evaluations and impact assessments in the area of State aid policy signed on 24 May 2018. The request for services was accepted by a consortium of DIW Berlin, E.CA Economics, LEAR, Sheppard Mullin Richter & Hampton LLP, and the University of East Anglia (UEA), who made an offer on 31 August 2020. The contract was awarded and signed on 28 September 2020. In particular, the study performed a literature review and further analysis on various safeguards against competition distortions via the aid award procedure (multi-sector and -technology tendering, quantifying environmental protection cost), via various aid forms (in particular investment and operating aid, also looking into various aspects of Carbon Contracts for Difference and zooming in on industrial decarbonisation) and on various aspects as regards surcharge reductions for EIUs.

For the quantitative assessment, data generated and/or used in the Impact Assessment on the 2030 Climate Target Plan[113], which is the basis for the analysis of all Green Deal initiatives, was used as an input by the consultant. For EIUs, further data was gathered through a letter sent by DG COMP to Member States on 6 October 2020.

The project was also supported by several consultation activities, including a multilateral meeting with Member States and EEA States (see ANNEX 2).

[113] SWD/2020/176 final.

ANNEX 2 STAKEHOLDER CONSULTATION

1. Introduction

The consultation work was launched to collect information and data for the revision of the EEAG 2014-2020. The Guidelines date from 2014 and will expire on 31 December 2021 (following a one year prolongation). The revision focuses on the compatibility conditions for environmental protection and surcharge reductions for Energy Intensive Users.

2. Outline of the consultation strategy

The Commission created a specific web page for the initiative: https://ec.europa.eu/competition/consultations/2020_eeag/index_en.html. The aim of the consultation activities was to collect supporting information, data and knowledge on the decisions of the Commission on schemes for environmental protection and energy to support the impact assessment of the future EEAG and their revision. In particular, the consultation activities were designed to allow interested parties to provide their feedback and experiences as regards the potential policy options.

2.1. Stakeholders

The main stakeholders identified were the Member States, businesses which receive State aid and those which compete with such businesses, and civil society:

- National and regional competent authorities involved in the designing and granting of aid (high interest);
- Businesses and SMEs, in particular those eligible for State aid and those competing with companies receiving State aid (high interest);
- Trade associations representing businesses (high interest); and
- Interest groups who professionally deal with adaptation to climate change, e.g. academia, think tanks, green NGOs (high interest).

2.2. Methods of engagement

The consultation strategy planned to use the following methods to involve and interact with stakeholders; all of them were applied:

- Four week feedback period on the Inception Impact Assessment ("IIA")[114];
- Public consultation (8 weeks) through a questionnaire available on the European Commission's public consultation portal "Have your say": https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12616-Revision-of-the-Energy-and-Environmental-Aid-Guidelines-EEAG-/public-consultation.

[114] For further details see: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12616-Revision-of-the-Energy-and-Environmental-Aid-Guidelines-EEAG-.

- Targeted consultation to national authorities about State aid to energy intensive users. The questionnaire was officially sent on 6 October 2020 to all Member State through the Permanent Representations. The received data was used as in input for the external study.
- Meeting with the Member States on 12-13 July 2021 during the consultation on the proposed CEEAG Draft.
- Consultation on the proposed CEEAG draft (8 weeks) to any interested stakeholder on the draft revised Guidelines. Stakeholders were informed of the consultation on DG Competition's consultation website https://ec.europa.eu/competition-policy/public-consultations/2021-ceeag_en.

All consultation activities have been promoted via DG Competition's Website and DG Competition's Twitter account.

Moreover, the revision of the EEAG also benefitted from the results of two consultations already carried out in the framework of the Fitness Check of the State aid modernisation package, a targeted consultation on the EEAG (May 2019-July 2019) and a general public consultation of the Fitness Check, during which further submissions also regarding the specific Guidelines were received.

In addition, Executive Vice-President Margrethe Vestager launched a debate in September 2020 on the part that private sector, and public sector (including competition regulators) must play in order to reach the goals set out in the European Green Deal. A call for contributions was published, asking questions about how competition rules and sustainability policies can work together. Around 200 contributions were received from a broad range of stakeholders, including industry, environmental groups, consumer organisations, and competition experts. A conference, hosted by Executive Vice-President Vestager, took place on 4 February 2021 that looked at how EU competition rules can play their part to support environmental and climate policies.

3. Methodology and tools used to process the data

The Commission used a combination of questionnaires, meetings with interested stakeholders, public consultations and working groups with Member States, to ensure a transparent and comprehensive methodology on the assessment of the data collected as regards the EEAG revision.

In particular, two public consultations and one targeted consultation were launched within a year, to provide all stakeholders the possibility to contribute to the EEAG review submitting backward-looking data and forward-looking feedback, in particular until 2030. More specifically, the feedbacks from the public consultations, as well as the feedback to the Inception Impact Assessment were analysed internally by the Commission, including through use of the DORIS tool. The data and information received in the targeted consultation on energy intensive users were used as input for the external study and reviewed by the consultants.

4. The results of the stakeholder consultations

This chapter summarises the views and evidence collected from the different categories of stakeholders during the public consultation activities. The circumstance that for all consultation activities a large share of the replies comes from businesses and business

associations has significantly affected the representativeness of the outcome. The nature of these replies indeed reveals a consistent bias towards a wider scope and increased level of State aid by the likely affected stakeholders. To this extent, Member States, NGOs and universities provided some alternative insights, albeit outnumbered by the former categories.

4.1. The feedback on the Inception Impact Assessment ("IIA")

From 12 November 2020 until 7 December 2020 the Commission published the IIA on the revision of the EEAG, in order to allow stakeholders to provide their feedback on the intended initiative. 107 stakeholders submitted a response, of which 37 were companies and 49 were business associations. Moreover, 6 public authorities and 8 NGOs and environmental organisation provided feedback. With 80% replies from the business sector, the results were biased towards the views of this category.

The relevance of the EEAG was not questioned. Moreover, the respondents welcomed the revision of the EEAG and the objectives of supporting the Green Deal by promoting a cost-effective decarbonisation of the economy, while minimising competition distortions.

More concretely, feedback touched on the following points:

- Alignment with other legislation

Many contributions highlighted that the EEAG should be aligned with other relevant legislation regarding the Green Deal. The majority of stakeholders advocated against the possibility to create a link with the EU Taxonomy, as the two frameworks are characterised by different objectives. However, some contributions were in favour of creating such link as a way to fast track the approval of aid.

- Distinction between investment aid and operating aid

Responses were mixed between supporters and opponents of a distinction. Some respondents advocated for the application of two-way Contracts for Difference (CfDs) to prevent overcompensation and reduce cost.

- Scope and technology-neutral vs technology-specific auctions

There was general agreement that the EEAG should take into consideration all the possible cost-effective decarbonisation options that Member States could adopt. Some submissions believed technological neutrality should be avoided in order to take advantage of different generation profiles from different technologies, while others believed that technologically neutral auctions are the most efficient award mechanism, as they lead to lower costs.

- New technologies

According to some of the feedback received, State Aid should be directed more towards R&D and new technologies, with the need for a clear definition for the latter concept.

- Transition of industrial consumers and coal-dependent regions

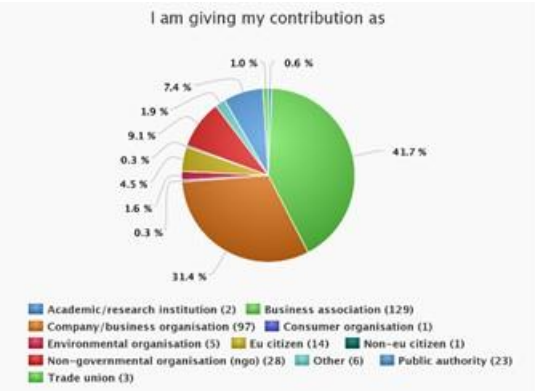
A recurring topic in the feedback by the responding businesses was linked to the possibility to support the green transition of industrial consumers by ensuring access to a sufficient renewables capacity and a low electricity price. Moreover, it was widely proposed to create a support framework for the transition of coal regions.

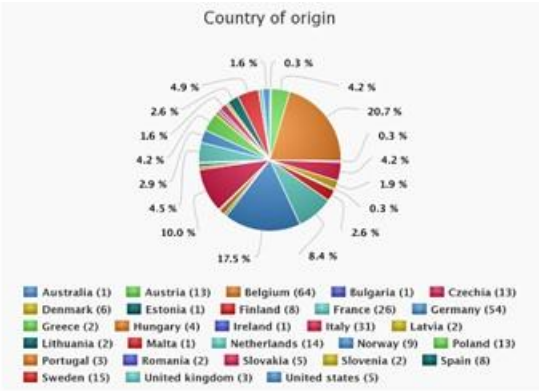
4.2. The public consultation on the basis of a questionnaire

In November 2020, the European Commission launched an open public consultation (in the form of a questionnaire) on the Guidelines on State aid for environmental protection and energy; the consultation was closed in January 2021. The objective of the consultation was to gather input from Member States, businesses, consumers' and industry associations, NGOs, academia and research institutions as well as the general public on some features of the compatibility criteria for aid for environmental protection (and in particular decarbonisation) and on the section on Energy Intensive Users.

In total, 309 replies were submitted via EUSurvey of which the vast majority, around 73%, came from either businesses associations (41.7%) or companies and business organizations (31.4%). The sectors represented the most were "D35 – Electricity, gas, steam and air conditioning supply" (49 contributions), "C24 – Manufacture of basic metals" (24 contributions) and "C20 – Manufacture of chemical and chemical products" (23 contributions) as the most represented. NGOs accounted for 9.1% of the replies, while public authorities for 7.4%, with a coverage of 11 Member States plus Norway.

In terms of geographical distribution, answers to the public consultation were received from 28 countries, of which 4 were not members of the EU. The countries in which more contributors are based were Belgium (64 replies), Germany (54), Italy (31) and France (26).

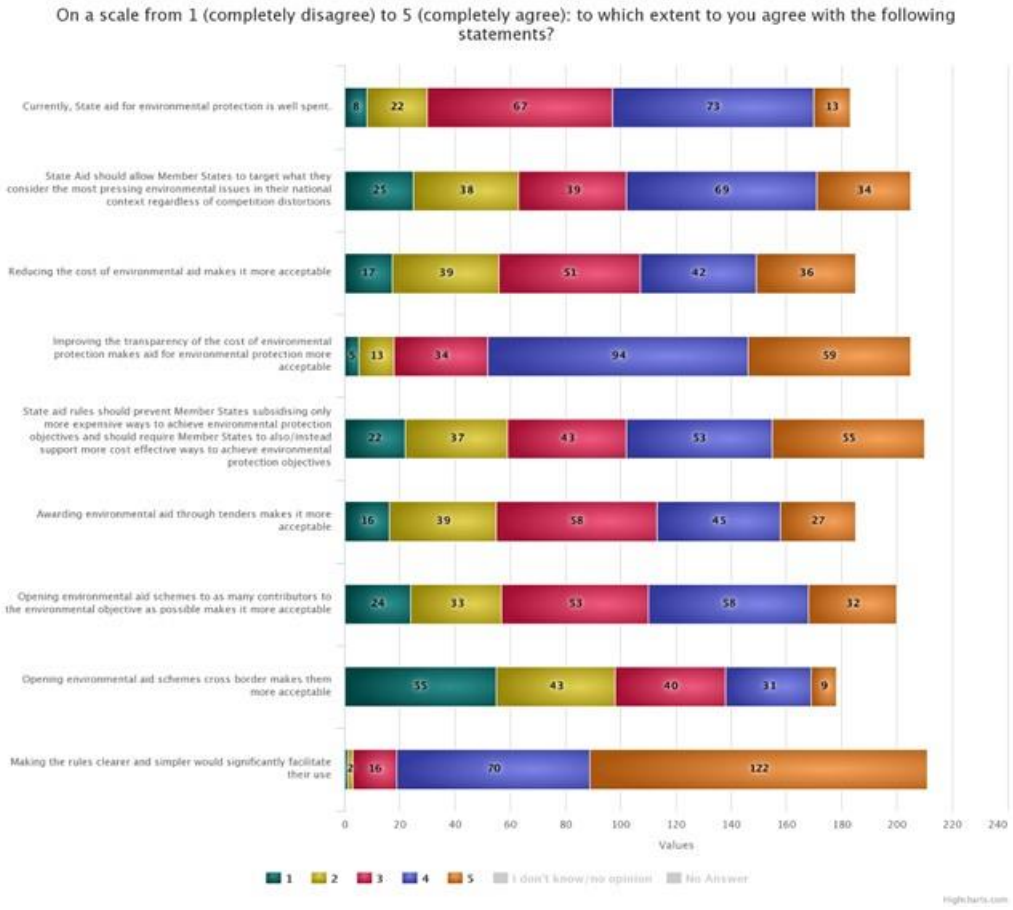




A) Environmental protection and energy

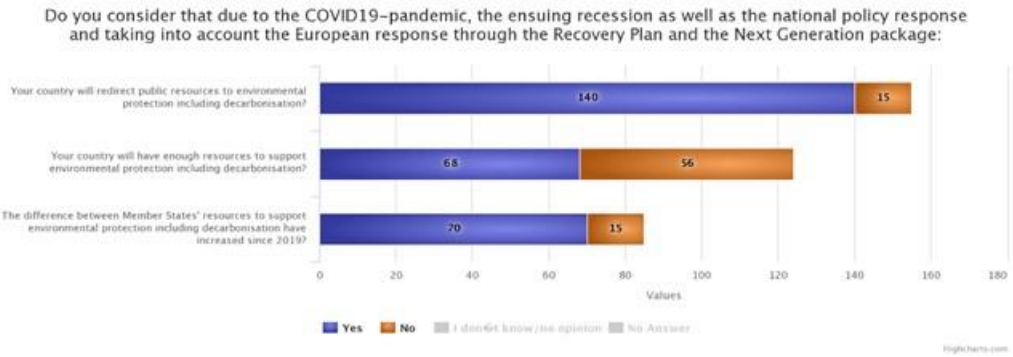
Overall, contributors seem to agree that current State aid for environmental protection is well spent. However, contributors underline the need to improve transparency as regards the costs of environmental protection to foster acceptability and the need to apply simpler and clearer rules that would smooth the State aid procedure.

Overall results



In the current socio-economic context, all stakeholders believe that more public resources will be directed towards environmental protection goals including decarbonisation. However, while 60% of the public authorities that took part on the consultation believe that their respective Member States have not enough resources to support the achievement of the environmental protection goals, the majority of replies from business associations, companies and other stakeholders seem to point in the opposite direction.

Overall results

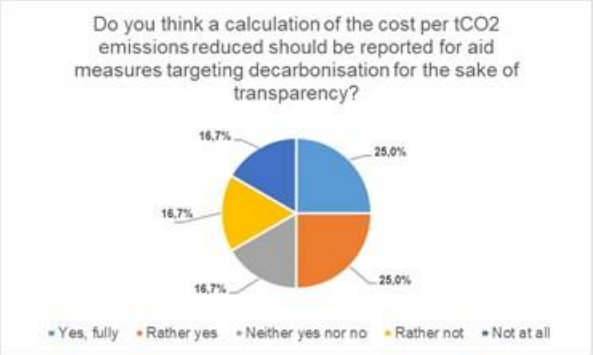


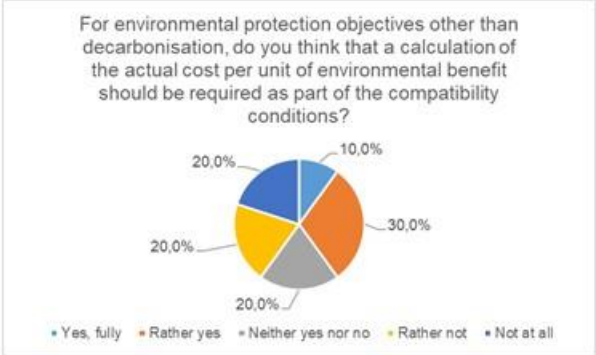
Stakeholders concur on the necessity of public support to promote investments related to environmental protection and energy, and ask for higher aid amounts or the promotion of new forms of aid in practically all environmental areas. However stakeholders have diverging opinions on some areas: for instance industry calls for more aid for CCS whereas NGOs, environmental organisations and around half of the public authorities claim that no aid should be granted for this.

The continued and increasing use of State aid for environmental protection in the coming years may result in potential competition distortions. This public consultation has asked stakeholders their opinion on this and their views on various tools that could be used to reduce these competition distortions.

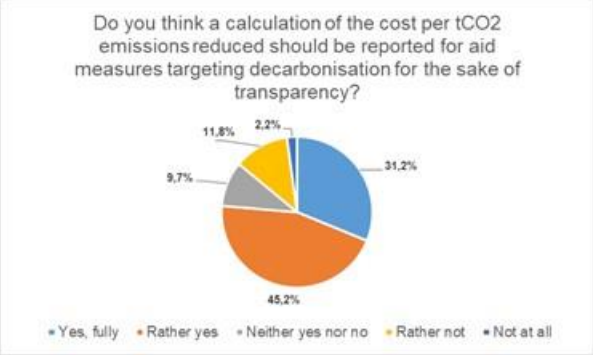
On the possibility to introduce a transparency requirement, the majority of the respondents among business associations, companies and other stakeholders believe that the reduction of CO_2 emissions made possible by the aid should be reported to ensure transparency of the public support. Such transparency requirement seems to be supported more for aid targeting decarbonisation than for aid directed to the achievement of other environmental protection objectives. In fact, while only around 14% of the business associations and companies that took part in the consultation oppose the introduction of such requirement in the former case, around 44% oppose it in the latter (23% for NGOs and other stakeholders). Slightly different is the distribution of NGOs and other stakeholder that more broadly support a transparency requirement in both cases, with only 10% of replies against this requirement for measures directed at decarbonisation and 23% for other measures.

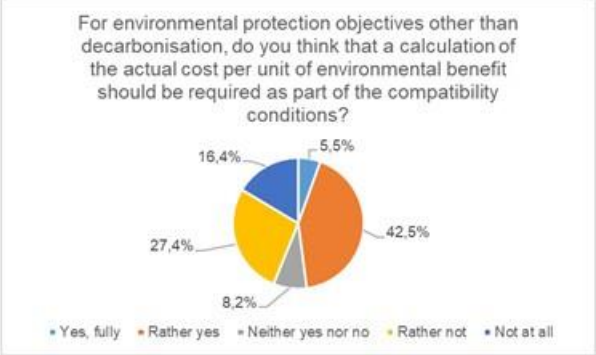
Public authorities



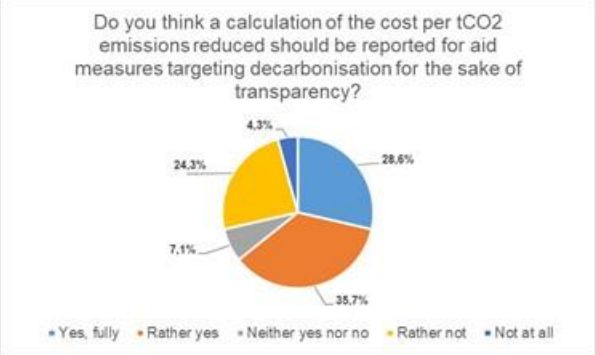


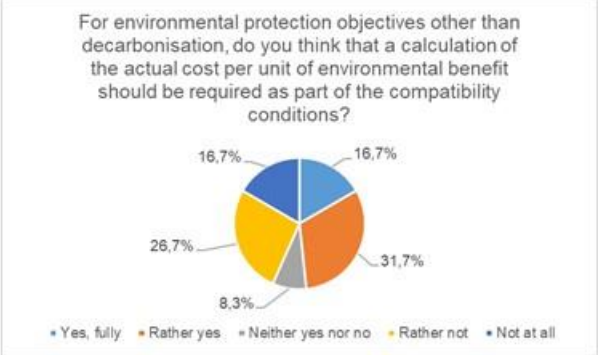
Business associations



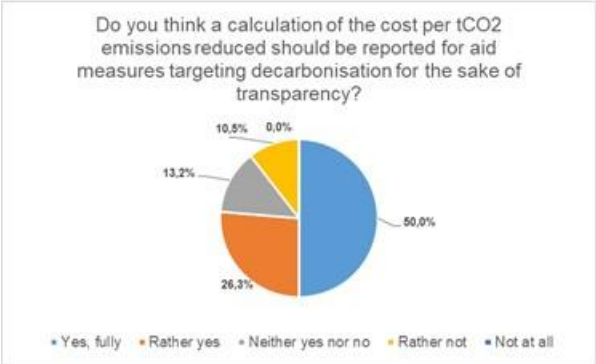


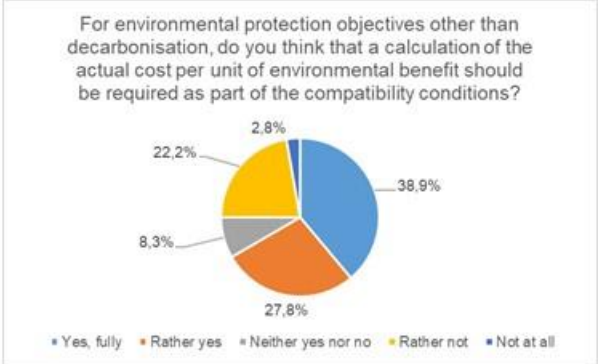
Companies and business organizations





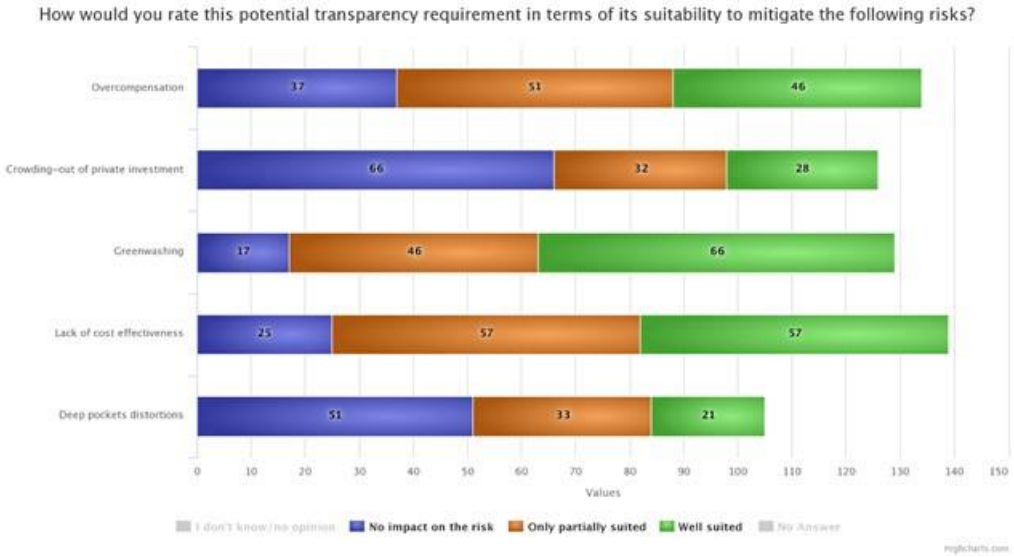
Other respondents





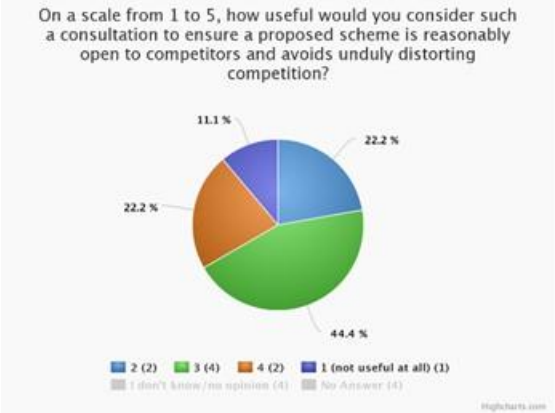
Half of the public authorities and more than half of the respondents representing the civil society highlight that a transparency requirement would be well suited to reduce the risk of overcompensation. Conversely, the majority of the replies received from business associations believes that this requirement would not have any impact on the risk of crowding-out private investments. Overall, such potential requirement has been considered by more than half of the respondents to be suited at least partially to reduce the risks of greenwashing, lack of cost effectiveness and deep pocket distortions.

Overall results

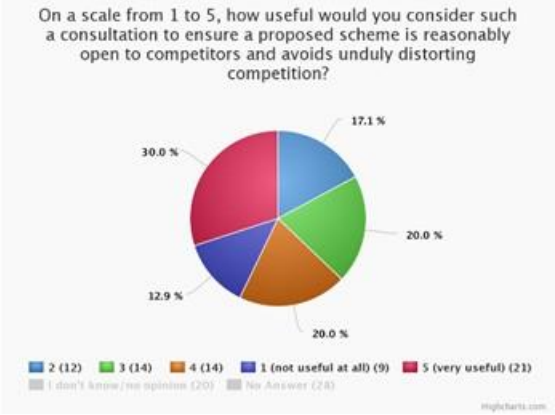


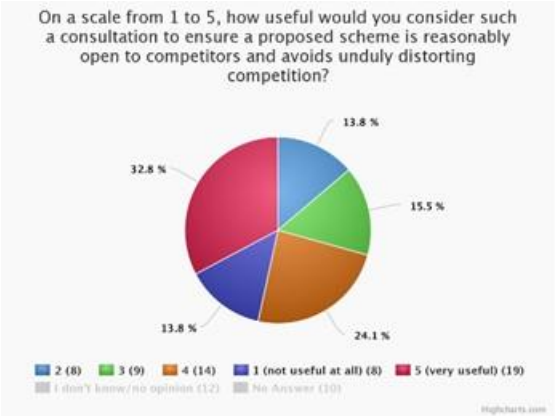
The broad majority of companies, NGOs and other stakeholders is in favour of the introduction of a public consultation requirement for Member States before submitting a support measure to the Commission. On the other hand, public authorities and business associations did not take a clear stance on the topic and argued that this requirement should not apply to all measures. In particular, a number of respondents proposed to require a public consultation only for schemes exceeding a given budget threshold, or to schemes that require notification or on the basis of the complexity of the measure.

Public authorities

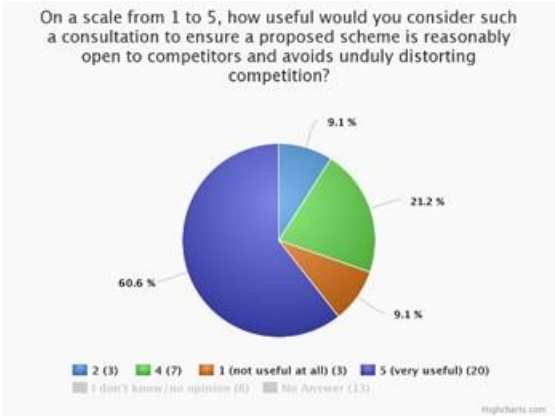


Business associations



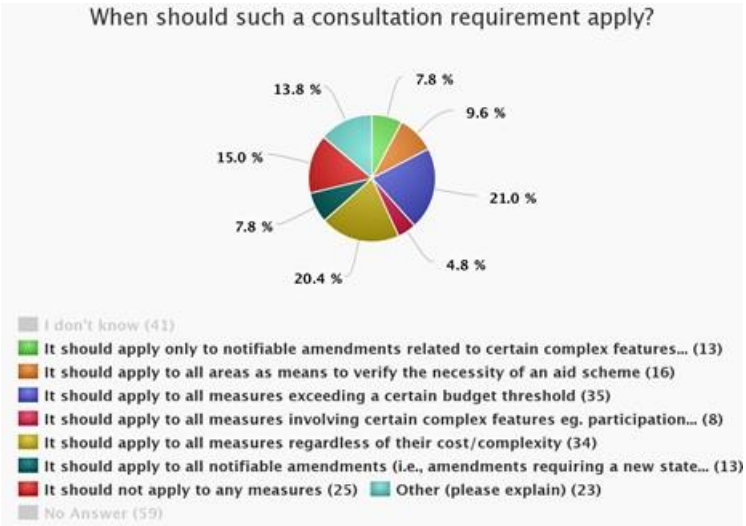


Companies and business organizations



Other respondents

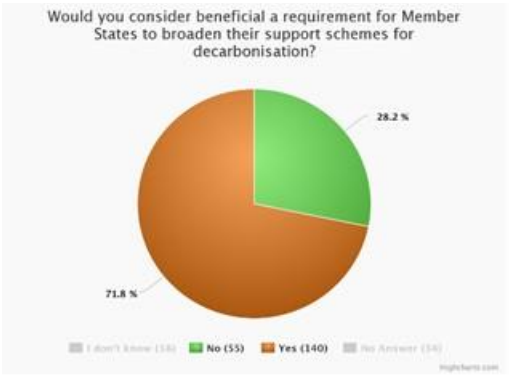
Overall results

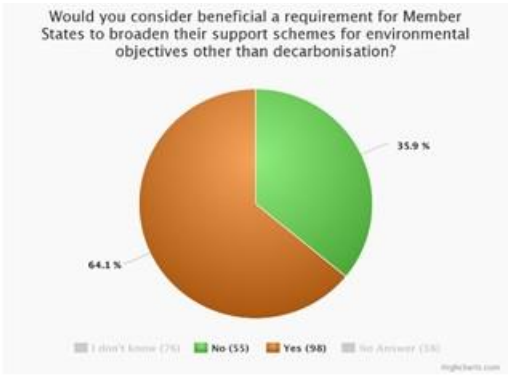


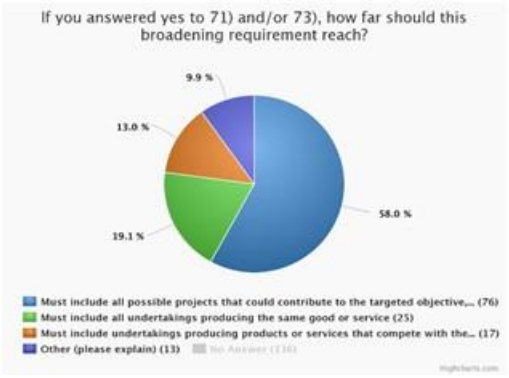
Most stakeholders across the different groups believe that requiring Member States to broaden the eligibility for participating in their aid schemes would be beneficial both for projects aimed at decarbonisation and for projects tackling other environmental objectives. In particular, around 58% of the respondents specified that the broadening requirement should include all possible projects that could contribute to the targeted objective, while according to 19% of the replies it should include all undertakings producing the same good or service and

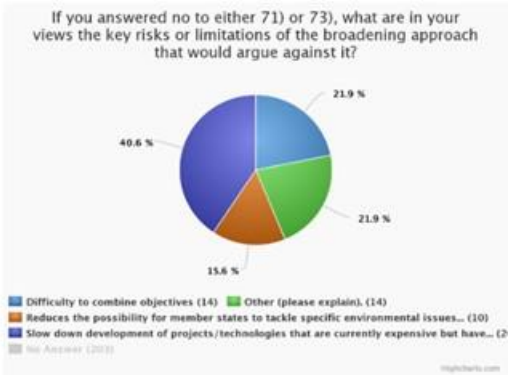
for 13% of the stakeholders it should include undertakings producing products or services that compete with the originally intended beneficiaries. The replies received also highlight that the introduction of such requirement might lead to some risks. In particular, some stakeholders believe that broadening might reduce the possibility for Member States to tackle specific environmental issues under a limited budget, could make it difficult to combine different objectives or could slow down development of projects and technologies.

Overall results



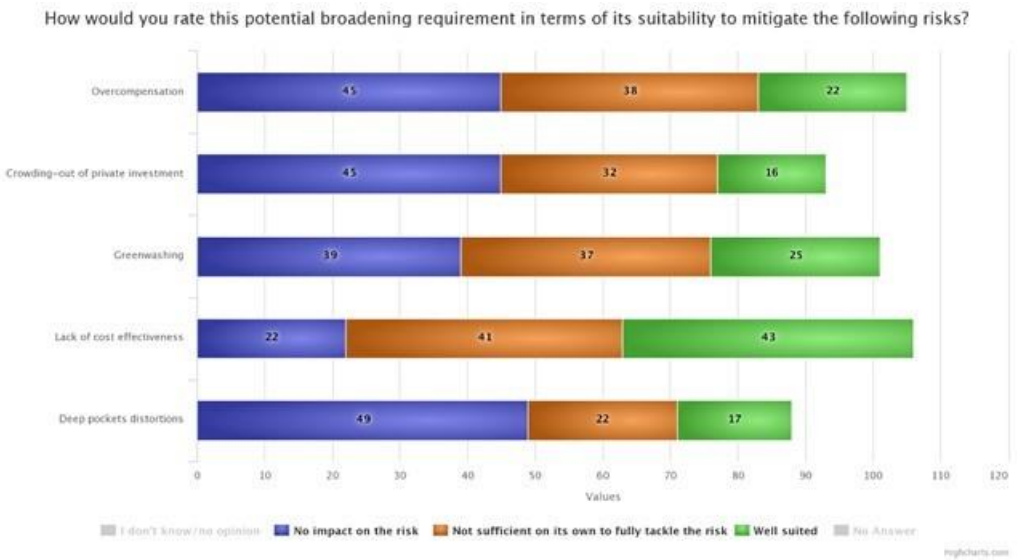






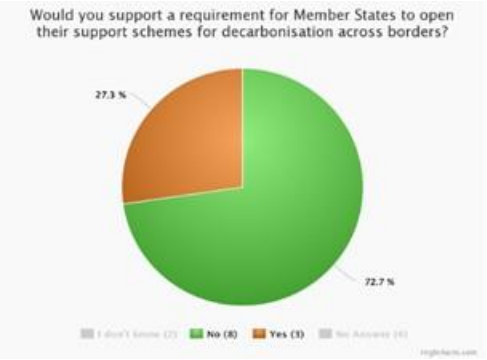
According to most of the respondents across the different groups a potential broadening requirement will either have no impact on the risks linked to state aid or will not be sufficient to fully tackle them. However, around 57% public authorities consider that broadening would be well suited to reduce the risk of lack of cost effectiveness.

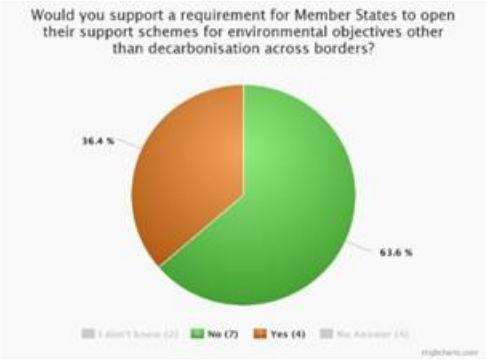
Overall results



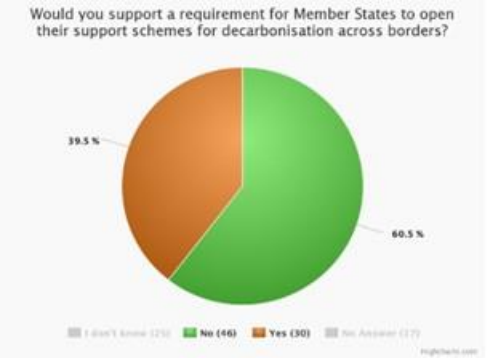
On the other hand, the majority of stakeholders does not support the introduction of a mandatory requirement for Member States to open their support schemes across borders, with the strongest opposition registered from business associations for support to schemes for environmental objectives other than decarbonisation. On the contrary, the opinion of companies and business organizations was more divided on this topic, with around 46% of the respondents supporting cross-border opening of support schemes for decarbonisations and 30% for schemes directed to the achievement of other environmental objectives.

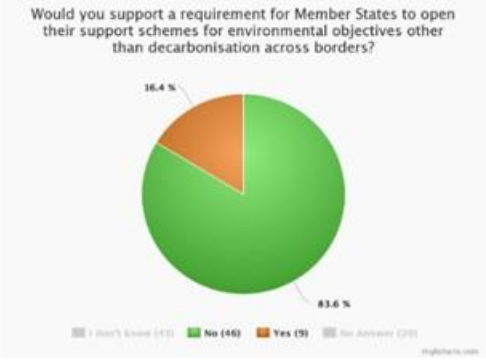
Public authorities



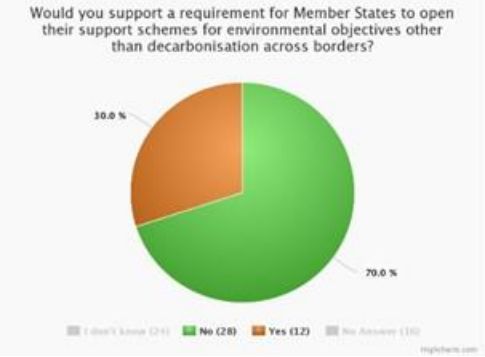


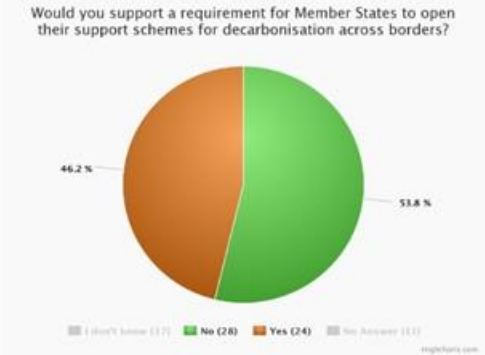
Business associations



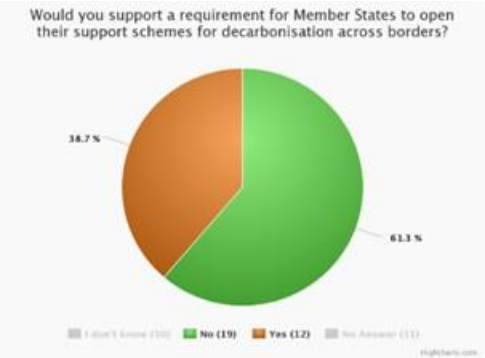


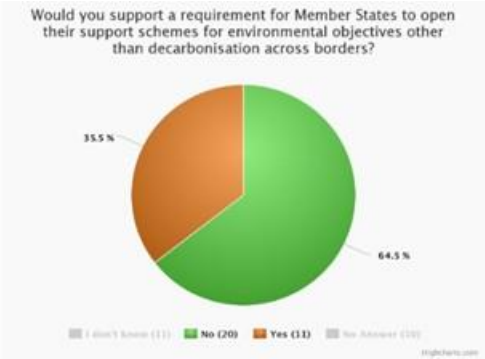
Companies and business organizations





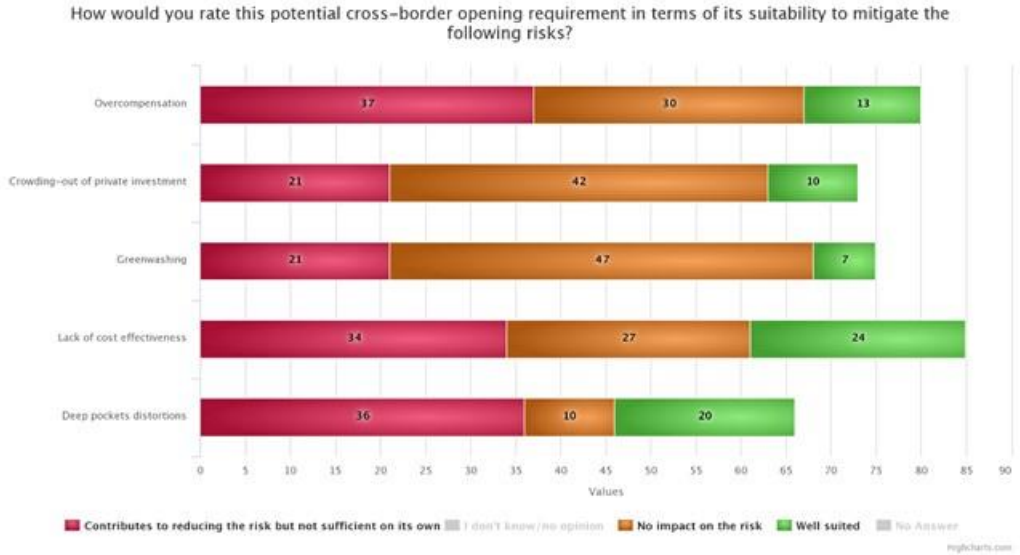
Other respondents





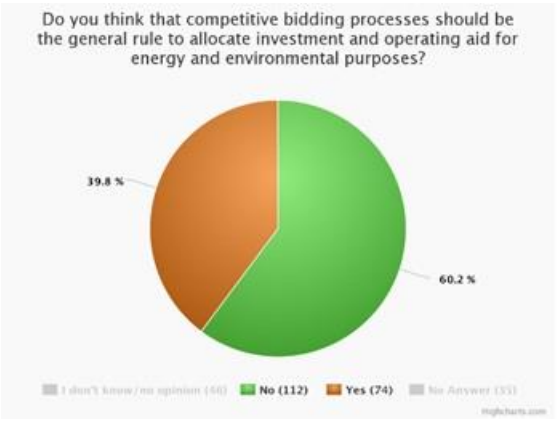
While the majority of public authorities that took part to the consultation believe that a potential requirement for cross-border opening would not have any impact on the risks related to State aid, the other categories of stakeholders viewed this requirement more positively. The majority of replies received by business associations, companies other stakeholders, highlight that such requirement would contribute reducing the risks of deep pocket distortions, although not being sufficient on its own.

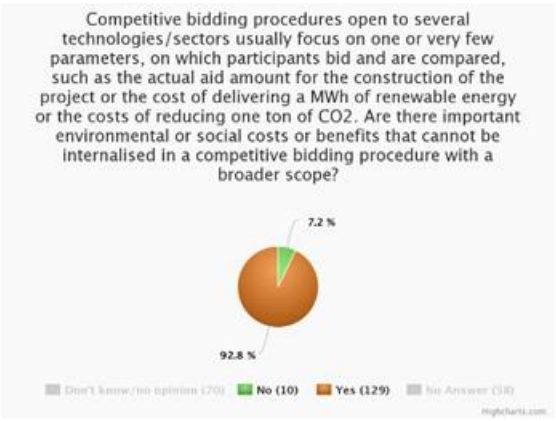
Overall results

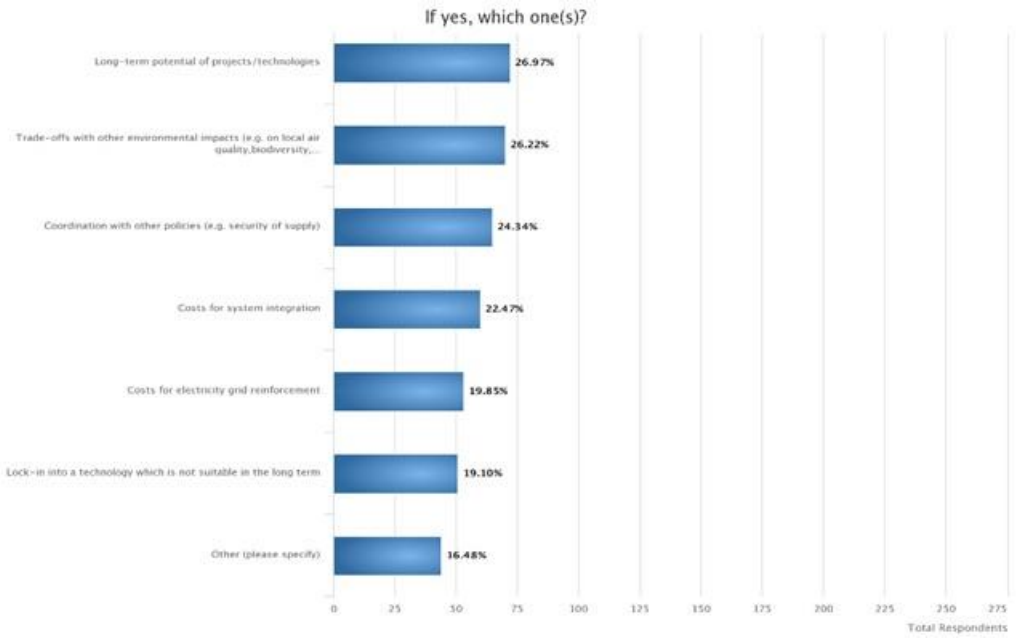


Around 60% of the respondents believe that competitive bidding should not be the general rule to allocate investment and operating aid for energy and environmental purposes in all areas, especially where environmental merits of participating projects have to be taken into account or the number of potential sites or projects is insufficient to ensure competition. Most stakeholders also believe that technology neutral competitive bidding does not always allow to fully internalise all environmental and social costs and benefits such as the long term potential of projects and technologies or the trade-offs with other environmental impacts.

Overall results

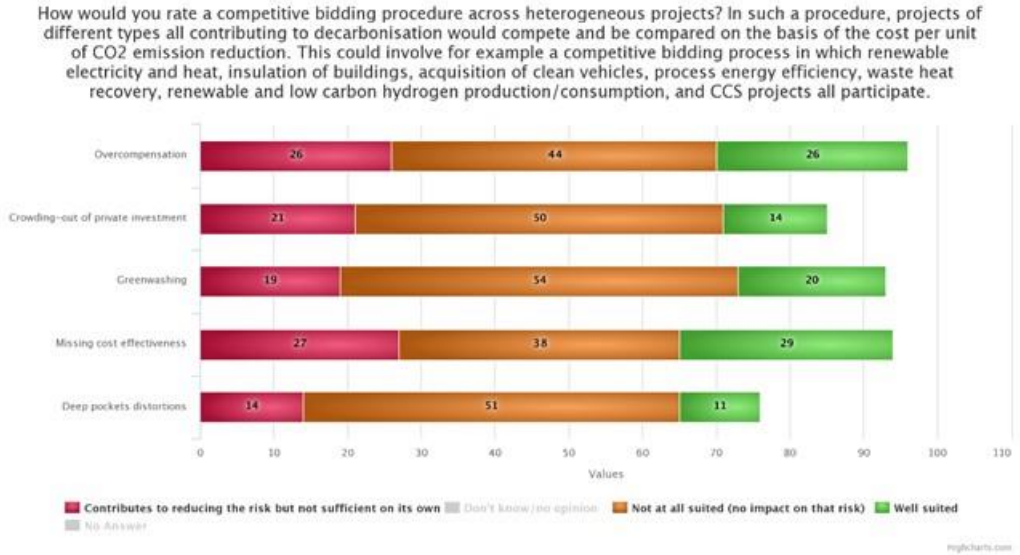






Public authorities and other respondents seem to believe that a competitive bidding procedure across heterogeneous projects will either not be suited at all or not sufficient to tackle the risks linked to state aid. On the other hand, around 40% of the business associations that took part to the consultation consider competitive bidding procedures open to heterogeneous projects well suited to minimize the risk of lack of cost effectiveness and the risk of overcompensation.

Overall results



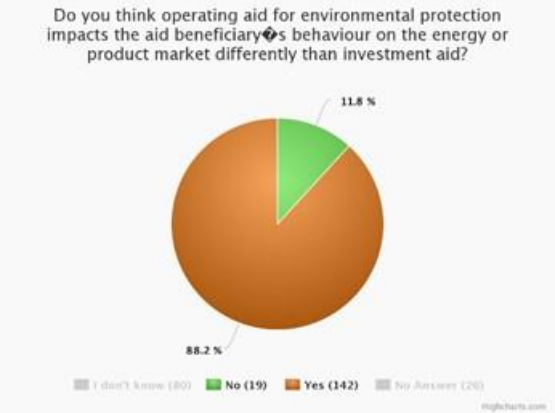
The public consultation has also asked stakeholders their views on the different types of aid or aid instruments and their potential distortive effects on competition.

As regards the aid instrument the views of stakeholders are diverse. According to most public authorities, aid covering operating costs on top of investment costs should be generally allowed for all the types of projects related to environmental protection and energy, although subject in some cases to safeguards to prevent undue distortions in competition. While for most areas of investment other stakeholders are in agreement with this view, for energy efficiency in buildings, over half of companies and business associations think that investment aid should be sufficient to incentivise the uptake of projects. Moreover, the majority of business associations consider that operating aid on top of investment aid should not be allowed for low emission vehicles and transport infrastructure, while for NGOs and other stakeholders it should not be allowed for renewable and low carbon hydrogen production, alternative transport fuel, CCS and CCU.

On the form of aid, stakeholders also have different opinions depending on the areas. A clear majority of public authorities answered that CHP and biodiversity should receive aid as a premium covering the difference between the production costs and the revenues per unit rather than investment aid. Instead, the industry considers that operating aid should be preferred for all types of projects except for energy efficiency in buildings, low emissions vehicles and energy infrastructure. Other respondents consider that operating aid is more distortive than investment aid for CHP, district heating and cooling, energy efficiency in production processes, waste heat, CCS and CCU, energy storage and infrastructure.

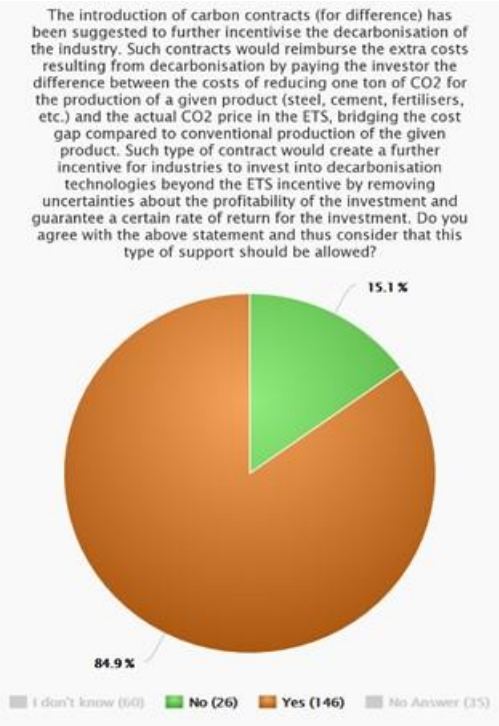
Stakeholders generally agree on considering that operating aid affects the beneficiary's behaviour differently than investment aid and that, in general, different instruments of aid are not equivalent in the way they incentivise new investments and limit market distortions.

Overall results

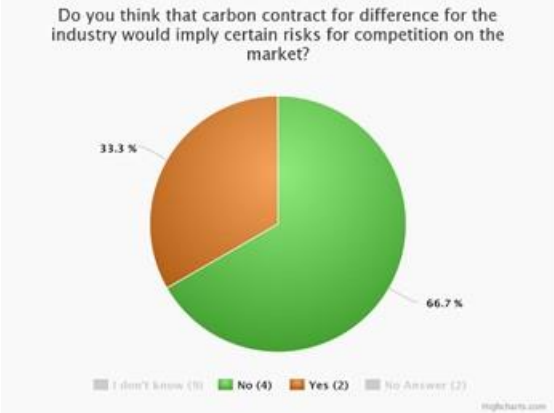


Most of the respondents believe that the introduction of carbon contracts for difference (CCfDs) would create an incentive for industries to invest into decarbonisation technologies by removing uncertainties about the profitability of the investment and guaranteeing a certain rate of return for the investment. However, divergence is found on the specific rules for the implementation of this aid instrument, as industry prefers that such contracts are awarded via competitive bidding procedures, while public authorities believe that this award methodology would not lead to an optimal allocation. On the other hand, a wider agreement exists on the need to make CCfDs available beyond the sectors subject to the ETS and for short-term investments. Finally, while most public authorities think that CCfDs do not entail a significant risk for competition, the other stakeholders' replies seem to point to the opposite direction.

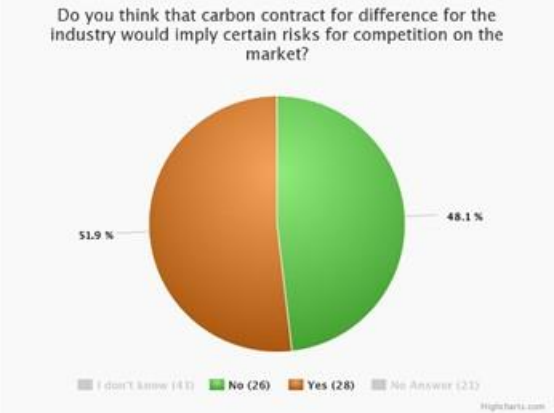
Overall results



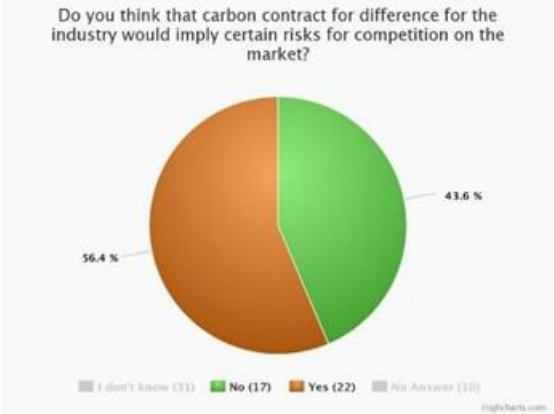
Public authorities



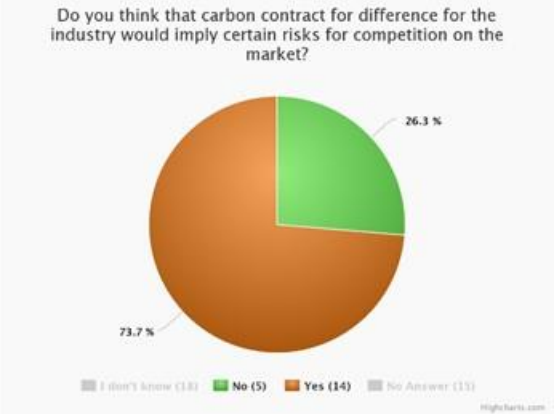
Business associations



Companies and business organizations

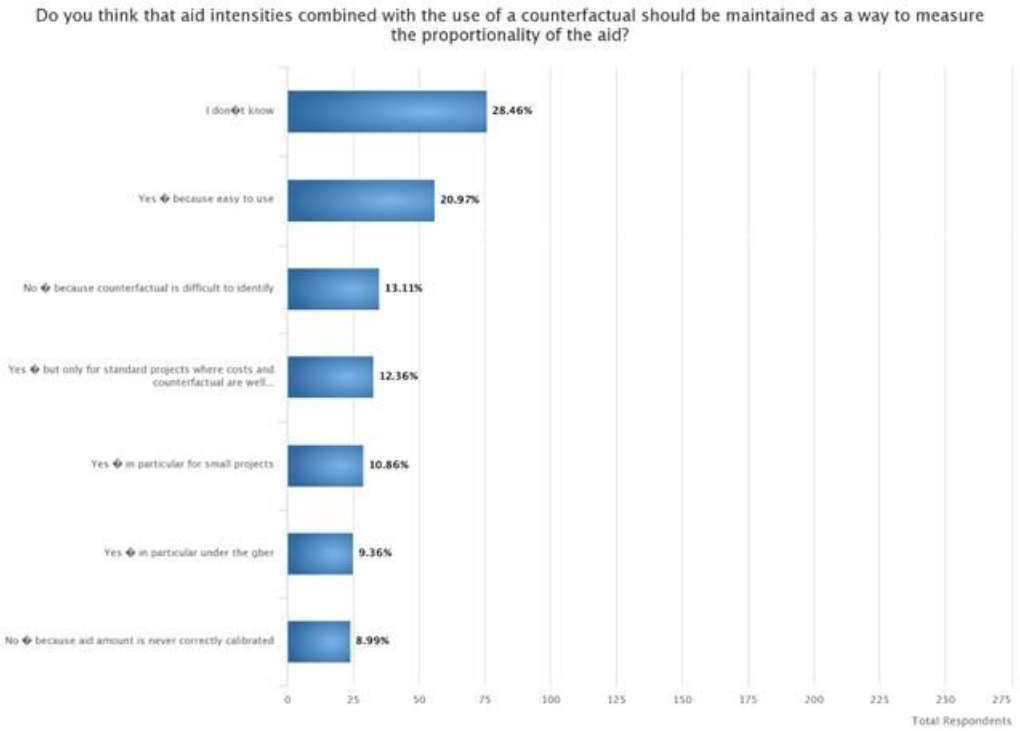


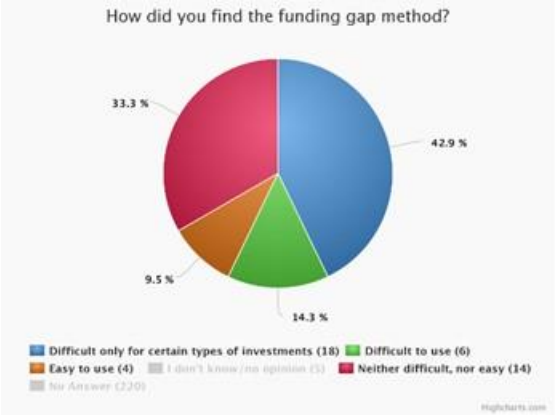
Other respondents

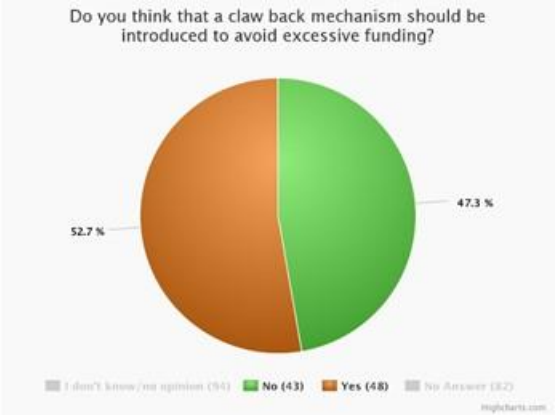


The public consultation has also asked stakeholders their views on two approaches for calculating the amount of aid that a project can receive in order to ensure proportionality of the aid. A majority of the contributions from public authorities and other stakeholders point out that aid intensities combined with the use of a counterfactual should be maintained as a way to measure proportionality of the aid, in particular for standard projects, small ones and under the GBER, while for other cases the identification of the counterfactual is more difficult. The replies received from business association and companies seem to be less decisive on the role of this approach in the revised guidelines. As regards the funding gap approach, most public authorities have experience working with this method and consider the aid amount granted as sufficient. On the other side, the majority of respondents from all the other categories of stakeholders have no previous experience with the funding gap approach. Finally, a majority among all types of respondents believe that a claw back mechanism should be introduced to avoid excessive funding.

Overall results







B) Energy Intensive Users

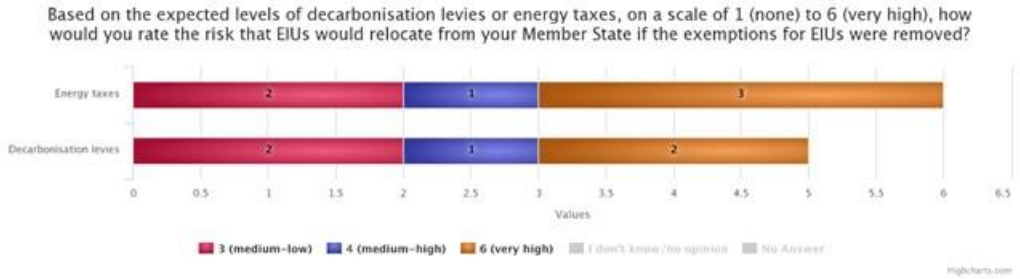
Overall, the majority of contributors expects electricity charges to increase in light of EU's increased climate ambition, largely in the range of 0-20%. Business, public authorities and civil society share this expectation. The components "RES levies", "levies to finance other decarbonisation objectives" and "network charges" are the components where an increase is more widely and strongly expected.

The risk of relocation of EIUs due to the expected evolution of energy taxes and decarbonisation levies is as follows:

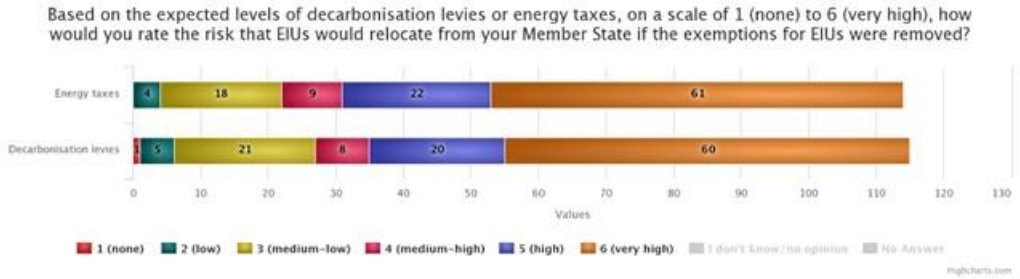
a) In case existing exemptions would continue to apply, most business thinks that such risk level would be medium. The majority of public authorities share this view, although 40% sees no risk at all. Civil society overall considers such risk to be on the low end.
b) If the exemptions for EIUs were to be removed, the vast majority of business representatives think that risk of EIUs relocation would be (very) high. This is roughly

the risk level most shared by public authorities, while civil society would anticipate a medium/low risk level.

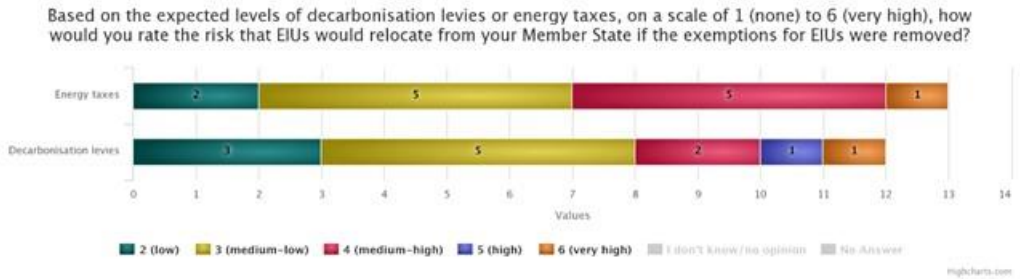
Public authorities



Business representatives

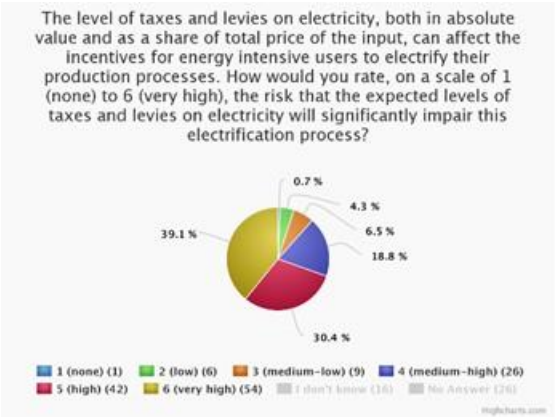


Civil society

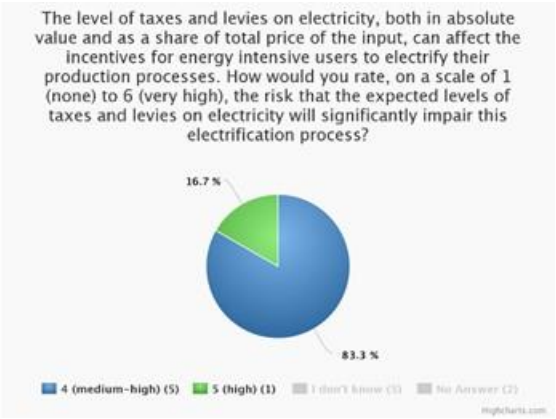


Overall, the majority of contributors anticipates that the expected levels of electricity taxes and levies will significantly impair the electrification of EIUs' production processes. The risk is very high to medium/high, depending on the category of stakeholders. The large majority of public authorities consider the risk medium/high, the majority of business stakeholders consider it high/very high, while for the civil society the majority considers the risk medium/high and a small percentage (<10%) considers it very high.

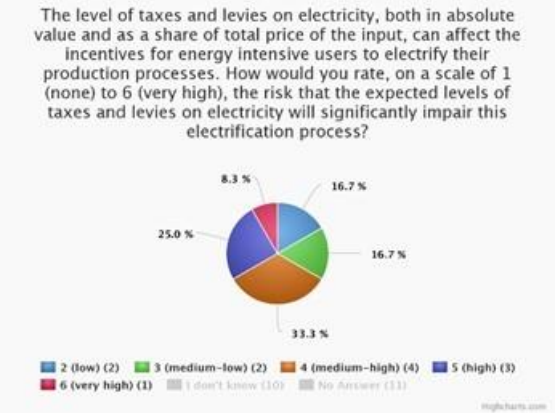
Public authorities



Business representatives



Civil society



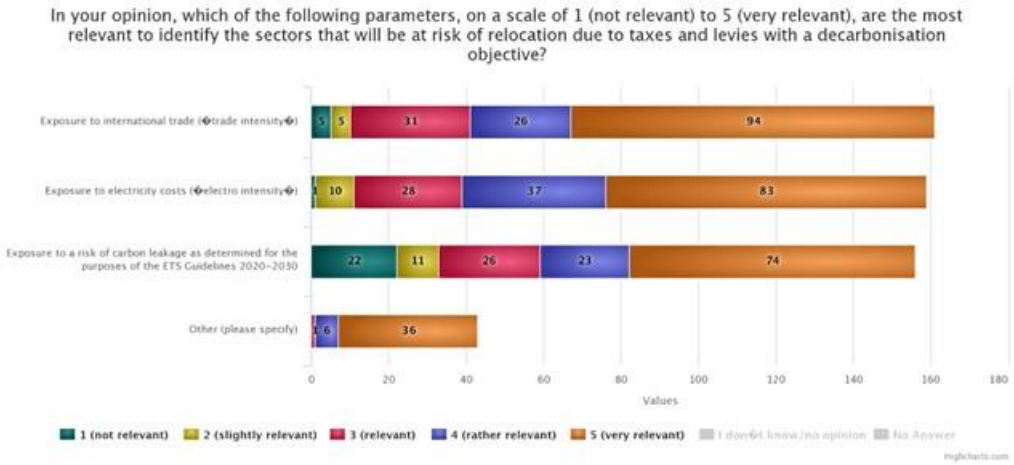
With regard to the sources of financing for decarbonisation schemes:

a) all categories of stakeholders positively consider the use of ETS revenues.
b) "General budget" and "Other" are popular sources among business representatives and public authorities and are not considered negatively by civil society. Similarly, "Environmental taxes on the economy" and "Surcharge on fossil fuels" are popular sources among public authorities and civil society and are not considered negatively by the majority of business.
c) "surcharges on electricity", "specific charges imposed on industry", and "environmental taxes imposed on industry" are considered as a bad source of financing by the majority of at least 2 categories of stakeholder.

With regard to "Other options" regarding the financing of decarbonisation policies, business representatives in particular highlighted the need to ring fence the ETS revenues or other sources of financing (such as the CBAM) to be reinjected in the industry only to decarbonize, possibly keeping a separation between sectors to account for their specificities (electricity, gas, heat, etc…). Individual suggestions of other sources of financing range from toll revenues, to a climate tax, a CO_2 consumption levy along the whole value chain/until the consumers, Regional Funds.

There is strong consensus (in the range of 100%-75%) among all categories of stakeholders on the relevance of trade intensity, electro-intensity and exposure to risk of carbon leakage and "others" as parameters to assess the relocation risk due to taxes and levies with a decarbonisation objective.

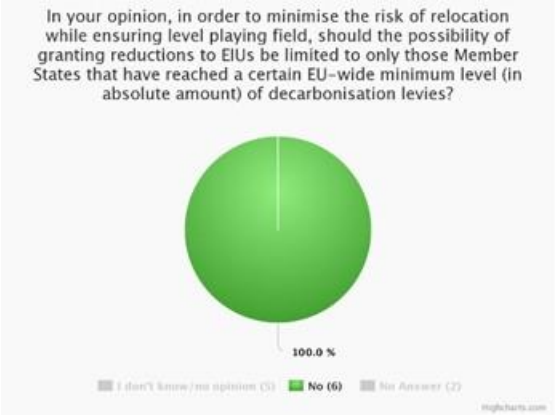
Overall results



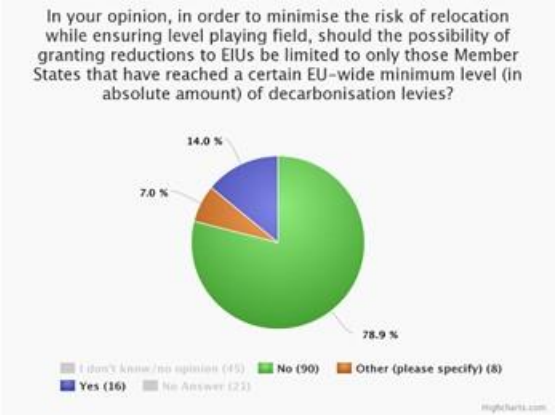
A number of business representatives highlight that the level of exposure to trade should not be measured exclusively on the basis of statistical data, but also considering the factors influencing the behaviours of companies along the relevant value chain (also, whether a given company is a price taker or not) as well as the overall tax burden (related or non-related to decarbonisation policies) in the EU in comparison to non EU countries. An NGO suggested that "A carbon adjustment at EU borders should be implemented to mitigate the risks of carbon leakage and loss of competitiveness in the industrial sector".

A possible introduction of a minimum level of decarbonisation levy to grant EIUs reductions faces strong opposition by business (80%), Member States (100%) and civil society (50%).

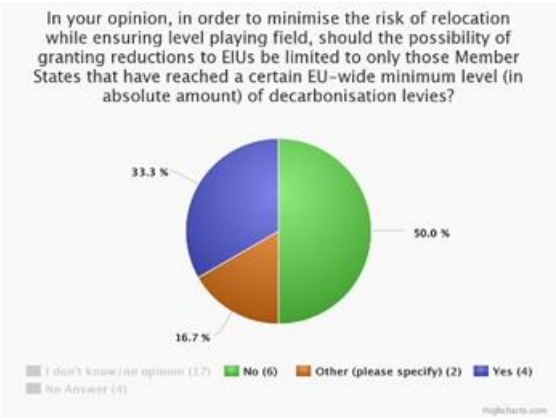
Public authorities



Business representatives



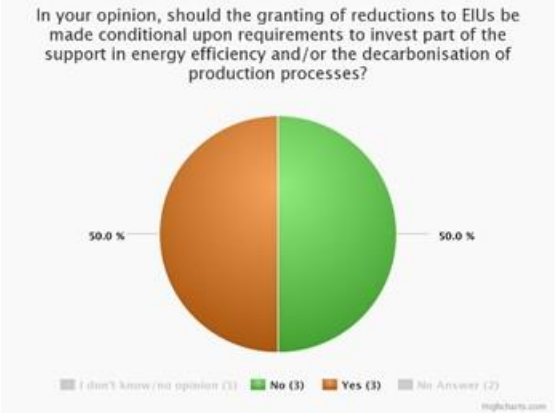
Civil society



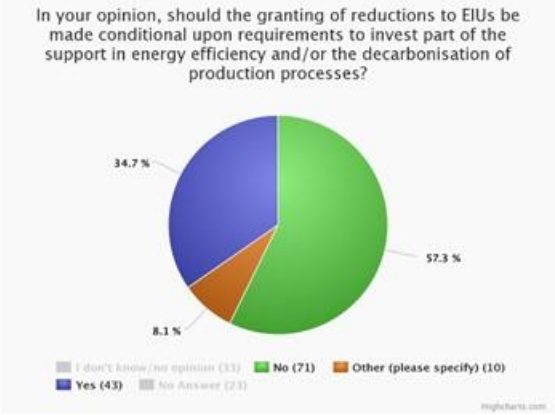
The main concern, in this respect, seems to be related to the differences existing among Member States in relation to different levels of levies and the different choices by Member States in relation to the financing of decarbonisation. An NGO submitted that "[S]ome MS chose to finance decarbonisation measures through their budget and not levies: they must remain free to do so. With conditioning reductions to a certain amount of levy, MS risk to artificially increase levies (without necessarily increasing the volume of support to RES) for maintaining reductions for EIUs; this would in turn increase the cost of energy and the distributional effect on smaller consumers. It is also uncertain if a better level playing field would be ensured: since the levels of support to RES greatly vary between MS, an EU-wide minimum level in absolute amount would either favour EIUs in MS that largely and expensively support RES, or would need to be set at a very low level that would make it immediately pointless."

Feedback on the possible introduction of conditionality to grant EIUs reductions is mixed, with 80% of the civil society in favour, public authorities perfectly split, and business opposing (mostly business associations, as 40% of individual companies are in favour).

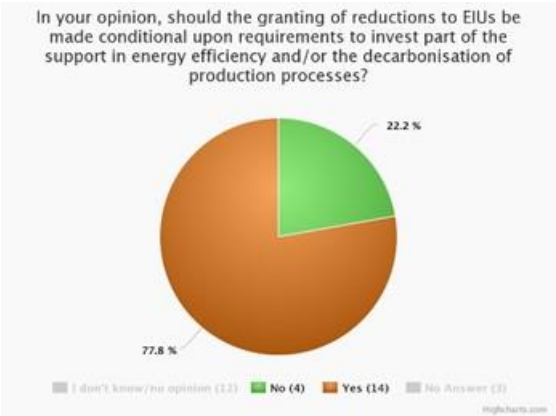
Public authorities



Business representatives



Civil society

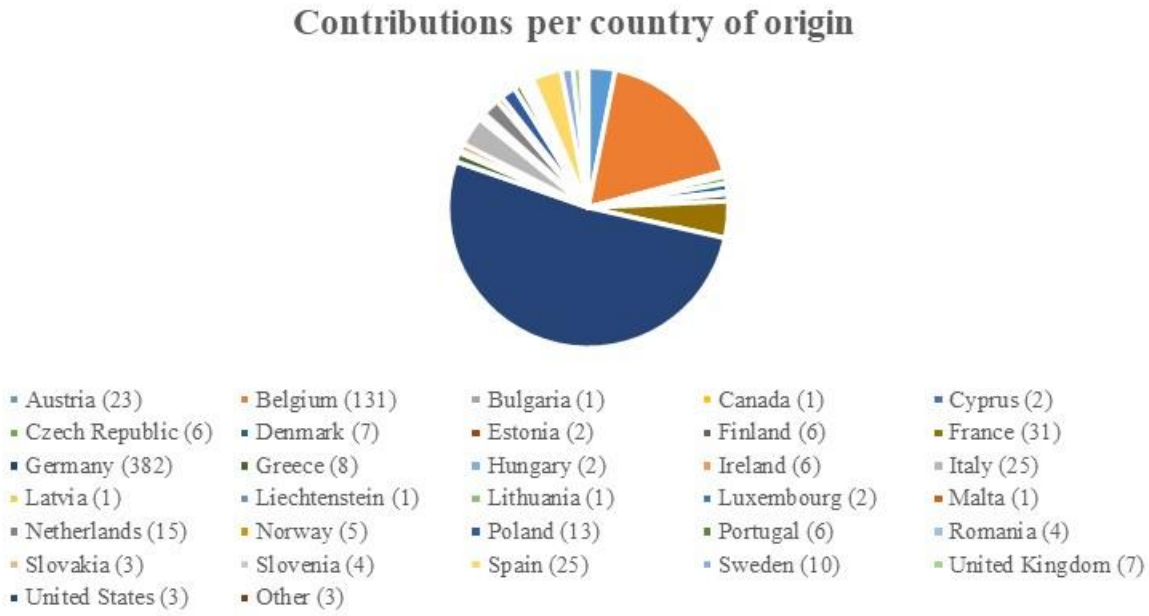


The concerns of the business representatives are (i) that undertakings which have already invested in energy efficiency would be penalized, (ii) that different sectors have different technologies available to decarbonise, so an automatic mechanism would not be appropriate and (iii) EIUs are already seeking to become energy efficient.

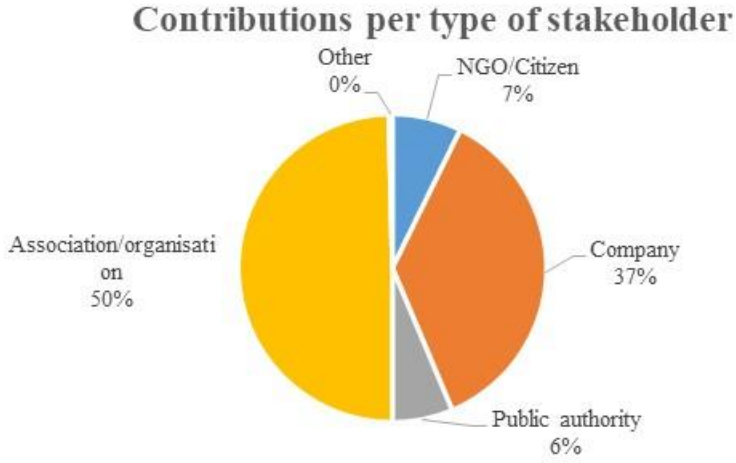
4.3. *The public consultation on the draft Guidelines*

In June 2021 the European Commission launched a public consultation on the on the revised Climate, Energy and Environmental Aid Guidelines (CEEAG); the consultation was closed in August 2021. The objective of the consultation was to gather input from Member States, businesses, consumers' and industry associations, NGOs and other interested stakeholders on the revision of Guidelines on State aid for environmental protection and energy and, in particular on the extended scope of the guidelines and the new safeguards introduced.

In total, 738 replies were submitted.



Discounting for the 239 same replies sent by coordinating entities, 50% came from either associations or organisations, 37% from companies, while NGOs and citizens accounted for 7% of the replies and public authorities for 6%.



The contributions received cannot be regarded as the official position of the Commission and its services and thus do not bind the Commission.

Main horizontal comments:

Overall, contributors seem to consider positively the draft revised Guidelines. In particular, the enlargement of the scope to all the technologies that can deliver the Green Deal and the alignment with EU legislation are generally welcomed by the respondents. Some contributors highlight the need to further strengthen throughout the Guidelines the requirement for support measures to comply with EU environmental law in order to be eligible for State aid. Moreover, it is proposed to expressly reference the energy efficiency first principle and the polluter pays principle in the CEEAG.

Respondents diverge on the approach to fossil fuels and natural gas adopted in the Guidelines. The vast majority of respondents across stakeholder groups remarks the need to phase-out fossil fuels subsidies in order to meet the EU's climate goals. Only few companies and public authorities propose to support fossil fuels at least in the infrastructure area and for a transition period. With respect to the approach to natural gas, around 30% of the public authorities and of the companies that commented on this point and around 50% of the associations highlight at the need to support natural gas at least as a transition fuel if not in the long term. In addition, the majority of NGOs and citizens point to the possibility to support natural gas investment subject to clear and stringent safeguards to prevent lock-in effect. This view was shared by around 20% of public authorities, 30% of associations and 40% of companies that addressed this point in their submission.

Similarly, support for low-carbon hydrogen and nuclear energy is controversial. With respect to hydrogen, around 50% of the NGOs that addressed this point in their contribution propose to limit support to green hydrogen. Similarly around 36% of companies, 29% of public authorities and 26% of associations oppose the possibility to support low-carbon hydrogen. In addition, some respondents among associations, NGOs and citizens highlight the need to focus support for hydrogen to *hard to abate* sectors where cleaner alternatives are not available. Regarding other technologies covered by the Guidelines, few contributions including public authorities and associations, propose to extend the scope of the CEEAG to nuclear energy.

Controversial is also the reference to the Taxonomy regulation. Among the submissions that addressed this point, all the replies from associations and over 75% of those coming from companies oppose the creation of a link between the CEEAG and the EU Taxonomy indicating as a reason the different objectives of these pieces of legislation and the uncertainty over the development of the Taxonomy delegated acts. On the other hand, NGOs, citizens and public authorities seem more evenly divided on the topic, with around 30% of each category of stakeholders proposing the use of the criteria laid down in the EU Taxonomy as one of the component for the State aid analysis but not as the driver for decision-making.

Stakeholders are also divided over the safeguards proposed in the draft CEEAG. In particular, the requirement for a public consultation is considered burdensome by almost all the public authorities, associations and companies that expressed their views on this point. Whereas the majority of NGOs which mentioned this topic in their contribution (around 80%) support it and propose to extend it to other sections of the Guidelines and/or remove the exemptions and budget thresholds associated with the requirement. The introduction of a requirement to calculate the cost of reducing GHG emissions, was generally positively received but perceived as unclear for a third of the comments received.

According to most stakeholders, more flexibility should be granted to Member States in the allocation of aid. The perceived requirement for technology-neutral competitive bidding processes as a standard method for the allocation of aid is considered too strict to ensure a

diversified energy mix and reduce system costs. It is, therefore, proposed to grant more flexibility to Member States over the organization of technology-specific procedures. This view was shared by around 40% of the public authorities, 80% of the associations, and 30% of the companies that addressed this point in their submission. The inclusion of non-price selection criteria was also mentioned as a way to grant more flexibility. About 78% of the stakeholder which mentioned this topic in their contribution asked for increasing the share of the non-price selection criteria above the proposed 25%. However, some stakeholders ask for stricter rules and time limits on aid where markets are well established. Almost half of the stakeholders that expressed their views on competitive bidding (45%) would also prefer to enlarge the scope of the installations exempted from the tendering requirements to favour their development. The share of public authorities asking for more exemptions from the tendering requirement is the highest among other categories of stakeholders as it reaches 60%.

The majority of Member States and companies active in energy intensive industries express concerns that the **appropriate measures** proposed in the CEEAG would put into question existing support schemes and may impact investment certainty. To ensure a swift implementation of the guidelines, around 38% of the associations and 20% of the companies that raised this point, propose the grandfathering of some of the existing schemes related to exemptions for energy intensive users, renewable energy support or measures included in the Recovery and Resilience Plans. Additionally, some stakeholders point to the possibility of a longer timeline for the alignment of existing schemes.

a. Finally, according to few respondents the lack of an end date in the Guidelines might result in regulatory uncertainty. For this reason, some public authorities and NGOs propose to include a review mechanism in the CEEAG, while other public authorities, companies and associations proposed to explicitly include an end date for the application of the Guidelines. Multilateral meeting with Member State during to the targeted consultation on the draft Guidelines

On 12 and 13 July 2021 the Commission held a multilateral meeting with Member States. The purpose of the meeting was to present the draft Guidelines in State aid for climate, environmental protection and energy (CEEAG) proposed for consultation and the rationale of the main changes put forward. At the same time, Member States were allowed to provide their views directly and ask questions before submitting written contributions in the context of the consultation.

The main comments received are reported below:

- It is fundamental to ensure alignment of CEEAG and GBER (Belgium, Czechia, Spain, Luxembourg, Austria, Slovakia, Finland).
- More clarity should be provided on how it can be ensured that investment in natural gas are 2030-2050 proof (Spain, Hungary, Netherlands, Romania).
- The application of the DNSH principle in the CEEAG should be clarified (Belgium).
- The threshold for the exemption from competitive bidding in the proposed CEEAG draft is too low (Germany, France, Luxembourg, Hungary, Austria).
- Member States should have more flexibility to design technology-specific competitive bidding procedures for the award of aid (Germany, France, Portugal, Hungary, Austria).
- The requirement for public consultations represent a considerable burden for Member States (Germany, Italy, Spain, France, Austria). Limitations/exemptions to the requirement for public consultation to Member States that do already foresee it as part of their national framework (Denmark, Sweden) should be considered.

- The use of NACE-4 codes for the identification of sectors eligible to receive EIUs exemptions or reduction does not cater for the heterogeneity within some sectors (Denmark, Spain)
- The possibility to grant reductions to EIUs has been reduced in the CEEAG, in terms of eligibility (Germany, Slovakia) and/or allowed aid (Germany, Italy). This reduces competitiveness of the European industry.
- The proposed appropriate measures undermine the legal certainty of existing schemes (Germany, Italy, Austria, Romania) and may prevent Member States from implementing the measures approved as part of their Recovery and Resilience Plans (Spain).
- The transparency threshold should not be lowered below the EEAG levels (Germany, Ireland, France, Latvia, Malta, Luxembourg, Austria, Portugal, Slovenia, Sweden).
- The definition of undertaking in difficulty should be amended to account for SMEs that have low equity ratio but are not subject to insolvency procedures (Luxembourg, Austria, Portugal).
- Support to fossil fuels should not be allowed in the Guidelines (Belgium, Denmark, France)
- The role of renewable energy communities should be recognized in the CEEAG (Belgium, Ireland, Spain).

4.4. Conference on Competition Policy Contributing to the European Green Deal

Both the respondents to the consultation and the participants at the conference of 4 February 2021 confirmed that competition policy has an important role to play in delivering the Green Deal objectives, driving green innovation and bringing about the technological revolution required to have sustainable jobs and growth, in line with EU rules and values.

During the conference, it was made clear that competition authorities do not operate in a political vacuum. The ambition to tackle climate change by stepping up Europe's efforts with respect to 2030, with the aim to reach carbon neutrality in 2050 was fully supported. At the same time, since the Green Deal also serves as Europe's growth strategy, it was also considered important to take account of the different situations across Member States, in order to get the transition right and to ensure continued broad political and social acceptance.

More specifically, concerning State aid control, the respondents to the public consultation clearly emphasised the key role of State aid policy to support the Green Deal objectives.

In particular, a large number of stakeholders emphasised the need to limit drastically access to State aid funding for fossil fuel producers. They called for a systematic assessment of environmental impacts in State aid procedures and greening conditionality.

More generally, a consensus emerged on calling for clear and simple State aid rules to provide Member States and stakeholders with legal certainty and thus indicate to businesses the way forward. In the same spirit, respondents called for increased transparency on any State aid initiatives that are potentially harmful to the environment.

In addition, many respondents mentioned the importance of innovation to support the green transition and the necessity of adapting the State aid rulebook to enhance the possibilities for support for research and development. Finally, many stakeholders recalled the green potential of vigorous enforcement of State aid control, which preserves the level playing field and rewards lean, innovative and resource-efficient companies.

5. Contributions received outside the formal consultation context

The Commission services have been available to meet stakeholders during the period of the revision (2020-2021). In particular, the Commission regularly met sector representatives and companies affected by the initiative who provided arguments in favour of their eligibility and design features of support schemes, as well as Member States to take into account their experience with support schemes. All presentations and supporting studies provided in these occasions were taken into account in the context of the revision.

Most of these materials are either confidential or publicly available. When this is not the case, interested parties may request access to such documents to the European Commission.

6. Use of the information gathered

The results of the public consultations allowed the Commission to collect a very significant number of views and opinions on the initiative. This may not be representative at statistical level, due to the relatively small number of answers from some categories of stakeholders, but it is significant in terms of quality.

ANNEX 3 WHO IS AFFECTED AND HOW?

1. Practical implications of the initiative

The costs and benefits of the preferred set of options (options xx) will be assessed compared to the baseline options and along two axes: avoiding competition distortions and having a positive environmental impact (Green Deal). The initiative will mainly impact European citizens, European undertakings, Member States (and EFTA states) and third countries.

1.1. European citizens

The revised guidelines should help to reduce both the physical and financial consequences of climate change and other environmental degradation, and help to minimise the costs of support to mitigate this. European citizens should also benefit from better functioning markets, in particular for energy and environmental services, as a result of the revised guidelines.

1.2. European undertakings (including SMEs)

The fact that not all Member States grant State aid to all relevant sectors and technologies may impact the level playing field within sectors and thus risks distorting competition. Moreover, inter-sector competition between companies active in sectors producing substitutable products might be distorted by the measure. By keeping the aid targeted and limited to the minimum necessary, those risks are minimised.

1.3. Member States

Member States and European Free Trade Association (EFTA) states will have to take into consideration the updated rules in the revised CEEAG, in order to update their State aid schemes. Public authorities will have to comply with the information obligations stemming from policy options on sector eligibility, aid amount and conditionality. However, the initiative is not expected to create significant additional administrative burdens on authorities since the process remains the same as under previous Guidelines. Additional administrative costs may still arise, compared to the baseline option, as the revised EEAG may introduce new safeguards against competition distortions. The other administrative costs are not expected to vary significantly, as the revised EEAG do not introduce any significant change in the application, reporting and monitoring processes. As regards the administrative burden linked to the obligation to notify to the Commission the new or updated schemes, this is an intrinsic feature of State aid control present in all options.

The revised EEAG will affect Member States' budgets allocated for State aid. However, it should be made clear that Member States (and EFTA States) have the choice whether to implement a support scheme, the revised guidelines do not introduce any mandatory costs.

The revised guidelines will benefit Member States (and EFTA States) because they improve clarity and uniformity about the way national State aid schemes should be designed, and are updated to provide necessary visibility as to the State aid assessment for recently emerged and emerging aid designs and technologies.

1.4. Third countries

Third countries will be indirectly impacted. The initiative has also a positive impact on the environment in third countries, which would be relevant for overreaching the EU objectives under the Paris Agreement.

2. Summary of costs and benefits

For the preferred set of options, the tables below presents the benefits (Table I) and costs (Table II) that have been identified and assessed during the impact assessment process. Estimates are relative to the baseline for the preferred option as a whole.

I. Overview of Benefits/Advantages				
	Benefits for society/economy	**Benefits for environment**	**Benefits for public administration**	**Benefits for companies**
Differentiation or harmonisation of rules per category of aid – Preferred option				
Option A1 **Partial harmonization according to sectoral characteristics**	Highest cost-effectiveness: Encouragement of pro-competitive schemes and more competition between technologies within a single scheme (non-quantifiable)	NA	- No duplication of rules and shorter State aid guidelines - Future-proof: accommodating to financial and technology innovation (both non-quantifiable)	Harmonized approach beneficial for companies, in particular for SMEs and demand-side market participants, as well as market participants and equipment suppliers who have an interest in innovative technologies. (non-quantifiable)
Facilitation of the award of aid and related safeguards – Preferred option				
Option B2 **Facilitation with safeguards**	~€32 billion of aid (2022-2030) benefits from more flexible and cost-effective compatibility conditions, enabling more eligible costs to be covered	~41 million tonnes of CO_2 avoided	Administrative simplification: - 20-50 notifications less up to 2030 thanks to block exemptions; - ~43 notified measures less	Administrative simplification: - 20-50 notifications less up to 2030 thanks to block exemptions; - ~43 notified

	through both investment and operating aid.		thanks to fewer individual notifications Better State aid decisions thanks to public consultation and lower risk for appeal	measures less thanks to fewer individual notifications Public consultation: - more legal certainty thanks to better decisions - competitors' input taken on board SMEs benefit from facilitation of aid to energy efficiency and increased notification thresholds
Aid award through administrative rules or through competitive bidding – Preferred option				
Option C3 **Multi-technology competitive bidding unless justified**	1% cost-effectiveness gain possible	~37.5 million tonnes of CO_2 avoided	Neutral impact on administrative burden authorities	NA
Approach to fossil fuels – Preferred option				
Option D1 **Fuel type**	Supporting phase out of most polluting fossil fuels (oil, coal, lignite)	Positive environmental impact: most polluting fossil fuels result in about twice the GHG emissions from natural gas	Administrative simplicity: easy to understand rule	Administrative simplicity: easy to understand rule, in particular reducing complexity for SMEs
EIUs –Preferred option				

Option E1 **Sector list**	Broader protection against relocation and carbon leakage Stronger incentives for EIUs decarbonisation Lower budget	Broader protection against carbon leakage Stronger incentives for EIUs decarbonisation Encourages development of carbon-free electricity generation	Increased policy coherence Lower budget	Broader protection against relocation and carbon leakage Neutral impact on SMEs

II. Overview of Costs/Disadvantages				
	Costs for society/economy	**Costs for environment**	**Costs for public administration**	**Costs for companies**
Option A1 **Partial harmonization according to sectoral characteristics**	NA	NA	NA	Stakeholder concerns that combined measures for RES and other GHG reduction measures might result in lower incentives to invest in RES (non-quantifiable)
Option B2 **Facilitation with safeguards**	NA	NA	Quantification of environmental protection cost: - increases the administrative burden - conservative cost estimate of €100 000 per scheme with over €150 million of aid annually Public consultation:	NA

			- increases the administrative burden (non-quantifiable, although not estimated to be significant)	
Option C3 **Multi-technology competitive bidding unless justified**	NA	NA	Neutral impact on administrative burden public authorities	Higher administrative burden on companies; in case of SMEs mitigated by tendering exemptions for small projects and more lenient pre-qualification for participation in tendering
Option D1 **Fuel type**	No phase out of all fossil fuels (natural gas) in near future	State aid still allowed for some fossil fuel assets for a limited period	NA	NA
Option E1 **Sector list**	NA	NA	NA	Introduction of environmental conditionalities

ANNEX 4 ANALYTICAL METHODS

This impact assessment employs a variety of analytical methods, from quantitative and semi-quantitative cost-benefit analyses, to multi-criteria analyses, depending on the relevant issue.

To assess the benefits of allowing both investment aid and operating aid for all GHG reduction measures, the support study examined the impact that the form of aid had on a representative sample of renewable energy and CHP case studies, supplemented by interviews with market participants.

To assess the impacts of using a funding gap approach to awarding aid for all GHG reduction measures, the support study modelled the effects that the aid amount (fixed aid intensity vs. funding gap) would have on three hypothetical industrial decarbonisation support schemes for steel, cement, and ammonia.

To assess the benefits of quantifying the estimated cost of expected GHG reductions, the support study performed a literature review and a backward-looking evaluation of the carbon mitigation costs of a sample of PV, wind, energy efficiency and CHP case studies.

To assess the benefits of the options concerning competitive bidding, the support study performed: i) a literature review; ii) an estimation of the cost-effectiveness of subsidy schemes involving tendering; iii) a dynamic and static counterfactual simulation analysis comparing technology-specific and multi-technology tenders, and identifying the potential savings of merging multiple support schemes for different technologies into a single scheme in which projects are selected based on a harmonised €/tCO_2 selection criterion.

To assess the benefits of the options concerning EIUs, the support study performed a literature review and then quantitatively assessed: i) whether the economic parameters currently used by the EEAG Guidelines 2014 to determine the eligibility of sectors for exemptions from decarbonisation levies for EIUs are the most relevant parameters for the risk of relocation from an economic perspective; ii) the extent to which the profitability of EIUs is affected by different levels of RES and CHP levies on electricity, for a sample of 10 sectors.

For the consultation of stakeholders, the Commission used a combination of questionnaires, meetings with interested stakeholders, conferences, public consultations and working groups with Member States, to ensure a transparent and comprehensive methodology on the assessment of the data collected as regards the EEAG revision.

ANNEX 5 CHANGES THAT FALL OUTSIDE THE SCOPE OF THIS IMPACT ASSESSMENT

In this annex we examine the various cross-cutting issues that are relevant for the policy options set out in Sections 5.3 to 5.5 (policy options B, C and D) and issues relating to the delineation between the CEEAG and the revised GBER, for each of the following categories of aid that fall outside the scope of this Impact Assessment:

- Aid for resource efficiency and for supporting the transition towards a circular economy
- Aid to for the prevention or the reduction of pollution other than from GHGs
- Aid for the remediation of environmental damage, the rehabilitation of natural habitats and ecosystems, the protection or restoration of biodiversity and the implementation of nature-based solutions for climate change adaptation and mitigation

The cross-cutting issues addressed in this annex are:

- The forms of aid available (operating aid and/or investment aid) (policy options B)
- The choice of methods for determining the aid amount (competitive bidding, funding gap and/or aid intensity) (policy options B)
- As regards the delineation with the GBER (block-exemption rules): the notification thresholds and whether any specific individual notifications are foreseen
- Whether or not cost-effectiveness and transparency safeguards are required (quantification of environmental protection cost, mandatory public consultation) (policy options B)
- Whether or not competitive bidding is required (policy options C)
- The approach taken towards fossil fuels (policy options D)

The impacts of exempting certain technologies from the general GHG rules (policy options A, B and C) are examined in ANNEX 10. This covers the following categories of aid:

- Aid for the improvement of the energy and environmental performance of buildings
- Aid for the acquisition and leasing of clean vehicles and for the retrofitting of vehicles
- Aid for the deployment of recharging or refuelling infrastructure for clean vehicles

For these three categories of aid we therefore focus in this annex on the impacts of the policy options regarding fossil fuels (policy options D).

The main feedback received from stakeholders during the two public consultations is also presented.

1) Aid for the improvement of the energy and environmental performance of buildings

Aid for energy efficiency measures in buildings is currently covered by Section 3.4 of the EEAG and Articles 38 and 39 of the GBER. Article 39 GBER only covers energy efficiency measures in buildings, whereas the scope of Article 38 GBER and Section 3.4 EEAG is broader, e.g. they also cover energy efficiency improvements in industrial processes. While Article 38 GBER covers aid granted directly to the final beneficiaries (the building owners), Article 39 GBER covers aid granted via energy efficiency funds or other financial intermediaries.

The future CEEAG would for the first time include a dedicated section on aid for the improvement of the energy and environmental performance of buildings. Under this section, Member States could support combined investments in the energy or environmental

performance of the building, including not only energy efficiency measures but also e.g. on-site installations for the generation or storage of renewable energy. Another facilitation would be the possibility for Member States to consider eligible for aid all costs directly linked to the environmental objective, without having to deduct the cost of the less energy-efficient investment that would be carried out without the aid, as required by the current rules. Other provisions would be inserted to incentivise deep renovations, namely the requirement that the aid must induce a minimum level of energy savings and a higher aid intensity for measures inducing a significant level of energy savings. Furthermore, the section would for the first time include rules on aid granted to energy service companies (ESCOs), i.e. companies that provide energy performance improvement measures to building owners under energy performance contracts. The changes proposed for the future GBER mirror those of the CEEAG. However, in the GBER the changes would be circumscribed to selected categories of buildings, for which the aid is less likely to result in significant distortions (e.g. residential and public administration buildings).

Form of aid: This category of aid primarily targets investment aid, but operating costs could also be covered as under the funding gap or competitive bidding aid award mechanisms aid applicants request or bid for the amount of aid necessary to make the project/activity financially viable, thus possibly covering both capex and opex projections.

Determination of the aid amount: The default aid award method would be on the basis of aid intensities. The funding gap approach and competitive bidding would also be available as an alternative aid award method, alongside the funding gap method.

Block exemption: For investment aid for energy efficiency measures, the default threshold of EUR 20 million per undertaking per investment project would apply (also for combined improvements of the energy and environmental performance of certain categories of buildings and for aid to energy service companies (ESCOs). For investment aid for energy efficiency projects in buildings in the form of financial instruments, the following notification thresholds would apply: EUR 20 million per undertaking per investment project (default threshold), EUR 30 million per project for aid for combined improvements of the energy and environmental performance of certain categories of buildings, EUR 20 million (nominal amount) per project at the level of the beneficiaries for loans or guarantees granted by financial intermediaries and EUR 30 million (nominal amount) per project at the level of the beneficiaries for loans or guarantees granted by financial intermediaries to support combined investments in certain categories of buildings.

Individual notifications: There would be no specific provision on individual notification.

Safeguards (quantification of environmental protection cost, mandatory public consultation): Aid beneficiaries would be required to quantify the environmental benefits of the measure in terms of energy savings. There would not be any public consultation requirement. There would therefore be no significant change compared to the rules in place for such aid.

Competitive bidding requirement: Competitive bidding would be an alternative aid award method to the default approach based on aid intensities. Member States would have to apply the general provisions of the CEEAG on competitive bidding.

Approach to fossil fuels: Many of the investments in improving the energy performance of buildings targeted by this category of aid have a direct effects on GHG emissions reductions. This is the case when aid is granted to support the replacement of heating and cooling equipment in buildings, in particular to support the switch from equipment using fossil fuels to equipment using electricity or renewable energies. It is therefore foreseen to limit the

possibility of aid for investments into energy-efficient energy using on the most polluting fossil fuels, but nevertheless allowing for the phasing-out of certain fuel technologies (e.g. natural gas) as a means of transitioning towards cleaner technologies. In this respect, Option D1 (fuel type) enables to support the achievement of the targets set out in sectoral legislation (Energy Performance in Buildings Directive) while limiting the possibility of aid for energy equipment that uses the most polluting fossil fuels.

Stakeholder views: During the second open public consultation on the draft CEEAG, a total of 80 respondents provided feedback on the draft provisions on aid for the improvement of the energy and environmental performance of buildings. At least a quarter of the respondents commented on the necessity to lower the required reduction (as compared to the situation prior to the investment) in primary energy demand for aid to be eligible in case of renovation of existing buildings, and asked to extend the period granted in case of individual or partial renovations to reach the reduction in primary energy demand. It was also suggested that in case of new buildings the percentage of energy demand reduction required should be adapted to the current national thresholds set for nearly zero-energy buildings, in order for the latter to remain economically feasible. Additionally, many respondents proposed to extend the time limit placed on staged renovations. A few respondents called for higher aid intensities, especially in case of aid for the renovation of buildings owned by landlords and private owners, or in the social housing sector, or again when the use of renewable energy sources is ensured. On the scope of the aid, some respondents suggested to insert a clear reference to the possibility of improving the energy efficiency of buildings by acting on their thermal mass; others suggested that renovation in the field of social housing should be exempted from the Guidelines as aid investment in this sector would contribute to the provision of services of general interest. A number of respondents raised concerns on the potential distortion of competition that could result from the different maximum aid intensities applicable to SMEs and large enterprises; moreover, a few contributors pointed to the need to allow the granting of aid to ESCOs to facilitate energy performance contracting, irrespective of their size. Finally, some respondents advocated for the need to allow for aid to merely meet Union standards or to include the possibility to support investments until a moment close to the entry into force of future Union standards.

This category of aid shares with the other types of aid aimed at the reduction of GHG emissions the policy issues of competitive bidding and the question of the approach to fossil fuels. Another policy issue, which is however specific to this category of aid, is the incentive effect in the case of aid to achieve EU standards before their entry into force. The policy options relating to the competitive bidding requirement (policy options C) and the treatment of fossils fuels (policy options D) apply for this category of aid, subject to the exceptions or limitations referred to in Sections 5.2 and 6.4 and further examined in ANNEX 10.

2) Aid for the acquisition and leasing of clean vehicles and for the retrofitting of vehicles

This type of aid is covered by the current EEAG (aid for undertakings going beyond Union standards or increasing environmental protection in the absence of Union standards) and under Article 36 of the GBER on investment aid enabling undertakings to go beyond Union standards for environmental protection or to increase the level of environmental protection in the absence of Union standards.

The main changes in the future CEEAG and revised GBER would be that dedicated provisions are foreseen for this type of aid, focusing on low- and zero-emission vehicles

rather than on vehicles that exceed the applicable Union standards for environmental protection. In line with the level of ambition of the Green Deal and the need to significantly reduce emissions from transport, the environmental merits of projects/activities relating to the acquisition of zero-emission and clean vehicles or the retrofitting of vehicles would be assessed in their own right, taking in to account the specificities of such aid and the possible impacts on the markets concerned.

Form of aid: This category of aid primarily targets investment aid. However, case practice has demonstrated that switching to zero- or low-emission vehicles may reduce the costs of the vehicle, including in terms of maintenance; at the same time, especially for technologies such as hydrogen where the costs of the fuel may be high, it seems appropriate to allow Member States to also cover part of those costs where this is necessary to incentivise the acquisition of zero- or low-emission vehicles rather than a more polluting alternative. These technological developments require an adjustment of the rules determining the eligible costs and a better calibration of the aid amount. To ensure that the aid allows the development of an economic activity while remaining limited to the minimum necessary, it is appropriate to balance any additional flexibility on the form of aid with safeguards to preserve its proportionality.

Determination of the aid amount: Currently, the EEAG allows aid for cleaner vehicles (exceeding the applicable Union standards for environmental protection, where applicable) up to 100% of the eligible costs when aid is granted in the context of a competitive bidding process. The default aid award method would be on the basis of competitive bidding, with certain justified exceptions possible. In the absence of competitive bidding, alternative, simplified methods to determine the aid would apply (aid intensities or funding gap), with additional safeguards where necessary.

Block exemption: Currently, aid can be granted under Article 36 GBER up to EUR 15 million per undertaking per investment projects. As part of the GBER revision, it is foreseen to apply the general notification threshold of EUR 20 million per undertaking per investment project.

Individual notifications: There would be no specific provision on individual notification.

Safeguards (quantification of environmental protection cost, mandatory public consultation): Projects may be compared and selected on the basis of the expected benefits in terms of reduced GHG emission compared to the level of emissions of a comparable but less environmentally friendly vehicle. However, in the absence of case practice on this, it seems appropriate to leave sufficient scope for Member States to take into account other important aspects in the selection of projects and allocation of aid, such as the environmental impacts linked to the end-of-life management of the vehicle or other lifecycle considerations. There would not be any public consultation requirement. There would therefore be no significant change compared to the rules in place for such aid.

Competitive bidding requirement: Competitive bidding would be the default aid award method, with certain exceptions being foreseen for certain specific types of projects/activities or in certain situations, where the risks of competition distortions are lower. The main policy issues linked to the general approach on decarbonisation therefore relate to the extent and nature of these facilitations (or exemptions from the competitive bidding requirement), taking into consideration the expected impacts in terms of administrative burden for companies and simplification for public administrations in Member States.

Approach to fossil fuels: As this category of aid is directly related to the objective of reducing GHG emissions, the policy options examined in this report regarding the treatment of fossil fuels also apply to the aid for the acquisition and leasing of clean vehicles and for the

retrofitting of vehicles. It is therefore foreseen to limit the possibility of aid for new projects for investments into vehicles running on the most polluting fossil fuels, but nevertheless allowing for the phasing-out of certain fuel technologies (e.g. natural gas) as a means of transitioning towards cleaner technologies. In this respect, Option D1 (fuel type) enables to support the achievement of the targets set out in sectoral legislation (Alternative Fuel Infrastructure Regulation, ReFuelEU Aviation, FuelEU Maritime) while limiting the possibility of aid for vehicles that use the most polluting fossil fuels.

Stakeholder views: For the second open public consultation on the draft CEEAG, a total of 120 respondents (public authorities, NGOs, associations, companies and citizens) provided feedback regarding the proposed provisions on aid for clean mobility. A number of contributors called for the application of a more technology-neutral approach both as regards vehicles and the respective infrastructure, while others considered that only zero-emission solutions should be eligible for aid, especially in the road transport. Certain respondents called for the consistent use of a life-cycle or well-to-wheel approach to assess the level of vehicle emissions. The proposed approach to fossil fuels was among the areas which received the most attention. More than 10 respondents (most of which associations and companies) considered that the potential of natural gas to contribute to the reduction of CO_2 emissions in the transport sector is underestimated, and took the view that aid for CNG and LNG vehicles and infrastructure should not be regarded as locking-in these technologies or discouraging investments in cleaner solutions. An approximately equal number of respondents considered however that investments into gas vehicles and infrastructure should not be eligible for aid or the latter should be made conditional upon stricter requirements. Mixed views were also expressed with regard to the possibility for Member States to demonstrate the absence of lock-in effects. In relation to the eligible technologies, several respondents called for the inclusion in the scope of the CEEAG of provisions on aid for the production and/or use of low-carbon fuels and for the deployment of the necessary infrastructure for their supply. Many respondents also called for a simplification of the rules, in particular as concerns the proportionality of the aid for vehicles and infrastructure, and for demonstrating the necessity of aid for recharging and refuelling stations.

The policy options relating to the competitive bidding requirement (policy options C) and the treatment of fossils fuels (policy options D) apply for this category of aid in the same way as for the other topics examined in this report, subject to the exceptions or limitations referred to in Sections 5.2 and 6.4 and further examined in ANNEX 10.

3) Aid for the deployment of recharging or refuelling infrastructure for clean vehicles

This type of aid is not covered by the current EEAG and is currently only partly covered under Article 36 of the GBER on investment aid enabling undertakings to go beyond Union standards for environmental protection or to increase the level of environmental protection in the absence of Union standards[115]. For this reason, so far the Commission has approved aid

[115] For a project to be eligible under Article 36 GBER, the aid must be instrumental in reducing the impact that the beneficiary's own activities have on the environment. The infrastructure must therefore be directly related to the exercise of the beneficiary's activities and necessary to achieve an increased level of environmental protection (through the use of zero- or low-emission vehicles in carrying out its activities) compared to the

for the deployment of recharging and refuelling infrastructure for transport purposes under Article 107(3)(c) TFEU directly.

The Green Deal underlined the need to ramp-up the deployment of sustainable alternative transport fuels, including by rolling out by 2025 about 1 million public recharging and refuelling stations to facilitate the operation of the 13 million zero- and low-emission vehicles that are expected to run on European roads by then. On that basis, the Commission recently put forward a proposal for the Alternative Fuel Infrastructure Regulation, to support the development of a comprehensive network of alternative fuels infrastructure in the Union for all transport modes[116]. Given the anticipated significant increase in Member States' expenditure for clean mobility, it appears appropriate to provide for specific provisions for this category of aid as part of the revision of the EEAG, with a view to increasing the level of legal certainty and predictability of the Commission's assessment. The coverage of the provisions in terms of technologies is entirely based on Commission initiatives in the area of clean mobility, such as the Alternative Fuel Infrastructure Regulation[117], ReFuelEU Aviation[118] and FuelEU Maritime[119].

Form of aid: This category of aid primarily targets investment aid. However, there may be circumstances where in the absence of aid covering part of operating costs, the investment would not take place. To ensure that the aid allows the development of an economic activity while remaining limited to the minimum necessary, it is appropriate to balance any additional flexibility on the form of aid with safeguards to preserve its proportionality. These could include allowing aid covering operating costs when aid is granted following a competitive bidding process or when alternative safeguards are in place.

Determination of the aid amount: The evaluation conducted as part of the Fitness Check found that the majority of measures approved by the Commission at that time entailed the granting of aid through a bidding process, while other methods to ensure proportionality of the aid were also used (e.g., administrative setting of the aid)[120]. The evaluation also shown that the level of aid granted varied significantly (between 20% and 100%). Taking into account the results of the evaluation, and the significantly different market situation across the EU, it seems appropriate to codify the case practice by proposing competitive bidding as the default aid award method, with a number of exceptions possible. In the absence of competitive bidding, the aid would be based on the other possible methods presented in the Guidelines (funding gap analysis or aid intensities), with alternative safeguards where necessary.

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situation in the absence of the aid. As a result, Article 36 GBER does not cover aid for the deployment of publicly accessible infrastructure.

[116] COM(2021) 559 final.

[117] *Ibid.*

[118] COM(2021)561 final.

[119] COM(2021) 562 final.

[120] SWD(2020) 257 final, p. 101.

Block exemption: Following a targeted revision of the GBER[121], a new category of aid was introduced in the GBER (investment aid for publicly accessible recharging or refuelling infrastructure for zero and low emission road vehicles), covering aid up to EUR 15 million per undertaking per project and, in the case of schemes, an average annual budget of up to EUR 150 million. Adjustments in the threshold for the level of aid per undertaking per project may be needed to bring it in line with the general notification threshold of EUR 20 million per undertaking per investment project.

Individual notifications: There would be no specific provision on individual notification.

Safeguards (quantification of environmental protection cost, mandatory public consultation): Aid beneficiaries would not be required to quantify the environmental protection costs to avoid the risk of double counting of the benefits linked to the acquisition and retrofitting of vehicles. As concerns the public consultation requirement, public consultations in this area may constitute an appropriate way to establish the necessity of the aid and test the market interest in developing the same activity without public support.

Competitive bidding requirement: As indicated above, competitive bidding would be the default aid award method, with exceptions being foreseen for certain specific types of projects/activities or in certain situations, where the risks of competition distortions are lower.

Approach to fossil fuels: Considering that this category of aid is inherently linked to the objective of reducing GHG emissions, the considerations explained in this impact assessment as regards the treatment of fossil fuels also apply to the area of recharging and refuelling infrastructure. This would imply limiting the possibility of aid for new projects involving the supply of energy based on the most polluting fossil fuels, while allowing aid for necessary transition projects. Option D1 allows alignment with sectoral legislation (Alternative Fuel Infrastructure Regulation, ReFuelEU Aviation, FuelEU Maritime) by limiting the possibility of aid for new projects based on the most polluting fossil fuels, while allowing aid for necessary transition projects.

[121] Commission Regulation (EU) 2021/1237 of 23 July 2021 amending Regulation (EU) No 651/2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty (OJ L 270, 29.7.2021, p. 39).

Stakeholder views: The volume of responses received on this topic was very high and the view were relatively polarised (more lenient or more stringent on fossil fuels). The type of projects/activities (technologies and transport modes) that should be covered, the level of comparative incentivisation of renewable fuels v fossil-based fuels, the possibility to support fossil fuels fully, on a phasing-out basis or not at all. Many respondents also criticised the introduction of competitive bidding (with a few respondents nevertheless welcoming it) and requested more flexible arrangement or specific derogations from the competitive bidding requirement. A number of respondents, including a few Member States, took the view that competitive bidding should not be the general rule for ensuring the proportionality of the aid, but rather one option among others (funding gap and/or aid intensities). According to the respondents, competitive bidding would be particularly burdensome for public transport operators and in the aviation sector. Other respondents, however, considered positively the competitive bidding requirement, in light of the potential benefits in terms of market access, fair competition and quality of the supported projects. According to some respondents, the exceptions to the competitive bidding requirement should be further clarified. In the absence of competitive bidding, the maximum aid intensities would need to be increased and the list of eligible costs for recharging and refuelling infrastructure extended. Regarding the proposed requirement to demonstrate the necessity of the aid by way of an *ex ante* public consultation or a market study, a number of Member States took the view that it would increase the administrative burden and unduly delay the roll-out of recharging and refuelling infrastructure. By contrast, a few contributors (mostly companies) welcomed the provision.

The major policy choices regarding aid for recharging or refuelling infrastructure for clean vehicles concern the two issues of treatment of fossil fuels (which also determines the coverage of the rules in terms of technologies and transport modes) and the application of the competitive bidding requirement (and possible exceptions or derogations for certain projects/activities or in certain situations). While the former policy choice is guided by the same considerations explained in Sections 7.4 and 8.4 of this impact assessment, the latter is significantly limited by case practice. The policy options relating to the competitive bidding requirement (policy options C) and the treatment of fossils fuels (policy options D) apply for this category of aid, subject to the exceptions or limitations referred to in Sections 5.2 and 6.4 and further examined in ANNEX 10.

4) Aid for resource efficiency and for supporting the transition towards a circular economy

This category of aid is currently covered by the rules of Section 3.5 of the EEAG on aid for resource efficiency and in particular aid to waste management and by Article 47 of the GBER on investment aid for waste recycling and re-utilisation.

The main changes in the CEEAG and revised GBER foreseen compared to the current EEAG and GBER concern the inclusion of resource efficiency and the inclusion of aid for the prevention, recycling or re-use of own waste, and a broadening to recovery and to other products materials or substances.

Form of aid: This category of aid primarily targets investment aid but operating is also available, in particular, under certain specific conditions, for aid for the separate collection and sorting of waste in relation to specific waste streams or types of waste.

Determination of the aid amount: The default aid award method would be on the basis of aid intensities. Competitive bidding would also be available as an alternative aid award method, alongside the funding gap method.

Block exemption: It is foreseen to apply the general notification threshold of EUR 20 million per undertaking per investment project.

Individual notifications: There would be no specific provision on individual notification.

Safeguards (quantification of environmental protection cost, mandatory public consultation): Aid beneficiaries would be required to quantify the environmental protection costs through a counterfactual scenario approach. There would not be any public consultation requirement. There would therefore be no significant change compared to the rules in place for such aid in the current EEAG.

Competitive bidding requirement: Competitive bidding would be an alternative aid award method to the default approach based on aid intensities. Member States would have to apply the general provisions of the CEEAG on competitive bidding.

Approach to fossil fuels: The issue of fossil fuel use is not particularly relevant for this category of aid (with the exception of the replacement of fossil-based feedstock or materials with recycled or bio-based ones). The questions that are relevant under policy options D therefore do not apply.

Stakeholder views: The views from stakeholders (during the second open public consultation) mainly concerned request for a broadening of the types of projects/activities that can be supported under the provisions on resources efficiency and waste management, calls for higher aid possibilities and suggestions for improvements to the coverage of the provisions. Several respondents pointed to the need to clarify certain provisions, in particular the definitions. The majority of suggestions are to broaden the scope of the rules or the activities covered. Some respondents indicated that the distinction between investment aid and operating aid should be removed or that the aid intensities should be increased. Several respondents also criticised the compatibility assessment rules and highlighted the need to ensure a level playing field with the secondary materials market or potential problems when applying the conditions on the necessity of aid. Many respondents also indicated that recycling activities should continue to be covered under the rules for exemptions for EIUs.

No major departures from current rules would be foreseen. The envisaged changes to the rules are mainly to adapt to technological changes and evolutions in the market without putting into question the general approach of the current EEAG/GBER.

5) Aid to for the prevention or the reduction of pollution other than from GHGs

This category of aid does not feature explicitly in the current EEAG or GBER. It is covered by the general compatibility provisions of the EEAG and by Articles 36, 37 and 38 of the GBER.

For the CEEAG the provisions for this type of aid would have the same treatment as under the EEAG, but being grouped according to their aim instead of by instrument. There are no provisions on this type of aid the (revised) GBER.

Form of aid: This category of aid is targeted at the net extra costs of investments that enable undertakings to go beyond Union standards for environmental protection, to increase the level

of environmental protection in the absence of Union standards or to comply with Union standards that are not yet in force. Aid in the form of tradeable permits is also covered[122]. As such, there is therefore no major departure foreseen from the current EEAG and GBER rules and the impacts of the new compared to the baseline which correspond to the prolongation of the current EEAG/GBER rules.

Determination of the aid amount: The default aid award method would be on the basis of aid intensities. Competitive bidding would also be available as an alternative aid award method, alongside the funding gap method.

Block exemption: It is foreseen to apply the general notification threshold of EUR 20 million per undertaking per investment project.

Individual notifications: There would be no specific provision on individual notification.

Safeguards (quantification of environmental protection cost, mandatory public consultation): Aid beneficiaries would be required to quantify the environmental protection costs through a counterfactual scenario approach. There would not be any public consultation requirement. There would therefore be no significant change compared to the rules in place for such aid in the current EEAG.

Competitive bidding requirement: Competitive bidding would be an alternative aid award method to the default approach based on aid intensities. Member States would have to apply the general provisions of the CEEAG on competitive bidding.

Approach to fossil fuels: It is not foreseen to impose any specific requirements regarding the use of fossil fuels in relation to this category of aid. The questions that are relevant under policy options D therefore do not apply.

Stakeholder views: The number of responses on this topics was very limited. During the second consultation, the main focus was on the scope and supported activities (considered too narrow). Respondents also pointed to the interactions with aid for the reduction of GHG emissions, suggesting that where a measure aims at reducing both GHG emissions and emissions of other pollutants, the compatibility assessment should take into account both objectives. Several respondents called for clarifications on the application of the incentive effect requirement where the aid concerns an area where there are binding national standards that are stricter than EU standards, or where aid is granted to comply with EU standards not yet in force. Some respondents suggested that public consultations should be foreseen for all types of aid, as this could contribute to speeding up the pre-notification and notification procedures.

Overall, the CEEAG and revised GBER do not foresee any major changes to the current framework for this type of aid. There are therefore no major policy choices involved.

6) Aid for the remediation of environmental damage, the rehabilitation of natural habitats and ecosystems, the protection or restoration of biodiversity and the

[122] Tradable permits can involve State aid, in particular when Member States grant permits and allowances below their market value.

implementation of nature-based solutions for climate change adaptation and mitigation

This category of aid partly features in the current EEAG and GBER. It is partly covered by Sections 3.10 and 3.11 of the EEAG (aid in the form of tradable permits schemes and aid for the relocation of undertakings) and by Article 45 of the current GBER (investment aid for remediation of contaminated sites).

The main changes in the CEEAG and revised GBER foreseen compared to the current EEAG and GBER concern a broadening of the scope to include remediation of environmental damage, rehabilitation of natural habitats and ecosystems, protection and restoration of biodiversity, nature-based solutions for climate change adaptation.

Form of aid: This type of aid is targeted at compensating the full costs of the remediation, rehabilitation or protection/restoration projects, taking into consideration any possible gains in value of the land or property being decontaminated or restored. The aid therefore primarily targets investment costs, but operating costs may also be covered. There is no major departure from the current rules under the EEAG/GBER.

Determination of the aid amount: The aid amount is set on the basis of aid intensity (which must not exceed 100% of eligible costs). For the remediation of environmental damage or the rehabilitation of natural habitats and ecosystems, the eligible costs are the costs incurred for the remediation or rehabilitation works, less the increase in the value of the land or property. For the protection or restoration of biodiversity and in the implementation of nature-based solutions for climate change adaptation and mitigation, the eligible costs are the total costs of the works resulting in the contribution to protecting or restoring biodiversity or in the implementation of nature-based solutions for climate change adaptation and mitigation. The aid may not exceed 100% of the eligible costs. These are essentially the same rules as in the current EEAG/GBER.

Block exemption: It is foreseen to apply the general notification threshold of EUR 20 million per undertaking per investment project.

Individual notifications: No specific provisions on individual notification are foreseen.

Safeguards (quantification of environmental protection cost, mandatory public consultation): There is no public consultation requirement foreseen, as it is not considered relevant for ensuring increased transparency of the aid (transparency regarding the aided projects themselves would normally be ensured through policy measures not related to State aid such as land-use planning permission and environmental impact assessment procedures).

Competitive bidding requirement: There is no competitive bidding requirement foreseen as the environmental benefits of eligible projects vary considerably and the necessity, incentive effect and proportionality of aid for projects would therefore generally not be assessed on a comparative basis.

Approach to fossil fuels: It is not foreseen to impose any specific requirements regarding the use of fossil fuels in relation to this category of aid. The questions that are relevant under policy options D therefore do not apply.

Stakeholder views: The topics falling under this category of aid elicited rather fewer responses than other categories of aid during both public consultations. Comments during the first open public consultation mainly concerned the negative impacts on biodiversity of forestry and biomass energy or calls for broadening rehabilitation to cover CO_2 mitigation solutions. During the second consultation, only 7 respondents provided feedback on this topic. Overall, the new provisions – and in particular the introduction of the protection and restoration of biodiversity among eligible investments – were positively welcomed.

Overall, it appears that, for none of the cross-cutting issues that are relevant for the policy options under this Impact Assessment, the approaches foreseen for this type/category of aid are particularly at variance with the impacts of the baseline scenario.

ANNEX 6 OPERATING AID, INVESTMENT AID, AID INTENSITIES, AND FUNDING GAP

The distinction between operating and investment aid relates to the question of how the aid is calculated and paid out. If the aid is calculated and paid in function of the production of the company (for example for electricity production per kWh), then it is considered operating aid, while investment aid is calculated and paid out in function of the investment (for example for electricity for the installation of a number of kW of electricity production capacity). Operating aid measures are often very close in effect to investment aid measures, when they are provided to spur investment and formally linked to such an investment, such as often is the case for RES support. In practice, on an ex ante basis and over the lifetime of the investment, the aid amount will correspond to a share of the investment cost. There are, however, situations in which so-called operating aid covers operating expenses beyond investment costs and thus make it possible to operate a given facility (e.g. aid after depreciation for biomass-fired boilers or combined heat and power plants, which covers the ongoing additional costs of operating these facilities in a more environmentally friendly way). Operating aid which covers the normal operating cost of a business is viewed negatively when it merely sustain an economic activity without bringing about new investment, as it affects price formation and distorts competition with respect to other firms and technologies.

In a funding gap approach, in order to calculate the amount of aid needed, all revenues and costs over the lifetime of a project are taken into account, including operating costs and revenues. Aid intensities, on the other hand, limit the aid to a certain percentage (maximum aid intensity) of the eligible costs. These are generally defined as the extra investment cost (compared with a defined counterfactual), i.e. taking into account only up-front cost targeting the objective, and no further cost and revenues over the project lifetime.

ANNEX 7 ASSESSING THE IMPACTS OF THE OPTIONS CONCERNING THE DIFFERENTIATION OR HARMONISATION OF RULES PER CATEGORY OF AID (A)

A summary of this annex can be found in Section 6.1.

1. Methodology

To assess the impacts of the options for how the rules for granting aid should be aligned across different technologies or sectors, a multi-criteria analysis is performed to compare each of the options against the following criteria, which stem directly from the specific objectives pursued: SO1 (alignment with EU policy); SO2 (future proofing); SO3 (minimising market distortions); and SO4 (administrative simplification):

1) **The number of technology-specific groupings of provisions, generally reflected as separate sections or subsections, that the guidelines would have under each option.** This can be considered a negative indicator of the degree of administrative simplification (SO4), as having numerous specific rules tailored to individual approaches often leads to complex interpretation issues, as it has proven impracticable to satisfactorily capture the nuances of the State aid measures that Member States devise *a priori*. It also leads to situations in which State aid notifications and decisions are more complex because multiple different rules may apply to a single scheme.
2) **The number of sections or subsections in which rules are duplicated.** This can be considered a negative indicator of the risk or regulatory inconsistency, and other unintended consequences that may give rise to competition distortions (SO3).
3) **The indicative number of technologies that must be accommodated within the general rules.** This can be considered an indicator of the breadth and flexibility of the general rules, as well as an indicator of their ability to account for future innovation (SO1, SO2). This assumes that the greater the number of *known* technologies/approaches you must accommodate when formulating harmonised rules for decarbonisation, the broader and more able such rules will be to accommodate *unknown* technologies/approaches in the future. By extension, it can be assumed that formulating specific rules for any well-established technology/approach increases the risks that innovation will render these specific rules obsolete in the future.

Each of the criteria are equally weighted. However, as innovation is essential in decoupling growth and consumption from environmental degradation and resource use, the ability of the guidelines to accommodate and foster innovation could be considered the most important of the criteria when considering the results of the analysis.

2. Economic impact

	Option A0: BAU	**Option A0+**: BAU approach extended to new technologies	**Option A1**: Partial harmonisation according to sectoral characteristics	**Option A2**: Partial harmonisation according to EU policies
Number of sections necessary	(-)4	(-)13	(-)6	(-)11
Number of sections with duplicated rules	(-)4	0	0	(-)6
Ability to account for innovation	0	0	+11	+6
Score	**-8**	**-13**	**+5**	**-11**

The EEAG currently consist of one section which sets out general compatibility provisions (Section 3.2), and 3 different, technology-specific sections that deal with individual technologies/approaches for reducing GHG emissions[123]. Innovative schemes and technologies are assessed under the former, where possible, or directly under the TFEU. Assuming that this approach is maintained, then the analysis suggests that **Option A0** would lead to somewhat lengthy guidelines. The presence of some duplicated rules increases the risk of regulatory inconsistency and other unintended consequences. In addition, this is the only option that would require the general compatibility provisions to accommodate some technologies identified as requiring specific rules in Section 5.2[124]. This undermines this option's ability to account for innovation, as attempting to formulate shared compatibility criteria for fundamentally irreconcilable technologies may undermine the general rules that new technologies fall under.

If we maintain a technology-specific specific approach but assume that new sections are created for the 5 indicative technologies included in Table 2 and Table 3 that cannot easily be accommodated under the existing rules[125], the analysis suggests that **Option A0+** would lead to the longest guidelines that would not be able to accommodate technological and financial innovation. The absence of duplicated rules reduces the risk of regulatory inconsistency and other unintended consequences.

Option A1 would lead to shorter guidelines that are most able to accommodate technological and financial innovation, because the general rules would need to be broad and flexible enough to coherently accommodate the 11 distinct technologies in the left column of Table 2. Additional sections would need to be provided for five technologies/approaches for which, in

[123] Section 3.3. Aid to energy from renewable sources; Section 3.4. Energy efficiency measures, including cogeneration and district heating and district cooling; Section 3.6. Aid to CCS.
[124] Clean vehicles, recharging and refuelling infrastructure, energy performance in buildings, and coal closures
[125] CCU, electricity storage, methane emissions reduction, recharging and refuelling infrastructure, and coal closures. In keeping with the current practice, energy performance in buildings would go under the section 3.4 of the EEAG and zero and low emission vehicles under section 3.2.

view of their peculiarities, the general rules are not suitable[126]. The absence of duplicated rules reduces the risk of regulatory inconsistency and other unintended consequences.

Option A2 would lead to lengthy guidelines. This is because specific sections would need to be created for 6 technologies/approaches that can contribute towards the EU's renewable energy and energy efficiency targets[127], as well as four additional sections for technologies/approaches with specific characteristics that cannot be accommodated under the general rules[128]. It would be somewhat able to accommodate technological and financial innovation because the general rules would need to be broad and flexible enough to coherently accommodate the 6 distinct technologies in the centre column of Table 3. However, the presence of some duplicated rules increases the risk of regulatory inconsistency and other unintended consequences

It is not possible to reliably quantify costs or benefits of these options; their direct and indirect influence on aid schemes is too speculative. Nevertheless, aid amounting to around €202 billion was approved under the EEAG between 2014 and 2019. So even very small increases or decreases in the effectiveness and efficiency of aid schemes approved under the future guidelines could result in very significant economic and social impacts. This is particularly true in terms of the extent to which the future rules are able to accommodate and foster technological and financial innovation. The options could also have an impact on the administrative burdens associated with implementing the schemes, as there were 243 measures approved under the EEAG between 2014 and 2019.

National authorities can be expected to most greatly benefit from any administrative simplification the options bring. Market participants and equipment suppliers (in particular those who have an interest in innovative technologies) can be expected to most greatly benefit from any improvements the capacity of the rules to adapt to technological and financial innovations. Stakeholders that may in the past have been negatively impacted by the misalignment of rules for specific technologies/approaches stand to benefit most from a reduction in the number of sections or subsections in which rules are duplicated, as this would create a more level playing field for access to funding that would benefit them. This may include in particular demand-side measures, including energy efficiency and demand response providers, as these have proven to be cost-effective alternatives to other heavily supported GHG reduction technologies. On the other side of the coin, the proposal for a single set of rules for most GHG technologies was criticised by a number of special interest groups. Whereas many sets of individual rules may indeed have better served their narrow interests, the analysis demonstrates that this fragmented approach would not be in the interest of consumers, taxpayer or the environment.

3. Environmental impact

Insofar as the guidelines' ability to accommodate innovation can be assumed to result in more effective environmental protection, the analysis suggests that **Option A1** would lead to the

[126] Clean vehicles, recharging and refuelling infrastructure, energy performance in buildings, district heating and coal closures.
[127] Renewable electricity, renewable heat, renewable gas, energy efficiency (in production processes), and energy performance in buildings.
[128] Namely, clean vehicles, recharging and refuelling infrastructure, district heating and coal closures.

greatest positive environmental impact. Another benefit of A1 compared to A0, A0+ and A2 is that it will encourage a more pro-competitive scheme design by making schemes more modular. For example, it would be easier for Member States to combine CHP and RES and electricity storage in one scheme if the rules are the same. Combining these different competing technologies in the same scheme can be expected to lead to increased competition within the scheme. This may lead to cost savings and therefore to increased environmental benefits as more could be done with a given budget. Regarding the other options analysed, **Option A2** can be expected to lead to greater environmental benefits than **Option A0** or **Option A0+** as the analysis suggests it will be more able to accommodate innovation.

4. Impact on SMEs

The options related to the scope and harmonisation of the provisions in the guidelines are not expected to induce specific additional costs or benefits to SMEs. SMEs in particular may benefit from the reduced complexity of Option A1. More than 90% of construction, architecture, and civil engineering firms are SMEs. In the construction sector in particular, they amount to more than 99% of the firms[129]. Most of those firms are engaged in energy efficiency works. Options A1 and A2 would therefore have important implications for these sectors.

Stakeholder views: Overall, the stakeholders that participated in the public consultation of the draft guidelines welcomed the enlargement of the scope of the guidelines to all the technologies that can deliver the Green Deal and the alignment with EU legislation. However, some of the contributions received, considered the inclusion of measures for renewable energy and for the reduction of GHG emission under a single section as a detrimental approach. In fact, it was suggested that this approach could dis-incentivise investments in renewable energy which would be crucial for the achievement of the climate neutrality objectives.

129 https://ec.europa.eu/growth/sectors/construction_en#:~:text=Up%20to%2095%25%20of%20construction,job%20creation%20in%20this%20sector.

ANNEX 8 ASSESSING THE IMPACTS OF THE OPTIONS CONCERNING FACILITATION AND SAFEGUARDS (B)

A summary of this annex can be found in Section 6.2.

1. Methodology

A semi-quantitative cost-benefit analysis has been performed to compare each of the options. Each of the options examined consists of a combination of measures, the individual impact of which is assessed using the methodologies below.

To assess the benefits of allowing both investment aid and operating aid for all GHG reduction measures, the support study examined the impact that the form of aid had on a representative sample of renewable energy and CHP case studies, supplemented by interviews with market participants[130].

To assess the impacts of using a funding gap approach to awarding aid for all GHG reduction measures, the support study modelled the effects that the aid amount (fixed aid intensity vs. funding gap) would have on three hypothetical industrial decarbonisation support schemes for steel, cement, and ammonia[131].

To assess the benefits of quantifying the estimated cost of expected GHG reductions, the support study performed a literature review and a backward-looking evaluation of the carbon mitigation costs of a sample of PV, wind, energy efficiency and CHP case studies[132].

The speculative nature of the estimates must be stressed, given that Member States, rather than the Commission, decide the actual aid amounts and are subject to various budget constraints,

[130] Support study, pp. 54-67.
[131] Support study, pp. 68-78.
[132] Support study, pp. 54-67.

2. Economic impact

	Option B0: BAU	**Option B1**: More facilitation	**Option B2**: Facilitation with safeguards
Aid form: operating aid (OA) / investment aid (IA)	No change	~€32 billion of aid to 2030 benefits from the possibility to shift to OA or hybrid OA/IA	~€32 billion of aid to 2030 benefits from the possibility to shift to OA or hybrid OA/IA
Aid amount: funding gap (FG) / aid intensity (AI)	No change	~€32 billion of aid to 2030 benefits from additional funding for costs that hitherto could not be covered	~€32 billion of aid to 2030 benefits from additional funding for costs that hitherto could not be covered
Block exemption	No change	A reduction of 20-50 notified measures to 2030	A reduction of 20-50 notified measures to 2030
Individual notifications	No change	A reduction of around 43 notified measures to 2030	A reduction of around 43 notified measures to 2030
Safeguards (quantification of environmental protection cost, and mandatory public consultation)	No change	No change	An additional ~41 million tonnes of CO_2 being saved to 2030 Improvements in scheme design Reductions in competition distortions Modest increases in administrative burdens to firms and public administrations

A balance must be struck between widening support possibilities and ensuring safeguards against undue competition distortions in order to:

- Direct aid where it is needed;
- Limit aid to the amount necessary (to trigger the environmental protection);
- Limit distortions of competition and trade ensuring a level playing field between Member States; and
- Promote cost-effectiveness (minimum cost to the consumer/taxpayer).

Regarding **aid form**, the support study found that, in the field of support for RES production, operating aid is more effective at securing investment than investment aid. This might in part be because the amount of investment aid provided was too low. The distinction between operating and investment aid may be less clear with respect to environmental aid than other sectors, as many projects are capital intensive and therefore various combinations of investment and operating aid can motivate such investments. Both types of aid contribute to the economic feasibility of environmental protection measures, but in different ways. Investment decisions can be influenced by investment aid or operating aid or, in circumstances where both are available, a combination of the two.

In practice, operating aid seems more frequently awarded, while investment aid, under the existing rules (maximum aid intensities), can fail to cover the increased costs of investment. The fact that some new energy investments have had aid levels bid down to zero, suggests that aid for certain RES technologies may be increasingly unnecessary as the market alone may accommodate necessary investments due to decreasing investment costs and increasing demand for renewable energy and, potentially, external support for network costs. Price-based operating aid combined with the low marginal cost PV, wind and hydroelectric generation can have a distortive effect on markets, in some cases causing negative prices. Furthermore, low

or negative market prices may harm investor confidence and could lead to subsidy-driven investment decisions.

The study found that some forms of aid (feed-in tariffs) were more distortive to markets than others (feed-in premiums) as feed-in tariffs completely shield producers from market exposure and responses to market signals. Therefore, policy makers should consider the potential distortive effect of aid when designing price-based operating aid instruments. Other solutions such as the departure from price-based payments to capacity-based payments are also suggested by some researchers.

One finding regarding the impacts of investment and operating aid for different types of technologies was that operating aid for PV generated major fluctuations in investment levels as administratively set operating aid failed to capture the rapidly decreasing investment costs of PV which caused an increase in investment when aid was high, followed by a decrease in investment when support was lowered. Competitively set support levels appear to offer a solution to this problem by offering more accurate cost discovery[133].

Regarding **aid amount**, the support study found, through comparisons between potential schemes for industrial decarbonisation, that using fixed aid intensities suggest that investment aid at about 40% of eligible costs (i.e. extra investment costs) is unlikely to achieve substantial incentives for large and expensive investment unless operating costs fall compared to the traditional technology or government-imposed charges on production are raised. Levels much higher than 40% may be necessary to motivate use of this financing mechanism. A 100% support could negate the problem if operating costs remain unchanged for the new technologies compared to the prior technology.

Another option would consist in providing support for new projects that takes account of the lifetime relation between investment, operating costs and revenues (i.e. a funding gap approach). This mode of support could incentivise investments in new technology but presents however the risk of increasing costs beyond the minimum necessary when granting authorities have asymmetric information on the actual costs and aid amount needed, which may inflate costs in aid applications, and when beneficiaries have ongoing reduced incentives from a lack of external efficiency pressures. These two weaknesses would be offset if granting authorities would have a full understanding of efficient cost levels, e.g. through competitive bidding processes[134].

The proposed measure essentially extends the possibility for Member States to use operating aid and a funding gap approach to projects for energy efficiency, industrial decarbonisation, and CCS, unlocking extra funding for projects in these categories if necessary. In the period 2014-2019, 46 measures approved under the EEAG, amounting to an estimated combined total of €21.5 billion of aid, was allocated to these technologies/approaches i.e. an average of €3.6 billion annually[135]. If we conservatively assume that these funding levels are maintained,

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[133] Support study, pp. 43-77.

[134] Support study, pp. 44, 68-69.

[135] For energy efficiency, 44 measures amounting to an estimated €21.3 billion of aid was approved under the EEAG from 2014 to 2019, i.e. €3.6 billion of aid annually. For industrial decarbonisation, 2 measures amounting to an estimated €98.3 million of aid were approved under the EEAG, in that period, i.e. €16.4 million of aid annually. For CCS, one measure amounting to €66.3 million of aid was approved, i.e. €11.0 million of aid

we would expect around €32.2 billion of aid to benefit from the change to 2030. However, as the measure will unlock funding for costs that hitherto could not be covered, we can expect it to result in the realisation of a broader variety of projects than would be possible at present. Combined with the EU's more ambitious climate targets, we can therefore expect funding levels (and emissions reductions) to increase substantially more.

Regarding **block exemption**, the purpose of the GBER is precisely to relieve Member States of the obligation to notify new aid measures, thereby facilitating the granting of aid. There is administrative burden associated with notifying aid schemes, which notably includes extensive correspondence with the Commission on measure design and commitments, which requires human resources and may delay measures being put in place[136]. Whereas block exemption comes with costs[137], block exempting aid to a greater number of 'routine' GHG reduction measures that are least likely to create market distortions is expected to result in net benefits in light of the EU's increased climate ambitions.

Under Option B1 and Option B2, the notification thresholds will be considerably increased from their current levels. It is estimated that these increases will result in a reduction of cases that Member States will have to notify, despite the broadening of the guidelines.

In the period 2014 to 2019, six measures approved under the EEAG, amounting to a combined total budget of €125 million of aid, would have been eligible for block exemption under the broadened criteria proposed in Options B1 and B2[138]. If we assume that Member States will make use of the increased scope and coverage of the GBER, we would expect approximately 20 to 50 additional measures to be block-exempted to 2030 as a result of broadening the block exemption criteria in the proposed ways (not including measures exempted on the basis of the current thresholds and rules).

Regarding **individual notifications**, 29 measures approved under the EEAG in the period 2014-2019 (25 of which were individual aid measures to wind farm projects), amounting to a combined total expenditure of €20.7 billion of aid, were notified to the Commission in spite of the fact that they were part of a scheme that was already approved by the Commission. None of these measures proved to be problematic because the other compatibility criteria, besides the aid amount above the individual notification threshold, were generally complied with. If the trend continues, we would expect around 43 additional measures to be block-exempted to 2030 as a result of no longer requiring the individual notification of large projects within schemes.

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annually. NB: Some schemes addressed a number of technologies/approaches at the same time, so figures will not tally.

[136] The median duration of procedures for non-block exempted measures was just over 300 days in 2019 (State aid Scoreboard 2020).

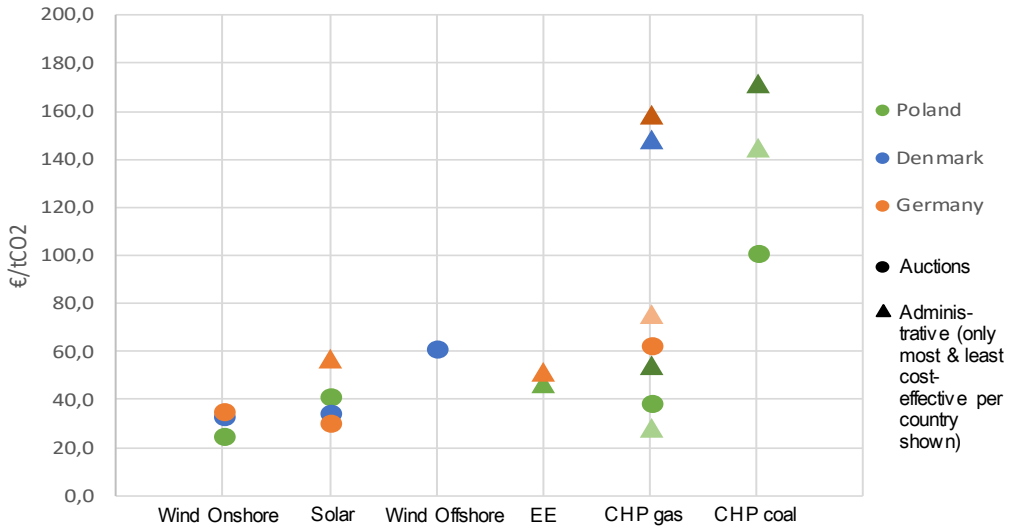
[137] Namely, an increased risk of non-compliance, and reduced legal certainty with block-exempted schemes.

[138] This figure relates to measures for which the expenditure was above the current notification threshold of €15 million and below the proposed new threshold of €20 million and which did not concern the following technology categories: aid for the energy efficiency of buildings (all sub-categories), aid for district heating or cooling systems, aid for energy infrastructure. The data does not however enable to identify the aid per undertaking or per investment project (which is the relevant framework for the proposed increase in the notification threshold).

Regarding the requirement pertaining to the **quantification of environmental protection cost**, this means that, when granting aid designed primarily to reduce GHG emissions, the Member State must provide an estimate of the aid required to reduce emissions for each type of activity proposed for support. This would be expressed in terms of €/tCO_2equivalent abated[139] and would reinforce a requirement already included in the current EEAG but which currently only applies to a limited subset of measures. Member States are increasingly attempting quantifications of avoided carbon emissions (cf. French evaluation[140], proposed Swedish[141] and Irish evaluation plans). In the Dutch SDE++ scheme[142], €/tCO_2 equivalent was used as a selection criterion. Denmark has also proposed it as a selection criterion for its biogas scheme. Indeed, if Member States choose CCfDs as an aid form, this exercise will be unavoidable. Initial feedback from the public consultation was rather positive on the concept, with some concerns voiced by Member States and business as regards the feasibility/difficulty and involved burden.

The support study found large variations in support costs of different approaches to decarbonisation, noting that all the technologies in Figure 5 below are in direct competition in the electricity generation market.

Figure 5: Cost-effectiveness (or carbon mitigation costs) of sampled schemes by technology and country[143]



[139] The principles for the calculation of greenhouse gas emissions reductions as used for the EU Innovation Fund provide a useful point of reference, see: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/innovfund/wp-call/call-annex_c_innovfund-lsc-2020-two-stage_en.pdf.

[140] Artelys, *Évaluation des dispositifs de soutien aux énergies renouvelables électriques*, 2020. The study evaluates the results of French RES-E tenders launched between 2016 and 2020 and proposes to measure the cost effectiveness of the scheme in terms of the cost for the government (€ of aid) per tonne of CO_2 abated (€/tCO_2).

[141] Riskrevisionen, *Klimatklivet – stöd till lokala klimatinvesteringar* (SA.49001), 2019. The scheme provides a direct grant according to a 'climate benefit' ratio equal to the amount of emission reductions per invested Swedish krona.

[142] See Commission decision C(2020) 8773 final of 14 December 2020 in case State Aid SA.53525 (2020/N) – The Netherlands SDE++ scheme for greenhouse gas reduction projects including renewable energy.

[143] Support study, p. 32.

As well as finding that CHP was generally a much more expensive way to decarbonise than renewables, the support study also found that in some cases (oil-and coal-fired plants, but also gas-fired in Denmark), CHP support may not lead to any emissions reductions if the supported CHP displaces some biomass-fired heat, or if coal is phased out more quickly than anticipated in the underlying scenario[144].

For CHP (the least cost-effective decarbonisation technology examined), 48 measures amounting to an estimated €22.0 billion of aid were approved under the EEAG from 2014 to 2019, i.e. €3.8 billion of aid annually. If we conservatively assume that:

i. average annual aid expenditure to CHP would remain unchanged in the 9 years from 2022 to 2030 under a BAU scenario;
ii. CHP technologies have a cost-effectiveness of €70/tCO_2 throughout this period;
iii. quantifying the environmental protection cost leads to just 3% of the public funds that would have been spent on CHP being spent on more cost-efficient technologies such as RES and energy efficiency throughout this period under a BAU scenario[145];
iv. these alternative technologies have a representative cost-effectiveness of €45/tCO_2 throughout this period[146];

…then quantifying the estimated cost of expected GHG reductions would result in the aid granted under the revised guidelines to 2030 leading to the equivalent of an additional 41 million tonnes of CO_2 being saved.

Quantifying the estimated cost of expected GHG reductions will initially involve a cost for public administrations, as they will need to make a complex estimate taking into account the evolution of the electricity mix. However, the consultants that undertook the support study estimated this for three Member States and for six technologies. This was a small fraction of the overall work on the study, which had a budget of just under €300 000. We therefore estimate this cost to be below €100 000 per Member State – a very small sum compared to the estimated €8.1 billion that each Member State is anticipated to spend on average on support for GHG emissions reduction to 2030[147]. In addition, we expect that if this requirement is implemented then these estimates will become more standardised as experience is developed, reducing costs further.

The second safeguard is requiring a mandatory **public consultation** of at least 8 weeks for schemes in which Member States anticipate granting over €150 million of aid per year. This would be a new requirement compared to the current EEAG. In the recent past, Member States have consulted stakeholders more and more on large support schemes out of their own accord, and feedback from the public consultation on the EEAG revision on this proposal is rather positive, although Member States are more cautious. For schemes involving a lower budget, no consultation would be required, unless the measures involve support to projects involving new investments based on fossil fuels, in which case a minimum 4 week consultation would be required.

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[144] Support study, pp. 40-41.
[145] A conservative estimate based on the support study finding that CHP was generally a much more expensive way to decarbonise than renewables, and that CHP support in some cases may not lead to any emissions reductions at all. Support study pp. 31-34.
[146] Based on the results set out in Figure 5 in ANNEX 7.
[147] Assuming average annual spending from 2014 to 2019 is maintained.

It is not possible to quantify the benefits this could bring, which are expected to include:

- Identifying competitors to beneficiaries of a proposed scheme, helping to ensure that competitors to the beneficiaries are eligible to receive support and not discriminated against;
- Supporting the development of scheme design (particularly technical parameters on which the Commission is not expert) to ensure these do not unduly discriminate between beneficiaries;
- Increasing the legal robustness of State aid decisions and reducing the need for the Commission to use the formal investigation procedure, which adds around 18 months to the State aid approval process[148].

Likewise, the administrative burdens of an 8-week mandatory public consultation period have not been quantified[149]. These burdens would fall on national authorities. It is not believed that these will be significant given the fact that these can be carried out online, avoiding significant overhead costs including venue and equipment hire commonly associated with other forms of public consultation, such as town hall meetings. In addition, Member States already have systems in place to perform online public consultations, avoiding up-front costs for the measure, and in practice many Member States already consult publicly on major subsidy schemes. As for the costs for beneficiaries, this is a voluntary cost for them and they will only incur this cost if they consider the benefits to outweigh it.

However, if the average efficiency of a 10-year scheme that awards €150 million a year increased by just 0.1% as the result of a public consultation, then this would justify additional administrative burdens of €1.5 million to conduct that public consultation. In light of the benefits presented above, and the fact that the costs of public consultations are likely to be modest, this measure can be deemed to be a proportionate safeguard.

3. Environmental impact

The support study found that some CHP measures may not have led to any emissions reductions (see above). Requiring a quantification of the cost of decarbonisation could help to ensure that only measures that actually contribute to the objective of reducing emissions receive aid.

Insofar as facilitating the granting of aid for GHG emissions reductions, and accompanying this with appropriate safeguards can be assumed to result in more effective environmental

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[148] For example, in its judgment in Case T-793/14, the General Court considered that the UK's national consultation on its capacity mechanism 'did not relate to the matter of compatibility of that measure with the applicable rules on State aid' (recital 99) and annulled the State aid decision, finding that the Commission should itself have opened a consultation to examine the same questions. In fact, the UK's consultation covered the precise issues contested before the court. However, State aid rules had no basis to refer to or rely on that consultation. By requiring a consultation in State aid rules, the results of that consultation will become a legally relevant part of the State aid assessment process, which should add legal weight to State aid decisions without requiring the Commission to open the formal investigation procedure in complex high budget measures.

[149] Costs incurred by the national administrations – who would bear the brunt of the burdens – are difficult to estimate precisely. A survey of national authorities was not deemed to be a reliable methodology in this case, as there may have been an incentive to inflate cost estimates to avoid new requirements. Similar surveys aimed at estimating the total administrative burdens of on administering State aid cases in the field of broadband infrastructure have varied by a factor of four depending on the Member State. SWD(2021) 195 final, pp. 61-64.

protection, the analysis suggests that **Option B2** would lead to the greatest positive environmental impact. Regarding the other options analysed, **Option B1** can be expected to lead to greater environmental benefits than **Option B0**.

4. Impact on SMEs

Increasing the aid notification thresholds under Option B1 and Option B2 would be more favourable for SMEs than for large enterprises, because investments by SMEs are, in proportion, more likely to be affected than large enterprises by the increase in the notification threshold from €15 million to €20 million due to the smaller average size of those investments.

SMEs may be differentially impacted by the choice of the aid award method:

- SMEs may be disadvantaged by the additional technical and financial requirements linked to the use of the funding gap or competitive bidding methods as they may lack the capacity to provide detailed *ex ante* quantifications of costs and funding requirements.
- Aid awarded on the basis of the aid intensity method generally includes an SME bonus (+10 percentage points for medium-size enterprises, +20 percentage points for small enterprises), which does not exist for aid awarded on the basis of the funding gap or competitive bidding methods.
- SMEs may benefit from the public consultation as this can provide them a voice in the policy development and State aid approval process.

Stakeholder views: Some stakeholders expressed concerns over the administrative burden of these safeguards. In particular, the requirement for a public consultation was considered particularly burdensome by public authorities. On the other hand, most NGOs and companies saw this safeguard as a useful tool to facilitate the cooperation of different stakeholders in the design of a support measures while streamlining the State aid assessment process and, therefore, proposed to extend it to all the types of aid covered by the Guidelines.

The introduction of a requirement to calculate the cost of reducing GHG emissions, was generally positively received. However, most stakeholders underlined the need to propose a common methodology for the calculation of this measure to ensure a level playing field between Member States.

ANNEX 9 ASSESSING THE IMPACTS OF THE OPTIONS CONCERNING COMPETITIVE BIDDING (C)

A summary of this annex can be found in Section 6.3.

1. Methodology

A semi-quantitative cost-benefit analysis has been performed to compare each of the options.

To support this, the support study performed: i) a literature review; ii) an estimation of the cost-effectiveness of subsidy schemes involving tendering; iii) a dynamic and static counterfactual simulation analysis comparing technology-specific and multi-technology tenders, and identifying the potential savings of merging multiple support schemes for different technologies into a single scheme in which projects are selected based on a harmonised €/tCO_2 selection criterion[150].

2. Economic impact

Option C0: BAU	**Option C1**: Administrative	**Option C2**: Competitive bidding	**Option C3**: Multi-technology competitive bidding unless justified	**Option C4**: Cross-border opening
No change	An additional **16.3 million tonnes of CO_2 being *emitted*** as a result of the reduced cost-efficiency of aid granted under the revised guidelines from 2022 to 2030. Net increase in administrative burdens to public authorities Net decrease in administrative burdens to firms.	An additional **33.9 million tonnes of CO_2 being *avoided*** as a result of the increased cost-efficiency of aid granted under the revised guidelines from 2022 to 2030. Net decrease in administrative burdens to public authorities Net increase in administrative burdens to firms.	An additional **37.5 million tonnes of CO_2 being *avoided*** as a result of the increased cost-efficiency of aid granted under the revised guidelines from 2022 to 2030. Net decrease in administrative burdens to public authorities Net increase in administrative burdens to firms.	**Increased cost-efficiency but reduced MS willingness to support GHG reductions** Net decrease in administrative burdens to public authorities and firms

The use of competitive bidding processes for the award of aid has contributed to significant cost reductions in the areas where it has been required. The *ex post* evaluation support study[151] found that the weighted average award price for wind generation in the EU fell by 62% between 2015 and 2019, and the weighted average award price of PV in the sampled schemes fell by 51% in the same period (see Figure 6), following the introduction of tendering requirements for RES in the 2014 EEAG (see Figure 7). This trend was observed for both single- and multi-technology auctions (see Figure 8). Although it is methodologically more challenging to ascertain the cost effectiveness of aid to CHP as both heat and electricity are produced, a downward trend in prices was also observed in CHP schemes, albeit to a less pronounced degree (see Figure 9).

[150] Support study, pp. 1-42.

[151] European Commission, 'Retrospective evaluation support study on State aid rules for environmental protection and energy – Final Report' (2019).

Figure 6: Volume weighted mean price per KWh in sampled RES schemes split by high-level technology category, 2014-2019[152]

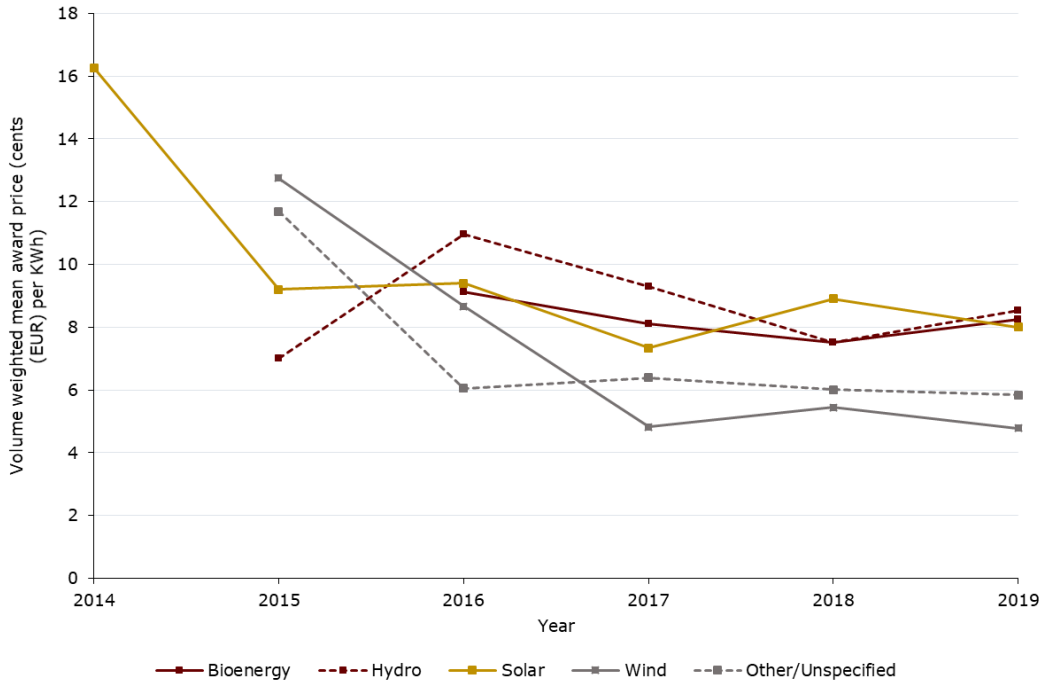
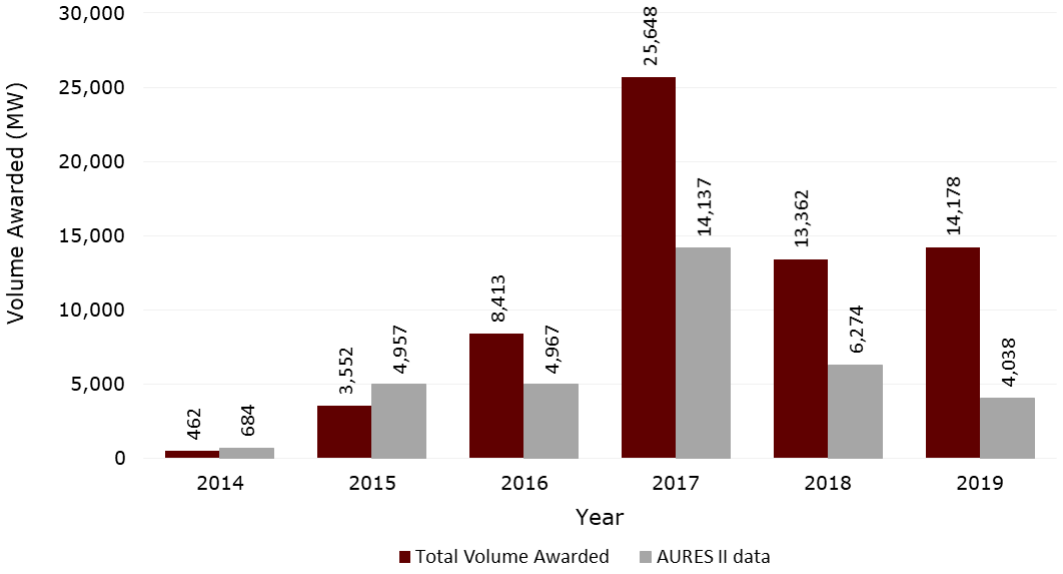


Figure 7: Total volume awarded (MW) through bidding processes in sampled RES schemes by year, 2014-2019[153]



[152] Source: Material collated by Centre for Competition Policy, University of East Anglia from national authority websites, national authority documents and data from the AURES II project. *Ex post* evaluation support study p. 50.

[153] Source: Material collated by Centre for Competition Policy, University of East Anglia from national authority websites, national authority documents and data from the AURES II project. *Ex post* evaluation support study p. 41.

Figure 8: Volume weighted mean price per KWh in sampled RES schemes split by number of technologies that could compete in bidding processes, 2014-2019[154]

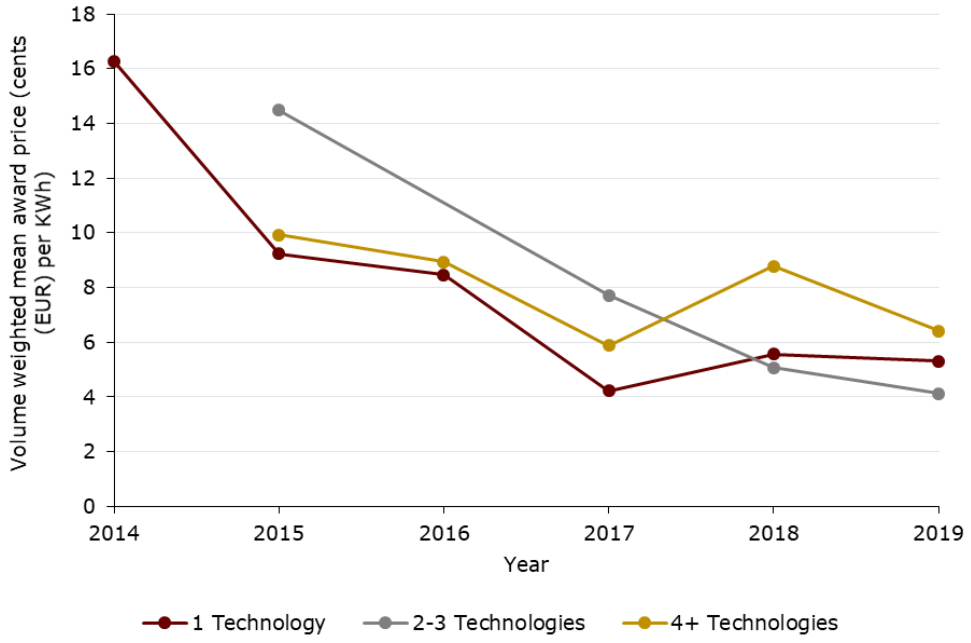
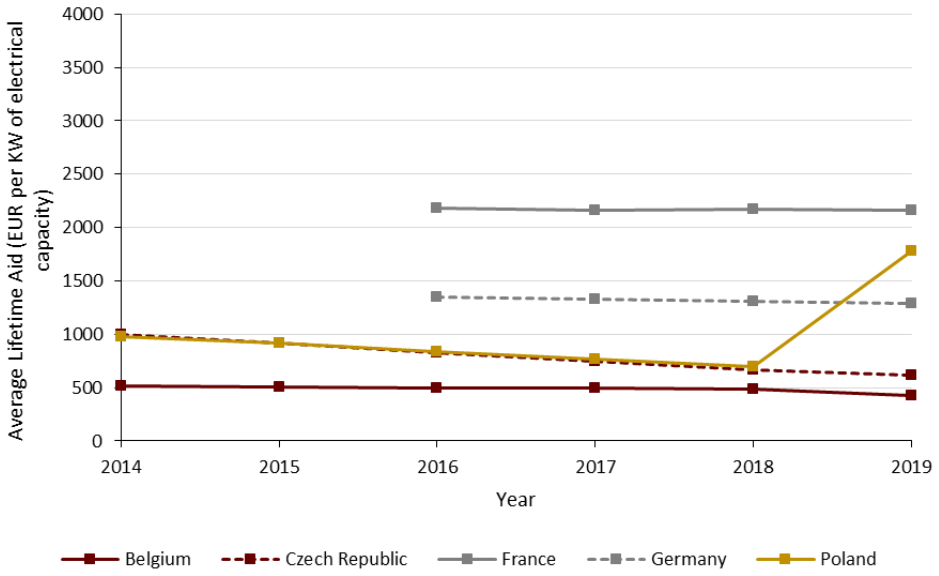


Figure 9: Average lifetime aid for case study CHP plants 100 KW to 1 MW (€/KW of electrical capacity, 2019 prices) by Member State, 2014-2019[155]



[154] Source: Material collated by Centre for Competition Policy, University of East Anglia from national authority websites, national authority documents and data from the AURES II project. *Ex post* evaluation support study p. 49.

[155] Source: Calculations by Centre for Competition Policy, University of East Anglia utilizing information from national authority websites, national authority documents and European Commission decision documents. *Ex post* evaluation support study p. 61.

There is evidence that the introduction of competitive bidding has coincided with the reduction of corrupted practices related to public incentives for the renewable energy sector.[156]

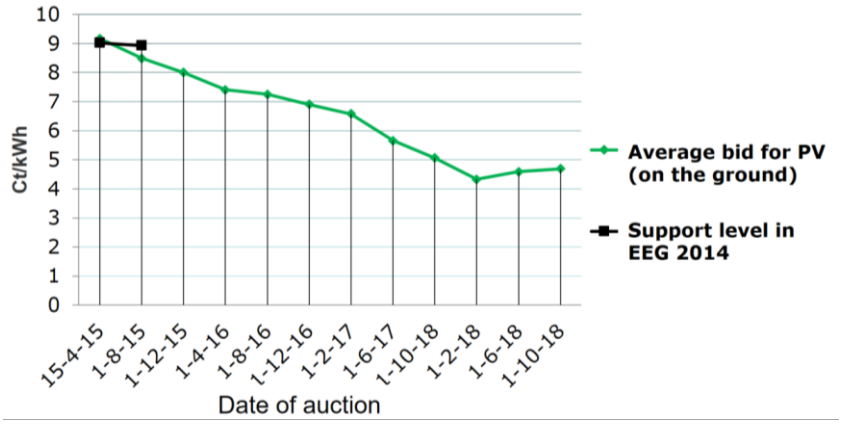
Another point that supports a greater use of tenders is the experience in case practice of trying to quantify *ex-ante* the financing needs for a diverse range of activities, and calibrate the 'right' aid amount – sufficient to incentivise the project yet avoiding overcompensation. There is a lot of uncertainty and a large information asymmetry in areas of rapid technological change and market evolution. The risk is high of replicating the excesses of the renewables bubbles.

This acknowledgement of the poor track record of the purely administrative *ex ante* setting of support is why in the EEAG 2014-2020 it was decided to introduce for RES general safeguards in the rules as regards tendering.

Renewables bubbles

The EEAG introduced the requirement to use competitive bidding processes for renewable electricity based on the experience beforehand where Member States set administrative support levels that were overly generous. Germany is still paying for overestimated renewables tariffs almost 10 years later (and for another 10 years) with a very high renewables surcharge because of the long-term nature of support contracts; other Member States have opted to adjust excessive support rates *ex post* (e.g. Spain and the Czech Republic) and this has shaken investor confidence and arguably harmed RES development more than consistent safeguards from the start. The repercussions have led to hundreds of court cases where the aid level remains questionable because it was not set based on a competitive process. Another example is the renewable heat incentive scheme in Northern Ireland which appears to have led in some cases to much higher rates of return than were intended. As this is a scheme for heat rather than electricity, it would still potentially be approvable under the EEAG 2014-2020 which require competitive bidding for renewable electricity but not for renewable heat or gas schemes.

Figure 10: Decline in PV capacity bids since the introduction of tenders in Germany[157]



[156] Deiana, C., and Geraci, A. (2021) 'Are wind turbines a mafia windfall? The unintended consequences of green incentives', *Regional Science and Urban Economics*, 89.
[157] Source: European Commission

Technology-specific vs multi-technology: experience from capacity mechanisms

Capacity mechanisms are used to ensure security of electricity supplies and many involve an annual auction to procure the full capacity demand for an electricity system. Best practice involves auctions open to all types of capacity provider and in both the United States and the UK this has led to significant cost reductions compared to the alternative administrative support or technology specific support.

In the US Pennsylvania-New Jersey-Maryland Interconnection (PJM)[158], the price at which the capacity auctions cleared was approximately 60% of the price level the regulators anticipated would be required to encourage new capacity. In the UK this figure was less than 50%[159].

The discounts appear to have arisen because:

- fewer new gas plants were required than anticipated by the regulators, thanks to investments in existing capacity, as well as energy efficiency, demand response, and additional import capacity which came forward through the multi technology auctions; and
- the price at which new gas capacity could be built (when procured under competitive pressure) was lower than anticipated by the regulators.

Source: Brattle Group presentation to European Capacity Mechanisms Forum, 3 February 2017.

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[158] A regional transmission organization in the United States, and the second largest competitive wholesale market in the world behind the EU Integrated Energy Market,

[159] In 2014 UK regulators estimated the net cost of new entry at £49 and published a gas strategy indicating a need for 26 GW new gas-fired generation by 2030 (Source: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/65654/7165-gas-generation-strategy.pdf). The first annual four year ahead (T-4) auction in 2014 cleared at £19.40 and subsequent T-4 prices have been £18, £22.50, £8.40, and £15.97. In the most recent T-4 auction which concluded on 10 March 2021, the clearing price was £18. In addition, many alternatives gave proven better value than new gas-fired generation – in the most recent auction the beneficiaries included a new 728 MW interconnector to Denmark, 3 new open cycle gas turbines totalling 854 MW, and 252 MW of new battery storage projects (Source: https://www.frontier-economics.com/media/4691/cm-2021-briefing.pdf).

When applying tenders, one has to define the group eligible for participation. To maximise participation and avoid hidden favouritism, tenders should be broad and organised in an encompassing way across areas and technologies that are in competition. This helps to ensure that the most efficient technologies and firms are selected, and that the cost to consumers and taxpayers is minimised.

The literature review performed as part of the support study found that some Member States are already using auctions to support low carbon technologies other than renewable generation (e.g. energy efficiency measures and combined heat and power plants in Germany).

Nevertheless, the literature review found that there is a debate on whether auctions should be technology-neutral – i.e. open to all available technologies which would compete under a common budget – or technology-specific. Although technology-neutral auctions can lead to cost minimisation, at least in the short term, they may also lock out the most expensive technologies and generate windfall profits for the least expensive ones (inframarginal rents) if the supply of less expensive technologies is not expected to be sufficient to exhaust auction demand, and if there are no administrative caps on the level at which different technologies can bid into an auction. Technology-specific auctions may also be useful for fostering technology diversity – for example specific support for offshore wind helped build the supply chain and reduce costs over the longer term. Technology specific auctions can also be a useful tool to allow Member States to achieve additional objectives – for example dealing with local air or water pollution, or supporting security of supply.

In the last decade, Member States have increasingly relied on multi-technology schemes for the support of electricity generation from renewable energy sources, and multi-sector schemes for decarbonisation (e.g. Sweden and Ireland for industrial decarbonisation and the Netherlands which combines decarbonisation and renewable energy in a single scheme).

The main literature review finding is that broadening support schemes to sectors and technologies promoting similar environmental objectives could help minimise the aid amount, and thus, lead to more cost-effective policy. Nonetheless, their implementation may carry some risks. Multi-technology auctions for RES support may risk crowding out innovative technologies. Multi-sector schemes for decarbonisation support where not all beneficiaries generate electricity require conversion factors to assess the impact on CO_2 emissions, and the price of each technology will be expressed in €/tCO_2 (or CO_2 equivalent) avoided. Furthermore, broader tenders across multiple sectors, by enhancing competition between bidders under a single budget, may magnify the risk of underbidding.

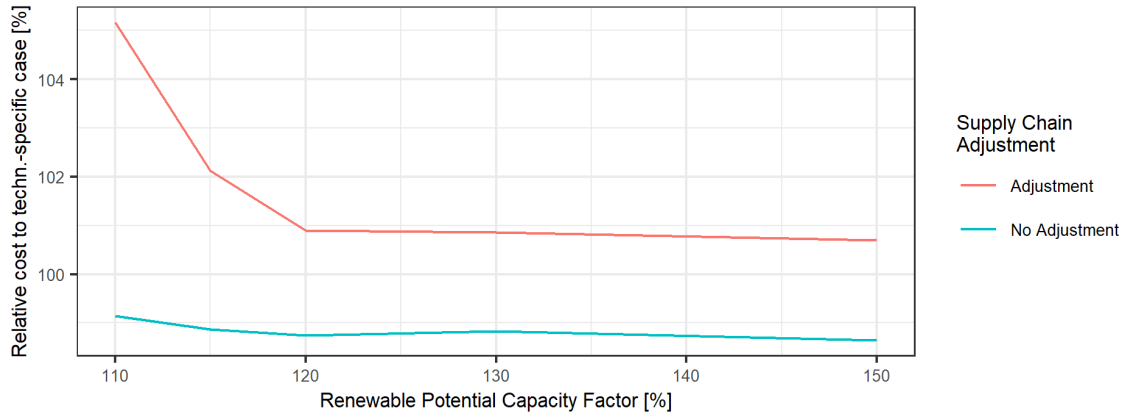
The support study included a dynamic and static counterfactual simulation analysis comparing technology-specific and multi-technology tenders and identifying the potential savings of merging multiple support schemes for different technologies into a single scheme and selecting projects based on a harmonised €/tCO_2 selection criterion. The method involved constructing a supply curve of projects based on the projects that were selected in different existing schemes for RES and CHP and based on assumptions about the availability of further projects. The study identifies the savings from using the combined budget of these schemes to support more of the cheaper projects and fewer of the more expensive projects (per €/tCO_2). The study assumed perfect competition and information. The study also assumed uniform pricing, however it included a variant with technology specific price caps (i.e. an administrative limit on the maximum that each less expensive technology could offer into the auction and receive in aid).

Table 9: Overview of support schemes considered in the case studies

Country	Scheme	Technologies supported	Cost-effectiveness	Static simulation
Denmark	SA.40305, SA.43751, SA.45974	Offshore wind	Individual auctions 2015/16	Individual auctions 2015/16
	SA.49918	Onshore wind & PV	Multi-technology (MT) auctions	Multi-technology (MT) auctions
	SA.35486, N602/2004	Industrial CHPs	Support from 2015	Support from 2015
Germany	SA.45461	RES	Onshore wind & PV auctions, PV admin. support	Onshore wind & PV auctions
	SA.42393	CHP	Auctions & admin. support	Auctions
	SA.45538	EE	Auctions	Auctions
Poland	SA.43697	RES	MT auctions onshore wind & PV	MT auctions onshore wind & PV
	SA.51192	CHP	Auctions & admin. support	Auctions
	SA.43254	EE	Admin. support	-

In Poland and Denmark cost savings of shifting away from more expensive technologies such as CHP outweigh extra costs from paying a uniform price to cheaper technologies, and lead to 6-7% more CO_2 reduction for the available budget. This increases to 9% in the variant with technology specific price caps. In the German case, cost savings of 6% were computed for one year, whereas in two years multi-technology auctions would have increased costs by 5%. In these instances, the better performance of technology-specific auctions results from intra-technology price discrimination in the case of onshore wind. The support study assumed allocative inefficiencies leading to a selection of wind-poor over wind-rich locations are limited. In Germany, price caps lead to the exclusion of part of the potential of cheaper technologies when set too low.

Figure 11: Impact of available potentials on cost of multi-technology tenders, as compared to technology-specific tenders[160]



The extension of the static to a dynamic simulation from 2020 to 2030 allows for an assessment of the role that limited technology potentials and supply chain impacts could play

[160] Support study, p. 39.

if the supply of the cheaper projects is stressed and prices increased as a result of the additional demand for these projects in a multi-technology tender compared to technology specific tenders in which demand is set in relation to the available supply of each technology: whereas in a setting without these effects, multi-technology tenders have slightly lower mitigation costs of around 1%, the inclusion of these effects increases the cost of multi-technology tenders by around 2% so that technology-specific tenders exhibit slightly lower mitigation costs if these effects are considered.

Option C1 would essentially involve removing the competitive bidding requirements for RES and CHP introduced in the 2014 EEAG, allowing Member States to choose whether or not to conduct a competitive bidding process for any measure that primarily targets a reduction in GHG emissions.

The impact assessment report for the 2014 EEAG concluded that the administrative setting of support levels for RES to allow beneficiaries a normal rate of return led to cost inefficiencies and investment bubbles.[161] In addition, impact assessment report for the 2018 RES Directive analysed empirical evidence (of past tenders) showing that the way support is allocated impacts the cost-efficiency of support. The analysis of past auctions in eight EU countries and four non-EU countries showed that all those auction schemes reported efficiency gains in terms of the contracted price or discounts achieved: E.g. the second round of the 2015 German auction for ground-mounted PV cleared at a price of €84.9/MWh, which is significantly below the ceiling price of €112.9/MWh. Recent auctions for offshore wind in the Netherlands and in Denmark have resulted in strike prices of, respectively, €72.7/MWh and €60.0/MWh – yielding significant reductions in the level of support relative to support awarded in other recent comparable projects.[162]

These conclusion is backed by the evidence presented above, which strongly suggests that competitive bidding has played a significant role in the sharp decreases in RES support between 2014 and 2019.

Nevertheless, correlation is not causation, and it is also clear that learning would also continue to drive technology costs lower over time to some degree even in the absence of competitive bidding. It is also likely that at least some Member States would anyway use competitive processes even if not required by the revised guidelines, and Member States setting aid levels administratively could still benefit to some degree from the price discovery in the Member States using competitive processes. For the purposes of differentiating the options in this report, we can therefore make the conservative assumption that Option C1 would result in marginally lower aid efficiency in terms of €/tCO_2, with symbolic efficiency losses of 0.5% compared to a BAU scenario[163].

179 measures amounting to an estimated €106.6 billion of aid to RES and CHP were approved under the EEAG in the six years from 2014 and 2019 i.e. an average of €17.8 billion of aid annually[164]. Conservatively assuming that average annual aid expenditures for these

[161] SWD(2014) 139.
[162] (SWD(2016)418).
[163] C.f. the data presented in Figure 6, Figure 8, Figure 10.
[164] For RES, 153 measures amounting to an estimated €83.8 billion of aid were approved under the EEAG from 2014 to 2019, i.e. €14.0 billion of aid annually. For CHP, 48 measures amounting to an estimated €22.0 billion

technologies remains unchanged in the 9 years from 2022 to 2030[165], and assuming that RES and CHP technologies have a cost-effectiveness of €45/tCO_2 and €70/tCO_2 respectively throughout this period under a BAU scenario[166], then Option C1 would result in the aid granted under the revised guidelines to 2030 leading to the equivalent of an additional 16.3 million tonnes of CO_2 being emitted.

Option C2 would involve extending competitive bidding the requirement from RES and CHP to all GHG reduction technologies, notably including non-CHP energy efficiency, industrial decarbonisation, and CCS. However, Member States would be free to restrict tenders to specific technologies without a need to justify this choice. Given that average award price for wind and PV generation in the EU fell by over 50% between 2015 and 2019 following the introduction of a competitive bidding requirement, we can make the conservative assumption that the introduction of a competitive bidding requirement would increase the cost-effectiveness of aid for non-CHP energy efficiency, industrial decarbonisation, and CCS by a representative 5%.

46 measures amounting to an estimated €21.5 billion of aid to non-CHP energy efficiency, industrial decarbonisation, and CCS were approved under the EEAG between 2014 and 2019, i.e. €3.6 billion of aid annually.[167] Assuming that these technologies have a cost-effectiveness of €50/tCO_2[168], €70/tCO_2[169] and €80/tCO_2[170] respectively throughout this period under a BAU scenario, and conservatively assuming that average annual aid expenditures for these technologies/approaches remains unchanged in the 9 years from 2022 to 2030[171], then this option would result in the aid granted to 2030 leading to the equivalent of an additional reduction of 33.9 million tonnes of CO_2.

Option C3 would involve extending the competitive bidding requirement from RES and CHP to all GHG reduction technologies, notably including non-CHP energy efficiency and CCS.

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of aid were approved under the EEAG in that period, i.e. €3.8 billion of aid annually. NB: Some schemes addressed a number of technologies/approaches at the same time, so figures will not tally.

[165] Whereas technological learning has significantly reduced some technology costs (most notably RES, where 'zero subsidy' projects are becoming increasingly common), this is likely to be more than offset by the EU's increasing climate ambition.

[166] Based on the results set out in Figure 5 in ANNEX 7.

[167] For energy efficiency, 44 measures amounting to an estimated €21.3 billion of aid was approved under the EEAG from 2014 to 2019, i.e. €3.6 billion of aid annually. For industrial decarbonisation, 2 measures amounting to an estimated €98.3 million of aid were approved under the EEAG, in that period, i.e. €16.4 million of aid annually. For CCS, one measure amounting to €66.3 million of aid was approved, i.e. €11.0 million of aid annually. NB: Some schemes addressed a number of technologies/approaches at the same time, so figures will not tally.

[168] Based on the results set out in Figure 5 in ANNEX 7.

[169] In analogy from the CHP values.

[170] It is anticipated that CCS will mostly be deployed in the industrial sector, in applications such as steel and cement production. In steel production, post-combustion capture from the blast furnace has been estimated to cost between $65.1–119.2 per tonne of CO_2 avoided, capturing 50–55% of emissions. In cement, costs for calcium looping technologies were between $20 and $75 per tonne of CO_2 avoided. Bui et al. (2018) 'Carbon capture and storage (CCS): the way forward', *Energy & Environmental Science*.

[171] Whereas technological learning has driving some technology costs down significantly (most notably RES, where 'zero subsidy' projects are becoming increasingly common place), this is likely more than offset by the EU's increasing climate ambition, probably leading to increased aid granted.

Tenders would generally need to include all competing technologies, however Member States could restrict tenders to specific technologies if this was justified, (for example based on the anticipated long term potential of a technology). The support study showed that, depending on the circumstances, selecting a technology-specific or multi-technology auction could result in an additional 1% cost-effectiveness gain. We can therefore assume that the requirement to justify restricting auctions to specific technologies leads to the better design of aid measures through the accurate selection of whether a technology-specific or multi-technology auction is more appropriate, and an additional 0.5% cost-effectiveness when compared with Option C2 i.e. a 5.5% cost-effectiveness benefit compared to BAU.

Keeping all other assumptions equal[172], Option C3 would result in the aid granted to 2030 leading to the equivalent of an additional reduction of 37.5 million tonnes of CO_2.

Option C4 would essentially involve extending the competitive bidding requirement from RES and CHP to all GHG reduction technologies, and requiring the mandatory opening of tenders to potential bidders in other Member States. The mandatory partial opening of support schemes to cross-border participation has recently been analysed by the Commission in the context RES-e schemes[173]. This analysis found that the measure would, in theory, put downward pressure on the costs of GHG emissions reduction. However, the co-legislators rejected a similar proposal for cross-border opening by the Commission in legislation adopted in 2018, opting instead for voluntary measures to facilitate the cross-border financing of RES-e deployment[174]. Issues cited included the inability of Member States to support measures to meet binding targets set out in EU law, the loss of control Member States may experience over their own energy systems. The benefits in terms of increasing participation in tenders and enable GHG emission reductions to be achieved at a lower cost could therefore be outweighed by reducing the willingness of Member States to support GHG reduction.

Regarding administrative burden, competitive bidding tends to reduce the burden associated with selecting beneficiaries and setting aid amounts, as well as with the State aid process and also with legal disputes over whether an administratively set aid amount was the right amount (as in the many court cases emerging from the renewables bubble). National authorities can be expected to benefit from this most, although burdens can also be faced by beneficiaries needing to justify eligible costs as part of the process to access aid or in subsequent legal disputes[175]. Competitive bidding may, however, result in increased administrative burdens on firms participating in selection processes. In addition, the need for justification of the proposed scope of a measure where competitors are excluded under Option C3 would increase the administrative burden on public authorities, as would coordinating cross border cooperation under Option C4.

Option C1 can therefore be anticipated to lead to a net increase in administrative burdens to public authorities, and a net decrease in administrative burdens to firms. **Option C2** can be anticipated to lead to a net decrease in administrative burdens to public authorities, and a net increase in administrative burdens to firms. **Option C3** can be expected to lead to a neutral impact on the administrative burden to public authorities, and a net increase in administrative

[172] I.e. the assumptions used for Option C2.
[173] SWD(2016) 418.
[174] See Article 5 of Directive (EU) 2018/2001.
[175] See Section 6.1.2.

burdens to firms. As with the impacts analysed in Section 6.2, however, theses impacts are anticipated to be greatly outweighed by the benefits of the measures examined, and are not therefore anticipated to alter the ranking of options examined. This would not be the case for **Option C4**, as the economic benefits of cross-border opening are uncertain.

3. Environmental impact

Competitive bidding enables granting authorities to incentivise projects that are capable of generating higher outputs in terms of environmental benefits per unit amount of aid. Insofar as effectively harnessing the power of competitive bidding in this context can be assumed to result in more effective environmental protection, the analysis suggests that **Option C3** would lead to the greatest positive environmental impact. Regarding the other options analysed, **Option C2** can be expected to lead to greater environmental benefits than **Option C0**, which in turn can be expected to lead to greater environmental benefits than **Option C1**. **Option C4** may have a negative impact on environmental protection by undermining the willingness of Member States to support measures for GHG reduction.

4. Impact on SMEs

SMEs may be disadvantaged by the technical and financial requirements for competitive bidding as they may lack the capacity to develop projects to the stage necessary to qualify for participation in an auction without a guarantee that the projects will be successful.

This impact will be reduced for small projects with the proposed exemption for projects under 400kW[176]. DG COMP is also exploring whether this impact could be further mitigated by indicating in the guidelines the possibility for more lenient pre-qualification requirements for SMEs and/or new market entrants.

Stakeholder views: The requirement for technology neutral competitive bidding processes as a standard method for the allocation of aid was considered by most stakeholders too strict to ensure a diversified energy mix and reduce system costs. On the contrary, it was proposed to grant more flexibility to Member States over the organisation of technology-specific procedures and the inclusion of non-price selection criteria. Regarding the latter, while some contributions to the public consultation underlined the potential lower transparency of non-price criteria, the majority of Member States propose to increase the weight of these criteria in the selection process up to 40%.

[176] See the text box on renewable energy communities in Section 5.1.2.

ANNEX 10 ASSESSING THE IMPACTS OF EXEMPTING CERTAIN TECHNOLOGIES FROM THE GENERAL GHG RULES (A-C)

As explained in Section 5.2, certain technologies/approaches to GHG reduction require a different approach to facilitating the granting of aid, preventing distortions of competition or maintaining the cost-effectiveness and proportionality of aid, due to specificities inherent to these technologies/approaches which require maintaining specific rules.

1. Energy efficiency in buildings

The general rules for GHG emissions reductions are not suitable for measures to promote the energy performance of buildings for a number of reasons. First, they would not be able to cater for the additional co-objectives, beyond decarbonisation, that those measures would be aimed at. Indeed, in line with the Renovation Wave for Europe[177], investments in the improvement of the energy performance of buildings are needed to make the European building stock not only more energy efficient but also greener, healthier, more resilient and more digitalised. Second, the general rules for GHG emissions reductions would in principle require the broadening of support measures to cover all types of buildings or all types of energy efficiency measures and the selection of projects on the basis of competitive bidding processes. With a view to responding to the more urgent needs identified in the Communication on the Renovation Wave[178], it appears appropriate to allow Member States to develop support measures dedicated to buildings and targeting specific types of buildings or areas. Moreover, the competitive bidding requirement would limit the possibility for Member States to take into account considerations other than cost effectiveness when granting support, which would be at odds with the need to tackle energy poverty and prioritise the renovation of worst-performing buildings, often occupied by people with low income, as well as to create jobs locally. Finally, in light of the more limited risk of undue competition distortions[179], it is appropriate to provide simplified compatibility rules, including with regard to the form of aid and the assessment of proportionality[180].

Adapting the rules by creating specific rules for State aid for energy efficiency in buildings can be expected to result in the following additional benefits: targeting or prioritising the type of buildings for which action is most urgent, achieving important benefits beyond

[177] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives, COM(2020) 662 final.

[178] See in particular its Section 4.

[179] Building markets are essentially local. More than 90% of construction, architecture, and civil engineering firms are SMEs. In the construction sector in particular, they amount to more than 99% of the firms.

[180] As concerns the form of aid, differently from the general rules on GHG emissions reductions, in the case of energy performance of buildings aid should as a general rule only cover a percentage of the investment costs, to improve the project's affordability for the beneficiary. In certain specific cases, where applying the maximum aid intensities would not be sufficient, it should be possible to demonstrate that a higher aid amount is necessary on the basis of a funding gap analysis, which could take into account not only the investment costs linked to the project, but also its expected operating costs and revenues. As concerns proportionality, simplifications might include waiving the requirement to identify a counterfactual, accompanied by additional safeguards, such as a minimum level of energy savings and a minimum payback period.

decarbonisation, including in terms of digitisation, circularity, resource efficiency and biodiversity, as well as social benefits (in particular for tacking energy poverty), simplifying the granting of aid in cases where there risks of undue distortions of competition are limited.

No measures specifically targeting aid to energy efficiency in buildings were approved under the EEAG in the six years from 2014 and 2019 (support for energy efficiency in buildings may however have been part of broader measures regarding energy efficiency, in particular tax measures). Considering that residential sector current investments in energy-related renovations in the EU are about €200 billion per year and that another €200 billion is invested in non-residential buildings[181], and assuming that average annual aid expenditures for energy efficiency increase by 200% in the nine years from 2022 to 2030, in line with the Renovation Wave for Europe strategy's aim to double annual energy renovation rates by 2030 and estimating, based on case practice projections, that between 10% and 25% of this expenditure would involve State aid, we can however expect the proposed changes to affect between around €360-900 billion of aid in the period until 2030 in the residential and non-residential sectors respectively.

Stakeholder views: Some respondents called for higher aid intensities, especially for the renovation of private buildings, in the social housing sector or when RES are used. Some respondents raised concerns on potential distortions of competition that could result from aid bonuses for SMEs and mid-caps, and some advocated for allowing aid merely to meet EU standards.

2. Clean mobility (acquisition and lease of clean vehicles, retrofitting of vehicles, recharging/refuelling infrastructure for clean vehicles)

The general rules for GHG emissions reductions would require an exclusive use of competitive bidding and a broadening of measures to cover all clean mobility technologies across the various transport modes. However, these approaches are not suitable for measures to promote clean mobility. First, the generally lower profitability of clean mobility investments compared e.g. to RES or CHP projects and the correspondingly higher level of uncertainty regarding the expected number of participants in competitive bidding processes requires to include in the guidelines alternative methods to establish the proportionality of the aid, i.e. a funding gap approach or maximum aid intensities. Second, it is appropriate to allow Member States to implement measures targeting one or certain transport modes only, or specific geographical areas, to take into account environmental objectives other than decarbonisation, such as air and noise pollution reduction, in particular as Member States are at very different levels of development in the clean mobility sector, with many being at a nascent stage. Third, following the general rules for GHG emissions reductions would require adopting a multi-technology approach, which may result in the cheaper solutions being selected, whereas in the field of clean mobility there is precisely a need to favour the deployment of zero-emission technologies[182] and to impose specific safeguards regarding

[181] European Commission, Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy buildings in the EU – Final report, pp. 29 and 32.

[182] As recognised, for the purpose of the assessment of Member States' Recovery and Resilience Plans, through the application of the DNSH principle (see Commission Notice – Technical guidance on the application of 'do no significant harm' under the Recovery and Resilience Facility Regulation (OJ C 58, 18.2.2021, p. 1)).

clean vehicles and refuelling infrastructure that are capable of using fossil fuels or fossil-based energy (e.g. LNG/CNG and hydrogen produced using CO_2-intensive technologies), so as to avoid lock-in effects or the mere displacement of CO_2 emissions from the transport sector to the fuel or energy production sector. It is appropriate to also take a different approach compared to the general rules on GHG emission with regard to the form of aid and its necessity. In particular, operating aid needs to be generally excluded as regards aid for the deployment of recharging and refuelling infrastructure in order to avoid cross-subsidies towards other economic activities (in sectors other than the transport sector) and to avoid the crowding-out of non-aided private investment[183]. The public consultation requirement would not apply for aid for the acquisitions/leasing of clean vehicles. In the area of clean mobility infrastructure, the public consultation requirement serves a different objective, i.e. to verify whether the market would deliver the same investments without aid, with a view to avoiding crowding-out effects in this rapidly evolving market. Adapting the rules can be expected to result in the following additional benefits: better targeting projects with higher environmental benefits in terms of reduction of GHG emissions, as well as air and noise pollution, facilitating the granting of aid, and ensuring sector-specific competition safeguards.

A total of 40 measures, amounting to an estimated €1.88 billion of aid to clean mobility across all transport modes (covering both vehicles and infrastructure – with, on some cases, schemes covering at the same time, aid for the acquisition of vehicles and for recharging/refuelling infrastructure), were approved under the EEAG in the six years from 2014 and 2019, i.e. an average of €314 million of aid annually. The Green Deal forecasts that a more than four-fold increase in electric recharging infrastructure will be needed by 2025 to serve the expected increase in the electric vehicle fleet. For road transport, the total investment costs between 2021 and 2030, following the proposal for a new Regulation on the deployment of alternative fuels infrastructure, are estimated at approximately €1.5 billion annually (however, not all such investments would entail State aid)[184]. Assuming, somewhat conservatively, that average annual aid expenditures for clean mobility in the road transport sector would at least triple in the 2022-2030 period, we can expect the proposed changes to affect around €8.5 billion of aid until 2030 (approximately €940 million annually).

The Commission's Communication on a Sustainable and Smart Mobility Strategy[185] confirms the ambition of the Green Deal to achieve a 90% reduction in the transport sector emissions by 2050 and sets out various milestones to show the sectors path towards achieving this objective. Those include among others the ambition to have at least 30 million zero-emission cars and 80 000 zero-emission lorries in operation by 2030 and that by 2050 nearly all cars, vans, buses as well as new heavy-duty vehicles will be zero-emission. Based on EAFO

[183] As concerns aid for clean vehicles, it seems appropriate to allow for the coverage of extra operating costs which may emerge from the comparison of the total costs of ownership or leasing of the conventional vehicle with those of the clean vehicle.
[184] See Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A strategic rollout plan to outline a set of supplementary actions to support the rapid deployment of alternative fuels infrastructure, COM(2021) 560 final, p. 4 and Commission Staff Working Document – Impact Assessment accompanying the proposal for a Regulation of the European Parliament and of the Council on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council, SWD(2021) 631 final.
[185] COM (2020) 789 final.

data[186], in 2020, despite a surge in registration of new electric vehicles, there are only around 1.1 million battery electric passenger cars (0.47% of the total EU fleet), and around 120 000 light duty vehicles. Numbers are even more limited for heavy-duty vehicles and buses, with around 1 000 and 5 300 respectively.

Stakeholder views: The introduction of a specific section on aid for clean mobility projects was welcomed. Regarding clean vehicles, a number of respondents called for the application of a more technologically neutral approach, while others considered that only zero-emission solutions should be eligible for aid, especially for road transport. Mixed views were expressed in relation to the treatment of fossil fuels. Part of the stakeholders consulted considered that support should not be granted to solutions based on fossil fuels, including CNG and LNG vehicles and infrastructure, as these technologies inherently produce lock-in effects and discourage investments into cleaner technologies, while others took the opposite view. As concerns maritime and inland waterway transport, a few public authorities pointed to the fact that the proposed eligibility rules, which are based on the Taxonomy, are not adequate as they do not take into account pollutants other than CO_2, which are very relevant especially in the area of inland navigation. Aid should therefore be possible to replace vessels with more environmentally-friendly vessels using fossil fuels (diesel). Comments were also received concerning the definition of 'clean aircraft'. Mixed views were also expressed in relation to the competitive bidding requirements: while various stakeholders took the view that it should not be the default rule for ensuring the proportionality of the aid, but rather one option among others (funding gap and aid intensities), other respondents considered it positively, in light of the potential benefits in terms of market access, fair competition, and quality of the supported projects.

A number of Member States took the view that the proposed requirement to demonstrate the necessity of the aid by way of an *ex ante* public consultation or a market study would increase the administrative burden and unduly delay the roll-out of recharging and refuelling infrastructure. By contrast, a few contributors (mostly companies) welcomed the provision. A few Member States also expressed concerns as regards the competitive bidding requirement, calling for more flexible rules.

3. District heating

Whereas the general rules for GHG emissions reductions would require to apply in a competitive bidding process the same rules to most measures that primarily aim to reduce GHG emissions, this would not be suitable for measures to promote district heating due to certain specificities such as the local character of district heating systems. The specific GHG emission standards, energy efficiency requirements and specific measures for alternative heating solutions with district heating systems require a distinct treatment to analyse the compatibility of those measures. For those reasons, multi-technology competitive bidding would not be adapted to district heating measures. As the aid would not be granted under a competitive bidding process, the funding gap method would be used for determining the aid amount. To analyse the impact of aid for those measures, it is proposed that the Commission

[186] https://www.eafo.eu/.

will follow a case-by-case assessment in order not to distort competition by district heating support vs. alternative heating solutions.

Having adapted rules for district heating can be expected to facilitate the granting of aid and to prevent distortions of competition or maintain the cost-effectiveness and proportionality of aid, due to certain specificities inherent to these district heating measures. 25 measures amounting to an estimated €2.5 billion of aid to district heating were approved under the EEAG in the six years from 2014 and 2019, i.e. an average of €417 million annually. Conservatively assuming that average annual aid expenditures for district heating remain unchanged in the nine years from 2022 to 2030, we can expect the proposed changes to benefit around €3.8 billion of aid to 2030.

Stakeholder views: To extend the scope of this section, to include support for waste heat, waste to energy in district heating, or thermal storage. Most of the respondent to the public consultation expressed that a case-by-case assessment of aid in district heating measures would create unreasonable burden.

4. Coal closures

The general rules for GHG emissions reductions would require, among others, a competitive bidding process and a public consultation. However, these are not entirely suitable for closure aid measures due to the lack of sufficient number of power plant operators in relevant markets. For lignite, peat and oil shale, this seems to be the case in the majority of the relevant Member States, where there are usually only one or two operators. Power plants burning hard coal face relatively few competitors operating the same technology in about half of the relevant Member States.

Coal-fired electricity generation (including both hard coal and lignite) takes place in 18 Member States. Peat is used for electricity generation mainly in Finland and to a lesser extent in Estonia, Latvia, Lithuania and Sweden, while oil shale is currently used only in Estonia. Despite an increasing number of closures in recent years, around 110 GW[187] of coal, peat and oil shale generating capacity were assessed to be active in EU wholesale markets at the end of 2021. The importance of these capacities for the security of supply or in terms of their contribution to the electricity mix across Member States varies.

Having separate rules on closure aid can therefore be expected to further facilitate Member States to phase-out hard coal, lignite, peat and oil shale in a transparent, predictable, safe and socially responsible manner.

Separate rules are expected to bring environmental, economic and social benefits. They would facilitate the early phase-out of the most polluting fuels in electricity generation and accelerate the reduction of GHG emissions. They would also facilitate a safe and environmentally friendly recovery of mining regions and lay the groundwork for their transition towards a sustainable future. The rules would ensure predictability and legal certainty for the phase-out. Moreover, the phase-out would create space for the development of other, more sustainable technologies. Finally, the rules would help mitigate the social

[187] Of which approximately 58% hard coal, 40% lignite, 1% peat and 1% oil shale. See ENTSO-E Transparency platform, Installed Generation Capacity Aggregated [14.1.A].

challenges resulting from the closures, in light of possible job losses and the need for subsequent reskilling of affected workers[188].

Stakeholder views: Several stakeholders welcomed the introduction of a specific framework for coal closures, whereas two submitted that no compensation should be granted for coal closures. Some stakeholders noted that a competitive bidding process should be the preferred option. Others asked to clarify the parameters based on which proportionality will be assessed in the absence of a bidding process and noted that certain criteria in the draft guidelines are strict. A few stakeholders asked to make clear that any closure must take into account not only the power plant but also the associated mine. Some stakeholders expressed the need to ensure the safety of the sites and workers affected. Half of the submissions from public authorities welcomed the introduction of specific rules for such measures. Some public authorities noted the need for flexible and individual assessment of such measures and that certain criteria for the assessment of proportionality in the absence of a bidding process are strict.

[188] Based on a recent JRC study, the transition from coal may bring notable challenges for the regions concerned, as the European coal sector employs nearly 340 000 workers in direct and indirect activities. Peat and oil shale energy sectors are smaller EU-wide and thus the closures of peat and oil shale capacities are not expected to have such a profound impact on job losses

ANNEX 11 ASSESSING THE IMPACTS OF THE OPTIONS CONCERNING REDUCED LEVIES FOR ENERGY-INTENSIVE USERS (E)

In this annex the assessment of the impacts of various policy options for reduced levies for energy-intensive users (EIUs) are presented in greater detail. The reduced levies for EIUs aim at addressing the risk of relocation outside the EU of particularly trade and energy intensive sectors due to levies on electricity consumption that finance decarbonisation and social policies. The effectiveness of the various policy options in contributing to the avoidance of relocation, while avoiding undue effects on competition and preserving the incentives for EIUs decarbonisation, is assessed in comparison to the rules currently in place ('Baseline'). The different options reflect different settings of the balance between limiting competition distortions stemming from the levy reductions and ensuring protection against relocation risks. In another trade-off, effects of the considered options on promoting energy efficiency are weighed against incentivizing the electrification of industry and the decarbonisation of the electricity system.

First, the scope as well as the main challenges and limitations of the assessment are presented. Section 2 of this annex summarises the main findings of the support study and elaborates on the development of options. Section 3 of this annex describes the data and methodology used as well as the assumptions made for the assessment. In Section 4 of this annex, the impacts of various policy options for reduced levies for EIUs are assessed.

1. Challenges and limitations of the assessment

A number of challenges and limitations of the assessment need to be highlighted upfront.

With regard to the scope of the assessment, Members States may decide to finance decarbonisation policies through different means. This choice affects how the related financial burden is distributed across the economy as well as the degree of State aid control. As the choice of the financing mechanism primarily belongs to the Member States and the rules at stake regulate the conditions for granting reductions on levies on electricity consumption, the scope of the assessment is limited to such financing means.

There are also empirical challenges when measuring the actual risk of relocation outside the EU to other jurisdictions that do not have comparable levies. Obtaining reliable empirical evidence about the impact of reduced levies on relocation is particularly challenging. As relocation decisions are multifactorial, it is difficult to isolate the impact of the compensation or the lack of compensation on the decision of undertakings to relocate outside the EU. That intrinsic characteristic affects the assessment of the relocation risk and therefore implies a certain degree of uncertainty. The Commission faced similar challenges when revising the ETS guidelines[189].

The limitations the Commission has faced when assessing the various policy options for reduced levies for energy-intensive users are in some respects greater than the limitations it faced when reviewing the ETS guidelines.

[189] SWD(2020) 190 final, section 2.2, p. 20.

First, the number of sectors covered by the rules at stake is very large and makes it very challenging to conduct a sector-by-sector analysis of the specific risk of relocation. The Impact Assessment conducted in the context of the revision of the ETS guidelines included an extensive assessment of relevant metrics[190] for the purpose of assessing the risk of carbon leakage. It is however worth noting that this type of extensive qualitative assessment did not significantly alter the outcome to be expected based on the main economic metrics. The assessment largely confirmed the relevance of electro-intensity (expressed in terms of indirect emission intensity) and trade intensity to assess carbon leakage risk as well as their minimum thresholds to determine sector eligibility.

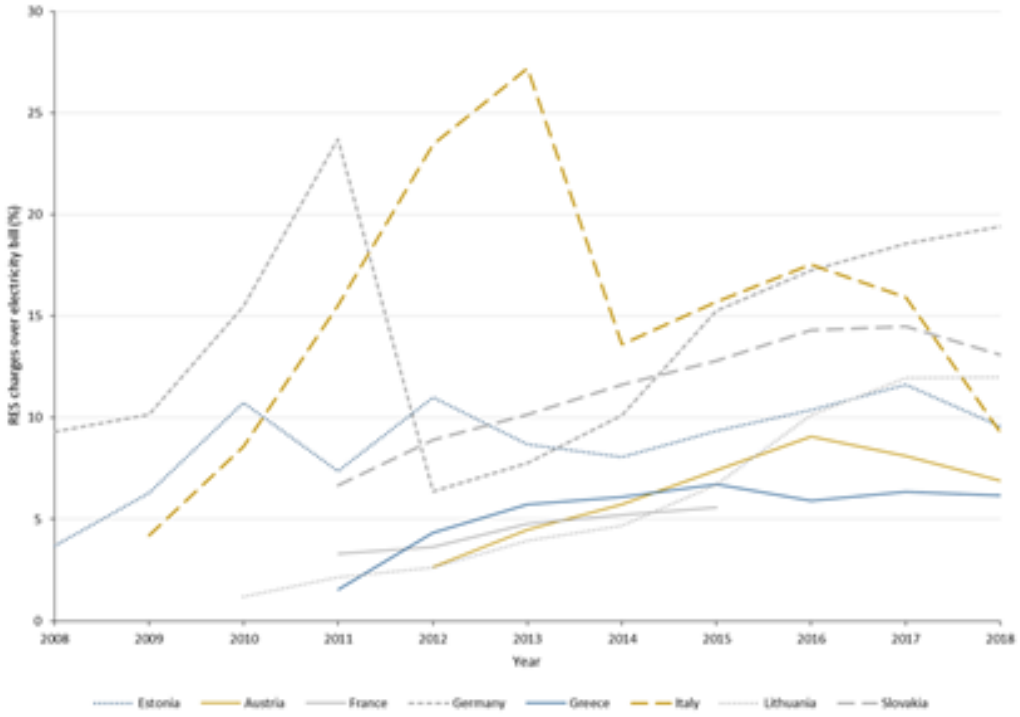
Second, the impact of the EU ETS on wholesale electricity prices is uniform across Member States compared to electricity levies collected by Member States in order to pursue concrete energy policy objectives[191]. Levies vary significantly from one Member State to another, making it very difficult to measure their impact on relocation risks and to conduct an analysis at EU level. The Evaluation study shows that for two Member States (Germany and Italy) the proportion of the RES levy over the electricity bill for EIUs would have been very high (more than 20%) absent reductions. In these cases, the reductions granted under the EEAG allowed those Member States to keep the level of RES levies for EIUs in line with that of other European countries (see Figure 12 and Figure 13 below). On the other hand, the study has also shown that for some Member States the proportion of the RES charge in the electricity bill for EIUs was rather low and therefore would have hardly created per se a significant relocation risk for those EIUs. Currently, 14 Member States with different levels of levies have a scheme in place for levy reductions in favour of EIUs[192].

[190] Such as risk market characteristics, profit margins of the sectors and the scope of abatement and the interchangeability of fuel and electricity.

[191] EU allowance price is uniform across the EU; its impact on electricity price differs depending on the carbon content of electricity production, but carbon factors in the compensation formula for ETS indirect costs in the 2020 ETS guidelines harmonise compensation across Member States, either at the regional level or national level depending on price convergence across Member States.

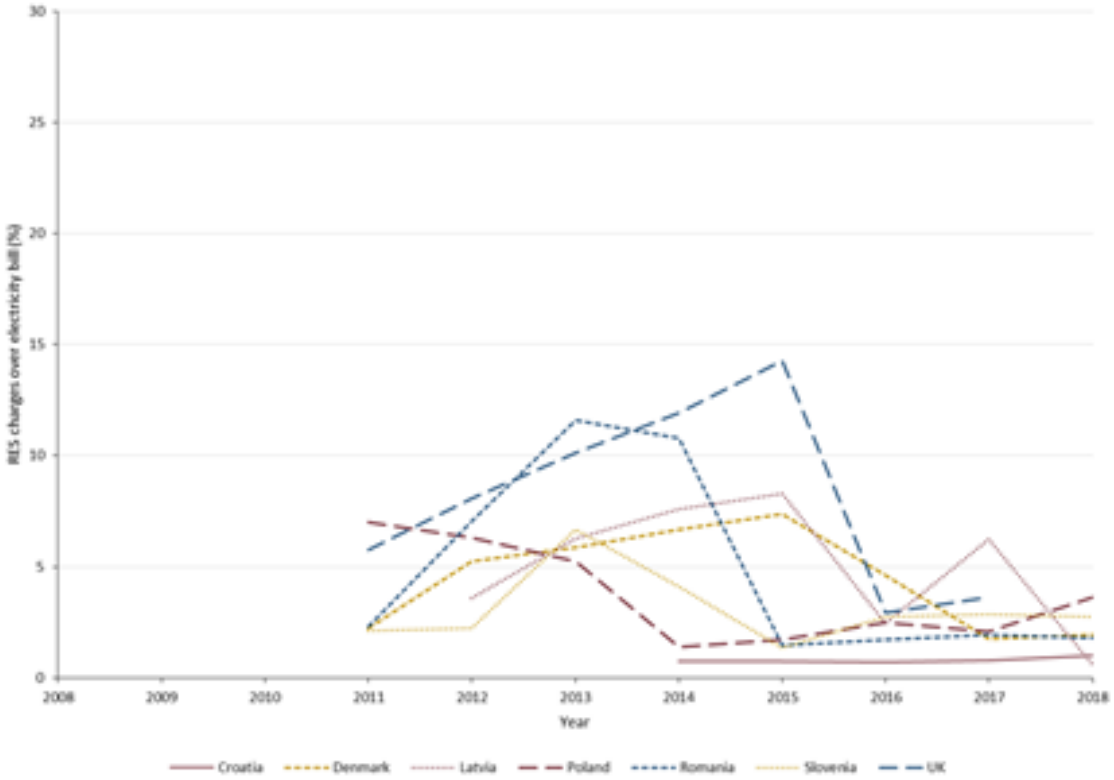
[192] Belgium, Bulgaria, Croatia, Denmark, Germany, Greece, Italy, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Spain.

Figure 12: Average example RES charge over electricity bill by sampled Member State (first eight), energy intensive commercial users (consumption bands IC to IF)[193]



[193] Source: European Commission, 'Retrospective evaluation support study on State aid rules for environmental protection and energy – Final Report' (2019).

Figure 13: Average example RES charge over electricity bill by sampled Member State (second seven), energy intensive commercial users (consumption bands IC to IF)[194]



Third, there are significant limitations in terms of data availability, notably at the necessary level of granularity, that make the assessment of the impacts under each option challenging. Data limitations relate both to official data at sector level, which mostly concerns the assessment of different options on eligibility for levy reductions, and to the amounts and conditions of aid granted in the past, which mostly concerns the assessment of different options on aid intensity and budgets associated with individual schemes. These limitations are presented in greater detail in section "methodology and data used".

2. Support study and development of options

The study supporting the revision of the EEAG[195] includes a section focused on EIUs levy reductions, which served two main purposes. Firstly, it assessed whether the economic parameters currently used by the EEAG Guidelines 2014 to determine the eligibility of sectors for exemptions from decarbonisation levies for EIUs are the most relevant parameters for the risk of relocation from an economic perspective. Secondly, it aims at determining the extent to which the profitability of EIUs is affected by different levels of Renewable Energy Sources (RES) and Combined Heat Power (CHP) levies on electricity, for a sample of 10 sectors.

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[194] Source: European Commission, 'Retrospective evaluation support study on State aid rules for environmental protection and energy – Final Report' (2019).

[195] E.CA Economics, UEA, LEAR, DIW Berlin & Sheppard Mullin (2021) EEAG revision support study, https://ec.europa.eu/competition-policy/system/files/2021-06/kd0521173enn_EEAG_revision_2021_0.pdf.

a) Eligibility

Based on a literature survey, the Support study concludes that the levels of electro-intensity and trade intensity are found to be relevant parameters to determine the risk of relocation of firms due to decarbonisation levies on electricity prices.

Regarding electro-intensity, empirical studies find that the most energy-intensive firms are negatively affected by increases in energy prices (including levies). At the same time, those studies find no statistically or economically significant effect for an average firm, based on a sample of both energy-intensive and non-energy-intensive firms. The different effects on energy-intensive and non-energy-intensive firms supports the relevance of electro-intensity as an important and appropriate eligibility criterion.

Regarding trade intensity, the literature reviewed by the Support study also confirms its relevance as a criterion to distinguish between sectors of high and low risk of relocation due to changes in levy levels. This result, however, is based on a fewer studies. The identified relocation effect is strongest for sectors trading with less developed countries, including China. Those trade partners often have less stringent carbon mitigation rules.

Electro-intensity and trade intensity are also well-established metrics to assess relocation risk, as they are used in the current EEAG, in the 2020 ETS guidelines and, for trade intensity, also in the 2019 ETS carbon leakage list. Moreover, the majority of respondents to the public consultation considers these parameters to be relevant and appropriate to determine eligibility for reductions.

Based on the above, eligibility for reduced electricity levies is based on electro- and trade intensity for all the assessed options. At the same time, the literature review performed by the Support study also implies that the level of these parameters should be set sensibly in order to ensure that eligibility is limited to sectors at genuine risk of relocation due to high levies and high exposure to international trade and/or electricity costs. Indeed, the literature suggests that the impact of higher energy prices is insignificant or small for the average firm and/or industry.

In this respect, the methodologies used by the 2020 ETS guidelines and by the 2019 ETS carbon leakage list to determine eligibility are based on levels of trade intensity which are higher than the ones currently used for determining eligibility for levy reductions. Moreover, revision of the ETS guidelines and Phase 4 ETS carbon leakage list made eligibility requirements for the compensation of direct and indirect emission costs more stringent compared to the previous iterations. These metrics are similar to the electro-intensity indicator in the EEAG as they measure the cost of direct and/or indirect emissions (resp. electricity costs) over value-added. In particular, the indirect emission cost intensity used as a metric for eligibility by the ETS guidelines can be notionally compared to electro-intensity used in the case of levy reductions. The current threshold used in the ETS guidelines is roughly three times higher than the electro-intensity currently used for eligibility to levy reductions. At the same time, the indirect cost component of the electricity price stemming from the ETS carbon price influenced by a uniform CO_2 price across the EU, whereas levy rates vary considerably across the EU, sometimes exceeding the indirect cost component. It is also important to note that applying the current eligibility methodology to the latest available sectoral data implies that (at least some) companies from 229 different sectors would be eligible for levy reductions. This equals 93% of all sectors for which data on electro-intensity is available and therefore are assessed for eligibility (see section “Methodology and data used”).

Given the limited evidence of relocation risk for the average firm (cf. Support Study) as well as the Green Deal agenda and the way in which other EU policies addressing a similar objective have been reviewed, the current eligibility appears too broad. Therefore, two stricter policy options (in terms of eligibility) have been developed in order to better target the eligibility to the sectors which are at a genuine risk of relocation due to the imposition of levies.

b) Levels of allowed levy reductions and aid conditionalities

The support study also provides a description of the RES and CHP levy data for 10 selected sectors[196] for 11 Member States[197] in the time period 2011 to 2018. These sectors were selected primarily based on significant levels of electro- and trade intensity while also taking into account additional criteria[198].

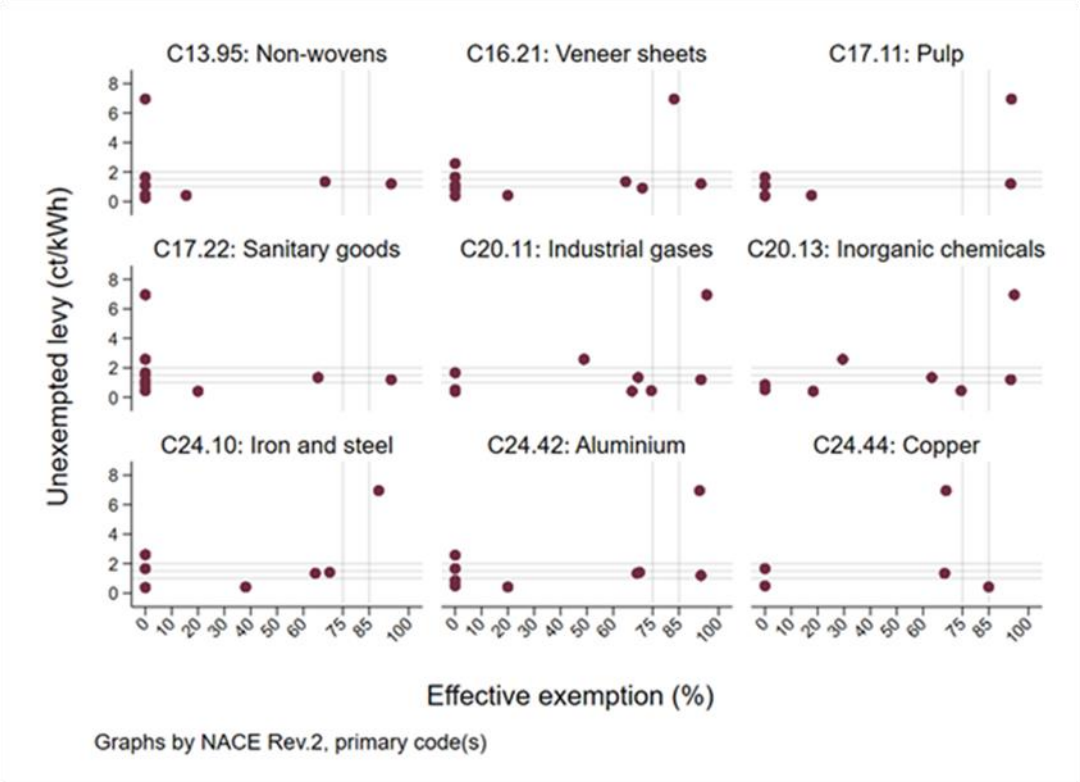
The analysis confirms the significant heterogeneity both in terms of levels of levies and in terms of rates of levy reductions across the EU. The figure below from the support study contains nine graphs, each picturing the situation in one sector. Each dot represents a Member State and indicates (i) how high the levy is (vertical axis) and (ii) the percentage of reduction granted on the levy (horizontal axis).

[196] Manufacture of non-wovens and articles made from non-wovens, except apparel (NACE code C13.95), manufacture of veneer sheets and wood-based panels (C16.21), manufacture of pulp (C17.11), manu-facture of household and sanitary goods and of toilet requisites (C17.22), manufacture of industrial gas-es (C20.11), manufacture of other inorganic basic chemicals (C20.13), manufacture of basic iron and steel and of ferro-alloys (C24.10), aluminium production (C24.42), copper production (C24.44), data processing, hosting and related activities (J63.11).

[197] Austria, Croatia, Denmark, France, Germany, Greece, Latvia, Lithuania, Poland, Slovakia and Slovenia.

[198] Such as good data availability, the inclusion of one telecommunications sector, a mix of sectors geographically concentrated and spread across Member States, economic size, and eligible sectors with existing similar, but not eligible, sectors.

Figure 14: Unexempted levies (cent/kWh) to effective exemptions (%) in different Member States[199]



Focusing on the vertical axis, one dot is consistently at a significantly higher level than the others. This is Germany, which has the highest levies in all sectors (6.95 EURct/kWh). Levies in the 10 other Member States are below 3 EURct/kWh (note that based on Eurostat data for 2020, Italy and Belgium had levies respectively worth 5 and 3.6 EURct/kWh).

Focusing on the horizontal axis, the allowed rate of reductions differ significantly across sectors and countries. Reductions are often lower than the maximum standard aid intensity currently allowed (85% reduction), however in several instances reductions are higher than 85% of the standard levy rate, notably in Germany. This is possible as the current rules allow to cap the own contribution of each beneficiary as a percentage of each company' gross value added. In five sectors, the exemption brings the German levy from the highest level to a level comparable to the lowest reduced levies in other countries, as shown in Figure 12 above.

Moreover, the support study carries out an econometric analysis and simulations to assess the potential impact of a change in levies on firms' profitability in nine sectors, as significant negative impact on profitability can increase the risk of relocation. Under several scenarios, higher effective levies do not negatively affect profitability significantly, whereby the effect tends to be more pronounced the higher the standard levy. The support study also simulated various changes in effective levies and assessed the resulting trade-offs between three main policy objectives:

[199] Source: E.CA Economics, UEA, LEAR, DIW Berlin & Sheppard Mullin (2021) EEAG revision support study.

1. collecting the largest possible budget to support the European Green Deal,
2. limiting the distortion of competition within the EU stemming from the status quo due to different effective levy levels across countries and
3. limiting a potential negative impact on profits generated by levy changes, which could trigger relocation of firms outside the EU in the long term.

The policy options also investigate various aid intensity levels. While reductions from levies may be necessary to avoid relocation of electro-intensive firms, if they are set too generously, they could limit firms' incentives to become more electro-efficient by adopting the latest technological advances in their production processes.

Recent EU policy initiatives aimed at reducing relocation risk and carbon leakage require beneficiaries to fulfil some environmental conditions in order to benefit from support in the form of free allowances (ETS carbon leakage list) and indirect cost compensation (ETS guidelines). The purpose of this environmental conditionality is to help achieve the ambitious climate objectives of the Green Deal by requiring the beneficiaries to invest towards green objectives in order to benefit from free allowances or from aid.

This conditionality has been included in the design of the policy options in order to enhance the contribution to the Green Deal objectives and to improve coherence with the current legislative framework of anti-carbon leakage measures.

3. Methodology and data used

3.1. Electro-intensity and trade intensity

The electro-intensity of economic sectors is defined as the total electricity consumption, multiplied by the average EU electricity price for industrial consumers and divided by the GVA (gross value added).

The annual electricity consumption and GVA per NACE-4 sector used are averages over the 2013-15 period. This is the most recent official data on electricity consumption at NACE-4 level. This data has been also recently used by the Commission for the purposes of establishing the Carbon leakage list 2021-2030 and for determining eligibility under the ETS guidelines[200]. The electricity price was assumed to be 176.6 €/MWh for all sectors, which corresponds to the average EU price for industrial consumers (20MWh-500MWh per year) in the second semester of 2015. The size bracket was chosen in order not to take into account the exemptions from RES financing costs already granted to some (usually larger) electricity-intensive companies.

Trade Intensity of economic sectors is calculated as exports and imports divided by turnover in the EEA and imports vis-à-vis countries located outside the EEA.

Imports, exports and turnover used are averages over the 2013-15 period. This data was selected for being consistent with the latest available data on electricity consumption and for

[200] For more detailed information, see Annex IV of SWD(2019) 22 final.

being used by the Commission for its revision of the ETS Carbon Leakage list and of the ETS guidelines[201].

As the eligibility analysis is based on data collected for the purpose of the establishment of the Carbon Leakage List 2021-2030 and used for determining eligibility under the ETS guidelines, it shares the same limitations. In particular, granular sector data on electricity consumption is not officially available at Eurostat and has therefore been collected from Member States and EEA via a data collection exercise for the review of the ETS carbon leakage list. In that context, 17 Member States submitted the relevant electricity data (NACE-4 level) by the deadline. However, as explained in the impact assessment of the Carbon Leakage List 2021-2030, that dataset was subject to several robustness checks.

3.2. Sectoral disaggregation

Economic sectors have been defined at NACE-4 level. NACE is the nomenclature of economic activities in the EU which provides the framework for collecting and presenting a large range of statistical data according to economic activity in the fields of economic statistics. For the purpose of this assessment, the electro- and trade intensity of 245 NACE-4 sectors were determined. These are all the sectors for which the complete underlying data is available; they all belong to the NACE economic fields B (mining and quarrying) and C (manufacturing).

The assessment of the impacts also relies on sectoral data at NACE-4 level, such as sector gross value added and number of employees. This data comes from Eurostat and concerns the most recent and complete years reported (2017 and 2018).

A frequent feedback received during the public consultations is that relying on NACE-4 level data means that the assessment includes all subsectors – with disparities among them in terms of electro-intensity - and hence does not take into account the heterogeneity of different economic activities within the same sector. However, the NACE-4 classification is a standard statistical aggregate at EU level. Carrying out an analysis at NACE-4 level is therefore a guarantee for a sector analysis on a credible and uniform factual basis, which does not rely on unverified data. In addition, key official data for the calculation of electro- and trade intensity and regarding employment and economic activity is available at NACE-4 level only.

3.3. Aid granted and budget of the options

Data on aid granted come from two different sources. The Commission's State aid Scoreboard provides the most complete data on the overall amounts of State aid granted in a specific field, e.g. reduced levies for energy-intensive users. However, it does not provide any indication of the amounts of aid granted per sector. The Transparency Award Module (TAM)[202] records State aid granted with greater sectoral granularity, however it only provides an overview of individual aid above €500 000 and it classifies each beneficiary at NACE-3 level. As a result, data on aid granted at sector level is highly incomplete, which makes the assessment of the impacts at sector level particularly challenging. This is notably the case with regard to the

[201] For more detailed information, see Annex IV of SWD(2019) 22 final.
[202] https://webgate.ec.europa.eu/competition/transparency/public?lang=en.

impacts due to changes in levels of aid, since the current rules provide for a maximum allowed aid intensity, which may well not be reached and be changed every year, but also for a company-specific cap on the levy payment, in terms of the company GVA. Even for the beneficiaries recorded under the TAM, estimating the intensity of the aid granted would require information on their electricity consumption, which is not available.

The State aid budget of the various options has been estimated on the basis of the aid granted in the form of reduced electricity levies, as annual average for the period 2017-2018. This data is recorded in the Commission's State aid Scoreboard[203], which shows the aggregate levels of State aid actually granted, and is available for 8 Member States[204]. Although there are currently 14 Member States with a scheme in place, for 6 Member States this data was not available or it was not possible to isolate the aid in the form of levy reduction with a sufficient degree of confidence. Nonetheless, the combined budget for the schemes of the 8 Member States on which data on aid granted is available represents over 90% of the budget for all the schemes currently in place. This is mainly due to the fact that data is available on the aid granted by Germany and Italy, two Member States with a sizeable industrial base and the highest levies which grant the most aid through levy reductions in the EU (see section "challenges and limitations").

In order to estimate the amount of support required for different options with large differences in the scope of eligibility, the following assumptions were made.

It is assumed that the aggregated aid has been granted to undertakings in all the eligible sectors. The current EEAG distinguishes between eligibility of 68 sectors, which are listed in Annex 3, and eligibility of only particularly electro-intensive undertakings operating in additional 152 sectors, which are listed in Annex 5. Four Member States have chosen not to grant support to the latter category, nevertheless the aid granted by these Member States amounts to only 2%-3% of the total aid granted in 2017-2018. This is why it was decided that it would be acceptable to consider that the total amount of support has been granted to both Annex 3 and Annex 5 sectors.

As the second step, data from the TAM, which records State aid granted in a less complete way[205] but with greater sectoral granularity, were used to establish that the share of beneficiaries operating in any of the sectors currently listed in the Annex 5 amounts to 33%-53%.

Estimating an aid budget for the future requires further assumptions and simplifications. As aid relates to reduction on levies that are charged on electricity consumption, the sectoral electricity consumption has been taken to measure the sector size. Based on TAM, it is assumed that 57% of the average aid granted has been evenly distributed across the 68 eligible sectors and 43% is evenly distributed across the additional 152 sectors. On this basis, adjusting for the sector electricity consumption, aid budget estimates have been calculated by taking into account, for the 8 Member States for which information on aid granted is available, (i) the sectors and undertakings eligible under each option, (ii) the maximum aid

[203] See: https://ec.europa.eu/competition-policy/state-aid/scoreboard_en.

[204] These are the Member States for which data is available for the relevant aid schemes for 2017-2018: Bulgaria, Denmark, Germany, Italy, Latvia, Poland, Romania and Slovenia.

[205] The TAM only provides an overview of individual aid above €500 000 while the Scoreboard registers all aid granted. This is why the TAM was not used to establish the overall aid amounts.

intensity allowed under each option, and (iii) the possible introduction of a minimum levy below which further reductions are not granted. Due to the lack of data on the use of the cap to limit the costs for the most exposed undertakings, budget variations due to changes in the GVA cap could not be taken into account. The budget estimates also assume the maximum aid intensity allowed under each option.

Overall, these estimates are based on significant simplifying assumptions and should be read with a degree of caution, given that complete data are not available, that the levy rates in the future are a main determinant of the aid amount but cannot be forecast in this exercise and that Member States have certain degrees of freedom in the design of schemes within the guidelines. For example, as is already the case currently, Member States may decide not to use the maximum aid intensity allowed.

4. Assessment of the options

In this section various policy options are described and subsequently assessed against a Baseline scenario in which the current rules would remain in place.

	Option E0: BAU	**Option E1**: Sector list	**Option E2**: ETS guidelines list
Eligibility	1) <u>Type A sectors</u> Sectors with at least: - 10% of EI and 10% of TI, or - 7% of EI and 80% of TI, or - 20% of EI and 4% of TI, or - substitutability with eligible sectors 2) <u>Type B sectors</u> Undertakings outside type A sectors with 20% of EI at individual level (for sectors with at least 4% TI) *Applying these criteria would result in 70 sectors (Type A) and certain companies from additional 159 sectors (Type B) being eligible for levy reductions.*	Eligibility defined at sector-level, based on: - a minimum level of the multiplication of EI and TI at sector level (factor threshold), and - minimum levels of EI and TI at sector level (individual thresholds). The impact quantification is based on the following calibration: - a factor threshold of 0.6%, and - individual thresholds of 5% EI and 4% TI. *Applying these criteria would result in 116 sectors being eligible for levy reductions.*	Sectors eligible for indirect cost compensation under the revised ETS guidelines *Applying these criteria would result in 11 sectors being eligible for levy reductions.*
Aid intensity: Aid reduction level	85%	Aid intensity is modulated based on the risk of relocation. For sectors above (EI*TI) factor threshold of 2% (91 sectors): 85%, with a minimum contribution to a reduced levy of 0.5 €/MWh For the rest of the sectors (25 sectors): 75%, with a minimum contribution to a reduced levy of 0.5 €/MWh	75% and scaled by efficiency benchmarks
Aid intensity: Cap on the amount of payable levy	- 4% of GVA - 0.5% of GVA for undertakings with at least 20% of EI	Aid intensity is modulated based on the risk of relocation. For sectors above (EI*TI) factor threshold of 2% (91 sectors): 0.5% of GVA, with a minimum contribution to a reduced levy of 0.5 €/MWh For the rest of the sectors (25 sectors): 1% of GVA, with a minimum contribution to a reduced levy of 0.5 €/MWh	1.5%
Environmental conditionality	No	Yes	Yes
Green bonus	No	Yes	No

In order to address Problem 2 presented in Section 2.1, options E1 and E2 take elements to different degrees from the methodologies used to determine the two carbon leakage lists under the EU Emission Trading Scheme (ETS) and the ETS State aid guidelines (ETS guidelines). One the one hand, the ETS carbon leakage and the ETS guidelines lists also aim at addressing relocation risk for EIUs stemming from the effect of the carbon market, due to the increased costs of direct emissions and/or to the indirect impact on electricity prices. In this context, the ETS Guidelines in particular have stricter requirements than the EEAG in terms of eligibility, aid intensity and attached conditions. On the other hand, the increased electricity prices stemming from the existence of the ETS are not fully comparable to electricity levies covered in the EEAG: the aim of the ETS is to put a price on a negative externality in an EU-wide market and across different fuels. Direct emissions from fossil fuels used in industrial sectors are priced by the ETS directly. Indirect emission costs in the electricity sector are mainly driven by the price of emission allowances, which is the same in all Member States. While the relief from direct ETS cost is addressed through free allocation of allowances, indirect cost compensation is covered by the ETS guidelines. Levy exemptions addressed by the EEAG, on the other hand, only concern electricity, not other energy carriers, and are but one possible tool of raising finance for support schemes for renewables and other decarbonisation measures; other financing means are for example (specific energy) taxes with their own distribution of tax burden. Where Member States impose electricity levies to finance support schemes, these are set at national level and differ extensively from case to case, also depending on past and current levels of renewables support, and can considerably exceed indirect ETS costs (see Figure 12 and Figure 13). In this context, Option E1 also includes a minimum level for reduced levies in line with the minimum rates for taxes on electricity consumption provided for under the Energy Taxation Directive[206].

In order to address Problem 3 presented in Section 2.1, the three Options present different methods and degrees of restrictions in eligibility for the aid and related aid intensity, which affect the degree of competition distortions and of cost-effectiveness of the intervention. Moreover, levies vary greatly across the EU and are particularly high in Member States with increased climate ambitions or with many large legacy support schemes. In other Member States, a tax imposed on electricity consumption finances decarbonisation policies. While these differences have an impact across undertakings located in different Member States, they primarily stem from public finance choices under Member States prerogative. On the other hand, selective reductions in electricity taxes or levies entail State aid are likely to lead to competition distortions and need to be well justified and kept to a minimum in order to be compatible with State aid principles. Option E1 introduces mitigating measures to address the risk of competition distortions across undertakings located in different Member States with different levy or tax rates, in line with the minimum rates for taxes on electricity consumption provided for under the Energy Taxation Directive.

Problem 5 presented in Section 2.1 relates to the objectives pursued by the rules, which need to be fine-tuned. The analysis takes into account this aspect by adjusting the specific objectives of the intervention, which are used to assess the effectiveness of the three Options.

[206] Council Directive 2003/96/EC.

Option E0 would maintain the current rules for granting levy reductions, while the methodology to determine eligibility would be based on the most recent sectoral data currently available.

Option E1 would provide for a single eligibility list based on sectors, with aid intensity modulated according to the level of the relocation risk. For this purpose, it applies the methodology used to determine the carbon leakage list under the EU Emission Trading Scheme (ETS), which is based on a minimum level of the multiplication of the two relevant parameters to assess the risk of relocation and carbon leakage at sector level. In addition, minimum individual levels for both EI and TI indicators are included, in order to subject eligibility to a sufficiently high level in each individual parameter and avoid the possibility of sectors with extremely low values of either indicator to pass the multiplication threshold.

This approach has been selected to take into account the results of the targeted public consultation on the draft CEEAG, which had proposed an eligibility list based on minimum individual EI and TI levels. The draft CEEAG set the benchmark for TI at 20% (as in the ETS guidelines and substantially higher than in the current EEAG) and the benchmark for EI at 10% (as in the current EEAG and substantially lower than the equivalent threshold in the ETS guidelines[207]). The selection of these values is justified by the need to cater for the differences in the two underlying costs components (which is measured by the EI), as the national electricity levies are not fully comparable to the increased electricity prices stemming from the existence of the ETS, both in magnitude and heterogeneity. On the other hand, the exposure to international competition measured by TI does not depend on the underlying costs and therefore the case for alignment with existing EU rules is stronger. Based on the CEEAG proposal for consultation, 51 sectors would have been eligible for levy reductions.

The Commission explicitly invited stakeholders to provide feedback on the proposed methodology to determine eligibility. The vast majority of private sector respondents as well as several Member States found the proposed methodology overly restrictive and rigid (See ANNEX 2). Many of these respondents argued that the rules to grant levy reductions should remain unchanged. Another frequent comment laid out was that the methodology proposed in the draft CEEAG should be reconsidered in order to apply the two eligibility indicators in a more flexible way.

The quantification of the impacts in option E1 is made by applying a minimum threshold to both to the multiplication of EI and TI indicators and to these indicators individually. A minimum multiplication level of 0.6% is proposed, corresponding notionally to 15% for EI and 4% for TI and taking into account the results of the public consultation which called for a more flexible calibration of eligibility. As both a high trade intensity and/or a high electro-intensity are factors determining the relocation risk, the multiplication allows for different combinations of them. In addition, this basic threshold is augmented by the minimum individual levels for EI (5%) and TI (4%). The slightly lower minimum individual level for TI is in line with the lowest required level of TI currently applied in EEAG methodology and tallies with the notional boundaries of the multiplication thresholds. In other words, a sector with 4% TI (the lowest level possible for this indicator) has to compensate for this by having

[207] It is not possible to compare EI to the carbon emission intensity, used as eligibility parameter under the ETS carbon leakage list.

EI of at least 15%, which is above the basic value that had been put forward in the CEEAG proposal for consultation.

The application of the proposed criteria would render 116 sectors eligible for levy reductions, in comparison to 220 sectors in the EEAG.

In order to account for the fact that the risk of relocation is not uniform across sectors, the maximum proportion of aid allowed and the maximum GVA cap on the amount of payable levy by the most affected companies would be graduated.

For the sectors at high relocation risk displaying a multiplication of EI and TI of 2% and higher (notionally corresponding to the threshold in the ETS carbon leakage list), the GVA cap is kept at 0.5% for the beneficiaries that reach it and the standard aid intensity cap is kept at 85% (in line with the EEAG). Beneficiaries from eligible sectors which do not display a multiplication of EI and TI of at least 2% are considered to be at a lower risk of relocation and can apply a GVA cap of 1% if they reach it or a standard aid intensity cap of 75%.

However, in order to mitigate the impact on competition distortions across undertakings located in different Member States, levies reduced under the standard aid intensity would not be able fall below 0.5 EUR/MWh. This means that 0.5 EUR/MWh will effectively become the minimum contribution for all levies. This value has been selected following the results of the public consultation, which explicitly invited stakeholders to provide feedback on this proposal, as well as by taking into account the minimum rate for taxes on electricity consumption provided for under the Energy Taxation Directive[208].

In order to strengthen interlinkages of levy reduction schemes with Green Deal objectives, this option would subject aid to the same environmental conditionalities of the ETS guidelines in terms of energy efficiency investments, electricity consumption from carbon-free sources, or reductions of GHG emissions by beneficiaries.

Moreover, undertakings falling in the less advantageous category of aid intensity would be able to reach the higher aid intensity levels in order to reward for a meaningful contribution to the development of renewable energy sources. This green bonus would be optional and in order to achieve it, aid recipients would have to cover 50% of their electricity consumption from carbon-free sources. To ensure that the measure directly contributes to the development of renewable and other carbon-free generation capacities, a part of the required green electricity procurement obligation will have to be met either through power purchase agreements (10%) or on-site or near-site generation (5%).

Option E2 would fully copy all the provisions of the ETS guidelines in terms of sector eligibility, levels of allowed aid and related conditionalities.

The economic, social and environmental impact of the policy options described above has been assessed against the baseline scenario. The following table provides a brief overview of the assessment and a more detailed description follows.

[208] Council Directive 2003/96/EC.

Impact	Description
Economic and social impact – relocation risk	Should the Guidelines be excessively strict as regards which sectors are eligible for reduction on electricity levies or as regards the maximum reduction amount, this could result in relocation risk (e.g. via the relocation of economic activity outside the EU or via investment plans that would not take place within the EU borders). Should such risk materialise, it would entail lower economic activity and employment in the EU. The impact of the options therefore depends: - on the probability of relocation outside the EU of sectors at significant risk (assessed by looking at the magnitude of the extra costs due to the levy as well as at trade intensity and electro-intensity of sectors); and - the impact on employment and GVA that would be lost in case such relocation materialises. The environmental, economic and social impacts of carbon leakage are inextricably tied together.
Economic and social impact – competition distortion	- In any eligible sector, companies that do not receive compensation compete with companies that benefit from it (**intra-sector competition**). Moreover, competition between companies active in sectors producing substitutable products might be distorted by the measure **(inter-sector competition**). - A lower reduction level would create less competition distortions, within sectors and across Member States (since some countries do not grant any reduction at all). - Finally, the introduction of a **minimum reduced level** of levy would limit competition distortions. Reductions of levies to overly low levels may entail non-proportional aid and therefore may create unnecessary competition distortions.
Environmental impact – carbon leakage and decarbonisation of EIUs	- Relocation, if it occurs, would also result in **carbon leakage** by shifting electricity consumption and therefore indirect emissions to less carbon-restricted areas outside the EU. - There is a need for industrial **decarbonisation** in order to reach Green Deal objectives. The absence of reductions could deter some energy-intensive sectors from investing in new technologies leading to electrification of production processes. At the same time, a too generous reduction system would have a negative impact on the incentives for industries to become more electro-efficient. - Presence of **green conditionality and of green bonus**: Recent ETS guidelines conditions any compensation amount

	to investment in decarbonisation projects or to a commitment to use "greener" electricity. Similarly, free allowances on fossil fuel granted under the revised ETS Directive also introduce a concept of conditionality. In line with the objectives of the Green Deal, levy reductions in favour of EIUs could have a positive environmental impact, should such a condition be attached to this system or aid intensity be modulated according to the environmental ambition of the beneficiary. Climate policies, energy efficiency and deployment of renewable energy such as wind and PV is generally correlated with air quality improvements and bring also co-benefits on human health. Measures to reduce energy consumption, reduce GHG emissions and leakages are therefore positive for air quality and human health.

4.1. Economic and social impact – relocation risk

The current rules (Baseline) allow to grant levy reductions to all undertakings operating in 68 sectors (type A sectors). Combined, their EU annual GVA in 2017-2018 amounted to €375 billion while their EU average number of employees in 2017-2018 amounted to 4.18 million. In 2013-2015 (latest available data), their EU annual electricity consumption amounted to 435 TWh.

Under the current rules, it is also possible to grant levy reductions to some undertakings operating in additional 152 sectors (type B sectors), provided that their electro-intensity at company level is at least 20%. Combined, their EU annual GVA in 2017-2018 amounted to €1.28 trillion and their EU average number of employees in 2017-2018 amounted to 20.44 million. In 2013-2015, their EU annual electricity consumption amounted to 167 TWh. As 92% of these sectors have an average electro-intensity below 10%, in practice it is reasonable to assume that only few companies within these sectors meet eligibility criteria of a very high electro-intensity and therefore the current aid covers only a small fraction of these GVA and employees. On the other hand, the annual electricity consumption is assumed to be more substantial, given the high electro-intensity of the beneficiaries. Due to the lack of data on the aid granted at sector level, it is not possible to estimate the coverage of the aid to type B sectors more precisely.

Based on the information available, the annual aid granted on average in 2017-2018 was worth €7.35 billion.

The current rules allow 27% of all sectors for which electro-intensity data is available to be eligible for levy reductions. Moreover, type B sectors account for an additional 62% of all sectors that can be analysed (with eligibility at company level). It follows that only 11% of those sectors for which electro-intensity data is available are not eligible at all for levy reductions.

Table 10: Summary of eligibility, employment, GVA, electricity consumption and estimated budget under each option

	Baseline	**Option E0**: BAU	**Option E1**: Sector list	**Option E2**: ETS guidelines list
No of type A (type B) sectors	68 (152)	70 (159)	116	11
No of employees in type A (type B) sectors	4.18 Mio (20.44 Mio)	4.85 Mio (21.45 Mio)	9.60 Mio	1 Mio
GVA of type A (type B) sectors	€ 375 bln (1.28 tln)	€ 421 bln (1.32 tln)	€ 695 bln	€ 107 bln
Electricity consumption in type A (type B) sectors	435 TWh (167 TWh)	453 TWh (161 TWh)	521 TWh	186 TWh
Estimation of budget	€ 7.35 bln	€ 7.47 bln	€ 5.03 bln	€ 2.70 bln

Option E0 – Business as usual (BAU)

Under **option E0 (BAU)**, eligibility is based on updated values for electro-intensity and trade intensity for all sectors, while applying the same methodology and thresholds as under current rules. Under this option, all undertakings operating in 70 sectors (type A sectors) may be eligible for reductions (See section 4.5 of this annex), which represents a slight increase compared to the baseline. Combined, in 2017-2018 their EU annual GVA amounted to €421 billion (+12.3% compared to the Baseline) while their EU average number of employees amounted to 4.85 million (+16% compared to the Baseline). In 2013-2015 (latest available data), their EU annual electricity consumption amounted to 453 TWh (+4% compared to the Baseline).

Under option E0, it would also be possible to grant levy reductions to certain undertakings operating in additional 159 "type B" sectors, provided that their electro-intensity at company level is at least 20%. This represents a slightly increase in number (7 sectors) relative to the Baseline. Combined, in 2017-2018 their EU annual GVA amounted to €1.32 trillion (+3% compared to the baseline) and their EU average number of employees amounted to 21.45 million (+5% compared to the baseline). In 2013-2015, their EU annual electricity consumption amounted to 161 TWh (-4% compared to the Baseline). Due to the eligibility conditions and that 97% of these sectors have an average electro-intensity below 10%, also here it is assumed that the aid would cover only a small fraction of this GVA and employees, while it would cover a more significant share of the electricity consumed. Due to the lack of data on the aid granted at sector level, it is not possible to estimate the coverage of the aid more precisely.

Under option E0, the rules concerning aid intensity are unchanged relative to the baseline. It follows that this option has no impact on the efficiency and effectiveness of these rules in avoiding relocation of eligible undertakings. This option would not limit reductions to a minimum level of levy.

Option E0 maintains a system with broad eligibility and significant levy reductions, which hence offers strong protection against relocation risk. However, such large coverage also encompasses a large number of sectors for which the risk of relocation due to high levies is more questionable, although in this case reductions are limited to undertakings with very high EI. Option E0 also does not modulate reductions according to the relocation risk at sector level and it does not limit reductions to any level of reduced levy. The high effectiveness and low efficiency of this option in addressing the risk of carbon leakage is overall comparable to

the Baseline, as option E0 slightly increases the coverage of protection (notably in terms of GVA) but it also implies a higher annual budget of €7.99 billion (+9% compared to the budget). The policy coherence of option E0 remains limited, since the current methodology to select beneficiaries (and, to a minor extent, the level of allowed aid) differs significantly to the degree of protection against carbon leakage due to direct and/or indirect emission costs provided for by the ETS carbon leakage and the ETS Guidelines lists.

Option E1 - Sector list

Option E1 (Single list) has been built by updating the values for electro-intensity and trade intensity for all sectors. All undertakings within a sector are eligible provided that the multiplication of EI and TI at sector level is at least 0.6% and that minimum levels of EI and TI at sector level are 5% and 4% respectively.

Compared to the Baseline, this option the number of eligible sectors changes from 68 (type A) + 152 (type B) to 116 sectors overall. . On the one hand, the EU annual GVA in 2017-2018 of these 116 sectors amounted to €695 billion, which is more than in the 68 type A sectors of the Baseline, while their EU number of employees amounted to 9.60 million. In 2013-2015, their EU annual electricity consumption amounted to 521 TWh (+20% compared to the 68 type A sectors of the Baseline).

On the other hand, this option would not allow for eligibility of electro-intensive undertakings in 101 "type B" sectors included in the Baseline and not eligible under this Option. Due to the lack of data, it is difficult to quantify the decrease in the coverage of GVA, employees and electricity consumption compared to the Baseline. It is however reasonable to assume that such decrease is lower in terms of GVA and employees while more significant in terms of electricity consumption.

As in the baseline, under option E1 a standard maximum levy reduction rate is applicable but Member States have the possibility to set a cap to the maximum own contribution at the level of undertaking (GVA cap). However, under Option E1 aid intensity is modulated based on the risk of relocation of eligible sectors.

For sectors with a multiplication of their EI and TI of at least 2%, as a general rule the maximum reduction allowed is equal to 85% of the levy. The cap allowed under this option is equal to 0.5% of the GVA of the specific beneficiary. These higher aid intensities are applicable to 91 sectors with an EU annual GVA in 2017-2018 amounting to €529 billion and a number of employees at EU level amounting to 6.59 million. In 2013-2015, their EU annual electricity consumption amounted to 474 TWh.

For the rest of the sectors, as a general rule the maximum reduction allowed is equal to 75% of the levy. The cap allowed is equal to 1% of the GVA of the specific beneficiary. These lower aid intensities are applicable to 25 sectors with an EU annual GVA in 2017-2018 amounting to €166 billion and a number of employees at EU level amounting to 3 million. In 2013-2015, their EU annual electricity consumption amounted to 47 TWh.

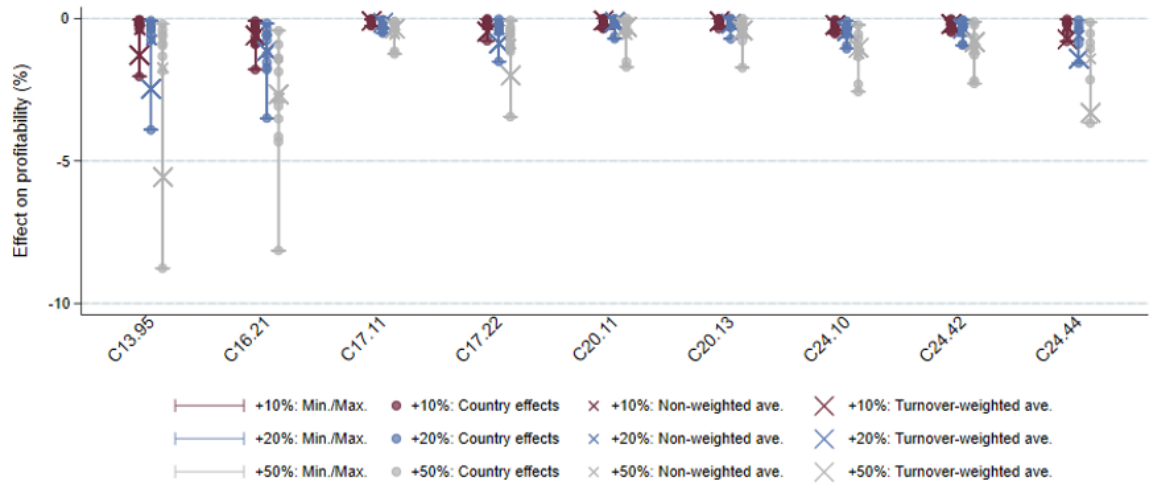
Moreover, reductions both on the basis of the standard reduction rate and of the GVA cap are limited to an own contribution of the beneficiaries of at least 0.5 EUR/MWh.

The support study has analysed the impact on profitability in multiple scenarios modelling different changes in the level of reduced levies. This has been done on a sample of 9 sectors with an electro-intensity of more than 20%. Profitability has been chosen as a proxy to assess

relocation risk: the higher the negative impact on profitability, the more significant the risk that undertakings decide to relocate.

The graph below shows, for each sampled sector, the impact on profitability due to an increase of 10%, 20% and 50% in the effective levy. A reduction of aid intensity from 85% to 75% is equivalent to an increase of the effective levy of 66%.

Figure 15: Simulation results (% effect on profitability) across sectors for effective levy increases by 10%, 20% and 50% [209]



From the graph, we can conclude that the magnitude of the decrease on profitability due to a 66% increase in the effective levy is likely to be limited. Although the analysis shows that profits decrease more significantly for 2 sectors in Germany, it is also important to note that these results abstract from caps on payments based on GVA. To the extent firms only have to pay a maximum percentage of their GVA, the results of the study overestimate the impacts for firms in sectors that already hit this upper limit. Moreover, the analysed sample is composed by highly electro-intensive sectors and therefore it is also reasonable to assume that the average negative impact on the profitability of the 25 sectors subject to lower aid intensities would be much more limited than the results below. The electro-intensity is below 20% for 96% of these sectors and below 10% for 65% of them.

The introduction of environmental conditionality would be neutral as regards its impacts on the risk of relocation for SMEs, as it is not applicable to them. However, this would also imply additional costs for non-SMEs. Depending on the magnitude of those costs, the aid intensity would be proportionally reduced, thereby increasing the risk of relocation risk proportionally. The identified costs are the following:

- The implementation of the recommendation of the energy audit: the costs of implementation, as well as the effects in terms of reduction of energy consumption costs, would be determined on a case by case basis by the auditors and will vary between the various

[209] Support study, p. 104.

sectors. The conditionality allows flexibility to meet the condition by requiring the costs to be proportionate, which implies some degree of uncertainty.

- Reduce the carbon footprint of their electricity consumption so as to cover at least 30% of their electricity consumption from carbon-free sources.

- The investment of a significant share of at least 50% of the aid amount in projects that lead to substantial reductions of the installation's GHG emissions and well below the applicable benchmark used for free allocation in the EU Emissions Trading System: The investment costs and possible benefits are also very difficult to quantify, as depending on the sectors the possible technological shifts would be very different in terms of cost-effectiveness. Overall, the risk of relocation risk would be higher than without conditionality requirement.

Compared to the Baseline, option E1 sharpens eligibility by enlarging eligibility at sector level (type A) but discontinuing eligibility for 101 type B sectors. It also entails more limited levy reductions, notably for a subset of eligible sectors with a lower relocation risk for which the impact is likely to be small. Therefore, Option E1 offers a similar level of protection against relocation risk. While the level of reductions and the conditionality introduced under option E1 result in a limited increase in relocation risk, it also ensure that reductions are more proportional. All in all, Option E1 is as effective and more efficient than the Baseline in avoiding relocation risk. Option E1 also enhances policy coherence, since the level of allowed aid and the methodology to select beneficiaries would partially converge to the degree of protection against carbon leakage provided for by the ETS carbon leakage and ETS guidelines, while also catering for the differences in magnitude and heterogeneity of the two underlying cost components.

Option E2 – ETS guidelines list

Under option E2, eligibility would be significantly reduced to 11 sectors (See section 4.5 of this annex). Compared to the baseline, levy reductions would therefore have a much lower coverage in terms of GVA (-71%) and numbers of people employed (-76%). This option would not allow for eligibility of type B sectors as in the baseline.

Under Option E2, the maximum reduction allowed is decreased to 75% of the levy (compared to 85% in the baseline). This maximum rate of reduction is applied on the basis on electricity consumption efficiency benchmarks, which measure the product-specific electricity consumption per tonne of output achieved by the most electricity-efficient methods of production for the product considered. The introduction of efficiency benchmarks on electricity consumption means that undertakings not meeting these standards would have to pay more than 25% of the levy. Compared to the baseline, Option E2 moves to a single GVA cap at 1.5% and it introduces the same environmental conditionalities presented under option E1. On the other hand, Option E2 would not limit reductions to a minimum level of levy.

Based on the findings of the support study, the impact on the profitability of the sampled sectors stemming from the decrease in the rate of levy reduction is estimated to be overall moderate, given that the higher impact on the most exposed sectors could be reduced by the use of the GVA cap (which was factored in the status quo but could not be modelled in the prospective scenarios). The introduction of efficiency benchmarks is expected to increase relocation risks for some undertakings, but this could not be quantified.

All in all, the effectiveness of Option E2 in avoiding carbon leakage is assessed to be significantly lower than the baseline. This is notably due to the radical changes in sector eligibility. The changes in the aid intensity also point at a lower protection against carbon

leakage, and although the impacts cannot be fully quantified they are likely to be of a lower magnitude than the ones stemming from changes in eligibility. The efficiency of Option E2 increases compared to the baseline, as resources are focused solely on the top exposed sectors and aid granted is reduced, albeit with a moderate impact on carbon leakage protection. Option E2 would result in a full alignment with the ETS guidelines, thus not catering for the differences in heterogeneity and magnitude of the two underlying cost components on which reductions are granted.

Stakeholder views: A majority of submissions argued that the current eligibility criteria and aid intensity caps should be maintained, citing as a reason the significant additional burden not only vis-à-vis competitors in third countries, but also compared to market players located in other Member States where levies are significantly lower. Several participants suggested basing the eligibility on a multiplication of TI and EI indicators as way of addressing the alleged shortcomings stemming from looking at each indicator separately. A small number of participants expressed their support for a minimum size of the levy before reductions can be granted, provided that reductions based on GVA cap would allow to reduce levies below such level.

4.2. Economic and social impact – competition distortions

As mentioned above, eligibility has an impact on competition distortions in that it determines which sectors can potentially benefit from reduced surcharges and excludes those that cannot (inter-sector competition). In addition, eligibility can also impact intra-sector competition, if certain companies within a sector can benefit from reduced levies while others cannot.

In the baseline scenario, all undertakings belonging to 68 sectors are eligible for reduced levies. The 2017-2018 annual aid at EU level to these 68 sectors amounts to €4.2 billion. Moreover, undertakings from the 152 "type B" sectors are eligible for reduced levies provided that they reach an electro-intensity of at least 20% at individual level. The 2017-2018 annual aid at EU level to these 152 sectors amounts to €3.2 billion.

The level of support is limited to 85% of the levy. In addition, Member States can cap the costs of the most exposed undertakings as a percentage of their gross value added (GVA cap). All undertakings can in principle benefit from a GVA cap of 4% while undertakings with an electro-intensity of 20% can benefit from a GVA cap of 0.5%.

Option E0 – Business as usual (BAU)

Compared to the baseline, Option E0 would slightly increase the list of type A sectors to 70 and the list of type B sectors to 159. This means that the impact on competition of this option would be relatively similar to the baseline scenario.

Aid granted to the 70 eligible sectors does not carry high risks of intra-sector competition distortions, since all undertakings operating in the sector are in principle eligible. Nonetheless, aid to these sectors also risks distorting inter-sector competition, resulting in encouraging the consumption of goods from eligible sectors to the detriment of goods from non-eligible sector. All in all, aid to type A sectors is considered to entail risks of moderate competition distortions. Under Option E0, aid to type A sectors is expected to increase to €4.75 billion (+13% compared to the Baseline), thereby increasing competition distortions accordingly.

Aid granted to the 159 "type B" sectors entails higher intra-sector competition distortions, as within the same sector only very electro-intensive undertakings would benefit from the

reductions. However, 97% of these sectors have an average electro-intensity below 10%. It follows that, from a competition perspective, the likelihood of granting very selective aid within a sector is high as only few undertakings in given sectors can be granted levy reductions. This approach to eligibility is also based on company-specific data, leading to more uncertain factual basis for the Member States. All in all, such aid is considered to entail significant competition distortion risks. Under this option, aid to Type B sectors is expected to be relatively similar to the Baseline (slightly increase by 3% has been estimated).

Under option E0, the rules related to the level of allowed aid are the same as in the baseline. In particular, the fact that the highest possible reduction (GVA cap at 0.5%) would remain conditional to having an electro-intensity of 20% at individual level means that the likelihood of granting very selective and generous aid to type B sectors remains high. By definition, all companies eligible in a type B sector could in principle benefit from the highest possible aid intensity allowed, while most of the competitors in the same sector would not get any aid at all.

All in all, Option E0 is slightly less effective than the baseline in minimising competition distortions. The main distortive elements stemming from eligibility and levels of allowed aid would remain in place, while distortions would increase due to the slightly broader eligibility and associated budget. Lastly, Option E0 has the same low degree of policy coherence as the baseline, since it allows aid on significantly different terms than the ETS carbon leakage and the ETS guidelines, which take a sectoral approach on eligibility.

Option E1 - Sector list

Compared to the baseline, the number of type A sectors eligible for levy reductions under Option E1 increases, which might increase the aid budget to type A sectors by €880 million. Of course, the caveats presented above on the estimation of future aid budgets must be borne in mind. Contrary to the baseline, no eligibility to 101 type B sectors is foreseen. €3.2 billion of annual aid entailing risks of significant competition distortions that are currently being granted would therefore be discontinued. The reductions would be applied in a more homogeneous manner across any specific sector.

Option E1 would also limit the level of support to 75% of the initial levies for 25 sectors at lower relocation risk. Compared to the baseline scenario, sectors benefiting from the support schemes would have to pay more similar levies to sectors not receiving reductions, which would reduce possible competition distortions among them. Based on the methodology presented in Section 3.3 of this Annex, the change in the maximum allowed aid intensities would reduce the estimated amount of annual aid by €44 million. Due to the lack of data on the use of the GVA cap, it is not possible to estimate the net effect on the aid granted. Nonetheless, the move to a single cap at sector level (compared to the double cap depending on company-specific EI as in the baseline) entails as such a lower risk of intra-sector competition distortions by treating beneficiaries within the same sector in a more homogeneous fashion. Lastly, Option E1 limits reductions to a minimum level of levy equal to 0.5 EUR/MWh. This novelty addresses the fact that the current rules allow to grant reductions up to even lower rates that, in all likelihood, are not sufficient to trigger a serious risk of relocation for EIUs. Reductions to very low levies are therefore likely to entail distortions of competition that are not strongly justified.

All in all, Option E1 is more effective than the baseline in minimising competition distortions as it addresses the most distortive elements stemming from eligibility and levels of allowed aid, it reduces the number of sectors from 220 to 116 and the estimated aid budget would

decline significantly. Compared to the baseline, Option E1 enhances the degree of policy coherence. On the one hand, it allows aid on more similar terms with the ETS carbon leakage list and the ETS guidelines, which address a similar objective. On the other hand, it introduces different features aimed at addressing the specificities and heterogeneity of levies across Member States, including by aligning to the minimum rate for taxes on electricity consumption provided for by the Energy Taxation Directive.

Option E2 – ETS guidelines list

Compared to the Baseline, the number of type A sectors eligible for levy reductions under Option E2 decreases by 84% and the related aid granted to type A sectors would shrink to €2.7 billion (-63%), which would greatly reduce the risk of moderate competition distortions. Moreover, contrary to the baseline, no eligibility of type B sectors is foreseen. €3.16 billion of annual aid entailing risks of high competition distortions would therefore be discontinued. Also in this case, the reductions would be applied in a more homogeneous manner across any specific sector.

Option E2 would limit the level of support to 75% of the levies that the most efficient undertakings in a sector would have to pay which would limit aid granted and related competition distortions. Due to the change in the maximum allowed aid intensities, the estimated annual aid would be further reduced by €361 million (1.5% of the total budget of the Baseline)[210].

Option E2 would also set a single GVA cap at 1.5%. Compared to the baseline scenario, the introduction of one single GVA cap would also mean that there would be less risk of significant distortions within and between sectors. Lastly, Option E2 does not include a limit on the minimum level of reduced levy. The related undue distortions of competition would therefore remain but be significantly reduced due to the much more narrowly-defined eligibility under option E2.

All in all, Option E2 is significantly more effective than the baseline in minimising competition distortions as it removes most of the main distortive elements stemming from eligibility and levels of allowed aid, while it is estimated to also reduce the aid budget and related competition distortions. Compared to the baseline, Option E2 also enhances the degree of policy coherence with the ETS guidelines as regards the sector list, which address a similar objective and rely on similar methodologies, while less catering for differences in levy and tax heterogeneity across Member States.

4.3. Environmental impact

The Green Deal Communication and the European Industrial Strategy highlight that energy-intensive industries are indispensable to Europe's economy and that their decarbonisation and modernisation is essential. To succeed in the energy transition, Europe needs to pursue entirely new industrial processes and cleaner technologies, while keeping the costs down and improving competitiveness. One of the promising avenues of the decarbonisation of industrial processes is electrification, which relies on the quickly falling emission intensity of the power

[210] The impact of introducing efficiency benchmark cannot be quantified because of the lack of data.

sector. Some production processes can, to a certain extent, shift from fossil fuels to electricity consumption already in the near future[211]. Decarbonisation levies tend to concentrate heavily on electricity consumption and could slow down or entirely discourage the electrification drive and lead to loss of competitiveness and carbon leakage.

At the same time, the European Industrial Strategy notes that "*reducing emissions across industry will depend on an 'energy efficiency first' principle and a secure and sufficient supply of low-carbon energy at competitive prices*"[212]. While levy reductions may act as enablers of electrification, they can dampen incentives for greater electro-efficiency by reducing the final price. In particular, highly electro-intensive consumers are more likely to increase their efficiency, for instance by adopting the latest technological advances for their industrial processes, especially in high-price environments. Energy-intensive users which receive too generous reductions may be less incentivised to become more electro-efficient. The same holds whenever eligibility for aid is based on a minimum electro-intensity at company level. Reductions on levies therefore have a mixed effect on the environment. In the long-run, they enable many industries to invest into decarbonisation through greater use of electricity, while in the short-run they indirectly contribute to higher emissions of the still not totally decarbonised electricity sector.

In order to preserve incentives to become more energy-efficient, while not hindering electrification efforts, the recent ETS guidelines and ETS carbon leakage list have introduced conditions on compensation for ETS indirect costs and on free allocation of EU allowances. These conditions relate to the implementation of the recommendations in energy audits or energy management system and to the reduction of the carbon footprint of industrial electricity consumption. Such conditions are likely to have a positive environmental impact.

As explained above, the levy rates on electricity vary among Member States before any reductions are applied. In some cases the unreduced rates exceed the current indirect cost component in electricity prices stemming from the carbon costs, implying that the carbon leakage risks could, ceteris paribus, be higher.

Table 11: Summary of electricity consumption, coverage of products with electrification potential and estimated budget under each option

	Baseline	**Option E0**: BAU	**Option E1**: Sector list	**Option E2**: ETS guidelines list
Electricity consumption when eligible at sector level	435 TWh	453 TWh	521 TWh	186 TWh
Share of products with fuel-electricity substitutability eligible[213]	100%	100%	100%	68%
Estimation of budget	€7.35 bln	€7.47 bln	€5.03 bln	€2.70 bln

Under the Baseline, the 68 sectors eligible for levy reductions account for 435 TWh of annual electricity consumption. In addition, electro-intensive undertakings operating in one of the

[211] The Commission Delegated Regulation (EU) 2019/331 of 19 December 2018, which implements the current ETS, contains a list of 59 products with fuel-and-electricity exchangeability (under Annex I, title 2).
[212]COM(2020) 102 final, page 8
[213] Based on the list of 59 products with fuel-and-electricity exchangeability under Annex I, title 2 of the Commission Delegated Regulation (EU) 2019/331 of 19 December 2018, which implements the current ETS.

152 type B sectors are also eligible and consume 167 TWh of electricity annually. While the eligible companies within these sectors have an electricity consumption much higher than the average company in the same sector, due to the lack of data is not possible to estimate electricity consumption from this category of beneficiaries.

Under the current EEAG, 57 products with fuel-electricity substitutability belong to type A sectors, while the remaining 2 products belong to type B sectors. Under the current guidelines, levy reductions are not subject to any conditionality, which means that levy reductions contributing to lower electricity costs are not subject to any commitments by beneficiaries to improve their carbon footprint or energy-efficiency.

Option E0 – Business as usual (BAU)

The 70 sectors eligible **Option E0** jointly account for 453 TWh of annual electricity consumption. Compared to the baseline, this option has a slightly broader coverage in terms of electricity consumption[214]. Option E0 also ensures the same strong coverage of products with electrification potential as the baseline.

The share of type B sectors with an electro-intensity below 10% would slightly increase. This further increases the risks of rewarding companies which are less efficient than their competitors: while the most electro-intensive – i.e. potentially least electro-efficient – would be eligible for reductions, other companies belonging to the same sector with lower electro-intensity would pay the full levy. As in the baseline, no green conditionality would be required that could enhance the environmental impact.

All in all, Option E0 is roughly as effective as the baseline in preserving the incentives for a cost-effective decarbonisation of energy-intensive industries. Option E0 has similar impacts in terms of electrification, (lack of) environmental conditionalities and energy efficiency incentives.

Option E1 – Sector list

The 116 sectors eligible under **Option E1** jointly account for 521 TWh of annual electricity consumption for the EU as a whole. This option is significantly more effective than the baseline in preserving the incentives for a cost-effective decarbonisation of EIUs. It still ensures a comprehensive coverage of products with electrification potential, while the coverage of electricity consumption increases by 20%. Compared to the Baseline, this option entails a broader coverage against carbon leakage and it also reduces the risk of undermining electrification of EIUs production processes. The risks of distorting electro-efficiency incentives are broader but less acute, as eligibility and more favourable GVA caps based on company-specific electro-intensity would be discontinued.

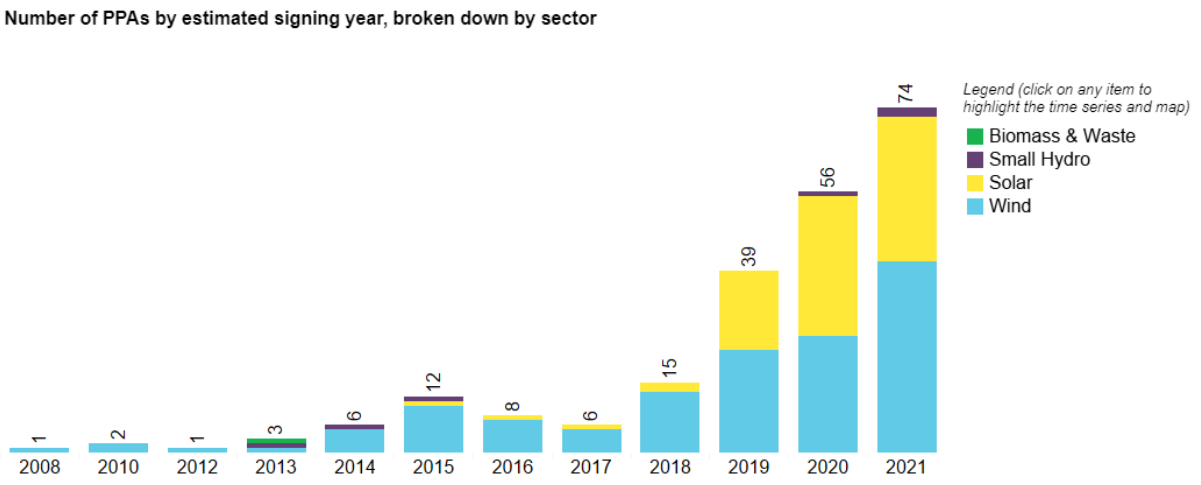
[214] In addition, under option E0 some undertakings operating in one of the additional 159 type B sectors are also eligible. These 159 sectors, combined, consume 161 TWh of electricity each year. While the eligible companies within these sectors have an electricity consumption much higher than the average company in the same sector, due to the lack of data is not possible to estimate electricity consumption in this category of beneficiaries.

Moreover, the introduction of environmental conditionalities and of higher aid subject to high shares of carbon-free electricity consumption further ensures that levy reductions play a role in the decarbonisation of beneficiaries.

To increase the positive environmental effects of the aid, a green bonus to aid intensity for sectors less exposed to relocation risks is added as an option. In exchange for a substantial and meaningful commitment to sourcing electricity from carbon-free sources, beneficiaries from 25 sectors receive access to slightly higher levy reductions. Such commitments have to include either the use of on-site or near-site (for SME-clusters) carbon-free generation or a contract with a carbon-free electricity generator (such as a power purchase agreement). The green bonus in the form of aid increase applies to 25 sectors consuming 47 TWh of electricity annually.

The market for renewable power purchase agreements is rapidly growing and provides a complementary route for the development of renewable power generation, in addition to support schemes by Member States or to selling directly on the wholesale electricity market. At the same time, the market for renewable power purchase agreements is still limited to several Member States and larger undertakings, with significant administrative, technical and financial barriers remaining in large parts of the Union's market. The green bonus should incentivise a greater use of renewable power purchase agreements, contributing to the market-based development of renewable sources and to their greater acceptability by the public. It is in line with similar efforts by the Commission manifested in recent legislative proposals which aim at removing barriers to the uptake of such instruments.[215]

Figure16: *number of signed corporate renewable PPAs in the EU, broken down by the type of generation technology*[216]



Growth in carbon-free electricity generation at or near the site of energy-intensive industrial activity, incentivized by the measure, not only contributes to the decarbonisation of the electricity system, but also strengthens local stakeholder involvement in the energy transition,

[215] See, Proposal for the revision of Renewable Energy Directive amendment-renewable-energy-directive-2030-climate-target-with-annexes_en.pdf (europa.eu)
[216] Source: BloombergNEF. Data for 2021 include only the first 10 months of the year.

which can help increase its appeal and acceptance for the local citizenry. In addition, more decentralized development of renewable resources can ease some of the bottlenecks in the electricity grid caused by unequal or one-sided geographical distribution of renewable generation capacities.

Option E2 – ETS guidelines list

The 11 sectors eligible under **Option E2** jointly account for 186 TWh of annual electricity consumption for the EU as a whole. Compared to the baseline, this option reduces by 57% the coverage of levy reductions in terms of electricity consumption. The option would cover 68% of the products identified by the Commission for high electrification potential[217], thereby significantly decreasing the coverage relative to the baseline and potentially increasing the risk of hampering electrification of industrial processes. The changes in the level of aid intensity also increases such risk.

Compared to the baseline, the shares of eligible sectors with a low electro-intensity and with a low trade intensity would sharply decrease. This implies that the detrimental impact of levy reductions on the incentives to enhance energy efficiency is greatly reduced. Moreover, option E2 discontinues the reduction in favour of type B sectors and therefore the associated risk of rewarding companies which are less energy-efficient than their competitors is also removed. Lastly, the changes in the allowed aid intensity further reduce the risk that levy reductions undermine incentives to enhance energy efficiency, as reductions in electricity prices would be lower.

Compared to the baseline, option E2 introduces the inclusion of green conditionality that enhances investments in energy efficiency improvements and in reducing the carbon footprint of energy consumption, similar to the 2020 ETS guidelines and 2019 ETS carbon leakage list.

All in all, Option E2 is more effective than the baseline in preserving the incentives for a cost-effective use of electricity in electro-intensive industries. At the same time, option E2 carries a significantly higher risk of undermining electrification of EIUs' production processes and it also carries a higher risk of carbon leakage.

[217] Products with fuel-and-electricity exchangeability under Annex I, title 2 of the Commission Delegated Regulation (EU) 2019/331 of 19 December 2018.

Stakeholder views: Feedback on the introduction of environmental conditionality in the first public consultation is mixed but reasonably favourable, with 80% of civil society in favour, public authorities perfectly split, and business representatives opposing. Business stakeholders reiterated their opposition in the second consultation, arguing that the proposed conditionality counteracts the purpose of the reductions, limits entrepreneurial freedom or does not reflect different starting levels of individual companies in terms of energy efficiency.

Public authorities did not raise significant concerns on the environmental conditions proposed in the draft revised guidelines.

4.4. Impact on SMEs

Below the impact of the various options on SMEs (i.e. undertakings with less than 250 employees) is assessed.

Eligibility: Compared to the Baseline, the impact of option E0 on SMEs is expected to be neutral, as it is a mere update of current rules. Options E1 and E2 restrict the number of eligible sectors, which may affect SMEs disproportionately depending on the sector's economic structure.

Aid level: Again, Option E0 would merely update current rules and its impact in comparison to the baseline scenario would be neutral. Options E1 and E2 on the other hand propose to lower the support undertakings can obtain. While this may negatively impact SMEs, the impact is expected to be less strong then the impact on larger firms. The support study found that specifically, `large' firms appear to be the most sensitive to changes in electricity prices: a 1% increase in electricity prices implies, on average, a decline of profitability by about 0.54 percentage points. This effect is smaller for medium-sized firms (0.44) and the smallest for small firms (0.29). Thus, the profitability of small firms reacts less to changes in electricity prices than medium firms, and that of the medium-sized firms in turn less than large firms.

In addition, option E2 proposes to benchmark the support granted on the most efficient undertakings in a specific sector. Reporting in such a context may be more complex and burdensome, in particular for SMEs, than in situations where a percentage on the total amount of electricity is compensated.

Conditionality: While options E1 and E2 would make support conditional on certain environmental requirements, this conditionality would not apply to SMEs. The impact of conditionality would therefore be neutral on SMEs.

4.5. List of eligible sectors

Option E0 – Business as usual (BAU)

Type A sectors

NACE code	**Sector description**
0510	Mining of hard coal
0710	Mining of iron ores

0729	Mining of other non-ferrous metal ores
0811	Quarrying of ornamental and building stone, limestone, gypsum, chalk and slate
0891	Mining of chemical and fertiliser minerals
0893	Extraction of salt
0899	Other mining and quarrying n.e.c.
1031	Processing and preserving of potatoes
1032	Manufacture of fruit and vegetable juice
1039	Other processing and preserving of fruit and vegetables
1041	Manufacture of oils and fats
1051	Operation of dairies and cheese making
1061	Manufacture of grain mill products
1062	Manufacture of starches and starch products
1081	Manufacture of sugar
1106	Manufacture of malt
1310	Preparation and spinning of textile fibres
1320	Weaving of textiles
1395	Manufacture of non-wovens and articles made from non-wovens, except apparel
1411	Manufacture of leather clothes
1610	Sawmilling and planing of wood
1621	Manufacture of veneer sheets and wood-based panels
1622	Manufacture of assembled parquet floors
1711	Manufacture of pulp
1712	Manufacture of paper and paperboard
1722	Manufacture of household and sanitary goods and of toilet requisites
1920	Manufacture of refined petroleum products
2011	Manufacture of industrial gases
2012	Manufacture of dyes and pigments
2013	Manufacture of other inorganic basic chemicals
2014	Manufacture of other organic basic chemicals
2015	Manufacture of fertilisers and nitrogen compounds
2016	Manufacture of plastics in primary forms
2017	Manufacture of synthetic rubber in primary forms
2060	Manufacture of man-made fibres

2110	Manufacture of basic pharmaceutical products
2221	Manufacture of plastic plates, sheets, tubes and profiles
2222	Manufacture of plastic packing goods
2311	Manufacture of flat glass
2312	Shaping and processing of flat glass
2313	Manufacture of hollow glass
2314	Manufacture of glass fibres
2319	Manufacture and processing of other glass, including technical glassware
2320	Manufacture of refractory products
2331	Manufacture of ceramic tiles and flags
2343	Manufacture of ceramic insulators and insulating fittings
2351	Manufacture of cement
2352	Manufacture of lime and plaster
2399	Manufacture of other non-metallic mineral products n.e.c.
2410	Manufacture of basic iron and steel and of ferro-alloys
2420	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel
2431	Cold drawing of bars
2432	Cold rolling of narrow strip
2434	Cold drawing of wire
2442	Aluminium production
2443	Lead, zinc and tin production
2444	Copper production
2445	Other non-ferrous metal production
2446	Processing of nuclear fuel
2451	Casting of iron
2452	Casting of steel
2453	Casting of light metals
2454	Casting of other non-ferrous metals
2550	Forging, pressing, stamping and roll-forming of metal; powder metallurgy
2592	Manufacture of light metal packaging
2611	Manufacture of electronic components
2720	Manufacture of batteries and accumulators
2731	Manufacture of fibre optic cables

3099	Manufacture of other transport equipment n.e.c.
3832	Recovery of sorted materials

Type B sectors

NACE code	**Sector description**
0610	Extraction of crude petroleum
0620	Extraction of natural gas
0812	Operation of gravel and sand pits; mining of clays and kaolin
0892	Extraction of peat
1011	Processing and preserving of meat
1012	Processing and preserving of poultry meat
1013	Production of meat and poultry meat products
1020	Processing and preserving of fish, crustaceans and molluscs
1042	Manufacture of margarine and similar edible fats
1052	Manufacture of ice cream
1072	Manufacture of rusks and biscuits; manufacture of preserved pastry goods and cakes
1073	Manufacture of macaroni, noodles, couscous and similar farinaceous products
1082	Manufacture of cocoa, chocolate and sugar confectionery
1083	Processing of tea and coffee
1084	Manufacture of condiments and seasonings
1085	Manufacture of prepared meals and dishes
1086	Manufacture of homogenised food preparations and dietetic food
1089	Manufacture of other food products n.e.c.
1091	Manufacture of prepared feeds for farm animals
1092	Manufacture of prepared pet foods
1101	Distilling, rectifying and blending of spirits
1102	Manufacture of wine from grape
1103	Manufacture of cider and other fruit wines
1104	Manufacture of other non-distilled fermented beverages
1105	Manufacture of beer
1107	Manufacture of soft drinks; production of mineral waters and other bottled waters
1200	Manufacture of tobacco products

1330	Finishing of textiles
1391	Manufacture of knitted and crocheted fabrics
1392	Manufacture of made-up textile articles, except apparel
1393	Manufacture of carpets and rugs
1394	Manufacture of cordage, rope, twine and netting
1396	Manufacture of other technical and industrial textiles
1399	Manufacture of other textiles n.e.c.
1412	Manufacture of workwear
1413	Manufacture of other outerwear
1414	Manufacture of underwear
1419	Manufacture of other wearing apparel and accessories
1420	Manufacture of articles of fur
1431	Manufacture of knitted and crocheted hosiery
1439	Manufacture of other knitted and crocheted apparel
1511	Tanning and dressing of leather; dressing and dyeing of fur
1512	Manufacture of luggage, handbags and the like, saddlery and harness
1520	Manufacture of footwear
1623	Manufacture of other builders' carpentry and joinery
1624	Manufacture of wooden containers
1629	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials
1721	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard
1723	Manufacture of paper stationery
1724	Manufacture of wallpaper
1729	Manufacture of other articles of paper and paperboard
1811	Printing of newspaper
1812	Other printing
1813	Pre-press and pre-media services
1814	Binding and related services
1820	Reproduction of recorded media
1910	Manufacture of coke oven products
2020	Manufacture of pesticides and other agrochemical products
2030	Manufacture of paints, varnishes and similar coatings, printing ink and mastics

2041	Manufacture of soap and detergents, cleaning and polishing preparations
2042	Manufacture of perfumes and toilet preparations
2051	Manufacture of explosives
2052	Manufacture of glues
2053	Manufacture of essential oils
2059	Manufacture of other chemical products n.e.c:
2120	Manufacture of pharmaceutical preparations
2211	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres
2219	Manufacture of other rubber products
2223	Manufacture of builders' ware of plastic
2229	Manufacture of other plastic products
2332	Manufacture of bricks, tiles and construction products, in baked clay
2341	Manufacture of ceramic household and ornamental articles
2342	Manufacture of ceramic sanitary fixtures
2344	Manufacture of other technical ceramic products
2349	Manufacture of other ceramic products
2362	Manufacture of plaster products for construction purposes
2365	Manufacture of fibre cement
2369	Manufacture of other articles of concrete, plaster and cement
2370	Cutting, shaping and finishing of stone
2391	Production of abrasive products
2433	Cold forming or folding
2441	Precious metals production
2511	Manufacture of metal structures and parts of structures
2512	Manufacture of doors and windows of metal
2521	Manufacture of central heating radiators and boilers
2529	Manufacture of other tanks, reservoirs and containers of metal
2530	Manufacture of steam generators, except central heating hot water boilers
2540	Manufacture of weapons and ammunition
2561	Treatment of coating metals
2562	Machining
2571	Manufacture of cutlery
2572	Manufacture of locks and hinges

2573	Manufacture of tools
2591	Manufacture of steel drums and similar containers
2593	Manufacture of wire products, chain and springs
2594	Manufacture of fasteners and screw machine products
2599	Manufacture of other fabricated metal products n.e.c.
2612	Manufacture of loaded electronic boards
2620	Manufacture of computers and peripheral equipment
2630	Manufacture of communication equipment
2640	Manufacture of consumer electronics
2651	Manufacture of instruments and appliances for measuring, testing and navigation
2652	Manufacture of watches and clocks
2660	Manufacture of irradiation, electromedical and electrotherapeutic equipment
2670	Manufacture of optical instruments and photographic equipment
2680	Manufacture of magnetic and optical media
2711	Manufacture of electric motors, generators and transformers
2712	Manufacture of electricity distribution and control apparatus
2732	Manufacture of other electronic and electric wires and cables
2733	Manufacture of wiring devices
2740	Manufacture of electric lighting equipment
2751	Manufacture of electric domestic appliances
2752	Manufacture of non-electric domestic appliances
2790	Manufacture of other electrical equipment
2811	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
2812	Manufacture of fluid power equipment
2813	Manufacture of other pumps and compressors
2814	Manufacture of other taps and valves
2815	Manufacture of bearings, gears, gearing and driving elements
2821	Manufacture of ovens, furnaces and furnace burners
2822	Manufacture of lifting and handling equipment
2823	Manufacture of office machinery and equipment (except computers and peripheral equipment)
2824	Manufacture of power-driven hand tools
2825	Manufacture of non-domestic cooling and ventilation equipment
2829	Manufacture of other general-purpose machinery n.e.c.

2830	Manufacture of agricultural and forestry machinery
2841	Manufacture of metal forming machinery
2849	Manufacture of other machine tools
2891	Manufacture of machinery for metallurgy
2892	Manufacture of machinery for mining, quarrying and construction
2893	Manufacture of machinery for food, beverage and tobacco processing
2894	Manufacture of machinery for textile, apparel and leather production
2895	Manufacture of machinery for paper and paperboard production
2896	Manufacture of plastic and rubber machinery
2899	Manufacture of other special-purpose machinery n.e.c.
2910	Manufacture of motor vehicles
2920	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
2931	Manufacture of electrical and electronic equipment for motor vehicles
2932	Manufacture of other parts and accessories for motor vehicles
3011	Building of ships and floating structures
3012	Building of pleasure and sporting boats
3020	Manufacture of railway locomotives and rolling stock
3030	Manufacture of air and spacecraft and related machinery
3040	Manufacture of military fighting vehicles
3091	Manufacture of motorcycles
3092	Manufacture of bicycles and invalid carriages
3101	Manufacture of office and shop furniture
3102	Manufacture of kitchen furniture
3103	Manufacture of mattresses
3109	Manufacture of other furniture
3211	Striking of coins
3212	Manufacture of jewellery and related articles
3213	Manufacture of imitation jewellery and related articles
3220	Manufacture of musical instruments
3230	Manufacture of sports goods
3240	Manufacture of games and toys
3250	Manufacture of medical and dental instruments and supplies
3291	Manufacture of brooms and brushes

3299	Other manufacturing n.e.c.

Option E1 – Sector list

Sectors at significant risk of relocation	
NACE code	Description
0510	Mining of hard coal
0620	Extraction of natural gas
0710	Mining of iron ores
0729	Mining of other non-ferrous metal ores
0811	Quarrying of ornamental and building stone, limestone, gypsum, chalk and slate
0891	Mining of chemical and fertiliser minerals
0893	Extraction of salt
0899	Other mining and quarrying n.e.c.
1020	Processing and preserving of fish, crustaceans and molluscs
1031	Processing and preserving of potatoes
1032	Manufacture of fruit and vegetable juice
1039	Other processing and preserving of fruit and vegetables
1041	Manufacture of oils and fats
1062	Manufacture of starches and starch products
1081	Manufacture of sugar
1086	Manufacture of homogenised food preparations and dietetic food
1104	Manufacture of other non-distilled fermented beverages
1106	Manufacture of malt
1310	Preparation and spinning of textile fibres
1320	Weaving of textiles

1330	Finishing of textiles
1391	Manufacture of knitted and crocheted fabrics
1393	Manufacture of carpets and rugs
1394	Manufacture of cordage, rope, twine and netting
1395	Manufacture of non-wovens and articles made from non-wovens, except apparel
1396	Manufacture of other technical and industrial textiles
1411	Manufacture of leather clothes
1431	Manufacture of knitted and crocheted hosiery
1511	Tanning and dressing of leather; dressing and dyeing of fur
1610	Sawmilling and planing of wood
1621	Manufacture of veneer sheets and wood-based panels
1622	Manufacture of assembled parquet floors
1629	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials
1711	Manufacture of pulp
1712	Manufacture of paper and paperboard
1722	Manufacture of household and sanitary goods and of toilet requisites
1724	Manufacture of wallpaper
1920	Manufacture of refined petroleum products
2011	Manufacture of industrial gases
2012	Manufacture of dyes and pigments
2013	Manufacture of other inorganic basic chemicals
2014	Manufacture of other organic basic chemicals
2015	Manufacture of fertilisers and nitrogen compounds
2016	Manufacture of plastics in primary forms
2017	Manufacture of synthetic rubber in primary forms

2059	Manufacture of other chemical products n.e.c:
2060	Manufacture of man-made fibres
2110	Manufacture of basic pharmaceutical products
2211	Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres
2219	Manufacture of other rubber products
2221	Manufacture of plastic plates, sheets, tubes and profiles
2222	Manufacture of plastic packinggoods
2229	Manufacture of other plastic products
2311	Manufacture of flat glass
2312	Shaping and processing of flat glass
2313	Manufacture of hollow glass
2314	Manufacture of glass fibres
2319	Manufacture and processing of other glass, including technical glassware
2320	Manufacture of refractory products
2331	Manufacture of ceramic tiles and flags
2342	Manufacture of ceramic sanitary fixtures
2343	Manufacture of ceramic insulators and insulating fittings
2344	Manufacture of other technical ceramic products
2349	Manufacture of other ceramic products
2351	Manufacture of cement
2391	Production of abrasive products
2399	Manufacture of other non-metallic mineral products n.e.c.
2410	Manufacture of basic iron and steel and of ferro-alloys
2420	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel
2431	Cold drawing of bars

2432	Cold rolling of narrow strip
2434	Cold drawing of wire
2442	Aluminium production
2443	Lead, zinc and tin production
2444	Copper production
2445	Other non-ferrous metal production
2446	Processing of nuclear fuel
2451	Casting of iron
2550	Forging, pressing, stampingand roll-forming of metal; powder metallurgy
2561	Treatment of coating metals
2571	Manufacture of cutlery
2593	Manufacture of wire products, chain and springs
2594	Manufacture of fasteners and screw machine products
2611	Manufacture of electronic components
2720	Manufacture of batteries and accumulators
2731	Manufacture of fibre optic cables
2732	Manufacture of other electronic and electric wires and cables
2790	Manufacture of other electrical equipment
2815	Manufacture of bearings, gears, gearing and driving elements
3091	Manufacture of motorcycles
3099	Manufacture of other transport equipment n.e.c.
Sectors at risk of relocation	
NACE code	Description
1011	Processing and preserving of meat
1012	Processing and preserving of poultry meat

1042	Manufacture of margarine and similar edible fats
1051	Operation of dairies and cheese making
1061	Manufacture of grain mill products
1072	Manufacture of rusks and biscuits; manufacture of preserved pastry goods and cakes
1073	Manufacture of macaroni, noodles, couscous and similar farinaceous products
1082	Manufacture of cocoa, chocolate and sugar confectionery
1085	Manufacture of prepared meals and dishes
1089	Manufacture of other food products n.e.c.
1091	Manufacture of prepared feeds for farm animals
1092	Manufacture of prepared pet foods
1107	Manufacture of soft drinks; production of mineral waters and other bottled waters
1723	Manufacture of paper stationery
1729	Manufacture of other articles of paper and paperboard
2051	Manufacture of explosives
2052	Manufacture of glues
2332	Manufacture of bricks, tiles and construction products, in baked clay
2352	Manufacture of lime and plaster
2365	Manufacture of fibre cement
2452	Casting of steel
2453	Casting of light metals
2591	Manufacture of steel drums and similar containers
2592	Manufacture of light metal packaging
2932	Manufacture of other parts and accessories for motor vehicles

Option E2 – ETS guidelines list

NACE code	**Sector description**
1411	Manufacture of leather clothes
1711	Manufacture of pulp
1712	Manufacture of paper and paperboard
1920	Manufacture of refined petroleum products
2013	Manufacture of other inorganic basic chemicals
2410	Manufacture of basic iron and steel and of ferro-alloys
2442	Aluminium production
2443	Lead, zinc and tin production
2444	Copper production
2445	Other non-ferrous metal production
2451	Casting of iron

ANNEX 12 GBER EXPLANATORY NOTE

Section 7 - Aid for environmental protection

In line with the Green Deal objectives, it is proposed to enlarge the scope of the GBER by expanding the set of measures exempted from ex-ante notification and increasing the notification thresholds for climate, energy and environmental protection measures, whenever objectively justified. The proposed enlargement reflects the Commission's enforcement practice, takes account of technology and market evolutions and limits market and competition distortions especially for newer and larger measures.

1.1.Aid for environmental protection

The GBER amendment proposal broadens the possibilities available for Member States to support investments for the reduction of CO_2 emissions by including specific provisions under which investment aid for carbon capture and utilisation or storage is considered compatible and exempted from the notification requirement.

In line with the draft revised Climate, Environmental protection and Energy Aid Guidelines ('CEEAG'), the proposed GBER amendment introduces a new specific category of exemption for investment aid for clean or zero-emission vehicles. In addition, the present proposal complements the provisions on investment aid for recharging and refuelling infrastructure which were introduced on 23 July 2021 as part of the targeted GBER revision accompanying the MFF 2021-2027 by (i) enlarging the scope of investment aid for refuelling infrastructures to those supplying also low-carbon hydrogen; and (ii) covering also aid for recharging and refuelling infrastructure that is not publicly accessible.

As regards aid for improving the energy performance of buildings, and with a view to incentivise ambitious building renovation projects, this GBER amendment proposal introduces a 'green bonus', which would apply where energy performance improvements lead to a significant reduction in primary energy demand.

To align the scope of the GBER with that of the draft revised CEEAG, it is also proposed to widen the scope of application of the GBER to cover investment aid for the rehabilitation of natural habitats and ecosystems, the protection and restoration of biodiversity and the implementation of nature-based solutions for climate change adaptation.

Moreover, to mirror the broadened possibilities available to Member States under the draft revised CEEAG for supporting resource efficiency and circular economy investments, the GBER amendment proposal widens the scope of existing provisions on aid for the recycling and re-utilisation of waste, by covering also investment aid for other investments which aim at increasing the level of resource efficiency or contributing to the circular economy.

In line with the draft revised CEEAG, the present proposal introduces a new category of exemption for aid in the form of reductions in environmental taxes or levies, which are needed for certain resource-intensive sectors.

Finally, the GBER amendment proposal provides additional flexibility to Member States by providing for higher aid intensities, especially where aid is granted in the context of a competitive bidding process.

1.2.Aid for the promotion of energy from renewable sources

This sections opens up the possibilities to support renewables and other decarbonisation measures. Notification thresholds are increased while taking account of the cost reduction of mature technologies and their market integration.

To cater for the increased role of storage for the integration of renewable energy in the electricity system and to align with the CEEAG, the exemptions for investment and operating aid for renewable energy are proposed to be widened to include storage projects that are directly connected to new or existing renewable energy generation facilities.

To facilitate investments in green hydrogen, the proposed GBER amendment will cover investment aid for green hydrogen projects. Operating aid for small scale installations for the promotion of green hydrogen will also be exempted from the notification requirement. Larger and more selective projects will remain subject to the notification requirement.

Finally, in line with the recast Renewable Energy Directive, the proposed GBER amendment includes provisions for operating aid to renewable energy community projects, exempting projects below 1 MW of installed capacity from competitive bidding.

1.3.Aid for district heating and cooling systems and energy infrastructure

In order to adapt the existing rules on support to district heating and cooling systems and energy infrastructure to the Green Deal objectives, the proposed GBER amendment clarifies existing rules and aligns them with the Green Deal objectives, as in the SEIP.

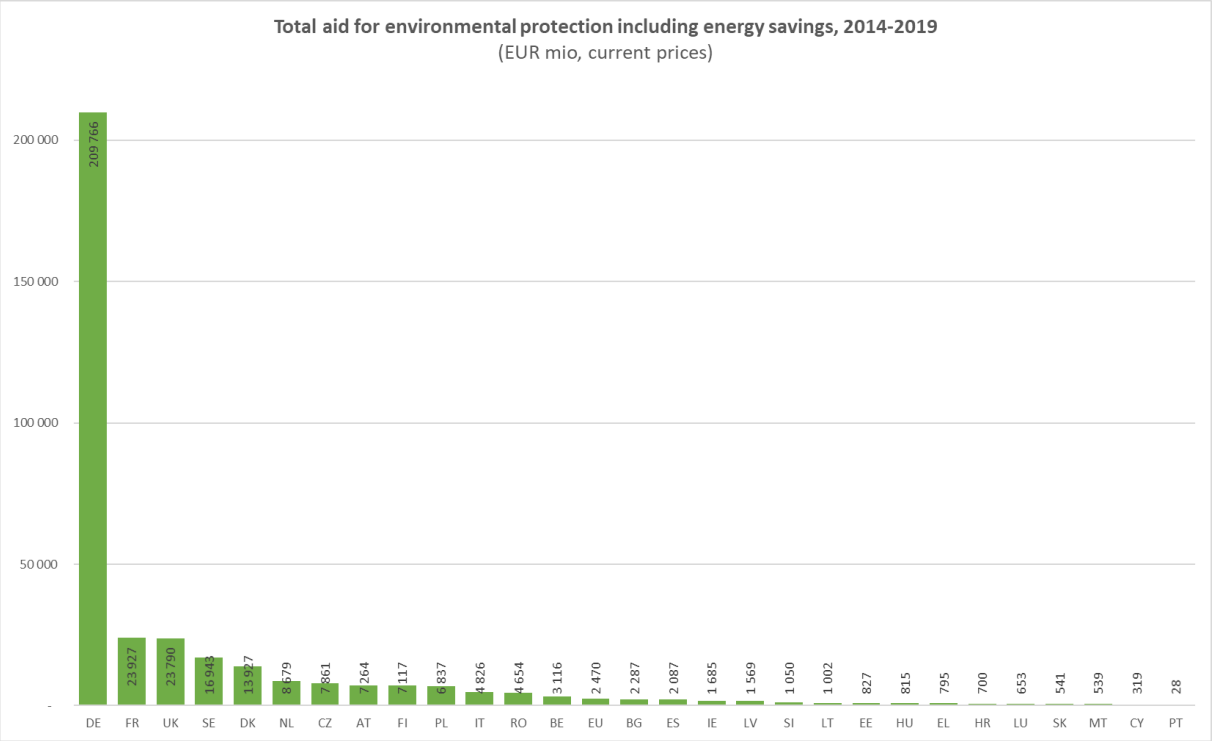
In addition, support for investments in district heating systems which are based on fossil fuels cannot be considered eligible under the GBER. For support to investments in district heating using natural gas- as well as investments or upgrades of distribution networks, specific safeguards are introduced, such as “compliance with climate targets” in order to prevent lock-in and guarantee competition, in line with the Green Deal objectives.

With regard to investments in energy infrastructure, support is allowed for energy infrastructure for new energy sources, notably hydrogen infrastructure. Furthermore, support is allowed also for investments not located in “assisted areas”. Furthermore, support to energy infrastructure investments, for natural gas, needs to be adjusted to take into account the Green Deal Objectives and necessary compliance with climate targets.

1.4. State aid expenditure under the GBER

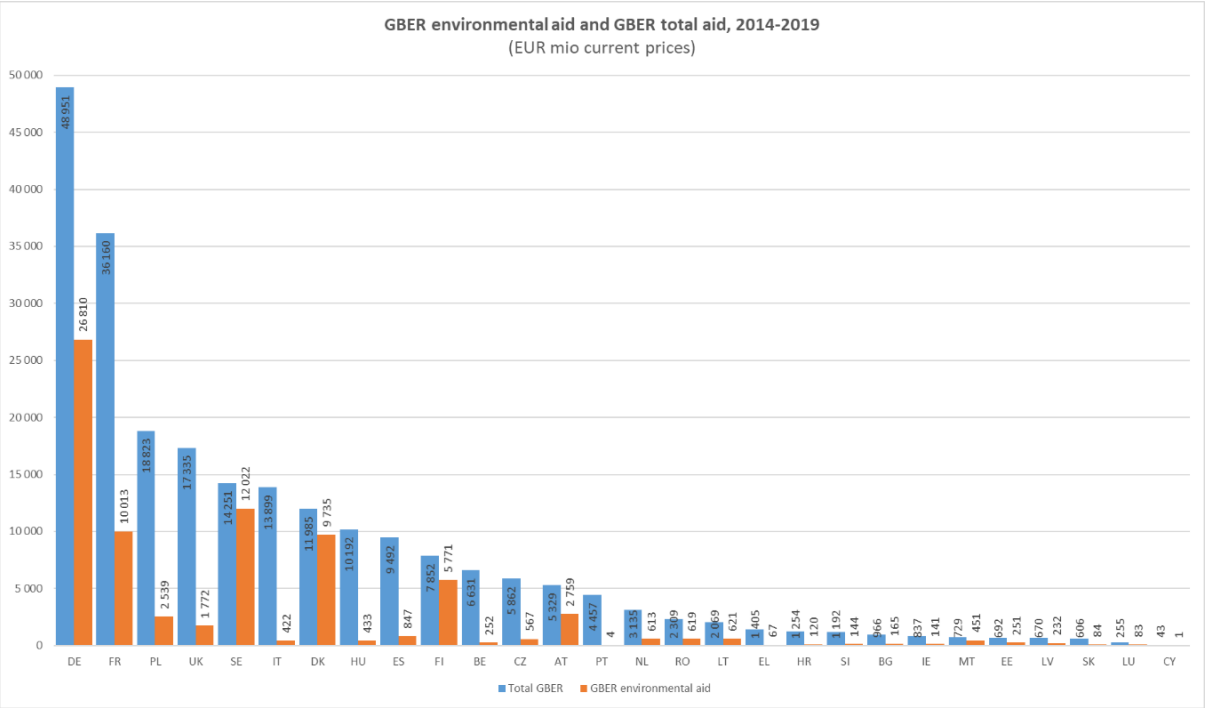
The figures below present the main feature of GBER expenditure in the filed so energy and environmental protection.

Total environmental aid (under notified and block-exempted measures)



There are huge disparities between Member States in the amount of environmental aid granted. During the period 2014-2019, Germany accounted for 59% of all environmental aid granted under notified schemes and GBER schemes with €209.8 million of environmental aid from a total of €353.6 million. Almost 90% of all environmental aid was granted by nine Member States only (Germany, France, UK, Sweden, Denmark, Netherlands, Czech Republic, Austria, Finland).

Environmental aid under the GBER



During the period 2014-2019, from a total of € 227 381 million of aid granted under the GBER, 34% (€ 77 540 million) was granted as environmental aid.

In relative terms, 22% of the total amount of environmental aid was granted under the GBER.

Germany, Sweden, France and Denmark granted the majority of environmental aid under the GBER, accounting for 76% of all environmental aid granted under the GBER. Germany alone accounted for 35% of all environmental aid granted under the GBER.

In relation to other categories of aid, environmental aid is one of the main categories of aid granted under the GBER. It accounted for over 30% of the aid granted under the GBER in nine Member States (Germany, Sweden, Denmark, Finland, Austria, Malta, Estonia, Latvia, Luxembourg). In Sweden, Denmark and Finland over 70% of the aid granted under the GBER was environmental aid.