



RAP Response to CEEAG Consultation

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Introduction

The Regulatory Assistance Project (RAP) is pleased to provide observations in response to the Commission's revised Climate, Energy and Environmental Aid Guidelines (CEEAG) draft.¹ RAP is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

We welcome the Commission's efforts to align the CEEAG with the objectives of the European Green Deal and Fit for 55 Package, including the new emissions targets. To achieve this, the International Energy Agency's 2050 Roadmap² highlights the need for accelerated electrification of sectors such as heat and transport, with electricity counting for 50% total energy consumption by 2050. In turn, power sector decarbonisation relies on energy innovation, including demand-side flexibility (DSF) resources such as demand response (DR), energy efficiency and storage, and integration of variable renewable generation (vRES) both as a distributed energy resource (DER) and at scale. We agree that state aid will play an important role in delivering those objectives and managing the wider implications of the transition.

Our observations and recommendations are geared towards ensuring that these outcomes are delivered in the most efficient, equitable and affordable way possible. This response focuses on the sections where we have been best able to provide meaningful technical and policy input in the time available, given the reduced consultation period and summer.

¹ European Commission. (2021). *Public consultation on the revised Climate, Energy and Environmental Aid Guidelines (CEEAG)*. https://ec.europa.eu/competition-policy/public-consultations/2021-ceeag_en

² International Energy Agency. (2021). *Net Zero by 2050: A roadmap for the global energy sector*. https://iea.blob.core.windows.net/assets/beceb956-0dcf-4d73-89fe-1310e3046d68/NetZeroBy2050-ARoadmapfortheGlobalEnergySector_CORR.pdf

The Energy Efficiency First Principle should be entrenched in the CEEAG

In defining categories of aid and granting aid approval under the CEEAG, there is a danger of creating self-fulfilling prophecies by ‘picking winners’ and undermining innovative clean technologies that would — without intervention — provide the most efficient market solution.

For example, investment aid for ‘hydrogen readiness’ risks prematurely backing a technology that is still unproven on environmental and cost grounds at the expense of energy efficiency and decarbonized, electrified heat.³ Similarly, allowing Member States to introduce capacity remuneration mechanisms (CRMs) before they have implemented market reform such as scarcity pricing represents a back-to-front logic — scarcity pricing drives market signals for marginal capacity, such as DR, to come forward, reducing or removing the need for a CRM. The same principle applies to assessments of DR potential within a Member State. This must be undertaken before resorting to interventions, factoring the full impact of market reforms, digitalisation and electrification. In order to avoid inefficient outcomes that are not in the public interest, it is essential that the Energy Efficiency First (EE1st) principle is placed at the heart of the CEEAG and applied rigorously and thoroughly to all aid decisions.

The current CEEAG draft does not even refer to the EE1st principle, which is a fundamental horizontal principle of European climate and energy governance. It has been defined in the Governance Regulation and needs to be integrated into the national energy and climate plans (NECPs). It is also a core aspect of the System Integration Strategy. The EE1st principle requires that all demand-side resources — not only energy efficiency but demand response and storage as well — are considered in planning, investment and market rules on a level-playing field with supply-side options. Demand-side resources need to be prioritized whenever they are cheaper to deliver a policy objective compared to supply-side options or more valuable to society as whole considering all the cost and benefits of alternatives. Assessment rules in an all-resource, technology-neutral decision (technology neutrality) should consider the embedded, historical bias for supply-side options and provide an equal funding opportunity.

As the CEEAG needs to consider the goals and provisions of the Green Deal, we believe that the CEEAG should define, in the recitals and in the core paragraphs, what the EE1st principle implies for Member States with regard to state aid decisions. It should also require the consideration of EE/DR/storage investment as an alternative whenever assessing the need for supply infrastructure (aid) into generation and network capacity.

³ Current evidence suggests that producing ‘green hydrogen’ from electrolysis is extremely wasteful compared with using renewable power directly to run heat pumps or electric vehicles. It takes about five times more wind or solar electricity to heat a home with hydrogen than it takes to heat the same home with an efficient heat pump. Calcea, N. (2020, 16 September). Heat pumps are on the rise in Europe. *Energy Monitor*. <https://energymonitor.ai/sector/heating-cooling/heat-pumps-are-on-the-rise-in-europe>; Keating, D. (2020, 16 September). Who’s slowing down the electric car? *Energy Monitor*. <https://energymonitor.ai/sector/transport/whos-slowing-down-the-electric-car>; Agora Energiewende (2019). Heat decarbonisation, energy efficiency, and sector integration. <https://www.agora-energiewende.de/en/projects/heat-decarbonisation-energy-efficiency-and-sector-integration/>; Rosenow, J. (2020, 30 September). Heating homes with hydrogen: Are we being sold a pup? *Regulatory Assistance Project*. <https://www.raponline.org/blog/heating-homes-with-hydrogen-are-we-being-sold-a-pup/>

This requirement is already included in the Electricity Regulation but should apply to other energy carriers as well such as gas or (district) heat.

The consultation requirements should be strengthened and applied to all categories of aid

We welcome the inclusion of new consultation requirements in the CEEAG sections 4.1 (reduction and removal of greenhouse gas emissions) and 4.8 (security of supply). We recommend, however, extending the requirements to all categories of aid. We also recommend removing the proposed derogations on the basis of aid amount, presence of a competitive auction or absence of fossil fuel subsidy. These factors do not erase the possibility of distortions in competition or other adverse consequences for the energy transition or society. Further observations on the proposed consultation requirements are contained in our response to section 4.8.

Categories of aid

Aid for reduction and removal of GHG emissions including support for renewable energy (CEEAG 4.1)

This section sets out general requirements for a very diverse range of technologies including renewable energy, carbon capture and storage (CCS), direct air capture of CO₂, and pipelines for hydrogen or CO₂. The general principles are clear: Ensure competition between technologies that can provide the same service, award support based on auctions, and provide support only when needed. These are principles RAP generally recognizes as sound starting points. The section also expresses a preference for contracts for difference (CfD).

It is, however, concerning how these general principles are immediately diluted by a swathe of exceptions, effectively giving Member States large leeway to argue in favour of support in a broad diversity of cases. This opens the risk that tailor-made support will be designed, reducing cost-effectiveness in reaching the policy goals and increasing costs for consumers. Where the section introduces objective quantified criteria for aid evaluation (e.g. in public consultation the need to include €/t CO₂ comparison), these actually do not need to be used to determine support.

Support in addition to existing market mechanisms, such as the Emissions Trading System (ETS) that are meant to internalise externalities and thereby correct market failures, needs to be carefully analysed. The section leaves open how Member States have to perform that analysis, which could be problematic. But RAP recognizes that the ETS in itself will not be sufficient to drive the speedy decarbonisation in the sectors it covers and that additional policy measures will be needed. Those measures can take the form of additional financial support if the need can be demonstrated, but it shouldn't be limited to subsidies. Administrative procedures linked to licencing and grid connection allocation are important barriers for the development of new renewable energy sources (RES) capacities.

In all cases, support should be designed in ways that interfere as little as possible with the proper functioning of energy markets.

Lock-in is not defined, which makes it unclear what it means to allow projects to proceed based on case-by-case assessment of measures that include dedicated infrastructure projects (para 105). If such infrastructure is first limited, but then would be connected to a broader network, this can be offset (para 106). This is concerning as it could allow projects that are pitched as small, but then would connect to a larger network to find an exception.

The provisions regarding dedicated infrastructure projects reveal another exception that effectively swallows the overarching principles of competition, support based on auctions, and providing assistance only where needed. Infrastructure presents a complicated area of aid because supporting long-lived infrastructure that serves certain solutions puts a large thumb on the scale in favour of that solution; once that infrastructure is in place, there is both financial and practical inertia to continue to use the asset. That built-in preference not only provides support for the infrastructure-supported solution, it also makes it harder for solutions that are now competing against one that is quite literally entrenched.

The guidelines do not effectively address how support for infrastructure can distort the market. For example, the guidelines state that the Commission will address the infrastructure on a case-by-case basis, taking into consideration among other factors, the size of the infrastructure in relation to the relevant market, and the extent to which the infrastructure is intended for an individual user or group of users, or the structure of the relevant market and the position of the beneficiaries in that market (para 105).

These factors leave open several questions: First, what is the ‘relevant market?’ If the guidelines are interpreted only to address whether the infrastructure project is affecting the market for a certain solution, for example, then it may be allowed even where it may be distorting the broader market of solutions to meet end needs. This exception is especially problematic given the fact that many solutions — including those incorporating energy efficiency and DR — are competition because of the fact that they require limited infrastructure investment. Allowing infrastructure-heavy options to compete as if they did not carry the burden of that investment is a clear example of market distortion, made even starker given the failure to include the EE1st principle in the guidelines.

Second, what is the justification for giving greater allowance to small projects if they might connect to a wider network (paras 105, 106)? It is unclear why small projects would be allowed to escape the scrutiny of competition only because they may ultimately create a larger network that is also receiving an exception to the prohibition on state aid.

The Commission recognizes that aid may distort competition where it may displace cleaner alternatives already available, or where it locks in certain technologies that could hamper the development of a market for cleaner solutions (para 108). The Commission states that it will verify that aid does not ‘stimulate or prolong the consumption of fossil-based fuels and energy.’ It is not clear, however, how the Commission will do so. ‘Lock-in’ is not defined in the guidelines so there is not a clear set of guidelines for Member States or the Commission. Furthermore, the exceptions provided in the guidelines, for example for small projects that may lead to larger networks that create lock-in, allow for numerous

paths to sidestep proper scrutiny. For example, a Member State may want to provide aid for small infrastructure projects for blue hydrogen, justifying the project as one that will later connect to a larger network, and which ultimately will transport green hydrogen. Once the infrastructure is in place, however, there is a bias towards using the infrastructure given the investment made, regardless of whether it is to transport blue hydrogen that relies on fossil fuels or green hydrogen, which should not. We recommend ClientEarth's comments that outline a comprehensive approach to interpreting 'lock-in.'

Aid for the improvement of the energy and environmental performance of buildings (CEEAG 4.2)

Aid intensity (section 4.2 para 126)

Large scale investment will be necessary to achieve deep renovation and full decarbonisation of Europe's buildings in line with the aims of the Renovation Wave, and the need for the buildings sector to significantly scale up its contribution to the 2030 climate targets. In the private and socially rented housing sector, the need to protect housing affordability puts downward pressure on the levels of investment that can be recouped through bills. The social housing sector is also under pressure to increase the supply of new affordable homes, putting further pressure on investment capacity. Sharing the cost of decarbonising buildings between the state, tenant and owner/landlord is therefore necessary. The aid intensity level of 30% is likely to be insufficient, particularly in the social housing sector. Therefore, the aid intensity levels should be increased. With the introduction of Minimum Energy Performance Standards (MEPS) to be proposed as part of the Energy Performance of Buildings Directive (EPBD) later this year, it is absolutely essential that states can provide the necessary level of investment support to enable building owners and housing providers to comply without overburdening tenants.

Aid for the cost of adapting to European Union standards (paras 122 and 125)

It is essential that the introduction of MEPS via the EPBD as proposed later this year is coupled with a complete framework of support for complying with the standard. This must include significant financial support for those building owners and their tenants who are unable to finance the renovations themselves. If the Commission proposes a single standard or a framework of MEPS to be applied across Europe that can be considered a European Union standard, then the restrictions will apply on the timescale in which aid can be offered (section 4.2 paragraph 122). The design of the MEPS framework in the EPBD will need to either avoid any possibility of the MEPS being considered a Union standard or changes will need to be made to the state aid rules allowing investments to be state-supported. It is unclear whether 'entered into force' (section 4.2 para 122) refers to 1) the entering into force of the EPBD within which the MEPS sits, 2) the creation of the standard through national regulation (i.e., the regulation is entered into force), or 3) to the date within that national regulation by which compliance with the standard is required. Furthermore, the requirement for investments to be both implemented and finalised 18 months before a standard is enforced significantly reduces the compliance timeline for enterprises that are in need of aid to comply but are subject to state aid rules. This will

include social housing providers and other landlords and building owners. It will put these building owners at a timescale disadvantage, having less time to comply with the standard than households leaving them open to the huge risk of projects running over time in a sector where multi-family, mixed-use and other complex building types dominate.

In addition, the energy-efficiency related provisions relevant to eligible costs (para 125 and separately in Article 38 GBER) are too restrictive. Policy intervention, including through financial support, will be required if the EU's building decarbonisation and Renovation Wave goals for 2030 are to be met. Article 8 of the Energy Efficiency Directive already allows Member States to meet their energy savings obligations through energy savings from building renovation measures, despite the requirements already set out in the EPBD for improvements to existing buildings. The State aid rules should be aligned with this approach and make the entire investment costs necessary to achieve a higher level of energy efficiency eligible.

Aid for clean mobility (CEEAG 4.3)

As a general principle, RAP proposes that any aid focus only on technologies that are not a transitional technology, but a means for full decarbonisation. In transport, that would mean electrified transport (not liquefied natural gas, biogas, hydrogen). Hydrogen is not compatible with an Efficiency First perspective and for passenger cars, vans and even trucks. The technological advances in battery-electric suggest hydrogen will not play a significant role in these segments. There could be, however, niche applications where internal combustion engines or fuel cells using synthetic or biofuels makes sense (for trucks and shipping). In addition, RAP recommends including minimum energy efficiency criteria in the aid guidelines.

To achieve the climate neutrality objective by 2050, the European Green Deal established the need to reduce emissions from the transport sector by 90%. The Commission's Communication on a Sustainable and Smart Mobility Strategy confirms the ambition of the European Green Deal and sets out various milestones to show the sectors path towards achieving this objective.

To facilitate the transition to clean mobility under the proposed guidelines, it will be possible to support the acquisition of clean transport vehicles (used for air, road, railway, inland waterway and sea, and coastal passenger and freight transport). This includes natural-gas fuelled vehicles, where they constitute a necessary bridging technology towards zero emission mobility, or the retrofitting of transport vehicles. In addition, the scope of the guidelines will be enlarged providing for the possibility for Member States to support the deployment of publicly accessible recharging and refuelling infrastructure that is necessary to operate clean vehicles without crowding out private investments in this sector.

As a general rule, aid shall be awarded through competitive bidding procedures to ensure it remains limited to the minimum necessary. With regard to aid for clean vehicles, the CEEAG would provide flexibility for Member States to identify the most suitable form of aid and would allow covering up to the full extra ownership cost. With regard to

recharging and refuelling infrastructure, Member States will be able to finance projects up to the full funding gap.

Aid for demand response (outside of aid for security of supply)

Demand response should be supported in all markets not just as an adequacy measure

The draft CEEAG only explicitly refers to DR in the context of aid for the security of electricity supply (section 4.8). While well-designed DR measures are an essential low-carbon, cost-effective means of delivering resource adequacy (see our comments in relation security of supply):

- the true system value of DR goes far beyond adequacy measures; and
- the adoption of aid schemes in support of resource adequacy, such as CRMs, creates a vicious cycle that promotes the over-procurement of less cost-effective back-up generation, which depresses pricing in the energy ancillary services markets. This in turn crowds out more cost-effective demand-side measures that rely predominantly on those markets, which collaterally pre-empts the value such measures can contribute to renewables integration, creating a need for yet more aid to support both resource adequacy and the transition to a predominantly renewable source mix.

Further explanation is provided below.

Demand response is a multi-faceted system resource to drive efficiency. It is well-established that DR helps to optimize renewable energy use, reduce grid constraints, flatten demand spikes, and improve system resilience. With smart meter roll outs, the electrification of the heating, cooling and transport sectors, and growing proportion of intermittent renewable generation, DR across all customer segments is playing an increasingly critical role in ensuring that the power system is flexible enough to manage supply and demand patterns in a cost-effective manner, while increasing system reliability. SmartEn estimates that by 2030, millions of (mostly residential) customers with flexible load in their buildings could participate, totaling a potential of over 160 GW.⁴

We welcome the valuable insights that the Commission has gained through the 2015-16 Sector Inquiry into capacity mechanisms ('Sector Inquiry'). In the Staff Working Document accompanying the Final Report of the Sector Inquiry ('Staff Working Document'), the benefits of DR were summarised as follows.

'Demand response can reduce peak demand and therefore reduce the overall need for generation and transmission capacity. Moreover, by putting a price on their willingness to reduce demand, demand response providers and aggregators reveal their individual Value of Lost Load, as explained in

⁴ SmartEn. (2021, April). *Presenting the value of flexible buildings - smartEn Q&A paper*. <https://smarten.eu/presenting-the-value-of-flexible-buildings-smarten-qa-paper/>

Chapter 2. The participation of demand response in capacity mechanisms is also of particular importance from a competition perspective since it may foster new entry and help ensure existing capacity providers face competition.’⁵

The importance of driving system flexibility through DR and other DERs is also highlighted in the Electricity Directive at Recital 5:

‘The Commission Communication of 15 July 2015, entitled ‘Launching the public consultation process on a new energy market design’, highlighted that the move away from generation in large central generating installations towards decentralised production of electricity from renewable sources and towards decarbonised markets requires adapting the current rules of electricity trading and changing the existing market roles. The Communi-cation underlined the need to organise electricity markets in a more flexible manner and to fully integrate all market players – including producers of renewable energy, new energy service providers, energy storage and flexible demand. It is equally important for the Union to invest urgently in interconnection at Union level for the transfer of energy through high-voltage electricity transmission systems.’

Fully utilising DR in wholesale and balancing markets provides day-to-day resource efficiency and system stabilisation. The Clean Energy for all Package (**Clean Energy Package**) recognises this, with new requirements in the Electricity Directive requiring DERs, including DR, to be given non-discriminatory access to balancing and wholesale markets and adequacy schemes. Historically, there has been a tendency to treat DR primarily as a capacity resource for load shedding, with a disproportionate focus on emergency situations. The reality is that, where properly facilitated, DR delivers a range of valuable implicit and explicit services.

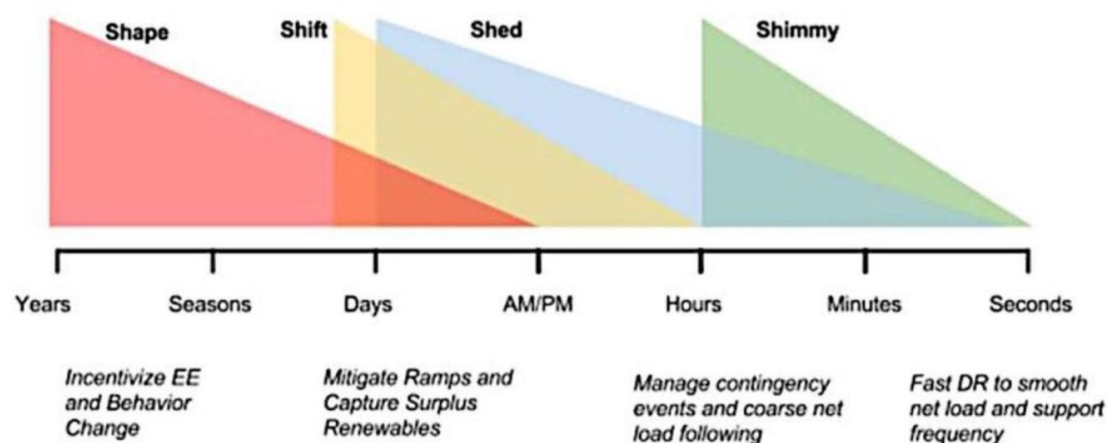
One recent U.S. study neatly summarised the range of DR actions as ‘shifting, shaping, shedding and shimmying:’

- *Shape*: Reshape load profiles via price response or behavioural campaigns.
- *Shift*: Movement of consumption from times of tight supply to times when there is a surplus of renewable generation.
- *Shed*: Curtail loads to provide peak capacity and support the system in emergency/contingency events, often at the local level.

⁵ European Commission. (2016). *Commission Staff Working Document, accompanying the document. Report from the Commission – Final Report of the Sector Inquiry on Capacity Mechanisms*. Paragraph 275 Staff Working Document. http://ec.europa.eu/competition/sectors/energy/capacity_mechanism_swd_en.pdf

- *Shimmy*: Dynamically adjusts demand on the system to alleviate short-run ramps and disturbances and can be second-by-second adjustments.⁶

Figure 1. Shape, shift, shed, shimmy



Source: Lawrence Berkeley National Laboratory. (2017). *2025 California Demand Response Potential Study—Charting California's Demand Response Future: Final Report on Phase 2 Results*.

Unless the full spectrum of DR is properly recognised and valorised, it will not be possible to accurately project resource adequacy or exploit the full DR market potential. The inevitable outcome of this is unnecessary market interventions and inflated aid amounts.

SmartEn's July 2021 study '*Valorising demand-side flexibility in energy system-wide methodologies and modelling scenarios*' analyses 20 existing studies on DR potential. The report notes that additional future benefits are predicted to arise from:

- Increased interoperability of marketplaces, as System Operators cooperate;
- The move from traditional industrial DR focus to residential flexibility as electrification takes off;
- Improved links between local DER investments; and
- More public buy-in.

SmartEn sets out seven recommendations for an accurate valorisation of DSF, which share a strong theme of recognising and optimising all applications and benefits of DR:

⁶ Dupuy, M. & Linvill, C. (2019, August-September). Implementing demand response 2.0: Progress toward full potential in the United States. *The Electricity Journal*, Volume 32, Issue 7; citing Lawrence Berkley National Laboratory. (2017). 2015 California Demand Response Potential Study - Charting California's Demand Response Future: Interim Report on Phase 1 Results and 2025 California Demand Response Potential Study – Charting California's Deman Resoonse Future: Final Report on Phase 2 results. <https://eta-publications.lbl.gov/sites/default/files/lbnl-2001113.pdf>

- Consider all end-user types and distributed flexibility assets in the integrated energy system
- Assess the full set of flexibility services and value streams accessible for DSF
- Examine the impact of a widening of marketplaces
- Consider the increasing cooperation among system operators
- Equally ponder investment and operating costs (TOTEX approach)
- Recognise benefits to all end-users
- Increase data transparency (especially at DSO level) to ensure all available energy system data is taken into account.⁷

For the reasons set out above, it is surprising that, unlike renewables, green hydrogen, clean mobility and energy efficiency, facilitation of DR has not been allocated a distinct category of aid in the draft CEEAG.

We note that aid for *‘the installation of equipment for the on-site digitalisation of the building, in particular to increase its smart readiness’* is included at paragraph (116)(d) in Point 4.2 (*Aid for the improvement of the energy and environmental performance of buildings*). Such aid is conditional, however, on meeting the energy demand reduction requirements in paragraph 118.⁸ As explained above, the efficiency savings associated with DR are multi-faceted and although net demand reduction is a common positive side effect of DR capability, this is not the primary way in which DR creates efficiency savings. DR focuses on *when* customers are consuming electricity rather than just how much, for example ramping demand up when there is a surplus of variable renewable generation and reducing it when supply is tight, therefore reducing the need for high-carbon peaking plants and reducing the need to curtail renewables. Such savings cannot be understood by looking at demand reduction alone, nor by one building in isolation, at the time of making

⁷ SmartEn. (2021, July). *Valorising demand-side flexibility in energy system-wide methodologies and modelling scenarios*. <https://smarten.eu/wp-content/uploads/2021/07/smartEn-Position-paper-methodologies-FINAL.pdf>

SmartEn adds that: “While the ENTSO-E Transparency Platform aims to increase data transparency at TSOs level, insufficient information can be found at DSO level.

No data is provided regarding peaks, the efficiency of the grid and the actual grid costs which would improve the accuracy of methodologies for long-term network development plans and resource adequacy assessments. The lack of locational data, e.g. for congestion, is also a significant deterrent when trying to establish a business case for DSF providers, preventing them from assessing where their services could be most beneficial.”

⁸ Paragraph 118 draft CCEAG: The aid must induce:

- in the case of renovation of existing buildings, energy performance improvements leading to a reduction in primary energy demand of at least 20% as compared to the situation prior to the investment. By way of derogation, where the improvement is part of a staged renovation, the latter must lead to an overall reduction in primary energy demand of at least 30% as compared to the situation prior to the investment, over a period of 3 years;
- in the case of new buildings, energy performance improvements leading to at least 10% of primary energy savings compared to the threshold set for the nearly zero-energy building requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council.

[1] Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (OJ L 153, 18.6.2010, p. 13.).

the DR-enabling investment. The benefits are both individual and system-wide and they occur in the present and the future.

SmartEn's July 2019 White Paper '*A Vision for Smart Active Buildings*' describes how the societal benefits created through DR and other demand-side flexibility extend to all stakeholders in the power system, not just to end-users who choose to become flexible. SmartEn draws upon research by the Commission and others to demonstrate the macro-benefits of demand-side flexibility:

- By enabling decentralised flexibility resources, including on the demand-side, to participate in the European electricity system, social welfare can be increased by up to €2.8 billion annually;⁹
- Increased demand-side flexibility could lead to savings of €5.6bn per year from reduced back-up capacity, network and fuel costs in Europe;¹⁰
- Improved market conditions to ensure access to all flexibility options would directly translate into a reduction of wholesale electricity supply costs by around €50 billion in the year 2030.¹¹

There is a clear need for public policy, including State aid rules, to ensure that these wider benefits are realised. This will not be achieved by leaving individual customers to bear the costs without the ability to realize the full value of the flexibility they make possible. The draft CEEAG includes dedicated support for energy efficiency, electric heating and cooling, EVs, and other DERs. These technologies, however, require DR readiness to bond together in the creation of a flexible and dynamic demand-side capable of supporting a secure, decarbonised energy system at least cost to customers.

Although DR can involve significant upfront investments of tens of thousands of Euros per building, in other cases the financial burden lies more within operating costs, as business hours, industrial processes and staff are modified to deliver flexibility services. Therefore, it is important that support schemes for DR take into account the true cost barriers relevant to DR, rather than applying a CAPEX-focused approach just because that is the model used for new generation. Stakeholder engagement is crucial here.

The points set out in section 5 below on the importance of policy design that facilitates DR and does not discriminate against it, should also be applied (where relevant) to aid schemes other than security of supply measures.

⁹ European Commission. (2017, August). *Design of flexibility portfolios at Member State level to facilitate a cost-efficient integration of high shares of renewable electricity*. (page 70). https://ec.europa.eu/energy/studies/design-flexibility-portfolios-member-state-level-facilitate-cost-efficient-integration-high_en

¹⁰ European Commission, 2016. "Impact assessment of the revised rules for the electricity market, ACER and risk preparedness."

¹¹ Publications Office of the European Union. (2016, 30 November). *Commission Staff Working Document Impact Assessment, Accompanying the document Proposal for a Directive of the European Parliament and of the Council on common rules for the internal market in electricity (recast) Proposal for a Regulation of the European Parliament and of the Council on the electricity market (recast) Proposal for a Regulation of the European Parliament and of the Council establishing a European Union Agency for the Cooperation of Energy Regulators (recast) Proposal for a Regulation of the European Parliament and of the Council on risk preparedness in the electricity sector*. <https://op.europa.eu/en/publication-detail/-/publication/e4c834ae-b7b8-11e6-9e3c-01aa75ed71a1/language-en>

Proper market facilitation of DR increases security of supply without the need for adequacy interventions

Paragraph 301 of the draft CEEAG itself acknowledges the existence of ‘*alternative ways of achieving security of electricity supply*’ such as ‘*integrating demand response*.’ Therefore, even if we focus solely on the role of DR as an adequacy resource — which as noted is just one of several functions of DR — there is still a clear need to facilitate DR as much as possible *outside* of realm of State aid schemes, so that it can fully contribute to a low carbon, efficient market solution to security of supply concerns, which does not distort prices or lock in fossil fuels. This is expanded on in the next section.

Aid for the security of electricity supply (CEEAG 4.8)

The language of the requirement at paragraph 301 should be made consistent across languages, strengthened and applied it to all aspects of adequacy schemes including policy design. Scarcity pricing should be implemented and full DR potential must be assessed, before considering an intervention.

As mentioned above, before introducing a market intervention to address a security of supply concern, Member States are required by paragraph 301 to:

‘primarily consider alternative ways of achieving security of electricity supply, in particular more efficient electricity market design that can alleviate the market failures that undermine security of electricity supply. For instance, improving the functioning of electricity imbalance settlement, better integrating variable generation, incentivising and integrating demand response and storage, enabling efficient price signals, removing barriers to cross-border trade, and improving infrastructure including interconnection.’

The English language version of the Guidelines on State aid for environmental protection and energy 2014-2020 (EEAG) equivalent paragraph 220 text is weaker than the French, German and Spanish language versions which use the wording ‘*avant tout*’ (first of all), ‘*vorrangig (...) wählen*’ (give priority or primarily choose) and ‘*en primer lugar*’ (first), respectively. These make it clear that Member States must implement market reforms such as administrative scarcity pricing and embed the resulting cost-effective potential for energy efficiency and flexible demand in resource adequacy assessments before resorting to adequacy interventions.

For the new CEEAG, it should be made explicit, in all language versions, that the requirement is to prioritise market measures that better valorise the full range of resources with the potential to support resource adequacy, including their potential for increasing the reliability value of variable resources. This means not only proposing market reform but actually implementing it *before* aid measures are considered. Energy market pricing that more transparently reflects the cost of increased supply and demand volatility, including administrative mechanisms to reflect the cost of reserve shortages, is especially important. So is the embedding in resource adequacy forecasts of a diverse portfolio of resources, beyond just generation capacity, which better price formation will

incentivise. At the very least, it should be made explicit in the CEEAG that Member States should be required to have implemented pricing reform and incorporated consequently cost-effective, demand-side alternatives before resorting to market interventions in support of increased generation capacity investment.

Any subsequent resource adequacy assessment must consider the full impact of these market reform measures, including exploitation of (DSF). The SmartEn report¹² argues that modelling frameworks such as PRIMES and ENTSO-E's TYNDPs and Resource Adequacy studies underestimate the contribution DSF, in part because the failure to reflect better price formation artificially depresses the value of DSF to individual consumers. Simultaneously, data from markets with longer experience with such measures show that system operators have routinely overestimated demand in administering CRMs, leading to a gradual but inexorable trend of increasing over-procurement. Member States should not be permitted to rely on their own past failure to implement timely market reform, nor should they be able to complete their assessment of DR potential only *after* embedding in their modelling the market distortions that inevitably follow the introduction of a CRM.¹³ Doing so leads a circular rationale for premature or unnecessary State aid interventions, which then leads to the need for even more such intervention.

Where resource adequacy intervention is nevertheless justified, a similar test to paragraph 330 should be explicitly applied to the *policy design* of the mechanism, making it explicit that Member States cannot at that point forget about the need to ensure that these vital market measures are not undermined. Although such measures are described as 'alternative' ways in the context of choosing them over aid intervention, they are not actually alternatives where resource adequacy interventions are introduced *because they must still be developed* in accordance with *ex ante* internal energy market regulation. This is also essential for keeping adequacy aid to a minimum, in keeping with the EE1st principle and proportionality requirements. The CEEAG should explicitly recognise the mandatory requirement for market reform under the Clean Energy Package and not permit Member States to use aid intervention on behalf of the owners of unneeded fossil generating capacity to preempt consumers from realizing the benefits to be gained from such reforms.

Additional guidance is needed to prevent direct and indirect discrimination in CRM policy design

As previously mentioned, the mere presence of a CRM undermines competition by favouring traditional generation and promoting over-procurement of generating capacity, thereby artificially depressing the energy and ancillary market prices (and the associated market risk management activity) that are necessary to incentivise DR to its fullest potential. This makes it all the more vital that the CRM *policy design* creates an accessible

¹²SmartEn, 2021.

¹³ See for example paragraph (122) of the Commission's 2014 approval of the UK government's proposed CRM: "As for the contribution of DSR, the UK submitted that holding the first auction in December 2014 will be key to revealing information about DSR and DSR potential."

and commercially viable platform for DR and does not lock cost-efficient, low carbon capacity resources out of the market. The CRM design must ensure as far as possible that:

- Fossil generation capacity is only purchased to the extent truly necessary. Accordingly, the extent of the capacity shortage must be estimated accurately, factoring in the potential of energy efficiency and DSF to ease capacity pressure and increase the capacity value of variable resources if given the right opportunities.
- It is genuinely technology neutral.¹⁴ This means that eligibility and other criteria must not create unnecessary financial or administrative barriers that shut out flexible customers and new entrant start-ups.
- The cost recovery/charging mechanism should be as cost reflective as possible, to avoid excessively dampening price signals, thereby recognising the value of DSF to potentially flexible consumers and avoiding unnecessary costs to all customers.

Although the current EEAG in principle require non-discriminatory, technology neutral measures, this has not in practice prevented generation-centric eligibility criteria, auction design or product specifications in CRM policy design. The result has been windfalls for existing generation in particular. Unlike in 2014 when the EEAG were introduced, the Commission now has the benefit of its sector inquiry and data from the CRMs that have been introduced over the past seven years. Where intervention *is* justified, measures must be designed in a manner that favours low-carbon resources and promotes system efficiency. This includes ensuring that DR and other new entrant clean technologies can compete on a level playing field, free from discriminatory criteria and products.

The Staff Working Document recognised (at paragraph 282) that DR exclusion does not only come in the form of explicit discrimination such as differing agreement lengths, but also implicit exclusion:

‘The eligibility of demand response to a capacity mechanism may de facto be influenced by the Member State’s design choices on the following points:

- size requirements;
- the lead time between capacity contracting and capacity delivery; and
- the product design (and in particular the availability duration, testing and requirement to provide collateral).’

A non-exhaustive list of design factors that have an impact on DR access or competition more broadly (including through both direct and indirect discrimination) is set out below.

Contract lengths: Longer (especially 5 years +) contract lengths create fossil fuel lock-in and prolong market distortion. All technologies should be awarded the same contract length (ideally one year, following U.S. examples) to enable competitive price discovery.

¹⁴ Notwithstanding that separate environmental and public health policies can and should be applied to certain technologies.

Contract lengths should not favour more expensive technologies over cheaper ones, or new resources over existing ones. The granting of excessive periods of contractual support is a prominent example of failed design given the ample available evidence that annual awarding shorter periods of contractual commitment (e.g., one year) is better capable of delivering a more inclusive, more cost-effective solution to the need for adequate resources.

Minimum bid size and exclusivity: Larger bid sizes and exclusivity requirements represent a significant and unjustifiable barrier for DR and other new entrant DERs, even with aggregation. They make it difficult to start small and manage cost and risk incrementally as they build up a customer base and fine-tune technology, or from entering different assets into different markets to find the optimum blend of platforms. Most EU CRMs have a 1MW bid size, which is 10 times the U.S. standard threshold of 100kW and twice the 500kW threshold specified in the Electricity Regulation in respect of DR access to balancing, day-ahead and intra-day markets. CRMs with a 2MW threshold have been approved under the EEAG. We recommend a bid size of 100 kW or less.¹⁵ **Value stacking** across different products and time periods should be permitted where compatible with State aid aggregation rules.

Lead times: Longer lead times (the time lag between auctions and payment) of 4 or 5 years increases error in capacity forecasting. Given the typical lead times for the implementation of DR measures, this is also too long for new DR entrants to wait to get a return on investments, especially when relying on debt financing to purchase equipment.

T-1 auctions: These are essential for DR access but only where there is enough certainty to build a market. This can be achieved through a guaranteed (in law) set-aside percentage of capacity or min capacity amount reserved for T-1, though this makes it even more important that main auctions do not over-procure generation capacity. This can be solved by implementing one-year contracts in year ahead auctions across the board.

Pay-as-clear, not pay-as-bid auctions: In general, pay-as-clear auctions incentivise more aggressive bidding and market price signals that reflect the marginal cost of demand, leading to more efficient outcomes. Pay-as-bid designs allow participants to bid on the basis of what they think the highest bid will be early on, resulting in higher costs as bidders 'learn' what the market will bear. A large body of evidence and analysis supports the conclusion that pay-as-bid leads to gaming and higher auction results than pay-as-cleared.

Derating factors: Sometimes called 'firmness ratios.' These should not discriminate against demand-side technologies or supply-side storage. Diverse pools of aggregated DR investment have demonstrated in multiple markets that they can be at least as 'firm' as traditional fossil generators. Multiple technologies should be able to bid together as Clean

¹⁵ In 2019 the DSO UK Power Networks launched a £12m tender for DR flexibility services 'to deliver a stronger, more resilient electricity network by helping to manage electricity demand a peak times.' A few months into the scheme the minimum size threshold was reduced from 100kW to 50kW to enable more DR providers to participate. UK Power Networks. (2019, 22 February). *£12m funding announced for Flexibility services in South East and East of England*. Press release <https://www.ukpowernetworks.co.uk/internet/en/news-and-press/press-releases/12m-funding-announced-for-Flexibility-services-in-South-East-and-East-of-England.html>

Energy Portfolios¹⁶ of renewables, storage, energy efficiency and DR to hedge risks. Derating factors should be subject to comparative scrutiny across Member States, with standardisation of evidence-based methodologies to avoid discrimination.

Time-bound capacity options: These should be available so that capacity providers are not required to be available for an unlimited or unspecified period of time, which shuts out valuable ‘turn-down’ DR and favours generation including behind-the-meter diesel. It is more cost-effective (and often more equitable and less environmentally harmful) to enable time-bound DR or storage to be called upon on a rolling basis by system operators. Such capability should be part of Member States’ reliability and resilience plans along with grid sectionalisation, to ensure a safe and fair distribution of load curtailment during a system stress event.

Collateral, testing and penalties: Upfront cash collateral requirements, particularly combined with larger minimum bid sizes, and onerous advanced testing regimes can present a significant cost and administrative barrier to new entrants. These are disproportionate to the policy aim if effective penalties for non-delivery are also in place (as they should be). (Leading U.S. CRMs have implemented a bonus structure alongside penalty regimes for under-delivery during stress-testing whereby bonuses can be earned for over-performance.)

Financing methodology: Cost recovery methodologies should be designed to minimise aid by targeting costs on those best able to mitigate them. Cost exemptions or reductions should not be granted to Energy Intensive Users (EIUs). More detail is provided below.

MW not MWh: CRMs — as their name suggests — should only be permitted to provide remuneration for capacity, not energy. Payment for MWh distorts energy trading across jurisdictions, impeding efficiency and increasing cost. We note that the paragraph 225 EEAG prohibition of remuneration for the sale of energy has been removed and replaced by a permission with conditions at paragraphs 317-319 of the draft CEEAG. No reason has been provided for this in the Commission’s background note. Moreover, the caveat that *‘additional attention is needed to ensure adverse market effects are avoided, and less polluting generation sources are not displaced’* is extremely vague. We welcome an explanation of why this change has been proposed and what measures Member States would be expected to take to avoid distortions of competition or other adverse effects.

Minimise market distortion: CRMs should be constructed to ensure that the price paid for availability automatically tends to zero when the level of capacity which would be profitable on the energy market, in the absence of a capacity mechanism and after the implementation of stipulated energy and balancing market reforms, is expected to be adequate to meet the level of capacity demanded. A version of this requirement was contained in EEAG paragraph 230 and should continue to be included in as a binding CEEAG requirement, notwithstanding its inclusion at Recital 50 to the Electricity

¹⁶ Carbon Tracker Initiative. (2021, 25 February). Foot off the Gas: Why the UK should invest in clean energy. <https://carbontracker.org/reports/foot-off-the-gas/>

Regulation. We have added the underlined text to ensure the requirement is aligned with paragraph 301.

Decentralised capacity procurement: Locating the responsibility for adequacy as close to the customer as possible — usually with suppliers — increases the likelihood that more cost-effective, demand-side measures will be employed, reducing the need for more costly and harmful fossil generation solutions. This likelihood is further increased by healthy retail market competition and fully unbundling supply from generation.

To avoid discrimination and increase system efficiency, targeted DR facilitation may be justifiable

The principle that a universal approach is not always appropriate when dealing with new entrants and incumbents together is well-established in EU law. The Commission's Staff Working Document from 2016 contemplates this in the context of CRMs, acknowledging that it is both common and legitimate (in U.S. markets) to design policy with the specific attributes of DR in mind, in order to actively facilitate DR capacity. Such an approach takes a longer-term, systems view, factoring not only the importance of fostering a flexible demand side to ensure enduring efficiency, but also the material risk that the existence of a CRM will hinder that development:

'Demand response is often treated differently to generation within the various mechanisms included in the sector inquiry, for example because it is not always possible for demand response to bid in the electricity market and earn electricity revenues in the same way as a generator, and because of the need to establish a consumption baseline from which to measure the amount of energy delivered by demand response capacity.

There are also often limitations on the obligations for demand response, for example a more limited number of required consecutive hours of capacity delivery. Some consultation respondents pointed out that such discrimination should always be avoided, since preferential rules for demand response may mean demand response is selected for support in capacity mechanisms ahead of more competitive generation. However, these differences may be justified since they help support the development of demand response and should allow it to play an increasingly significant role in the electricity markets of the future. This discrimination in favour of demand response in particular may be justifiable because it is a lack of demand response that contributes to the market failures targeted by a capacity mechanism. By targeting the long term development of demand response, a capacity mechanism can therefore help to ensure the market develops so that the mechanism is not required in the longer term.

However, any different treatment between capacity providers needs to be carefully considered to avoid any unjustifiable discrimination.¹⁷

‘(471) In the mechanisms that include demand response there are usually different obligations for demand response than for generation. Because of the long term benefits of demand response, some differentiation in obligations and penalties between generation and demand response is justifiable in the short term to enable the development of demand response.’¹⁸

We agree with the Commission’s analysis here and recommend that these findings be included in the Recitals to the CEEAG. Both part 4.8 on Security of Supply and a new stand-alone section on DR aid (which we have advised should be included) should clarify that in some cases, tailoring policy design to facilitate the particular characteristics of DR is necessary and appropriate in accordance with the EE1st and technology neutrality principles. This is common in U.S. markets, but EU policy makers have so far taken a narrower approach, which has the (perhaps unintended) consequence of delivering generator-centric design rather than genuine technology neutrality.

Further detail on allocation of costs

Paragraph 324 provides that ‘the costs of a security of supply measure should be borne by the market participants who contribute to the need for the measure. For example, this may be achieved by allocating the costs of a security of supply measure to electricity customers in periods of peak electricity demand.’ It is not, however, clear from the current drafting:

- Whether, in the Commission’s mind, the requirement can be met simply by introducing a time-of-use (TOU) element; and
- Whether cost reductions or exemptions from EIUs are completely prohibited.

Cost recovery methodologies and onsite diesel

Member States should be explicitly required to construct charging methodologies that provide clear, concentrated price signals for critical peak reduction through DR, in order to minimize the overall aid amount, distortions to competition and environmental harm.

The way the CRM costs are targeted on customers directly affects whether or not the scheme has an ‘incentive effect,’ whether it is proportionate, and whether it facilitates DR, all of which are already requirements of the EEAG. The new CEEAG should explicitly require Member States to design tariff structures in a manner that minimizes the overall aid amount, by imposing clear, effective price signals for all users to avoid consumption during critical peaks. Focusing charges (or a proportion of them) on those using electricity during the specific peak settlement periods reintroduces key scarcity pricing market

¹⁷ European Commission, 2016. Paragraphs 461-462.

¹⁸ European Commission, 2016. Paragraph 471.

signals and creates a short time window, during which time DSR ‘turn-down’ is more feasible.

This obligation must not begin and end with imposing a TOU element of some kind. Customers also need to be incentivised and able to respond meaningfully. Smearing charges across longer periods of time (e.g. 4-7 p.m. every winter weekday, as is the case in the Great Britain capacity market) increases the likelihood of larger customers resorting to behind-the-meter fossil fuel generation for hours, days and weeks on end in order to avoid capacity market costs. Meanwhile, SME and residential customers will struggle to reduce consumption much at all, because it is not practical over such a long and consistent window. This can be contrasted with a concentrated time period of a small number of highest peak settlement times, during which turn-down is achievable even for households and any behind-the-meter fossil generation will be more limited.

The market reform measures that must be in place before a CRM is resorted to (see above) should include precise system cost allocation in regulation and proper taxation of behind the meter alternatives to avoid individual solutions which are incompatible with the system requirements and overarching targets. Onsite diesel generation should be subject to the same emissions standards as supply-side generation, with a carve-out for operation during system emergency events declared by the system operator. There is a precedent for this in U.S. markets.

Effective charging methodologies, which reduce demand spikes and not only decrease total aid amounts, they also help to avoid windfall profits from fossil fuel ‘peaking plant’ providers. Policy makers and the Commission should be alive to the fact that vertically integrated undertakings, which own both fossil fuel generation and retail supply businesses, may oppose such methodologies by raising retail supply concerns around ‘predictability,’ as a means of protecting peak-time generation revenues. But an unnecessary cost burden that is predictable is still unjustifiable. System operators that both own lines and operate balancing services are also not neutral players and may be incentivized to favour centralized generation over DR and other distributed solutions. This is one reason why energy market regulation should be working towards an Independent System Operator (ISO) model.

Exemptions from adequacy scheme costs

EIUs should not be granted exemptions from or reductions of resource adequacy scheme costs under any circumstances. EIU exemptions or reductions directly increase the overall aid amount by reducing peak-avoidance incentives amongst the very users best placed to achieve this. This means that non-flexible customers — including residential and vulnerable groups — are burdened with not only an *increased share* of a fixed cost as is the case with RES costs, but also *higher overall costs* than would be the case if peak-shaving were properly incentivized.

EIU discounts also stifle innovation in DSF sectors in two respects:

- By disincentivising uptake of DSF services in DSF’s current primary market (industrial and commercial sector) and;

- By removing a potential secondary market for CRM cost avoidance, which could operate in a similar way to existing balancing and ancillary products such as network constraint cost avoidance (i.e. paying users for behaviour that benefits the system/reduces costs/increases reliability for everyone).

EIUs have the power to inflate or reduce the total cost of adequacy measures, such as CRMs, through their actions or lack of action to reduce consumption during critical peaks. When setting the subsidy amount for future years, system operators and policy makers predict peak-time capacity margins. If it can be established that EIUs will be adequately incentivized to reduce consumption during peaks, this will reduce, or even remove, the need for intervention altogether. Therefore, there is a question of how much must be paid to achieve the policy goal, not just who must pay it. Indeed, the EEAG and draft CEEAG require intervention schemes to be designed in the most cost-effective and least environmentally harmful manner.

Incentivising EIUs to manage costs, rather than shielding them from the consequences of not doing so, results in a more equitable distribution of cost and benefits. Although in decades gone by, DR actions may have been associated with EIUs being forced to completely shut down their industrial operations for extended periods of time, this is not the case with modern, voluntary DSR. Today, algorithms and smart appliances can be seamlessly combined with electricity storage and onsite renewables, enabling customers to avoid using the grid at peak times and during system stress events, with minimal business disruption. Such technology uses automation, so that users do not have to manually track market prices. It also creates new markets for DR aggregators and other intermediaries, as well as smart energy technology providers.

EIUs are already in a good position to avoid peak-time usage and associated costs, because they are more likely to have flexible assets and their meters are settled against their actual consumption on a time-sensitive basis. They are also key beneficiaries of improvements to security of supply. Encouraging EIU action through strong price signals is not only an equitable solution — assuming that State aid intervention is in fact necessary and justified — it also protects vulnerable household customers and small businesses, which are for the most part still inflexible and settled against estimated demand profiles, from unnecessary and unavoidable costs.

The proposed consultation requirements should be strengthened

We welcome the inclusion of Member State public consultation requirements. These should, however, apply to their fullest extent in all cases where aid for security of supply is introduced, regardless of whether the aid amount is over €100 million, whether a competitive bidding process is used, or whether the aid supports investments in fossil-based generation.

Distortions in competition caused by flawed policy design can occur in any adequacy scheme, adversely affecting innovation, decarbonisation and cost-efficiency. Smaller aid amounts (and £100 million is not even that small to new entrants) still create market distortions, which removes value from the energy-only market and allocates it to chosen capacity providers. The market *impact* on emerging sectors such as DR and other DSF

resources is greater than just the aid amount. Similarly, the existence of a competitive auction is no assistance to new entrants that are in practice shut out of CRMs due to discriminatory or otherwise flawed policy design. Finally, the absence of fossil-based generation is positive from a climate perspective, but this does not absolve Member States from their duty to follow due process and EE1st principles, which include proper consultation.

Timely and transparent consultation should be mandated across the board at the point of demonstrating the need for State aid intervention in relation to the policy design of aid schemes, and before material amendments are notified. Crucially, Member States should be explicitly required to publish the key research and data leading to the policy positions being consulted on. For example, system operators' underlying assumptions and associated sources must be published in good time, otherwise meaningful scrutiny and consultation is not possible. This includes assumptions about DR and other DSF potential and capacity (including load) projections. Cost recovery methodologies should also be added to the list in paragraph 306.

Special care should be taken to facilitate feedback from new market entrants, which are less likely to have well-established and well-resourced trade associations and access to lobbyists. Policy makers should ensure proper representation of new entrants in working groups and should allow adequate time to respond to consultations, with extra time given during holiday seasons or other global events, such as Covid-19. Significant policy changes made after consultations close, especially as a result of industry lobbying, should require a new consultation so that impacted stakeholders have an opportunity to comment on the revised proposals.

The exception at draft CEEAG paragraph 309 allowing '*alternative methods of consultation provided that the views of interested parties are taken into account in the (continued) implementation of the aid*' is worrying and likely to lead to messy policy outcomes, compromising investor confidence in crucial nascent DSF technologies. '*Corrective actions*' after the event are highly unlikely to rectify this sufficiently. Member States should be required to consult openly on any proposed measures in good time before measures are introduced and they should not be permitted to benefit from their own poor planning by rushing through potentially distorting measures on the promise that they will fix policy flaws post-implementation. That approach will only strengthen the market power of incumbents, particularly existing generators, which do not have to finance assets, put in place new operational measures, or build up a market through aggregation, unlike DR new entrants.

Member States should be required to report on any industry secondments to the government or regulator policy team designing the scheme, including from system operators, and to explain steps taken to avoid conflicts of interest. The provisions relating to independence of Regulatory Authorities from industry, contained in Article 57 of Directive EU 2019/944, could serve as a useful blueprint for such obligations.

For the avoidance of doubt, it should be made clear that nothing in these sections impacts the Commission's own duties to consider third party observations and to carry out its independent investigation, under the State aid procedural rules.

Aid for energy infrastructure (CEEAG 4.9)

As noted above in response to section 4.1, infrastructure aid presents an area where clear guidelines are especially needed to ensure that aid for infrastructure-intensive solutions does not tip the scales in favour of those options when other solutions may provide efficient and clean alternatives without aid. This concern is amplified when the aid is going to infrastructure that may perpetuate the use of fossil fuels. The guidelines as drafted do not provide adequate protection against the granting of aid that may both distort the market in favor of fossil-based options and create lock-in of potentially unneeded expensive infrastructure.

The Commission's reliance on 'fit for use for hydrogen' to allow a presumption in favour of fossil gas infrastructure projects is especially problematic for several reasons (para 339(c)). First, there is no justification for allowing a presumption that '*the positive effects on competition manifestly outweigh its negative effects on competition*' just because the infrastructure may be fit for hydrogen use. This broad presumption would allow for infrastructure aid that may serve uses where competition would reveal much more efficient solutions in the absence of such aid. Second, merely because the infrastructure is 'fit for use' for hydrogen or other renewable gases does not mean that it will carry those fuels. Instead, aid could be granted for a project that continues to carry fossil gas. Furthermore, as discussed above, there is no means to verify that the infrastructure will carry truly green hydrogen as opposed to other forms of hydrogen that have no place in a decarbonising energy system. Almost all current hydrogen production uses fossil fuels, with significant greenhouse gas emissions.¹⁹ In short, 'fit for use' is a poor justification for providing an aid allowance.

The allowance in section 4.9.4, para. 339(c) for Member States to avoid the 'fit for use' requirement only exacerbates the issue. This section allows Member States to justify aid based on an explanation that is not possible to design the project so that it is fit for use for hydrogen or renewable gases (i.e., it will carry fossil gas), that it does not create a lock-in effect for fossil gas, and that the project nevertheless contributes to meeting EU 2030 and 2050 climate goals. Again, 'fit for use' itself does automatically mean that the infrastructure will carry non-fossil gas. Where the project is not fit for use, it will almost certainly carry fossil gas. Furthermore, as noted above, lock-in is not defined; as a result, there is too much leeway for Member States to justify fossil gas infrastructure projects. Investment in infrastructure that may perpetuate the use of fossil fuels risks not meeting EU climate targets.

¹⁹ International Energy Agency. (n.d). *Hydrogen*. (Website). <https://www.iea.org/fuels-and-technologies/hydrogen>

Aid in the form of reductions from levies for energy-intensive users (CEEAG 4.11)

As most levies are set on electricity consumption, it is important to emphasise that energy system transformation cost should not be financed only through electricity consumers but re-balanced across energy carriers.

If (transition) costs are financed via levies then, as a general principle, all consumer groups must pay a fair share. The exemption of bearing the proportionate cost by EIUs has been justified on competitiveness grounds i.e., the assumed relocation of these industries or increased import of energy intensive product to/from outside the EU with more lax environmental legislation and lower decarbonisation ambitions. The evidence on substantial carbon leakage is not convincing and the EC itself has failed to demonstrate the correlation between electricity cost and relocation.²⁰ Cost pressure can even provide incentive to innovate and increase market share. Moreover, the assumed competitive disadvantage from extra EU competition due to uneven environmental legislation, most notably from carbon prices, is planned to be tackled by the carbon border adjustment mechanism (CBAM) from 2023. In addition, the different approaches to exemption taken by individual Member States risks the distortion of trade within the EU.

Not requiring EIUs to pay their full share of costs of RES support undoubtably increases the cost burden on the remaining customer base. This results in higher household costs and therefore exacerbates energy poverty and raises broader questions about the inequitable distribution of energy cost and benefits.

Therefore, we recommend that no EIU reductions or exemptions be granted at all. If, however, this category of aid is to remain, then a more robust linkage should be made in the CEEAG between the award of exemptions and commitments to reduce energy consumption – for example conditioning cost exemptions on energy intensive users investing in energy efficiency measures or demonstrating energy intensity improvements.

Aid for coal, peat and oil shale closure (CEEAG 4.12)

In general, companies should not be compensated for, or sheltered from, poor investment decisions due to cognitive dissonance in the face of climate science. Such actions are incompatible with the ‘polluter pays’ principle and reduces incentives for others to be socially responsible and to take timely action to manage climate and other risks. Many energy companies have failed to protect shareholders, workers and the public from climate risks (including stranded asset risks) which have been known about for decades.

Communities may need support through the transition with dedicated funding, but this should be distributed to citizens not energy companies. It is therefore essential that any

²⁰ It should be noted, though, that these studies covered periods where these industries were eligible for free emissions allocation and when ETS price was relatively low. See Naegele, H. & Zaklan, A. (2019). Does the EU ETS cause carbon leakage in European manufacturing? *Journal of Environmental Economics and Management*, Volume 93, Pages 125-147, DOI: 10.1016/j.jeem.2018.11.004. Fragkos et al. estimate a 25% carbon leakage for energy intensive industries at a carbon price of 75 \$/tCO₂ in 2030 and 590 \$/tCO₂ in 2050. Fragkos, P., Fragkiadakis, K. & Paroussos, L. (2021): Reducing the Decarbonisation Cost Burden for EU Energy-Intensive Industries. *Energies* 2021, 14 (1), 236. <https://doi.org/10.3390/en14010236>

aid is restricted to genuinely profitable companies, not failing plants, and limited in time and scope to the minimum intervention necessary.

In order to achieve climate targets, we agree that the necessary speed of energy market decarbonisation means that high-carbon generation that may appear in the short term to be economic will have to be shut down progressively to accommodate the accelerated expansion of zero-carbon resources. To ensure timely and transparent phase out of fossil fuels in a manner that supports resource adequacy whilst not extending the lives of surplus capacity, we recommend that a portfolio standard for the orderly and prospective phase out of fossil energy, combined with the ETS carbon pricing reform, be used in the first instance. Member States should be required to have implemented market measures fully before applying for aid.

In our view, compensation should be provided to power plants only and should not be extended to companies in respect of upstream activities such as mining, gas or shale exploitation. Compensation for upstream activities should be limited to workers and communities. Removing fossil generation will alleviate oversupply, to the benefit of DR and RES resources, while considerably reducing the market for fossil fuels.

The methodology for assessing ‘forgone profit’ and the definition of ‘additional costs’ should be clarified and standardised. The impact of the current proposals to strengthen the ETS Directive and the revision of the Industrial Emissions Directive, plus market reform implementation under the Clean Energy Package, should be properly accounted for in the counterfactual to ensure that aid does not go beyond the ‘incentive effect’ and is not provided to plants that would have become uneconomic in any event due to these measures. Revenue from subsidies such as CRMs should be excluded from the assessment of profit. Assessments of costs and profits should be independently verified and not based on information provided by the companies alone.

Only older plants that made key investment decisions before a specified date should be eligible, to ensure that companies that could and should have foreseen regulatory phase outs are not rewarded. The dates likely to vary between different resources and should be agreed upon following stakeholder input. They could be based on key climate science reports such as the 2018 IPCC report, or policy decisions such as the 2020 EU climate target setting for 2030, which made it clear that coal would need to be phased out by 2030.

Where divestment programmes are introduced, we agree that this should be through a competitive bidding process. We note that Germany set up a Coal Commission in 2019 to develop a roadmap for phasing out coal-fired power generation. Following advice from the Commission, the annual capacity to be phased out and the state investment plans have been presented in legislation. The auctions have the advantage, compared with market driven (emissions) prices alone, of setting the dates, the amount of capacity and the maximum price well before the auction. This overcomes the natural ‘prisoner’s dilemma’ dynamic widely observed in practice whereby the owners of uneconomic generation wait long past the point where it is clear they are surplus to requirements, to see who will exit first thus improving the economic prospects for the remaining capacity owners. The phase

out of the winning (cheapest) capacities takes place one to two years later. This not only provides certainty to the power plant operator and its staff, but the approved divestment plan also assists system operators for mid-term planning of required reserves and other measures.

We agree in principle that aid for exceptional social and environmental costs should be available if the ‘polluter pays’ principle is still applied rigorously (as noted in paragraph 387). We would welcome clarity on how this provision interacts with the Just Transition Fund and other EU approved and monitored aid.



Regulatory Assistance Project (RAP)®
Belgium · China · Germany · India · United States

Rue de la Science 23
B – 1040 Brussels
Belgium

+32 2-789-3012
info@raponline.org
raponline.org

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