Opinion of the European Economic and Social Committee: What conditions are needed for the energy and low-carbon transition to be socially acceptable?

(Exploratory opinion requested by the French Presidency of the Council of the EU)

(2022/C 290/04)

Rapporteur: **Arnaud SCHWARTZ**

Co-rapporteur: **Pierre Jean COULON**

Referral	French Presidency of the Council, 20.9.2021
Legal basis	Article 304 of the Treaty on the Functioning of the European Union
Section responsible	Transport, Energy, Infrastructure and the Information Society
Adopted in section	10.3.2022
Adopted at plenary	23.3.2022
Plenary session No	568
Outcome of vote (for/against/abstentions)	224/6/5

1. Conclusions and recommendations

1.1. To make the energy transition socially acceptable, taking into account feedback from the planning and implementation stages, the EESC calls on all stakeholders to improve the following: independence of the process, quality and accessibility of information, freedom and diversity of participation, clarity of participation arrangements, accountability and inclusion in decision-making, transparency, monitoring of a plan or project from cradle to grave, and also the need for the transition to be affordable and work well (with available solutions, e.g. charging points for well-located electric vehicles in sufficient numbers).

1.2. The EESC calls on the EU to do much more to promote fair distribution and 'prosumption' by means of financial incentives, as this is the factor with the greatest impact on local acceptance of the energy transition. Information on these incentives should be accessible and their processes should be simple. The objective of the Energy Union — to put the citizens at the heart of the policy and to make sure that they can easily become energy producers and benefit from new technologies — needs to be achieved much faster. The EESC also stresses that it is important that the benefits, as much as the perceived costs of a project be fairly distributed within a community.

1.3. The EESC proposes that the EU identify and remove any obstacles responsible for poor public participation and support. As a rule, giving the communities and civil society organisations concerned the opportunity to participate in project development and planning decisions increases social acceptance. The lack of time, citizenship education, accountability of the authorities concerned and other factors should therefore be addressed by an action plan to develop participation.

1.4. The EESC would like to see consultation and even joint development with the public, particularly the social partners and civil society organisations, from the planning stage onwards, more extensive than at present, and careful coordination between objectives and planning at all levels, right up to local deployment of the transition. This is essential if we are to make progress towards greater social acceptability and achieve our energy transition objectives at a good pace.

1.5. The EESC stresses that improving acceptability by the population and stakeholders affected by the transition and its technical changes also warrants special attention and measures such as lifelong learning, reskilling and upskilling of the workforce, business support, and information campaigns targeting the different groups affected by the transition. The information must highlight the key message that the energy transition is needed because it is individually and collectively fairer and cleaner, and that in the long term it is cheaper for the citizens.

1.6. However, the EESC reiterates that the energy transition will require individual and collective changes on the part of private individuals, businesses, municipalities, etc. In the short term, because energy policy has so far overlooked the negative externalities of fossil fuels, decarbonising entails higher costs for producers and higher prices for consumers. Greater transparency is needed here. Current energy prices make it very difficult for consumers to accept higher prices of their own free will. It is important to be aware of this. In addition, therefore, it is also important to inform people about 'just transition' successes. However, in the current debate, we all too often hear about where things go wrong. A key issue for the transition to be socially acceptable and successful is preserving the competitiveness of EU companies on the world market in order to avoid undue strain on the economy and unemployment.

1.7. The EESC warns that old fossil-fuel taxes and new green taxes are levies that proportionally affect the budgets of low-income households more than those of more well-off households. Environmentally-harmful subsidies and taxes need to be phased out — and fast — as politicians often promise. Revenue from these new green taxes should therefore be used, in particular, to secure social innovation and to subsidise the energy transition of vulnerable households and preserve their purchasing power.

1.8. The EESC also points out that the transition to a low-carbon society must place the concept of just transition at the centre of reflection and action. The just transition must be more than a set of policy objectives, as it is the basis for social acceptance of the energy transition. At European level, a legal framework for a just transition, including, for example, tangible proposals made in this opinion which can be translated into national energy and climate plans, should supplement the Fit for 55 package.

1.9. The EESC calls for a reassessment of the 'Fit for 55' package to improve the capacity to deal with energy price volatility and problems following from emergencies, including war and the introduction of appropriate provisions to deal with such situations in a way that avoids negative effects on end users.

2. **Scope and elements**

2.1. Humankind is struggling with the finite nature of land resources ([1]), the collapse of biodiversity and global warming. The energy transition to a carbon-neutral economy entails a transformation of our societies, not only in practical terms (in particular, through a change of habits (both individual and collective)) but also in terms of our civilisation as a whole. It must enable us to reduce our material and energy needs whilst ensuring everyone's well-being ([2]) in a democratic and fair fashion, all the while respecting ecosystems ([3]).

2.1.1. For environmental, supply and social reasons, continuing to extract fossil fuels in the coming decades as we are doing today is not an option. This means that the transition to a carbon-neutral society is urgently needed.

2.1.2. However, in the context of green growth ([4]), the low energy return on investment from alternative energy sources is threatening our economies with systemic collapse, without forgetting the potentially devastating environmental impact of mining.

2.1.3. To ensure greater coherence and social acceptance, we will need to:

— reduce demand for raw minerals by improving the recycling thereof;

— carry out impact assessments to bring about a transition that will be better able to avoid, reduce or compensate for the use of such raw materials;

— ensure there is a circular economy in the renewable energy sector;

— stimulate energy efficiency and significantly reduce the overall demand for energy;

— reassess the proposals in the 'Fit for 55 package' to improve the capacity to deal with energy price volatility and problems following from emergencies, including war.

([1]) https://www.footprintnetwork.org/our-work/ecological-footprint/
([2]) https://doughnuteconomics.org/about-doughnut-economics
([3]) https://www.ipcc.ch/site/assets/uploads/2021/07/IPBES_IPCC_WR_12_2020.pdf
([4]) https://eeb.org/library/decoupling-debunked/ https://www.eea.europa.eu/publications/growth-without-economic-growth

2.1.4. Knowing the limits of scenarios linked to technological risk, the failure of carbon sinks and energy efficiency, it will be necessary not only to create some room for manoeuvre with systemic energy sobriety by rethinking our lifestyles, but also to increase acceptance of climate change adaptation measures.

2.2. The conditions needed for such a transition to be socially acceptable have been studied by science in recent years. The EESC takes stock of the situation in this opinion, aiming, among other things, to improve practices within the EU institutions and Member States.

2.3. The social acceptability of a project which can facilitate the energy transition is highly complex. It combines considerations relating to the understanding of the technologies being proposed, of associated risks (social, health, economic, etc.) and of possible alternatives, as well as an assessment of the costs and benefits of the proposed options, and the attitude of the host locality. For the transition to be socially acceptable, such projects need to be discussed with local populations and all stakeholders, and broader questions need to be raised about local development and the lifestyles people want.

2.4. According to the studies ([5]) and the EESC, the main drivers of social acceptance are:

— trust in governance and fair procedures;

— the just and affordable nature of the transition;

— concerns relating to location and planning;

— the effect of socio-demographic factors;

— socio-technical feasibility.

2.5. We now propose to take a look at what these terms mean and which ideas we could use as a means of effecting the transition towards a low-carbon economy.

3. **Conditions for implementation**

3.1. *Trust in governance and fair procedures*

3.1.1. Many studies have demonstrated that trust is crucial in determining levels of social acceptance. There is a correlation between fair procedures, trust and the rate of acceptance of the transition. A transparent decision-making process and the dissemination of information improve levels of mutual trust between project developers and communities.

3.1.2. The EESC therefore reiterates that the rule of law should be the focus of attention, for example with regard to the use made of the various EU funds. Similarly, the Committee is of the opinion that the Commission should publish its proposals in all official languages quickly and readably in order to ensure wide accessibility and participation.

3.1.3. Moreover, studies have shown that public participation helps to address community concerns and raise levels of mutual trust. The dissemination of information is crucial for correcting any misconceptions about the transition and the measures or tools to be deployed to make it happen. Therefore, it is important to consult the public on topics relating, for example, to location, costs and possible negative environmental, economic, health and social effects of energy transition projects, but also to address the benefits thereof. This, moreover, contributes to acceptance by the general public of the construction of new facilities in the neighbourhood.

3.1.4. The EESC therefore considers that engaging in dialogue with local populations and stakeholders concerned and building mutual trust through open communication and opportunities for participation as early as possible in the development of energy transition-related measures and projects ([6]), at all appropriate levels from local to EU level, are essential for securing a community's acceptance.

3.1.5. Having local support, particularly from civil society organisations who publicly support the transition, basing this support on science, is important to promote participation and build trust ([7]). This local network can spread information in the public sphere in a more natural way and counterbalance any false ideas that might circulate.

([5]) Trends in Social Acceptance of Renewable Energy Across Europe — A Literature Review, 8.12.2020.

([6]) This is what *France Nature Environnement* recommends in its '*scopes*' (publications on methanisation, wind power, etc.).

([7]) https://www.fondation-nicolas-hulot.org/sondage-science-et-transition-ecologique-en-qui-les-francais-ont-il-confiance/ (in French only).

3.1.6. Participatory democracy is nowadays a key element in the model of European citizenship. The Lisbon Treaty ensures complementarity between representative and participatory democracy. From an international perspective, access to information and public participation in planning and development are two of the three pillars of the Aarhus Convention. Their implementation is still to be improved upon, as is the case for the third pillar, which is access to justice ([8]).

3.1.7. One way of participating to be encouraged is a public debate. It must be organised by an independent committee of experts on public participation with a proven track record ([9]). This supplies the credibility essential for the whole debate, involving the general public in devising major measures that affect the area where they live. Such a debate provides full and transparent information on a given plan, a programme or a project at the design stage for all stakeholders, giving them the opportunity to express their views, both as individuals and as organised groups, on the merits of the measures presented.

3.1.8. For some years, the digitalisation of public participation, with no accountability or debate involving third party mediators to ensure a consistent approach, has been gradually undermining public confidence. However, in addition to information, a combination of online consultation and physical meetings is necessary ([10]) to involve the public at all stages and to decide together on the choices to be made.

3.1.9. In order to improve dialogue between all the stakeholders involved, following public participation, these decision-making authorities or elected representatives should, for example, set out in writing what they have done with the various contributions that have been gathered and specify the improvement that will be achieved for the citizens. Such accountability would improve public understanding of the reasons for their decisions and increase trust in democracy.

3.2. *A just and affordable transition*

3.2.1. With the Fit for 55 package and the 2050 carbon neutrality objective, the challenge is significant. According to the European Commission, meeting our 2030 targets will require EUR 350 billion of additional investment per year in energy production systems alone. The big question for the EESC, and of course for society as a whole, is who will pay for it, who will invest in it, who will benefit from it, and whether the funds will be sufficient.

3.2.2. Fair distribution, with a view to achieving a just and affordable transition, ensures that the benefits — not just the costs — of a project are distributed in an equitable fashion. It is a key deciding factor for social acceptance. Financial incentives, without administrative or technical complications, even turn out to be the most important motivating factor for acceptance of a transition-related project. In this way, individuals, farmers, SMEs, energy communities, etc. will be ready to become part of the new system with their investments and their engagement, to bring about out the necessary transformation.

3.2.3. It stands to reason that a fundamental prerequisite for a socially acceptable and successful transition to a carbon neutral economy is that European companies remain competitive on the world market, in order to avoid undue strain on the economy and unemployment.

3.2.4. Financial incentives in one form or another (e.g. lower energy prices or income opportunities, support for the local economy, lifelong learning or vocational retraining) is a powerful factor for local acceptance and support for projects.

3.2.5. Perception of benefits can also help increase local acceptance. For example, the creation of local jobs, particularly in the event of an energy transition in a given employment area, is perceived as a community benefit that can encourage the acceptance of a project.

3.2.6. Wind- and solar-powered electricity, in particular, is emerging as the most cost-effective and most sustainably sourced electricity in many places. Having whole local populations producing and benefiting from the more affordable electricity is a possibility: by becoming producers as well, their role changes from one of consumers to one of prosumers. Their rights need to be strengthened and safeguarded. This approach is even more important as the transport and heating sectors are increasingly becoming electrified.

3.2.7. For the climate, in theory, it is irrelevant who constructs or operates a photovoltaic or wind system, but for local acceptance and the regional economy, this is an issue of crucial importance. In practice, special efforts therefore have to be made to make this kind of participation possible.

3.2.8. The EESC believes that the number of prosumers and the social acceptability of the transition could increase rapidly with the following measures:

([8]) OJ C 123, 9.4.2021, p. 66.

([9]) Such as the *Commission nationale du débat public* (National Committee for Public Debate) in France.

([10]) Cf. Conseil d'État, Public Report 2011 *Consulter autrement, participer effectivement* [French Council of State Public Report 2011 *Consult differently, participate effectively*] La Documentation française 2011.

(a) community self-sufficiency: if consumers operate systems collectively and if the electricity thus produced is consumed locally, then it should be treated as electricity of individual origin;

(b) energy-sharing: within renewable energy communities a reduced grid charge should apply to electricity that is energy shared for use by producers;

(c) virtual net metering: this will give people who do not live in the immediate vicinity of a renewable energy system the opportunity to participate in and directly use the electricity produced. To do this, virtual net metering needs to be a new, legally prescribed option, where every kilowatt hour of electricity consumed from the system in which the consumer is involved is to be compensated for by a kilowatt hour that the consumer uses from another source at a different point in time. Virtual net metering already exists in Greece, Poland and Lithuania, for example.

3.2.9. Local 'prosumption' is also attractive, linked to smart meters that handle market price signals and allow network-friendly consumption and flexibility, which can thus be rewarded. This combination can help lighten the load on networks and can thus reduce the need for network expansion.

3.2.10. The issues of rising energy costs and the ability of Member States to mitigate them must be at the centre of future policy measures. The EESC not only supports emergency measures to avoid drastic social consequences, but is also strongly in favour of market evaluations, which test the behaviour of actors on the energy market. At the same time, the EESC points to the Union's shared values regarding services of general economic interest within the meaning of Article 14 of the Treaty on the Functioning of the European Union (TFEU), as set out in Protocol No 26 on services of general interest annexed to the TFEU. It could lead to greater efficiency and the elimination of market failures. More effective market control by authorities is needed.

3.2.11. The EESC calls for a reassessment of the 'Fit for 55' package to improve the capacity to deal with energy price volatility and problems following from emergencies, including war, in a way that avoids negative effects on end users for instance by introducing appropriate mechanisms to avoid excessive pricing, such as temporary non-application of the ETS system.

3.2.12. At the same time, social justice will have to be ensured and the increasing energy poverty of Europeans addressed ([11]). According to the European Commission, the fight against climate change entails tangible risks of worsening inequalities, and specific public policies need to be put in place to address them. In particular, this involves stepping up vocational training and retraining and keeping price increases for some things under control for households suffering from energy poverty ([12]). An energy transition that creates jobs and is able to preserve the purchasing power of low-income households is socially more acceptable ([13]).

3.2.13. In addition, in order to facilitate acceptance of the transition, different scenarios giving more resources to small households were considered, such as in the simulations of the Locomotion consortium. Nevertheless, the EESC reiterates that it is essential to extend and enlarge the EU Social Climate Fund and Just Transition Fund ([14]) to genuinely ensure that no one is left behind, incorporating all aspects of exclusion and marginalisation.

3.2.14. To help the most vulnerable in particular to make the energy transition a reality, it would also be useful to develop and improve redistributive policies and, to this end, to trial innovative measures ([15]) such as a universal basic income, tax credits, shorter working weeks, job sharing, job guarantee schemes and more of a place for workers in corporate governance.

3.2.15. These measures, and others mentioned above, are likely to increase the acceptability of the transition. They could benefit from the immediate redirection of subsidies, funding and tax benefits that are still being allocated to fossil fuels. It is important to create sources of funding for sustainable investments.

([11]) Information Report of the European Economic and Social Committee *Evaluating the European Energy Union — The social and societal dimension of the energy transition*.

([12]) This poverty leads to problems such as theft (using cables to tap into other people's networks), due to lack of financial resources or civil disobedience against the way electricity is sold.

([13]) OJ C 152, 6.4.2022, p. 158.

([14]) OJ C 311, 18.9.2020, p. 55.

([15]) https://eeb.org/library/escaping-the-growth-and-jobs-treadmill/.

3.2.16. Thus, as has long been promised, the abolition of environmentally-unfriendly taxes should now be planned very quickly, along with the development of green taxes in line with a taxation approach ([16]) that earmarks sources of financing for boosting the transition. This will help everyone to understand and accept public action in this domain.

3.2.17. In fact, the social acceptability of green taxation requires compensation that takes into account household income and energy poverty (lack of public transport, poor insulation of housing, and inefficient heating systems and types of vehicle owned, etc.) to help people ([17]) benefit from any savings that can be achieved in the long term by using less energy-intensive equipment.

3.2.18. Similarly, carbon mapping ([18]), which consists of allocating non-transferable individual emission allowances, should be tested in order to work out not only whether its educational potential can result in reduced greenhouse gas emissions and an enhanced energy transition in practice, but also whether, by using this egalitarian tool, the acceptability of this transition is likely to be enhanced.

3.2.19. How good the example is that is given by public players (in addition to practices and measures to promote energy sobriety and renewable energies, participatory democracy, social dialogue and financing for civic facilities and lifelong transition education measures) will depend on their ability to put the issue of funding on the table and ensure it is sustainable. One example would be a multi-annual programme to finance energy renovation that contains an obligation to achieve results.

3.2.20. New subsidies and fiscal measures will need to be usefully complemented by standards that are binding on everybody, since, like the action that needs to be carried out to allow the development of mirror interactions conducive to the transition, these measures will also make it possible to bring about a world in which we can and want to live.

3.3. *Location and planning*

3.3.1. Many problems relating to the location of projects that would benefit the energy transition are rooted in the particular physical features thereof. Further efforts are needed to tackle such concerns, in particular by disseminating knowledge to counter false information and by implementing best practices to deal with these issues.

3.3.2. It is, in particular, a matter of becoming aware of the cultural and urban legacy of the past (entrances to cities disfigured by commercial and industrial zones, car parks built on fertile land, buildings in residential areas and suburbs creating a reliance on cars, etc.). Today, the advantages of the energy transition outweigh the impact on the 'landscape'. To ensure that it happens in a sustainable way, we need to avoid as much as possible, if not reduce and offset, the negative effects associated with its needs in terms of land.

3.3.3. This must be achieved by locating infrastructure in places where it is not in competition with agriculture or respect for nature and cultural heritage. Incorporating facilities into existing urban or industrial areas or placing them on marginal land with negligible productive or natural value is one solution.

3.3.4. Where the installation of such facilities on productive land is unavoidable, it should, as far as possible, be incorporated into the agricultural system instead of involving clearing and/or net land take.

3.3.5. Moreover, in order to keep the general public properly informed and win public confidence, rigorous environmental impact assessments should be carried out systematically for installations and for all national and European energy-related objectives and plans.

3.3.6. *Ex post* evaluations are also essential to keep our society in a process of constant improvement. In addition, bridges for dialogue between all levels of government should be put in place, along with good policy monitoring and implementation tools to avoid land take as much as possible, as well as to prevent 'environmental problem shifting', as recommended in particular by the European Environment Agency (EEA) ([19]).

3.3.7. In the *ex post* evaluation of measures and projects relating to the energy transition, the quantification of local economic benefits is a factor likely to generate social acceptability.

([16]) OJ C 62, 15.2.2019, p. 8.
([17]) Eurofound, 2015, Access to social benefits: reducing non-take-up Publications Office of the European Union, Luxembourg. EEA Eurofound policy brief 'Exploring the social challenges of low-carbon energy policies in Europe', ef22004en.pdf
([18]) https://www.socialter.fr/article/carte-carbone-plutot-qu-une-taxe-un-quota-pour-chaque-citoyen-1 (in French only).
([19]) https://www.eea.europa.eu/themes/energy/renewable-energy/eu-renewable-electricity-has-reduced

3.3.8. A complementary solution to the problem of finding places to produce energy in Europe would be to import green electricity produced in neighbouring countries in liquid form, using hydrogen as a carrier. In terms of social acceptability, this initiative must be understood as a joint development dimension for these regions ([20]).

3.4. *Socio-demographic factors*

3.4.1. In addition to these reasons, demographics in general also play a role in public perceptions. Preliminary demographic studies would help formulate a better strategy for project acceptance, by identifying the size and composition of the target public most likely to be opposed. These studies should be accessible to all stakeholders.

3.4.2. Higher levels of acceptance are correlated with higher levels of education and a younger age. Hence the importance of developing lifelong learning (including in companies and vocational training centres) on 'energy sobriety', civic participation and investment in collective measures to support the transition.

3.4.3. The EESC proposes that campaigns to raise awareness about the transition draw on the BIMBY (Build In My Backyard) movement, which echoes the NIMBY (Not In My Backyard) attitude, highlighting examples that generate virtuous trends in social imitation and benefits for the population, a series of positive narratives through testimonies and tangible success stories from different regions and countries, with which people could identify.

3.4.4. All this could generate acceptance and create a desire to move forward together towards this new way of living, which is required by the present-day need to replace fossil fuels. Resources should be dedicated to awareness-raising activities which could be judiciously promoted by various stakeholders.

3.4.5. There is no consensus on the direct effect of specific socio-demographic factors, as the impact thereof varies from country to country and according to the political context. However, they certainly do have an effect on local acceptance of plans and projects enabling the transition to take place. The EESC therefore believes it is necessary to support initial and continuous training measures for the energy transition, in liaison with the social partners and civil society organisations.

3.4.6. However, thinking in terms of social acceptability sometimes means giving the target public responsibility for adopting or not adopting the technologies concerned. This means considering that only the social dimension plays a role in realising the potential of technologies. However, reluctance to acquire or use new tools can be more complex ([21]).

3.5. *Socio-technical feasibility* ([22])

3.5.1. Barriers to the adoption of some types of equipment can also be technical. In particular, they are part of the difficulty of sharing a less energy-intensive culture in a society that, paradoxically, pushes people towards ever greater consumption, which generates considerable dissonance with messages aimed at saving energy.

3.5.2. Social acceptability refers to a complex situation of coexistence accepted between technology and users. However, acceptability does not mean adoption. (See, for example, the case of smart meters, which are accepted in theory but not adopted, with the result that people refuse to have them installed). Adoption requires there to be a sort of widespread take-up of the technology. The technology concerned is no longer being discussed; it has proved its worth; it is one of a number of technological alternatives, but nevertheless this does not mean that it is accepted. Accepting it presupposes ownership, in the sense of incorporating it into a way of life, considering it to be indispensable and essential.

3.5.3. The constraints linked to the widespread uptake of transition technologies also point to the fact that they are most often designed on the basis that users will be able to make use of them in accordance with the purposes for which they were intended.

3.5.4. These users are supposed to subscribe to the energy projects facilitated by these technologies before they can operate the technologies at full potential. However, numerous surveys have shown that even everyday technical objects are largely underused because of a lack of proper understanding of their real capabilities and how to make use of them.

([20]) OJ C 123, 9.4.2021, p. 30.

([21]) For example, acquiring an electric car involves changing the way a person drives, moving from a gear stick to an automatic gear box, which can be a deterrent.

([22]) https://www.larevuedelenergie.com/les-energies-renouvelables-en-transition-de-leur-acceptabilite-sociale-a-leur-faisabilite-sociotechnique/ (in French only).

3.5.5. Socio-technical feasibility can be viewed as a process of social inclusion and dissemination along a timeline that entails a certain number of phases. The first is fundamental, as it concerns the time for research and development and controversy ([23]) — i.e. anticipation of changes due to the introduction of a new technology. The second phase involves initial lessons learned. It is here that the rationale behind the project design is compared with the intended use and the ability to incorporate social aspects into technologies. The last phase is where the technology becomes commonplace over the longer term. At this stage it becomes clear whether a project is being rejected or adopted, whether and how the public take ownership of it and how society takes it on board.

3.5.6. It is here that local involvement comes into play: these regions attempt — or not — to use these technologies to deal with a number of challenges. The process of society taking such technologies on board therefore corresponds to the macro-social changes that their adoption engenders.

3.5.7. Use of a technology can profoundly change people's attitude to the world, relationships and social images. This is only possible if the technology is not imposed as it stands, but allows for adjustments, which thus make it easier to accept and use. In this respect, the EESC believes that technological neutrality based on scientific research, fair competition and the possibility of testing and discussing the appropriateness of different technologies can help to improve social acceptability.

3.5.8. Thus, when analysed in detail, the debate on the energy transition is moving away from its techno-centred approach and towards a more socio-centred approach. This implies introducing nuances in the concept of social acceptability when it tends to place responsibility for our energy-intensive lifestyles on consumers only, and including it in the wider sphere of socio-technical feasibility, which obliges us to question the sense of certain techniques as well as our energy-policy choices.

Brussels, 23 March 2022.

The President
of the European Economic and Social Committee
Christa SCHWENG

([23]) (See, for example — in an area other than the energy transition — smartphones, which are widely accepted and adopted).