EUROPEAN
COMMISSION

Brussels, 11.12.2023
COM(2023) 778 final

REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

Report on the implementation of Article 5 of the Renewable Energy Directive (EU) 2018/2001

Report on the implementation of Article 5 of the Renewable Energy Directive

1. Introduction

The revised Renewable Energy Directive[1] sets a 2030 EU-level target of 42.5% for the share of energy from renewable sources in gross final energy consumption, with an aspiration to reach 45%. Unlike the 2020 target, this EU-level target has not been translated into binding national contributions. The target is to be achieved jointly by all Member States, building on their coordinated and combined action, as reflected in the Directive and the Governance Regulation[2].

According to the Governance Regulation, Member States are to cooperate with each other, taking into account all existing and potential forms of regional cooperation to effectively meet the objectives, targets and contributions set out in their National Energy and Climate Plans (NECPs). However, the European Commission's EU-wide assessment of the 2020 NECPs[3] concluded that Member States should make better practical use of regional cooperation.

The increased renewable energy ambition would require exploiting cost-effectively the potential for renewables deployment. This means that cooperation between the Member States will play a role in achieving the target. At the same time, cooperation is a tool to achieve greater regulatory alignment between the Member States. The revised Renewable Energy Directive aims to foster cooperation through the provisions on joint projects, statistical transfers and joint support schemes.

Most of the investments in renewable electricity generation so far have benefited from national support schemes whose role in achieving the EU target is recognised in Article 4 of the Directive as well as by the EU State aid rules[4]. This support should be granted in a competitive manner, for example through tenders.

Article 5 of the Directive allows Member States to open participation in support schemes for electricity from renewable sources to producers located in other Member States. This may, in each year, amount to at least 5% of the scheme's budget or the supported capacity from 2023 to 2026 and at least 10% from 2027 to 2030, or, where lower, to the level of interconnectivity of the Member State concerned in any given year. Furthermore, the opening of support schemes may or may not involve physical import of electricity. If a Member State that opens its support scheme requires proof of physical import, it may limit participation in the scheme to projects in countries with which it has direct interconnection. According to the Directive, if a Member State decides to open participation in support schemes, the Member States involved must agree on the principles of such participation, covering at least the principles of allocation of renewable electricity that is the subject of cross-border support. In order to acquire further

[1] Directive (EU) 2018/2001, as amended by Directive (EU) 2023/2413.
[2] Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action.
[3] *Driving forward the green transition and promoting economic recovery through integrated energy and climate planning* (COM(2020) 564 final).
[4] *Guidelines on State aid for climate, environmental protection and energy 2022* (2022/C 80/01).

implementation experience, Member States may organise one or more pilot schemes where support is open to producers located in other Member States.

Article 5(5) requires the Commission to carry out an evaluation of the implementation of this Article. The implementation report should assess the need to introduce an obligation on Member States to partially open participation in their support schemes for electricity from renewable sources to producers located in other Member States, with a view to a 5% opening by 2025 and a 10% opening by 2030.

For this purpose, this report assesses to what extent the Member States have implemented Article 5 by opening participation in support schemes or by organising pilot schemes since the entry into force of Directive (EU) 2018/2001. This report presents examples such as case studies, as well as the results of stakeholder consultations on this topic.

2. Existing examples of the opening of support schemes and pilot projects

a. German-Danish cross-border solar photovoltaic (PV) tender

In 2016, on the basis of a bilateral cooperation agreement, Germany and Denmark conducted two pilot cross-border auctions for solar PV, one carried out by Germany and the other one by Denmark. In the German auction of 50 MW, installations located in Denmark were allowed to bid for support payments, while in the Danish auction of 20 MW, 2.4 MW were open to installations located in Germany. The auctions differed in several design features. For example, the German auction awarded sliding market premiums while the one in Denmark used fixed premiums. The permitted bid size in Germany ranged from 0.1 to 10 MW while it was capped at 2.4 MW in Denmark. Germany imposed a maximum bid price, in contrast to Denmark, which did not impose a ceiling price.

The German auction received 43 bids totalling 297 MW, of which 143 MW were for projects located in Germany (26 bids), while 154 MW were for projects located in Denmark (17 bids). The 5 winning bids were all for projects located in Denmark, with the maximum eligible capacity of 10 MW. The Danish auction received 36 bids totalling 79.45 MW, with no bids submitted for installations located in Germany. The 9 winning bids were all for projects with the maximum eligible capacity of 2.4 MW. As a result, the full capacity of the joint tender was allocated to projects located in Denmark.

b. Planned agreement on wind farms between Ireland and the UK

In 2014, Ireland and the UK worked on an intergovernmental agreement aiming to set up wind farms totalling around 5 GW in the Irish Midlands with the help of UK government subsidies and export the electricity produced to the UK. This would offer Ireland an electricity export market and other economic benefits and help the UK to meet its renewable energy targets at a lower cost than by deploying other renewables. According to one of the project developers, UK consumers were expected to save around £7bn over 15 years from this arrangement[5]. The agreement was ultimately abandoned, due to concerns of local

[5] https://www.bbc.com/news/science-environment-21147279

communities about the size of the proposed wind farms, the height of the individual turbines and the impact on the environment and property values. Furthermore, the expected benefits for Ireland, were perceived as too small to outweigh the environmental impacts of having the wind farms installed in their country[6].

3. Input from stakeholders

Member States were consulted in the framework of the Concerted Action on the Renewable Energy Directive (CA-RES)[7] and through bilateral requests. A total of 10 Member States replied to the questionnaire sent out in the framework of CA-RES. Of these, 6 (Cyprus, Finland, Slovenia, Slovakia, Denmark and Poland) replied that they were not planning to open participation in support schemes. Sweden referred to its existing electricity certificate system with Norway. Greece replied that, according to a recent Ministerial Decision, 3 common auctions for wind and solar PV are planned in 2023, which will be open to producers located in other Member States. For these auctions, the capacity share for producers from other Member States has not been specified. Another auction planned in 2023 is dedicated only to producers located in other Member States.

So far, the Member States that replied have not signed any cooperation agreements with a view to opening participation in support schemes. With the exception of Denmark, none of the Member States that replied have organised pilot schemes where support is open to producers located in other Member States[8].

The Member States were asked what they consider to be the main obstacle for opening participation in support schemes. A number of factors were mentioned in response: differing national support schemes and the risk that the difference brings unfair competition; differences in administrative processes; concerns linked to security of supply; challenges linked to communication and joint understanding with other Member States; and a lack of electricity interconnectivity with other Member States.

On measures the Commission could take to incentivise or help Member States in opening support schemes to producers located in another Member State, the replies mentioned the standardisation of procedures, including a ready-made framework for agreements.

In addition to the consultation in the framework of CA-RES, the Commission launched an online call for evidence on the option for Member States to partially open participation in their support schemes for electricity from renewable sources to producers located in other Member States, including the possibility for the Commission to propose mandatory opening of support schemes.

---

[6] *Cross-border cooperation on renewable energy*, p. 5, https://www.eea.europa.eu/publications/cross-border-cooperation-on-renewable-energy.

[7] CA-RES is a project of the Horizon 2020 programme. It supports the transposition and implementation of the Directive. Through CA-RES, participating countries exchange experiences and best practice.

[8] In its reply, Denmark referred to the 2016 pilot cross-border solar PV tender with Germany, which is described in Section 2.a of this report.

The Commission received 18 contributions to the call for evidence. It also received 2 replies by email after the deadline. Most respondents expressed opposition to mandatory opening of support schemes. All replies from individuals to the call for evidence expressed opposition to mandatory opening, mainly stressing concerns about Member States' sovereignty.

The Commission received 3 replies to the call for evidence from Member States. Another one came following a complementary bilateral request from the Commission to the Member States. Of the replies to the call for evidence, 2 came from the Member States that have already carried out a pilot for cross-border auctions – Denmark and Germany[9]. In its reply, Denmark highlights the need for Member States to be flexible when deciding on the appropriate tools to support renewable energy, including by means of national support schemes and opening these schemes to producers in other Member States. Denmark also recalls that in the future, onshore renewable energy is largely expected to be installed without using support schemes.

The reply from Germany describes the design features of the pilot cross-border auctions with Denmark, the lessons learned from them in terms of efficiency gains that can result from cooperation and the importance of regulatory conditions in cross-border auctions, and the applicable regulation in Germany on renewable energy support schemes. According to the national rules, from 2017 onwards, when support for renewable energy has to be determined by auctions, a share of the total capacity to be added annually is to be opened to renewable energy projects in other Member States under certain conditions[10]. The rules were subsequently amended in 2017, 2021 and 2023, increasing the share of capacity that has to be open to projects in other Member States, making additional technologies eligible for participation in cross-border auctions, introducing changes to the calculation of market premiums, and suspending the requirement for reciprocity. Under current rules, 20% of the total capacity to be added annually needs to be open to renewable energy projects in other Member States, while offshore wind capacity does not count towards the set limit of 20% and the full capacity can be open to projects in other Member States. In its contribution, Germany recognises that a mandatory obligation to open support schemes would boost cooperation on renewables among Member States. However, it also recalls the strengthened provisions on joint projects of Article 9 of the recently revised Renewable Energy Directive. Germany considers the Commission's support for cooperation to be helpful to increase support scheme efficiency in the EU.

Most industry replies argue that a mandatory opening of schemes does not address the underlying needs of the governments involved, that this could reduce the legitimacy of and public support for the schemes and the energy transition as a whole, and that introducing a binding obligation may not be the most appropriate way to help achieve the 2030 EU renewable energy target since it may involve changing the requirements that the supported facilities must comply with in order to receive support, or changing the financing scheme itself, thus creating an administrative burden. For example, respondents point out that under

[9] The third reply from a Member State (Lithuania) refers to the applicable regulatory framework for joint support schemes and participation in auctions in another Member State, without taking a position in favour or against mandatory opening of support schemes.

[10] 1) An international treaty on a cooperation mechanism under the Renewable Energy Directive is in place between Germany and the partner country; 2) the cooperation is reciprocal, which means both parties open their auctions in their respective markets for the partner country in comparable volumes; and 3) the electricity generated must be physically imported or have a comparable effect on the German electricity market.

the Spanish support scheme REER (*Régimen Económico de Energías Renovables*), power generation facilities must be located on the Spanish mainland and meet certain administrative milestones. The location requirement would need to be changed to enable the opening of support schemes, as well as the requirement to meet certain administrative milestones for installations located in other Member States, since these installations would be subject to different permitting and administrative processes than those applicable in Spain. Furthermore, if the tender takes the form of a contract for difference, different rules on how to spread the financial burden of the support payments between market participants in the countries involved may result in unequal treatment between Member States.

By contrast, one industry association favourable to a mandatory opening argued for a unitary EU scheme or harmonised support measures, to support cost-effective deployment of renewable energy and electricity market integration and functioning. Another industry association respondent cautioned that, if the opening of support schemes were to be made mandatory, national funding would be provided directly or indirectly by the population of the respective Member State, and therefore such funding should contribute in particular to reaching that Member State's energy and climate targets. Another industry association expressed support for mandatory opening, in order to export the energy produced to the Member State organising the auction. Additionally, the respondent called for the option to transport the cross-border supported renewable electricity as gaseous molecules, namely hydrogen. The respondent argues that this could help overcome the issue of there not always being sufficient electricity grid capacity and create the possibility of seasonal storage of renewable energy.

Even though most respondents had a preference for not making the opening of support schemes binding, there was wide recognition of the benefits of cooperation in the deployment of renewable energy. The offshore wind sector in particular was singled out as one where systematic coordination and cooperation of countries around a sea basin is of critical importance.

Several industry respondents were in favour of incentivising the opening of support schemes, since it would create competition among a larger pool of bidders, encourage Member States to harmonise their administrative procedures, and provide for more European approaches where, for example, one Member State has limited space to deploy additional renewable energy in contrast to significant national demand, while another Member State's resource potential is larger than domestic demand. However, the solar industry stressed that for cross-border tenders to be successful, the administrative burden must remain limited, and the visibility of support mechanisms and national policies on both sides must be guaranteed.

Respondents from both the solar and the wind industry stressed the importance of several points related to grid infrastructure. They highlighted the need to increase the level of electricity interconnection, referring to physical grid connections as one of the prerequisites for opening support schemes. A respondent from the wind industry stressed that grid connection costs also need to be part of the cost-benefit allocation. A respondent from the solar industry argued that a level playing field between the countries concerned should be ensured by harmonising the regulatory frameworks or applying cost-sharing measures. For example, if grid connection costs differ, in the bid selection process, a premium could be added to bids in the market with more favourable conditions.

Replies from several respondents also converged in terms of their views on the broader sharing of costs and benefits. The wind industry stressed that the cross-border scheme should help Member States to overcome differences in their assessment of costs and benefits, that the electricity produced should improve the security of supply of the country opening its support scheme, and that this country should also benefit from the decline in electricity prices due to the additional installed renewable energy capacity. The solar industry highlighted ways in which the support mechanism could be designed so that the host country could also benefit from the installation, such as by involving the local population, local developers and potentially local ownership of the installation. The solar industry further stressed the importance of clear and transparent accounting for the electricity produced and exported, in order to avoid double-counting.

One respondent from the renewable energy industry in Denmark stated that renewable energy projects, both onshore and offshore, have been built without using support schemes, and that using subsidies would undermine the success and benefits of the renewable energy industry. On the other hand, the industry representative pointed to the need for subsidies for wind and solar manufacturing as a means to strengthen European value chains.

4. Assessment

On the basis of the evidence gathered in the preparation of this report, it is clear that there are very few specific developments in the Member States concerning the opening of support schemes, both in terms of legislative requirements and in terms of implementation experience through pilot schemes.

Germany is one of few Member States that has made the opening of support schemes part of its energy legislation. However, it points to the lack of interest in cross-border auctions from other Member States, which makes this cooperation mechanism difficult to implement. Most other Member States do not intend to open participation in support schemes, with the exception of Greece, which is planning to organise several wind and solar auctions in 2023 open to producers located in other Member States, with one of them dedicated only to producers located in neighbouring countries. In some Member States, the opening of support schemes would not be feasible without changes to the current regulatory framework, such as in Spain, where installations financed by support schemes must be located in Spanish territory and meet certain administrative milestones. In such cases, potential regulatory changes would need to create more flexibility regarding the location of the installation, and to the extent that specific elements remain in the national administrative procedures for renewables that are not harmonised by EU rules, to allow for the identification of comparable administrative milestones in another country's regulatory framework, while taking into account national specificities.

In terms of implementation experience through pilot projects, the German-Danish pilot example has demonstrated that cross-border auctions enable projects with more favourable conditions, such as those related to resource potential, to compete at a lower cost to the public budget of the country financing the support scheme. In this pilot, the five winning bids in the German auction for projects to be built in Denmark required a sliding premium of EUR 5.38 cent/kWh, which was below the average price in previous German national auctions at that time (EUR 7.25 cent/kWh), meaning a decrease of almost 26%. Nevertheless, as the input from several stakeholders to this report indicates, in addition to the benefit of

deploying renewable energy cost-effectively, cross-border support schemes should also ensure a balanced distribution of the wider costs between participating countries in such a way that this enables the renewable energy projects to be built.

The experience of the German-Danish pilot scheme also highlights the importance of taking into account the differences in regulatory conditions between participating countries. The result of the German auction where all winning bids were located on farmland in Denmark could be attributed not only to the better resource potential in Denmark, but also to the site restrictions in Germany, which forbid the installation of solar PV projects on agricultural land, as well as slightly lower taxes and lower land lease costs in Denmark[11].

Denmark also imposed the same site restrictions in the Danish tender, but only for installations in German territory, which some stakeholders perceived as a disadvantage for German installations in the cross-border tender[12]. Furthermore, the anticipation of future auctions in Germany may have discouraged German bidders from participating in the cross-border auction. The discontinuation of the support mechanism for large-scale solar PV plants in Denmark before the cross-border auction and the lack of upcoming auctions may also have encouraged active participation from Danish bidders. The interaction between national and cross-border measures highlights the importance of: (i) the timing of national and cross-border measures; and (ii) interaction between participating countries as regards the institutional, legal and financial set-up.

Most respondents to the Commission's stakeholder consultation to prepare this report expressed opposition to the mandatory opening of support schemes. The reasons range from national sovereignty to increased administrative burden and the difficulty of distributing the costs and benefits in a way that would be perceived as fair by the parties involved. Bilateral exchanges with Member States also revealed issues related to public acceptance of the national budget being used to finance renewable energy development in another Member State. An additional argument mentioned was that support for capital expenditure investment requires immediate disbursement by the contributing Member State, with budgetary implications, while potential gains from cooperation would only materialise in the future. However, since most current renewable energy support schemes do not involve any upfront capital expenditure payments but rather ongoing payments for electricity output spread out over time, in most cases this concern would not arise.

Furthermore, consideration of imposing mandatory opening of support schemes should also take into account the provisions recently introduced into the Renewable Energy Directive. These provisions require each Member State to agree to establish a framework for cooperation on joint projects with one or more other Member States for the production of renewable energy, by the end of 2025. This was introduced as a binding provision in response to insufficient cooperation between Member States on renewable energy, so gaining experience in implementing this provision could help better understand whether further binding measures are needed to strengthen cooperation and thus achieve a more efficient deployment of renewable energy.

[11] https://static.agora-energiewende.de/fileadmin/Projekte/2017/RES-Policy/144_cross-border_RES_cooperation_WEB.pdf
[12] https://www.eea.europa.eu/publications/cross-border-cooperation-on-renewable-energy

Nevertheless, there is widespread recognition of the benefits of cooperation and of the need to further incentivise it. With the growth in renewable energy deployment, suitable sites for new installations may become scarce in some Member States but not in others, in particular when looking at the differences between Member States in terms of electricity demand, renewable energy resource potential and sites available for new installations.

There seems to be further potential in the implementation of cross-border support schemes for offshore renewable energy projects, which often offer large generation volumes exceeding the needs of one country while requiring significant investment. Such projects could be a particularly attractive option for landlocked countries with limited local availability for new renewable projects to access the renewable energy potential of offshore wind technologies. As explained above, such an approach may be supplemented by a requirement for a physical electricity exchange, although this may not be necessary and is subject to the needs of the Member States involved. Further, cross-border support schemes may also be particularly relevant in the context of some of the hybrid[13] interconnector projects that are being designed and agreed, where a physical interconnection is guaranteed by the offshore hybrid projects and cross-border support schemes may facilitate cross-border offshore wind projects.

5. Conclusion

This report describes the experience gained so far in implementing Article 5 of the Renewable Energy Directive, together with the feedback from Member States and various stakeholders as regards the lessons learned and the future outlook.

The evidence clearly shows that, if organised well, cooperation between Member States in the area of renewable energy has significant potential in terms of cost-effectiveness, convergence of regulatory frameworks, and making better use of the available renewable resources. In the case of cross-border support schemes the potential can only be achieved if the set-up of the scheme takes into account the impact of various design features on the outcome and the costs and benefits for the participating countries both locally and from a market integration perspective. Furthermore, the impact of regulatory differences on the outcome of cross-border support schemes seems to suggest further scope for the Member States to improve their national frameworks for renewable energy deployment.

There seems to be no single solution to the opening of support schemes that can be applied across all countries, given the need to tailor schemes to the specific circumstances of the partnering countries. However, the Commission can, upon the request of the relevant Member States, facilitate this process by providing guidance, templates for cooperation agreements, technical expertise, and assistance on the direct and indirect costs and benefits of cooperation. In the offshore context, which has particular potential for setting up future cross-border support schemes, the Commission is already regularly discussing with Member States in fora such as the North Seas Energy Cooperation, covering areas such as offshore infrastructure and renewable energy cost sharing, among other things. In this regard, the Commission will adopt guidance on offshore cost sharing by mid-2024. The Commission will also share data with and offer advice to the Member States to help identify opportunities for offshore renewable

[13] Hybrid meaning combining offshore wind production and electricity interconnection.

energy, including by technology type, following the Commission's assessment of the final updated NECPs.

The revised Renewable Energy Directive includes a mandatory requirement on establishing a framework for cooperation on joint projects, so the Directive already addresses the need for stronger cooperation between Member States in the area of renewables. There is no conclusive evidence about the benefits of introducing an obligation on Member States to partially open participation in their support schemes for electricity from renewable sources to producers located in other Member States. Therefore, the most appropriate way forward could be to monitor the implementation of the newly agreed provisions with regard to cooperation and their impact on target achievement, while retaining the possibility of proposing further obligations later on, as a measure to strengthen progress towards achieving the 2030 target for renewables if progress is deemed insufficient.