

RECOVERY AND RESILIENCE FACILITY – STATE AID

Guiding template: Investment/operating aid for energy from renewable sources, including renewably sourced hydrogen production

Link to European Flagship: Power Up

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I. Objective of the guiding template

1. The outbreak of the coronavirus pandemic has changed the economic outlook for the years to come in the European Union. Investments and reforms are needed more than ever to ensure convergence and a sustainable economic recovery. Carrying out reforms and investing in the EU's common priorities, notably green, digital and social resilience will help create jobs and sustainable growth, while modernising our economies, and allow the Union to recover in a balanced, forward-looking and sustained manner.
2. The Recovery and Resilience Facility (the "Facility") aims at mitigating the economic and social impact of the coronavirus pandemic and at making the EU economies and societies more sustainable, resilient and better prepared for the challenges and opportunities of the twin green and digital transitions.
3. State aid rules apply in the framework of the Facility. Member States should therefore ensure that all investments comply with the EU State aid rules and follow all regular procedures and rules.¹
4. With this guiding template, DG Competition aims at assisting Member States upfront with the design and preparation of the State aid elements of their recovery plans, and to provide guidance on the State aid-related aspects of those investments which are expected to be common to most of those plans.
5. The investments covered by this guiding template have been chosen in line with the European flagships of the Commission's Annual Sustainable Growth Strategy 2021.² These flagships, which will result in tangible benefits for the economy and citizens across the EU, aim at strengthening economic and social resilience, addressing issues that are common to all Member States, need significant investments, create jobs and growth and are needed for the digital-green twin transition. Pursuing these flagships will contribute to the success of the recovery of Europe.

¹ Commission staff working document - Guidance to Member States Recovery and Resilience Plans - Part 1. Also the relevant public procurement rules must be respected, where applicable.

² Communication from the Commission to the European Parliament, the Council, the European Central Bank, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank — Annual Sustainable Growth Strategy 2021, COM/2020/575 final.

6. The guiding template follows a uniform structure, providing sector-specific guidance as to when:
 - i. Instances in which the existence of State aid may be excluded, and therefore a prior notification to the Commission is not necessary;
 - ii. State aid would be involved but no notification is necessary, and specific rules may apply (in case of aid exempted from the notification obligation); and
 - iii. State aid would be involved and a notification is necessary, with reference to the main applicable State aid rules.
7. The guiding template also contains ‘boxes’ with examples of the State aid assessment of the investments and reforms contained in the components published by the Commission,³ per flagship. The aim is merely illustrative, to provide additional clarifications to Member States on the State aid assessment contained in those components.

II. Description of the investment

8. This guiding template covers investment and operating aid⁴ for the promotion of energy from renewable sources (“RES”)⁵ for the production of electricity, heating and cooling, and fuels and gases and renewable-sourced hydrogen production, in particular aid granted to renewable projects to increase the share of renewable sources in the energy mix at national and EU level.⁶
9. In the context of the 2050 climate neutrality objective for the EU and a more ambitious renewable energy target, additional investments in renewable energy and renewable-sourced hydrogen are required in the coming years. This guiding template contributes to the *Power Up* flagship by clarifying and explaining available types of support for the acceleration of the development and use of RES in sectors such as power generation, transport and mobility and heating and cooling, within the existing legal framework. Investments typically relate to the construction or upgrade of RES energy generation plants, possibly including storage facilities, or electrolyser capacity for the production of renewable hydrogen as well as other forms of storable renewable energy and gases

³ Available at https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en#example-of-component-of-reforms-and-investments.

⁴ It is noted that in line with the guidance to Member States on the recovery and resilience plans published by the Commission on 17 September 2020 (SWD(2020) 205 final), Member States should focus on covering costs that are of a non-recurrent nature. Exceptionally, expenses of a recurrent nature may be financed to the extent that the Member State is able to demonstrate that they will produce longer-term effects in line with the objectives of the Facility, that their financing will be sustainably ensured after the duration of the Facility and that the negative effect on the government balance is only temporary.

⁵ *I.e.* energy generation produced from the following renewable non-fossil energy sources: wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogas.

⁶ State aid can be awarded in various forms (*e.g.* grants, loans, tax reduction). The Member State should however ensure that the aid is granted in the form that is likely to generate the least distortions of trade and competition in the EU. In this respect, the Member State is required to demonstrate why other potentially less distortive forms of aid such as repayable advances as compared to direct grants or tax credits as compared to tax reductions or forms of aid that are based on financial instruments such as debt or equity instruments (for example, low-interest loans or interest rebates, State guarantees, or an alternative provision of capital on favourable terms) are less appropriate.

(thermal, chemical or Power to X/P2X⁷). In the particular case of RES hydrogen production, the direct connections to the hydrogen network/users and hydrogen storage may also be part of the overall investment.

10. Member States tend to use operating aid, in particular price support schemes (e.g. feed-in tariffs and feed-in premiums), to support RES development. These operating aid schemes are likely to continue to play a fundamental role in delivering additional RES capacity during the next decade. Since operating aid is linked to the funding gap of the project and covers investment costs, it shares features of investment aid and is therefore comparable to it.
11. In addition, Member States wishing to support renewable hydrogen can develop their own approaches by analogy to the principles set out in the Renewable Energy Directive (“RED II”)⁸. One way in which renewable hydrogen production might be demonstrated is where the investment in the hydrogen production is combined with a dedicated RES electricity production plant, directly connected to an electrolyser⁹. Other approaches may be possible, also based on renewables based electricity consumed from the grid, as long as they ensure additionality of the renewable electricity supplied in analogy with the relevant legislation, in particular with the RED II and the delegated acts therein.
12. Member States are encouraged to submit their proposed schemes to the Commission and indicate what additional renewables generation capacity are planned in order to accompany planned hydrogen investments, considering that each kWh of hydrogen production requires at least 1.5 kWh of renewable power. For the future, they would need to adapt any schemes for RES hydrogen to comply with the primary and delegated legislation once applicable.
13. Investments consisting of integrating a small-scale renewable energy sources (including storage) into a building as part of an energy-efficiency investment, are covered by the guiding template on “*Energy efficiency in buildings*”.
14. Investments consisting in the construction or upgrade of heating/cooling installations in the context of a district heating network, notably though renewable energy sources, are covered in the guiding template on “*District heating/cooling generation and distribution infrastructure*”.
15. Investments covered by this guiding template relate to production of renewable energy based on established as well as innovative technologies. This guiding template does not cover support related to activities linked to research, development and innovation, which is dealt with in other EU State aid rules¹⁰.

⁷ See Article 2(36) of Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources, OJ L 328, 21.12.2018, p. 82: “renewable liquid and gaseous transport fuels of non-biological origin” means liquid or gaseous fuels which are used in the transport sector other than biofuels or biogas, the energy content of which is derived from renewable sources other than biomass”.

⁸ Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources, OJ L 328, 21.12.2018.

⁹ By analogy to Article 27 RED II, the dedicated RES installation: (i) comes into operation after, or at the same time as, the installation producing the renewable liquid and gaseous transport fuels of non-biological origin; and (ii) is not connected to the grid or is connected to the grid but evidence can be provided that the electricity concerned has been supplied without taking electricity from the grid.

¹⁰ Communication from the Commission – Framework for State aid for research and development and innovation, OJ C 198, 27.6.2014, p. 1.

III. Instances in which the existence of State aid may be excluded

16. The following sections present a comprehensive, but not exhaustive, number of separate instances in which the application of State aid rules or the existence of State aid may be excluded. Given the cumulative nature of the criteria of Article 107(1) TFEU, if one of the following criteria is not met, the presence of State aid can be excluded and therefore there is no need to notify the measure to the Commission prior to its implementation.

A. No economic activity

17. As a general rule, support for activities that are not of an economic nature, *i.e.*, that are not used for offering goods or services on the market, is not considered State aid.
18. Given the type of investment assessed in this guiding template, *i.e.* production of renewable energy or hydrogen, for sale on bilateral or organised markets, these activities are typically considered economic in nature.
19. However, investments in RES by individuals and entities which do not exercise economic activities and which use at least 80 % of the electricity generated by that specific RES installation for “self-consumption” may fall outside the scope of State aid rules.¹¹

B. No State resources

20. Measures that do not involve the transfer of public resources¹² exclude the existence of State aid¹³.

See the State aid assessment of the additional examples of investments and reforms contained in the [component – Power Up](#)

Reform 2: Accelerating permitting of new renewables installations, including simplified procedures for re-powering: *This reform will be achieved through the revision of the national legislation governing the installation of renewables installation. While some of these actions*

¹¹ See in this respect footnote 305 of the Notice on the notion of State aid.

¹² The concept of ‘transfer of public resources’ covers many forms such as direct grants, loans, guarantees, direct investment in the capital of companies and benefits in kind. A positive transfer of funds does not have to occur; foregoing State revenue is sufficient. In addition, the measure must be imputable to the State. See Notice on the notion of State aid, section 3. Note that funds under the Facility constitute State resources for the purposes of Article 107(1) TFEU.

¹³ The proposal for a Regulation of the European Parliament and of the Council establishing a Recovery and Resilience Facility (COM/2020/408 final) does not exclude the possibility for Member States to channel part of their non-repayable contribution from the RRF through the Renewable Energy Financing Mechanism (Commission Implementing Regulation (EU) 2020/1294 of 15 September 2020 on the Union renewable energy financing mechanism. OJ L 303, 17.9.2020, p. 1, ‘REFM’), established under the Governance Regulation. Moreover, the Guidance to Member States on recovery and resilience plans explicitly refers to this possibility (SWD (2020) 205 final. 17.9.2020, see page 14). If a Member State uses (part of) its non-repayable contribution to make an unconditional payment to the REFM, the amount paid enters the Union budget and is allocated by the REFM to specific projects selected by the Commission on the basis of a grant award procedure. Therefore, the Member State does not have control over the disbursement of the funds by the REFM, and the link between the Member State and the selection and allocation of the beneficiary of support is broken. Therefore, the support by the REFM using the funds received from the Member State would no longer be imputable to the State and would not constitute State aid. As a consequence, the contributions to projects that are financed through the REFM would not be subject to State aid rules.

contribute to the implementation of the revised Renewable Energy Directive (Directive (EU) 2018/2001), a number of them are also meant to address the specific national barriers identified, including through contacts with stakeholders. [...] In addition [...], procedures underpinning the permitting process will be made fully digital, and training courses will be provided for project holders. The country will also keep under review any additional needs for administrative, financial and human resources for permitting authorities at national, regional and local level, and take action if a need is identified to increase their capacities. [...] This measure has not been identified as raising concerns regarding State aid rules.

C. No selectivity

21. General measures which are effectively open to all undertakings operating within a Member State on an equal basis are not selective.
22. RES support measures are likely to be selective because they favour only producers of renewable energy and are not accessible to other energy producers or other sectors of the economy. Furthermore, in most of the cases, support measures are granted through a selection process (most of the time through competitive bidding procedures) and not all RES projects will receive support.
23. Therefore, in light of the nature and type of those measures, RES support measures are likely to be selective.

D. No advantage

24. An advantage, within the meaning of Article 107(1) TFEU, is any economic benefit that an undertaking could not have obtained under normal market conditions.
25. An economic benefit would not amount to State aid when the State acts under normal market conditions, *i.e.* under the same terms and conditions as a private operator in a comparable situation (so-called 'Market Economy Operator' test or MEO test).
26. If it is proven that the State acted under the same terms and conditions as a private investor in a comparable situation when providing the necessary funding for investments in renewable energy generation and/or renewable-sourced hydrogen production, then State aid is not involved. This can be assessed on the basis of: (i) significant *pari passu* investments of private operators, *i.e.* investments made on the same terms and conditions (and therefore with the same level of risks and rewards) as the public authorities who are in a comparable situation¹⁴; and/or (ii) an *ex ante* sound business plan, preferably validated by external experts, demonstrating that the investment provides an adequate return for the investor(s), in line with the normal market return that would be reasonably expected by operators on similar projects taking into account the level of risk¹⁵.

E. No effect on trade between Member States and no distortion of competition

27. Investment and operating support provided through State resources to RES energy generation and RES-sourced hydrogen production generally meets the conditions of Article 107(1) TFEU and is thus normally deemed to constitute State aid. There are however few exceptions where aid is not deemed present. In particular, certain

¹⁴ For more information, see Notice on the notion of State aid, paragraphs 86 to 88.

¹⁵ For more information, see Notice on the notion of State aid, chapter 4.2 and in particular paragraphs 101 to 105.

measures may not have an effect on trade between Member States and they may not distort competition.

28. In particular, there might be cases of support measures which have a purely local impact and consequently have no effect on trade between Member States. This is the case, for example, if the beneficiary supplies products or services to a limited area within a Member State and is unlikely to attract customers or investors from other Member States, and if it cannot be foreseen that the measure will have more than a marginal effect on the conditions of cross-border investments or establishments.¹⁶ Nevertheless, given the high degree of liberalisation of energy markets under the EU legal framework establishing an Energy Union between Member States, RES production may attract cross-border investments, and the relevant support measures will affect trade between Member States in most cases, if not all.
29. The distortion of competition and effect on trade can be excluded in cases of very limited amounts of aid (“*de minimis* aid”). *De minimis* aid is not considered State aid. Therefore, there is no need for prior approval from the Commission and Member States do not have to inform the Commission of such aid.
30. Aid is considered to be *de minimis* if the total amount of aid granted per Member State to a single undertaking does not exceed EUR 200 000 over any period of three fiscal years and the other conditions laid down in the *de minimis* Regulation¹⁷ are respected.¹⁸ Furthermore, an undertaking may benefit from subsidised loans of up to EUR 1 million over 5 years and EUR 500 000 over 10 years without exceeding the *de minimis* Regulation provided: (i) the company is not in difficulty; (ii) the loan is 50% collateralised; and (iii) the gross grant equivalent has been calculated based on the reference rate applicable at the time of the grant.

IV. Instances in which there is no need to notify for State aid clearance, but other requirements may apply

31. If a given investment meets the cumulative conditions of Article 107(1) TFEU and thus entails State aid¹⁹, it may be considered compatible with the internal market and can be granted without notification in the following instances:
 - A. *Aid covered by an existing State aid scheme (conditions for no notification)*
32. If a Member State plans to grant State aid under an aid scheme already approved by Commission decision, it does not need to notify again the scheme to the Commission

¹⁶ See by analogy paragraph 197 of the Notice on the notion of State aid.

¹⁷ Commission Regulation (EU) No 1407/2013 of 18 December 2013 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to *de minimis* aid, OJ L352, 24.12.2013, p. 1.

¹⁸ Notably, the aid must be transparent within the meaning of Article 4 of the *de minimis* Regulation (*i.e.*, it must be possible to calculate precisely the gross grant equivalent of the aid *ex ante* without a risk assessment), the EUR 200 000 threshold must be respected in case of cumulation with any other public support granted to the same beneficiaries under the *de minimis* Regulation, and the cumulation rules set out in the Regulation must be complied with.

¹⁹ Aid can also take the form of tax advantages, reductions of social security contributions, and other measures mitigating the normal charges of specific undertakings. Fiscal aid can be found compatible under the same rules as other forms of aid (*i.e.* grants), in particular if the tax advantage is linked to a specific investment or activity.

for approval and can directly provide the support to the beneficiary, as long as the conditions of the authorisation decision are complied with.

33. Moreover, any increase of up to 20% of the original budget of an aid scheme already approved by Commission decision is not considered an alteration to existing aid. If this is the only change to a scheme already authorised by the Commission, it does not need to be re-notified to the Commission for approval²⁰.
34. Since most Member States already have existing RES schemes in place, Member States are strongly encouraged to avail of the possibility of extending these schemes rather than notifying new individual aid or aid schemes.
35. In any event, full compliance with the future Regulation of the European Parliament and of the Council establishing a Recovery and Resilience Facility should be ensured (see in particular Article 14.1a)²¹.

B. General Block Exemption Regulation²² (GBER)

36. If State aid falls under the GBER, Member States do not have to notify such State aid. However, they have to inform the Commission thereof.

a. Investment aid for the promotion of energy from RES, including RES hydrogen production

37. **Article 41 GBER (“Investment aid for the promotion of energy from renewable sources”)** applies to support measures concerning investments in the installation or upgrade/repowering of a RES generation installation – irrespective of its installed capacity/output – alone or in combination with storage facilities. Notification is not required for support of up to EUR 15 million per undertaking per project, which covers the overall (new or upgrade) investment. The threshold shall not be circumvented by artificially splitting projects or aid measures.
38. According to Article 41(5) GBER, investment aid shall be granted to new installations only (as opposed to installations which have started operations) and should be independent from the output.
39. In addition, aid shall not be granted for food-based biofuels (see Article 41(2) GBER) or for hydropower installations that do not comply with Directive 2000/60/EC²³ (see Article 41(4) GBER).
40. The following paragraphs summarise the applicable rules for the determination of the eligible costs²⁴ and the aid intensity.

²⁰ In case of budget increases to already authorised schemes exceeding 20% and/or their prolongation up to 6 years, the so-called simplified notification procedure under Article 4 of the Implementing Regulation (Commission Regulation (EC) No 794/2004 of 21 April 2004 implementing Council Regulation (EC) No 659/1999 laying down detailed rules for the application of Article 93 of the EC Treaty, OJ L 140, 30.04.2004, p. 1) can be used, whereby the Commission aims to complete the assessment of notified State aid measures within one month.

²¹ As currently proposed in the Council Presidency compromise proposal of 7 October 2020.

²² Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty, OJ L 187, 26.6.2014, p. 1.

²³ Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy OJ L 327, 22.12.2000, p. 1.

41. The eligible costs to be covered by the aid may only be the extra investment costs necessary to promote the production of energy from renewable sources. The costs not directly linked to the achievement of a higher level of environmental protection shall not be eligible. Costs for reconstruction or expansion of a renewable installation (upgrading or refurbishment) of an existing plant can also be eligible for investment aid under Article 41(5) GBER if this operation concerns considerable parts of the plant and extends its expected lifetime.²⁵ The GBER contains a list of guiding principles to identify the eligible costs, either when (i) the project consists of a separate investment (see Article 41(6)(a) GBER), (ii) the costs can be identified by reference to a similar, less environmentally friendly investment that would have been credibly carried out without the aid, a counterfactual (see Article 41(6)(b) GBER), or (iii) for certain small installations where a counterfactual cannot be established (see Article 41(6)(c) GBER).
42. There is no definition of a ‘small installation’ for the purpose of Article 41(6)(c) GBER. This acknowledges the fact that some investments to promote energy produced from RES might indeed be very small so that there are no technically comparable conventional power plants that could be used as counterfactual. Article 41(6)(c) GBER applies only to such investments. Normally these are cases where the installations producing energy from RES are not the only installations used by the beneficiary to produce energy, but are rather used as secondary installations to complement the energy available from other sources (*e.g.* secondary installations that are used when RES are available, aimed to reduce the use of the main conventional energy installations). In those cases, it is possible that in the absence of the aid the most credible counterfactual scenario would be an increased use of other (less environmental friendly) existing installations or energy sources. That would be the case, for example, when small installations producing energy from RES are part of an integrated system producing energy and in the absence of the aid the beneficiary would be able to use the rest of the respective integrated system without other investments being necessary.
43. As regards aid intensities, different levels apply depending on the methodology used to calculate the eligible costs (see paragraph 40 above). If methods (i) and (ii) are applicable, the aid intensity shall not exceed 45% of the eligible costs. If method (iii) is applicable, the aid intensity shall not exceed 30% of the eligible cost (see Article 41(7) GBER). These percentages are below 100%, reflecting the fact that the beneficiaries of the aid will derive benefits (save costs) because of the aided investment.
44. Aid intensity may be increased if: (i) the aid is granted to small undertakings (by 20 percentage points) or (ii) if the aid is granted to medium-sized undertakings (by 10 percentage points). This percentage can also be increased if the investment is located in assisted areas fulfilling either the conditions of Article 107(3)(a) or Article 107(3)(c) TFEU (see Article 41(9) GBER).
45. Where aid is granted in a competitive bidding process on the basis of clear, transparent and non-discriminatory criteria, the aid intensity may reach 100% of the eligible costs. Such a bidding process shall be non-discriminatory and provide for the participation of

²⁴ Please note that the references to ‘eligible costs’ in this guiding template are to be understood exclusively for the purposes of State aid. Therefore, they have no bearing on whether a particular measure and its associated cost can be financed or not by the Facility.

²⁵ However, maintenance operations and replacement of small parts and components of a plant, which are normally done during the expected lifetime of the plant, would not qualify for investment aid under Article 41(5) GBER.

all interested undertakings. The budget related to the bidding process shall be a binding constraint in the sense that not all participants can receive aid and the aid shall be granted on the basis of the initial bid submitted by the bidder, therefore excluding subsequent negotiations (see Article 41(10) GBER).

46. With regard to the particular case of **RES hydrogen production**, upfront investment aid can support the installation of new electrolyzers by renewable hydrogen promoters whenever they will be able to show that hydrogen is produced exclusively from renewable electricity. Article 41 GBER would be applicable to such investments, as set out above.
47. The support would be applicable to the overall investment (RES electricity generation, storage plus electrolyser), subject to the threshold of EUR 15 million of aid per undertaking per project (see Article 4 GBER).
48. The aid intensity would be limited to a maximum of 45%, 55% or 65% – depending whether undertaken by small, medium or large undertakings – of the difference in costs between an electrolyser (including RES installation) and a steam methane reform facility (in application of Article 41(6)(a) GBER). The aid intensity can go up to 100 % in case of competitive bidding procedures.

See the State aid assessment of the additional examples of investments and reforms contained in the [component – Power Up](#)

Investment 1: Supporting the development of district heating networks based on renewable energy and waste heat: *This measure will first of all support the necessary installations to produce and store the heat which will be used in district heating networks, based on renewable energy and waste sources, by providing financial support to investments; [...] the support will take the form of investment aid [...] investments may be covered by the General Block Exemption regulation for investment aid for renewable energy (Article 41) [...]. The existing national renewable energy support scheme has already been notified and complies with the State aid rules.*

Investment 2: Supporting the development of electrolyzers and their connection to upstream renewable electricity production facilities to supply renewable hydrogen to industry: *Upfront investment aid [...] will support new electrolyzers by renewable hydrogen promoters – as well as planning and safety aspects – whenever they will be able to show that hydrogen is produced exclusively from renewable electricity; taking into account the aid amounts envisaged, [...] small projects could be covered by State aid rules on renewable energy investment aid or aid for environmental protection going beyond EU standard (Article 41 or 36 of the General Block Exemption regulation, for projects up to 15 M€ of aid, and limited to 40/45% of the difference in costs between an electrolyser and a steam methane reform facility), where the aid intensity can go up to 100% in case of competitive bidding procedures [...].*

Investment 2: Supporting the development of electrolyzers and their connection to upstream renewable electricity production facilities to supply renewable hydrogen to industry: *[...] support to investment will be available [...] to support the necessary upgrades to their process from producers to shift their feedstock from gas-based hydrogen to renewable hydrogen (adaptation of the process to renewable hydrogen, decommissioning of existing fossil-based processes, etc.) [...] small projects could be covered by State aid rules under Article 36 or 41 of the General Block Exemption regulation, [...] support can only cover part of the eligible equipment costs in this context, notably up to a percentage (of 40/45%) of the difference in costs between an electrolyser and a steam methane reform facility*

b. Operating aid for the promotion of energy from RES

49. **Article 42 GBER (“Operating aid for the promotion of electricity from renewable sources”)** and **Article 43 GBER (“Operating aid for the promotion of energy from renewable sources in small scale installations”)** govern the conditions under which operating aid for the production of energy from RES is block-exempted. The notification threshold for such aid is EUR 15 million per undertaking per project. When the aid is granted on the basis of a competitive bidding process under Article 42 GBER, the threshold is EUR 150 million per year taking into account the combined budget of all schemes falling under Article 42 GBER.²⁶
50. In order to be block-exempted, the **operating aid for the promotion of electricity from RES** must be granted in a competitive bidding process on the basis of clear, transparent and non-discriminatory criteria which shall be open to all generators producing electricity from renewable energy sources on a non-discriminatory basis (Article 42(2) GBER). The bidding process can be limited to specific technologies only in specific circumstances, if the conditions of Article 42(3) GBER are met.²⁷ Additionally, aid shall be granted as a premium in addition to the market price whereby the generators sell their electricity directly in the market (Article 42(5) GBER). Aid beneficiaries shall be subject to standard balancing responsibilities (Article 42(6) GBER). Beneficiaries may outsource balancing responsibilities to other undertakings on their behalf (*e.g.*, aggregators). Aid shall not be granted when prices are negative (Article 42(5) GBER). Finally, aid shall only be granted until the installation has been fully depreciated according to generally accepted accounting principles and any investment aid granted to an installation shall be deducted from the operating aid (Article 42(11) GBER). Article 42 GBER applies only to production of electricity, so in case of RES hydrogen installations, only the costs/activities related to the RES-electricity production would be taken into account.
51. **Operating aid for the production of energy from small-scale installations** (Article 43 GBER) does not need to be tendered out. Instead, there are specific rules for the calculation of the maximum amount of aid per unit of energy to be granted under Article 43 GBER, which shall not exceed the difference between the total levelised cost of producing energy from the renewable source in question and the market price of the form of energy concerned. Small-scale installations are defined in Article 43 GBER as installations with an installed capacity of less than 500 kilowatts (‘kW’) for the production of energy from all except for wind energy, for which aid shall be granted to installations with an installed capacity of less than 3 megawatts (‘MW’) or with less than three generation units.
52. Specific rules are also foreseen for the production of biofuels, such as the need to comply with sustainability rules (notably Article 29 of RED II) and the impossibility of granting support for biofuels which are subject to supply or blending obligations.

²⁶ See Article 4(1)(v) GBER.

²⁷ The bidding process can be limited to specific technologies where a process open to all generators would lead to a suboptimal result which cannot be addressed in the process design in view of in particular: (i) the longer-term potential of a given new and innovative technology; or (ii) the need to achieve diversification; or (iii) network constraints and grid stability; or (iv) system (integration) costs; or (v) the need to avoid distortions on the raw material markets from biomass support.

53. The above-mentioned rules are also applicable to the production of RES hydrogen. Nevertheless given the extremely limited size of small-scale installations (less than 500 kW) Article 43 GBER does not appear relevant for RES hydrogen installations whose RES/electrolysers installed capacity would normally go beyond such threshold.

V. Instances in which notifying for State aid clearance is necessary

54. If the measure constitutes State aid and does not meet the conditions allowing an exemption from notification, a notification is required. The aim of the present section is to assist Member States in identifying and providing the necessary information to the Commission in the context of pre-notifications and notifications, bearing in mind that the Commission will assess all State aid notifications received from Member States in the context of the Facility as a matter of priority.
55. Whenever production of hydrogen, through electrolysers, is done exclusively via production of electricity from RES, the entire investment (production of hydrogen through electrolysers and production of renewable electricity) can also be supported through investment aid or operating aid for the production of energy from RES under the Guidelines on State aid for environmental protection and energy 2014-2020²⁸ (“EEAG”) (section 3.3).
56. According to point 20 of the EEAG, individual aid granted based on an aid scheme remains subject to the notification obligation pursuant to Article 108(3) TFEU, if the aid exceeds the following notification thresholds and is not granted on the basis of a competitive bidding process:
- a. investment aid: where the aid amount exceeds EUR 15 million per undertaking;
 - b. operating aid for the production of renewable electricity and/or combined production of renewable heat: where the aid is granted to renewable electricity installations at sites where the resulting renewable electricity generation capacity per site exceeds 250 MW.

See the State aid assessment of the additional examples of investments and reforms contained in the [component – Power Up](#)

Investment 1: Supporting the development of district heating networks based on renewable energy and waste heat: *This measure will first of all support the necessary installations to produce and store the heat which will be used in district heating networks, based on renewable energy and waste sources, by providing financial support to investments; [...] the support will take the form of investment aid [...] The country will notify support schemes for renewable energy investment aid, for district heating, generation and network, and for waste heat recovery, whenever the aid thresholds are higher than those foreseen in Article 4 of the General Block Exemption regulation, pursuant to either section 3.3.1.1 (for investment aid for renewable energy sources), 3.4 (district heating), or 3.5 (waste heat recovery) of the Energy and Environment Guidelines..*

Investment 2: Supporting the development of electrolysers and their connection to upstream renewable electricity production facilities to supply renewable hydrogen to industry: *Upfront investment aid [...] will support new electrolysers by renewable hydrogen promoters – as well as planning and safety aspects – whenever they will be able to show that hydrogen is produced exclusively from renewable electricity; taking into account the aid amounts*

²⁸ Communication from the Commission – Guidelines on State aid for environmental protection and energy 2014-2020, OJ C 200, 28.6.2014, p. 1.

envisaged, [...] for larger projects, a notification of the scheme will be required under section 3.2 and/or section 3.3 of the Energy and Environment Guidelines.) [...].

Investment 2: Supporting the development of electrolyzers and their connection to upstream renewable electricity production facilities to supply renewable hydrogen to industry: [...] support to investment will be available [...] to support the necessary upgrades to their process from producers to shift their feedstock from gas-based hydrogen to renewable hydrogen (adaptation of the process to renewable hydrogen, decommissioning of existing fossil-based processes, etc.) [...] for larger projects, a notification of the scheme will be required under section 3.2 of the Energy and Environment Guidelines. [...] support can only cover part of the eligible equipment costs in this context, notably up to a percentage (of 40/45%) of the difference in costs between an electrolyser and a steam methane reform facility

A. Procedure for pre-notification and notification

57. In case the planned investment entails State aid and is not exempt from notification, the Member State should, in compliance with Article 108(3) TFEU, proceed to notify the measure to the Commission for approval before implementation.
58. For measures that must be notified, the Commission is committed to assess and treat those cases as a matter of priority and to engage with national authorities early on, in order to address problems in 'real time' in the context of the preparation of their Recovery and Resilience Plans. Therefore, informal contacts and pre-notifications are encouraged as soon as possible.
59. The Commission aims to complete the assessment of notified State aid measures within six weeks of receiving complete notification from the Member State.

B. Relevant legal bases for compatibility with the Treaty

60. Investment aid and operating aid to energy from renewable sources, including RES sourced hydrogen production, may be declared compatible under Article 107(3)(c) TFEU if it facilitates the development of certain economic activity in a manner that contributes to environmental protection and does not adversely affect trading conditions to an extent contrary to the common interest.
61. To assess whether State aid to energy from renewable sources, including RES sourced hydrogen production, can be considered compatible with the internal market, the Commission analyses whether the design of the aid measure ensures that the positive effect of the aid on the development of the supported economic activity (positive condition) exceeds its potential negative effects on trade and competition (negative condition), and the latter are kept to the minimum.
62. In its compatibility assessment, the Commission will check whether the conditions of Article 107(3)(c) TFEU in conjunction with the EEAG are met. In particular:
 - The aid measure needs to facilitate the development of economic activities and have an incentive effect without resulting in an infringement of relevant EU law affecting the compatibility test.
 - The aid measure must not unduly affect trading conditions to an extent contrary to the common interest. For those purposes the Commission will check whether the State intervention is needed, appropriate and proportionate and addresses a market failure to achieve the objectives pursued by the measure. The Commission will also verify that transparency of the aid is ensured. Together,

these conditions ensure that the distortive effects of the aid are as far as possible limited.

- The Commission will assess the negative effects of the aid measure in terms of distortions of competition and impact on trade between Member States against the common interest of the Union. In particular, the Commission will in this step not only consider the benefits of the aid for the beneficiary's economic activity, but also take into account the positive effects of the aid for the community at large.
 - The Commission will finally balance the positive effects with the negative effects of the aid on competition and trade.
63. The EEAG set out the principles for aid compatibility for both investment aid and operating aid. The following sections present a comprehensive, but not exhaustive description of these principles.

a. Investment aid for energy from RES, including RES hydrogen production

64. The Commission will consider aid to be compatible with the internal market notably if the eligible costs are correctly calculated and the maximum aid intensities set out in Annex 1 of the EEAG are respected. More precisely:
65. The maximum aid intensities are expressed as a percentage of the eligible costs ("extra-costs" of the RES investment). There are two ways to determine the eligible costs:
- i. where the costs of facilitating the development of energy production from RES can be identified in the total investment costs as a separate investment, for instance, because the green element is a readily identifiable 'add-on component' to a pre-existing facility; in this case the costs of the separate investment constitute the eligible costs;
 - ii. in all other cases, the eligible costs are the extra investment costs established by comparing the aided investment with the counterfactual situation in the absence of aid. In principle, reference can be made to the cost of a technically comparable investment²⁹ that would credibly be realised without aid³⁰ and which does not facilitate the development of energy production from RES in an environmentally friendly manner or that does so only to a lesser degree.³¹
66. The maximum aid intensities range from 45% (for large enterprises), 55% (for medium sized enterprises) to 65% (small undertakings) with a potential increase for assisted areas up to 15%.³²

²⁹ A technically comparable investment means an investment with the same production capacity and all other technical characteristics (except those directly related to the extra investment for facilitating the development of RES).

³⁰ Such a reference investment must, from a business point of view, be a credible alternative to the investment under assessment.

³¹ Annex 2 of the EEAG contains a list of the relevant counterfactual scenarios. The Commission may accept alternative counterfactual situations if duly justified by the Member State.

³² These aid intensities may be increased by a bonus of 5 percentage points in regions covered by Article 107(3)(c) TFEU or by a bonus of 15 percentage points in regions covered by Article 107(3)(a) TFEU up to a maximum of 100% aid intensity.

67. The aid intensity can be increased up to 100% of the eligible costs (“extra-costs”), in case of award through a competitive bidding process. Such a bidding process must be non-discriminatory and provide for the participation of a sufficient number of undertakings. In addition, the budget related to the bidding process must be a binding constraint in the sense that not all participants can receive aid (point 80 of the EEAG).
68. This section is applicable to generation of energy from RES (including storage equipment), which also includes RES hydrogen production investments. In the particular case of hydrogen, where it can be shown that production is based exclusively from RES, the overall investment costs, of the RES electricity plus hydrogen production facility, constitute the relevant investment costs. The counterfactual scenario would consist typically in a steam methane reform facility for the production of hydrogen. These costs would need to be deducted from investment costs of the RES electricity plus hydrogen production facility, determining the eligible costs to which the above aid intensities would apply.
69. Given the “eco-innovation” character of RES hydrogen investments, higher aid intensities – with an increase by up to 10% – are likely to apply, subject to the specific conditions set out in point 78(c) of the EEAG.

b. Operating aid for RES electricity

70. According to point 124 of the EEAG, the following cumulative conditions apply to all new aid schemes and measures: (a) aid is granted as a premium in addition to the market price (premium) whereby the generators sell its electricity directly in the market (b) beneficiaries are subject to standard balancing responsibilities, unless no liquid intra-day markets exist and (c) measures are put in place to ensure that generators have no incentive to generate electricity under negative price.
71. Aid shall be granted in a competitive bidding process on the basis of clear, transparent and non-discriminatory criteria, unless: (a) Member States demonstrate that only one or a very limited number of projects or sites could be eligible; or (b) Member States demonstrate that a competitive bidding process would lead to higher support levels (for example to avoid strategic bidding); or (c) Member States demonstrate that a competitive bidding process would result in low project realisation rates (avoid underbidding) (point 126 of the EEAG).
72. If such competitive bidding processes are open to all generators producing electricity from renewable energy sources on a non-discriminatory basis, the Commission will presume that the aid is proportionate and does not distort competition to an extent contrary to the internal market.
73. It should also be noted that, when considering in particular mature technologies, evidence shows that multi-technologies schemes support a cost-effective achievement of renewable electricity targets by making the most of competition.
74. The bidding process can be limited to specific technologies where a process open to all generators would lead to a suboptimal result which cannot be addressed in the process design³³ (point 126 of the EEAG).

³³ In particular in view of (a) the longer-term potential of a given new and innovative technology; or (b) the need to achieve diversification; or (c) network constraints and grid stability; or (d) system (integration) costs; or (e) the need to avoid distortions on the raw material markets from biomass support.

75. Exception to tendering is allowed in a limited number of cases including to installations with an installed electricity capacity of less than 1 MW, or demonstration projects, except for electricity from wind energy, for installations with an installed electricity capacity of up to 6 MW or 6 generation units. But in such case, the conditions of point 124 and 125 of the EEAG and the conditions for operating aid to energy from renewable energy sources other than electricity as set out in point 131 of the EEAG are applicable.
76. The Commission has an extensive case practice on support for RES, which can serve as examples and good practice for future schemes and can be found in the State aid register.³⁴

c. Operating aid for energy from RES other than electricity, including RES hydrogen production

77. Conditions for granting operating aid to other energy from RES, including RES hydrogen, are different from the ones set above for RES electricity. In the particular case of RES hydrogen, the rules on operating aid to energy from renewable energy sources other than electricity, which are set out in point 131 of the EEAG, would be in principle applicable.
78. In particular, the following cumulative conditions must be met:
- a. the aid per unit of energy does not exceed the difference between the total levelised costs of producing energy ('LCOE') from the particular technology in question and the market price of the form of energy concerned;
 - b. the LCOE may include a normal return on capital. Investment aid is deducted from the total investment amount in calculating the LCOE;
 - c. the production costs are updated regularly, at least every year; and
 - d. aid is only granted until the plant has been fully depreciated according to normal accounting rules in order to avoid that operating aid based on LCOE exceeds the depreciation of the investment.

79. Where Member States intend to support RES energy, including RES hydrogen projects, with operating aid, the organisation of a competitive bidding process with selection of projects based on objective criteria, would enable such a scheme to benefit from aid intensity up to 100% and can simplify the assessment process by ensuring proportionality and reducing competition distortions.

d. Important Projects of Common European Interest (IPCEI)

80. Cross-border integrated projects, e.g. in relation to investments in RES hydrogen – depending on the specific structure and purposes of such projects – may also be eligible for support under the IPCEI Communication³⁵.

³⁴ For instance, SA.39399 (2015/N) – The Netherlands – *Modification of SDE+ scheme* (as well as its successor scheme SA.53525 – *SDE++*), which supports investment in renewable electricity, gas and heat production and seeking to put a substantial number of types of renewable energy production in competition to each other, which is the preferred approach in the EEAG. The Irish scheme 'RESS' (SA.54683) is also a good example of a multi-technology RES scheme offering a two-sides contract for difference which limits windfall profits. It also includes interesting features for supporting projects developed by renewable energy communities and for supporting the communities that host projects supported by the measure.

81. The IPCEI Communication clearly sets out the rules for approving State aid for large cross border projects up to the first industrial deployment phase when they entail significant research and innovation and/or for environmental, energy or transport projects of great importance in line with the Union's relevant strategies. Therefore, Member States can use Facility funding to support individual company projects for which aid is authorised by the Commission as part of an IPCEI.
82. The IPCEI State aid rules can offer more flexibility than other State aid rules, in particular rules for aid to research projects. Given the high innovativeness requirement, the rules allow for higher aid intensities and also for aid to the first industrial development on the basis of the projects' funding gap. In exchange, aid beneficiaries have to fulfil certain eligibility and compatibility criteria, such as to commit to substantial spillovers benefitting the European economy or society.
83. An IPCEI can be a single or an integrated project, i.e. a group of single projects inserted in a common structure, roadmap or programme, aiming at the same objective and based on a coherent systemic approach. Integration is decisive for an IPCEI and must be clearly demonstrated. Each individual company project of an integrated IPCEI must demonstrate its value and contribution to achieve the IPCEI objectives and has to fulfil all eligibility and compatibility criteria. In the case of hydrogen projects, it is not sufficient that each project somehow relates to hydrogen or avoids a certain volume of carbon related emissions to demonstrate integration.
84. Also, in order to be deemed compatible under the IPCEI Communication, an IPCEI project must among others address a market failure or other important systemic failures and:
 - i. significantly contribute to strategic EU objectives;
 - ii. involve several Member States;
 - iii. involve private financing by the beneficiaries;
 - iv. generate positive spill over effects across the EU that limit potential distortions to competition;
 - v. openness and transparency should guide the coordination of the IPCEI process; the selection of individual projects through calls for the expression of interest constitute a means to ensure openness and transparency.
85. Depending on the type of project supported, additional specific conditions will need to be complied with:
 - i. IPCEI aid may cover R&D activities of a major innovative nature or which constitute an important added value in terms of research and innovation and must go beyond the state-of-the-art (point 21 of the IPCEI Communication).
 - ii. IPCEI aid may also cover first industrial deployment activities. These activities must then allow for the development of a new product or service with high research and innovation content or the deployment of a fundamentally innovative production process (point 22 of the IPCEI Communication). First

³⁵ Communication from the Commission — Criteria for the analysis of the compatibility with the internal market of State aid to promote the execution of important projects of common European interest, OJ C 188, 20.6.2014, p. 4.

industrial deployment refers to the upscaling of pilot facilities, including the testing phase, but excludes mass production and commercial activities.

- iii. IPCEI aid may also cover for example infrastructure³⁶-related projects that fulfil the specific eligibility conditions of point 23 of the IPCEI Communication, i.e. they must either be of great importance for the environmental, energy, including security of energy supply, or transport strategy of the Union or contribute significantly to the internal market. In this case aid to cover supplies and materials is allowed only on a temporary basis, during the construction phase of the infrastructure or facility, but not during its commercial exploitation.
86. An IPCEI in innovative hydrogen technologies and systems complying with points 21 and 22 of the IPCEI Communication can be well suited to promote the technological innovation needed to deploy an efficient low carbon/renewable hydrogen value chain (e.g. scaling-up innovative electrolyzers). In addition, as set out in the EU's hydrogen strategy, the development of renewable hydrogen is a priority for the Union. Projects to coordinate cross-border cooperation for the production of renewable hydrogen or to establish the necessary infrastructure for hydrogen transmission and storage could be part of an IPCEI based on point 23 of the IPCEI Communication provided they make a considerable contribution to the Union's hydrogen strategy for a climate-neutral Europe.

VI. References

- Commission Notice on the notion of State aid as referred to in Article 107(1) of the Treaty on the Functioning of the European Union, OJ C 262, 19.7.2016, p. 1.
- Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty, OJ L 187, 26.6.2014, p. 1.
- Communication from the Commission — Guidelines on State aid for environmental protection and energy 2014-2020, OJ C 200, 28.6.2014, p. 1.
- Communication from the Commission — Criteria for the analysis of the compatibility with the internal market of State aid to promote the execution of important projects of common European interest, OJ C 188, 20.6.2014, p. 4.
- Commission Regulation (EU) No 1407/2013 of 18 December 2013 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to de minimis aid, OJ L 352, 24.12.2013, p. 1.
- Council Regulation (EU) 2015/1589 of 13 July 2015 laying down detailed rules for the application of Article 108 of the Treaty on the Functioning of the European Union, OJ L 248, 24.9.2015, p. 9.
- Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources, OJ L 328, 21.12.2018, p. 82.

³⁶ In the case of an energy-related IPCEI, subject to certain conditions an energy-producing plant might also qualify as subcomponent of an integrated IPCEI.

- Communication from the Commission - A hydrogen strategy for a climate-neutral Europe, COM(2020 301 final).