



Brussels 15.12.2021
C(2021) 9500 final

PUBLIC VERSION

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**Subject: State Aid SA.100461 (2021/N) – The Netherlands
Broadening of the SDE++ scheme**

Excellency,

1. PROCEDURE

- (1) By notification of 26 October 2021, the Dutch authorities notified, pursuant to Article 108(3) of the Treaty on the Functioning of the European Union (“TFEU”), certain amendments to the SDE++ (“*Stimulering Duurzame Energieproductie en klimaattransitie*”) scheme, an existing aid scheme which was authorised as State aid by a Commission decision of 14 December 2020¹ (“the 2020 Decision”).
- (2) On 25 November 2021, the Netherlands agreed exceptionally to waive its rights deriving from Article 342 TFEU in conjunction with Article 3 of Regulation 1/1958² and to have the present decision adopted and notified in English.

2. DETAILED DESCRIPTION OF THE SCHEME

2.1. Background and objectives

- (3) The SDE+ (“*Stimulering Duurzame Energieproductie*”) scheme was an existing aid scheme in the Netherlands, which supported investment in renewable electricity, gas and heat production. The Netherlands adopted the SDE++ scheme

¹ Commission Decision of 14 December 2020, SA.53525 (2020/N) – The Netherlands, SDE++ scheme for greenhouse gas reduction projects including renewable energy, OJ C17, 15.1.2021, p. 2.

² Regulation No 1 determining the languages to be used by the European Economic Community, OJ 17, 6.10.1958, p. 385.

Zijne Excellentie de Heer Stef Blok
Minister van Buitenlandse Zaken
Rijnstraat 8
NL – 2515 XP Den Haag

in 2020 as a new version of the previous SDE+³ scheme, which targeted the promotion of energy from renewable sources.

- (4) The SDE++ scheme is operational from 2020 to 2025. It supports renewable energy production and other measures that reduce greenhouse gas (“GHG”) emissions, such as green hydrogen production and carbon capture and storage (“CCS”).
- (5) The SDE++ scheme supports only projects that deliver a measureable GHG emissions reduction, based on technologies that are unprofitable without aid. For all technologies eligible for the SDE++ scheme, the Netherlands empowered the “*Planbureau voor de Leefomgeving*” (“PBL”) – an independent expert body – to undertake a detailed analysis of the cost of creating GHG emissions over the lifetime of investments. The analysis takes into account avoided costs and any revenues from selling on the market. The PBL also identifies GHG reducing technologies that are unprofitable without aid with a view to determining eligibility for support under the SDE++ scheme.
- (6) In the SDE++ scheme, the consideration of eligible categories of beneficiaries takes into account the incentive provided by the EU Emissions Trading System (“ETS”). Only approaches/technologies that are more expensive than the ETS are eligible to participate in the scheme. For those categories that are eligible, the calculation of technology specific base amounts for each technology/approach in the ETS traded sector takes into account all avoided ETS costs.

2.2. Amendments to the existing aid scheme

- (7) The Netherlands targets a reduction of GHG emissions of 49 % by 2030, compared to the 1990 levels.
- (8) To achieve that target, the Netherlands has notified an amendment of the SDE++ scheme, broadening the scope to include support to carbon capture and usage (“CCU”) technologies and advanced biofuels. Potential beneficiaries requesting support for CCU and advanced biofuels were already able to submit their projects in the competitive bidding round in October and November 2021, but the Dutch authorities committed to ensure that aid to such projects will not be granted before January 2022 and will be conditional on the Commission’s approval of the notified amendments. Moreover, projects on which the works have already started, cannot be granted aid.
- (9) The Dutch authorities confirmed that, apart from the notified amendments, all other conditions of the SDE++ scheme remain unaltered, including all elements of the allocation process described in section 2.4 of the 2020 Decision. Moreover, the notified amendments will be included in the evaluation referred to in section 2.10 the 2020 Decision.

2.3. National legal basis and standstill-clause

- (10) The amendment to the SDE++ scheme is contained in Article 7J of the Regulation of the State Secretary for Economic Affairs and Climate Policy of 7 July 2021,

³ The SDE+ scheme has evolved over time and was approved by the Commission in 2003, 2007, 2012, 2015, 2016, 2017 and 2019. The expiry date of that scheme was 31 December 2020.

No WJZ/21154655, amending the General Implementation Scheme to promote sustainable energy production and climate transition in relation to new greenhouse gas reduction techniques.

- (11) The Dutch Authorities indicated that, under Article 7(1) of the EZK- and LNV-Subsidies Framework Act, an application for aid that is contrary to Union law will be rejected.

2.4. Description of the amendments to the aid scheme

2.4.1 Carbon capture and usage (CCU)

Background

- (12) The largest consumer of CO₂ in the Netherlands is the greenhouse horticultural industry. Greenhouses need CO₂ for their crop growth. The greenhouse operators produce their own CO₂ using cogeneration systems or gas fired boilers, even in the summer when heat is not needed (so-called “summer heating”). The availability of external CO₂ from local industries enables the greenhouse growers to avoid the summer heating and to avoid the burning of natural gas to produce themselves the CO₂ they need.
- (13) According to the Dutch authorities, the CO₂ levy – a national policy instrument – and the ETS have a major impact on the CO₂ market. The CO₂ levy is a national CO₂ tax, which came into effect as of 1 January 2021. It applies to industrial GHG emissions covered by the ETS⁴, substantial nitrous oxide gas emissions and waste incineration systems. It is imposed on the unavoidable part of emissions, so not on all emissions from a system. In the light of the ETS, the supply of CO₂ to greenhouse horticulture is considered an emission of the company that captured the CO₂. Therefore, industry companies are obliged to pay the CO₂ tax, even if it captures CO₂ and delivers it to greenhouse horticulture.
- (14) Since both the CO₂ levy and the ETS increase the attractiveness of storing CO₂ compared to the CO₂ usage, this could lead to an increase in the price for use of CO₂ in the greenhouse horticultural industry in view of the reduced number of CO₂ sources. This would prompt horticulturists to continue using cogeneration systems, which in turn will increase CO₂ emissions from horticulture.
- (15) The policy of the Dutch authorities aims to stimulate the greenhouse horticulture sector to maximise its contribution towards achieving climate targets. More specifically, the goal is to create the suitable preconditions for the sector to change its activity towards a more environmentally sustainable one, where the horticulturists do not need to generate themselves CO₂.⁵ To that end, with the

⁴ Industrial GHG emissions are covered by the ETS that commenced in 2005. Within the ETS, a yearly, decreasing ceiling is agreed for the number of emissions rights available. Parties that emit CO₂ and that are covered by the ETS must cover their emissions with those rights. They are permitted to trade those rights with one another. This leads to a market price, on the basis of which a party may either decide to reduce its CO₂ emissions or purchase additional rights. The market price exceeded EUR 50 per ton of CO₂ by mid-2021 (source: https://ec.europa.eu/clima/system/files/2021-10/com_2021_962_en.pdf, section 3.1.3) and remained at that high level since.

⁵ See “Eindadvies Basisbedragen SDE++ 2021”, Chapter 18 (CO₂-capture and use in the horticultural sector), Planbureau voor de leefomgeving, Lensink & Schoots 12 februari 2021 (in Dutch only), [Eindadvies basisbedragen SDE++ 2021 | PBL Planbureau voor de Leefomgeving](#).

amended SDE++ scheme, the Dutch authorities intend to ensure accessibility of purchased CO₂, in parallel to the access to sustainable heat and electrification. Those three preconditions need to be met at the same time in order to achieve the sector's climate transition.

- (16) Currently, approximately 600 to 700 kilotons of CO₂ are supplied annually to the greenhouse horticulture industry. The Dutch Climate Agreement⁶ aims at increasing that to at least 2 million tons of externally supplied CO₂ in greenhouse horticulture by 2030.
- (17) In view of the expected growth in the demand for externally supplied CO₂ in the horticulture sector by 2030, the current supply and the developments described in recitals (12) to (15) that will affect supply in the years to come, it is also important to stimulate supply growth for externally supplied CO₂.
- (18) Based on an RHDHV report⁷, the Dutch authorities consider the disruptive effect on the market for buyers to be relatively limited. This is because the greenhouse horticulture sector is relatively separate from the other sectors, such as the food and chemical industries, in terms of the use of CO₂ due to factors including different quality requirements.
- (19) The notified amendments exclusively concern CCU projects supplying CO₂ to the greenhouse horticulture sector. To that end, the subsidy recipients will be required to provide conclusive measurement and verification reports, which show that only CCU projects whereby CO₂ is used in greenhouse horticulture production receives the subsidy.

Objectives of the amendment

- (20) The primary objective of the amendment is to increase environmental protection by reducing the use of primary energy sources for conventional forms of CO₂ generation for horticultural processes and by reducing CO₂ emissions linked to the horticultural process. That objective will be achieved by capturing CO₂ from industrial installations, waste incineration plants and small-scale biomass combustion installations and delivering it to horticulturists with CO₂ demand, thereby avoiding that greenhouses use natural gas for CO₂ production.
- (21) The scheme will thus contribute to the environmental objective in a twofold manner. First, it will provide support to the realisation of new projects relating to CCU. Second, it will enable a change in the behaviour of the horticulturists, who will use CO₂ supplied by industrial installations, waste incineration plants and small-scale biomass combustion installations instead of using natural gas to produce their own CO₂.
- (22) According to the calculations of the Dutch authorities, every ton of CO₂ captured and supplied to the horticulturists will on average lead to 0.8 tons of CO₂ savings for those horticulturists, with a spread between 0.74 and 0.85 tons CO₂ savings, depending on the capture installation, compression and liquefaction.

⁶ See <https://www.klimaataakkoord.nl/documenten/publicaties/2019/06/28/national-climate-agreement-the-netherlands>.

⁷ See the report by Royal Haskoning DHV, "The market for CO₂", of 24 December 2020.

- (23) The Dutch authorities explained that currently and without aid, the greenhouse horticulture sector is not able to cover the higher costs for CO₂ charged by potential new suppliers. Producing the CO₂ from natural gas by using cogeneration /combined heat and power (“CHP”) or a gas fired boiler has a lower cost price than purchasing CO₂. This obstructs the desired transition in the greenhouse horticulture sector.

Form of aid and level of support

i. *Determining the base amount*

- (24) Only techniques that are not sufficiently profitable to break even on the market and result in sufficient CO₂ emission reduction compared to other techniques, qualify under the SDE++ scheme.
- (25) As per the rules of the SDE++ scheme, described in the 2020 Decision, the amount of subsidy is limited to the “unprofitable component”, i.e. the difference between the total cost of the technology (its *base amount*), corrected for the price that final users (i.e. the horticulturists) are willing to pay for CO₂. On the basis of a reference installation for 14 subcategories of CCU, base amounts are set for each of those 14 subcategories, covering both investment and operating costs.
- (26) *Investment costs* cover the installation, compression and either the liquefaction equipment or, in case of transport through pipelines, the connection equipment linking the capture technology to the CO₂ transport network and to the CO₂-emitting facility. Applicants will also need to demonstrate that the CCU chain is complete and that the CO₂ captured by means of subsidised CCU will be delivered to the horticulturists.
- (27) Investment costs largely depend on the volume of CO₂ capture, the concentration of CO₂, the process from which it is captured, the technology chosen and the intended means of transport of CO₂.
- (28) For investment cost factors that apply to all CCU subcategories, the following assumptions have been made about cost items included in determining the base amount:
- (a) Capture: This concerns the costs for the capture of CO₂ generated in industrial processes or from flue gases stemming from combustion processes;
 - (b) Purification: The CO₂ that is used as supply to greenhouses needs to meet minimum quality/purity standards, in order to ensure that it is not harmful to the plants. Those minimum standards are used for the approximation of the CO₂ treatment costs;
 - (c) Compression: In case of gaseous delivery, the CO₂ must be pressurized (22 bar) before it enters the transport pipe;
 - (d) Liquefaction: In case of delivery of liquid CO₂, costs are related to the liquefaction installation at the location where CO₂ is captured;

- (e) Connection costs: This concerns the costs for connecting the gaseous CO₂ to the CO₂ transport network. It is assumed that the applicants will usually be located in the area where the CO₂ transport network already exists or will be realised. As a result, the distance for the connection will be relatively short (approximately 3 km) and the connection costs accordingly rather limited⁸.
- (f) Costs for CO₂ transport by pipeline or by truck.
- (29) Costs not included in determining the base amounts for CCU are:
- Costs for capturing CO₂, proportionate to the amount not intended for CCU but for storage (CCS);
 - Costs for a CO₂ transport pipeline;
 - Costs for transporting and processing CO₂ with a view to storage (processing surcharge at CCS);
 - Costs for connection, storage and distribution systems at the horticulturist;
 - Costs for (re)construction of greenhouses suitable for dosing externally supplied CO₂;
 - Costs for CO₂ production back-up installations at the horticulturists (boiler or CHP).
- (30) *Operating costs* are also included in the calculation of base amounts as they can be influenced by the process from which CO₂ is captured and the technology chosen. The following categories of operating costs are considered: fixed operating and maintenance (O&M) costs, variable O&M costs and energy costs.⁹ Fixed O&M costs have been included in the calculation of the basic amount. Variable O&M and energy costs have also been taken into account, with the exception of costs for solvents. As the costs for solvents are limited, they have not been included in the calculation of the basic amount. Energy costs consist of heat or steam used for CO₂ capture, and of the electricity needed for compression and liquefaction. The calculation of the amount of energy required for CO₂ capture, compression and liquefaction relies on the available literature¹⁰.

⁸ The cost of the pipeline from the capture installation to the CO₂ transport network is estimated at 1.5 EUR/km/t CO₂ per year. The total connection costs at the supplier are thus estimated at 4.5 EUR/t CO₂ captured peak capacity.

⁹ Fixed O&M costs consist of salary costs, administrative and overhead costs, annual O&M, insurance and local taxes (IEAGHG, 2017). Based on literature and industry data, it is assumed that those costs for CO₂ capture, purification and compression amount to 3 % of the investment costs for capture at existing installations and 2 % of the investment costs for capture at new plants. Those costs are therefore negligible. Variable O&M costs are for example costs determined by the use of chemicals that are needed to capture CO₂. Those costs can differ per application and can also be negligible.

¹⁰ According to common estimates, the amount of energy required for CO₂ capture, compression and liquefaction is established as follows:

- Heat during CO₂ capture, pre-combustion: 312.5 kWh (th)/t CO₂ captured;
- Heat during CO₂ capture, post-combustion: 1028 kWh (th)/t CO₂ captured;
- Electricity during CO₂ capture, pre-combustion and post-combustion: 50 kWh (e)/t CO₂ captured;
- Electricity in compression: 125 kWh (e)/t CO₂ captured;
- Electricity during liquefaction: 162 kWh (e)/t CO₂ captured.

- (31) As regards *transport costs*, CCU differs from CCS in the fact that with CCS, the captured CO₂ counts as an emission reduction at the capture and is permanently removed from the CO₂ accounts of the investing party via an intermediary that is responsible for transport and storage. The investing party is therefore willing to pay another party for transport and storage in order to avoid its own CO₂ emissions. This is not the case for CCU.
- (32) In CCU, there is a party that invests in CO₂ capture, but then offers the CO₂ as a product to the market. A third trading party can vouch for the transport, but it charges the additional costs for that transport to the final user (i.e. the horticulturist). It is therefore left to the final user to consider whether it is economically interesting for them to purchase CO₂, taking into account the costs of capture and transport, instead of producing CO₂ themselves.
- (33) Transport costs vary according to the different reference installations. In subcategories of CCU where reserve transport capacity is still available on an existing pipeline for gaseous CO₂ transport, the Dutch authorities assumed that the transport costs are minimal and therefore negligible. For subcategories, for which a new pipeline needs to be constructed, the respective transport costs are included for transport surcharge via the pipeline. Those costs are estimated at 49.3 EUR/ton CO₂ for CCU. For the transport of liquid CO₂ (by truck or ship), the transport cost is assumed to be 21 EUR/ton CO₂, including personnel and fuel costs.

Explanation of calculation of transport costs for new pipeline

The processing surcharge for the CO₂ to be transported via a not yet existing, new pipeline to be constructed, is determined on the basis of the annual volume and peak capacity. The latter affects the costs for transport:

- The annual volume that is transported and stored is for the reference installation 55 kt CO₂;
- The peak capacity is 25 t CO₂ per hour. The “load factor” is then 25 t CO₂ / 13,75 t CO₂ = 1,82;
- Transport rate is 27,1 €/t CO₂ transported on the basis of 8760 hour (SDE++ 2021 CCS advice). The transport rate for the variants C will be 27,1 * 1,82 = 49,3 €/t CO₂.

- (34) A subsidy period of 15 years has been assumed for CCU, in line with most technologies within the SDE++ scheme. It is assumed that there is no residual value after the 15-year subsidy period.

In line with the KEV (Climate and Energy Outlook) 2020 (PBL, 2020), a price of 0.020 EUR/kWh is assumed for the costs of heat, based on a natural gas price of 0.0225 EUR/kWh. The wholesale price of 0.0449 EUR/kWh – calculated on the unweighted average electricity prices from 2021 to 2030 as indicated in the KEV – is used for the electricity price.

ii. *Determining the correction amount*

- (35) The base amount is adjusted by a *correction amount*: it concerns a reduction for costs avoided under the project and an increase for revenues foregone under the project.¹¹ The base amount adjusted with the correction amount is the unprofitable component of the technology or funding gap and represents the subsidy amount. Since without external CO₂ supply, horticulturists need to produce CO₂ themselves through gas boilers or CHP installations, the correction amount reflects avoided costs of gas consumption as well as missed revenues of selling electricity produced through CHP installations to the market¹².
- (36) Horticulturists will take these elements into account when deciding whether to opt for CCUs. CCU operators (i.e. the beneficiaries) invest and/or perform CO₂ capture to then offer the captured CO₂ as a product to the horticulturists. They receive compensation from the horticulturists (the final users) for the sale of CO₂ that the latter will use to grow crops. The correction amount reflects the fact the price that the final users (horticulturists) are willing to pay is influenced by reduced costs and, possibly, reduced revenues on their side.
- (37) To be a viable alternative for the horticulturists, the price for the CO₂ delivered by CCU operators should not be higher than the sum of the costs avoided by the final users reduced by any forgone revenues, when opting for externally supplied CO₂. Thus, the price of CO₂ applied will not coincide with the general market price for CO₂ as a commodity. Rather, it will be capped by the alternative costs that the final user would incur in case it decided to produce the CO₂ by itself.
- (38) The PBL estimates an average cost of 52 EUR/ton for the production of own CO₂ by horticulturists¹³, while the purchase price of pure CO₂ amounts to 80 to 140 EUR/ton (including the rent for CO₂ storage installations)¹⁴.

¹¹ According to the ETS regulations, captured fossil CO₂ used in greenhouse horticulture (CCU) does not reduce an industrial company's emissions. CCU beneficiaries under the SDE++ scheme are therefore still required to purchase ETS rights and pay national CO₂ tax for industry. Contrary to CCS projects, revenues from selling unused ETS rights or avoided CO₂ tax can therefore not be considered in CCU projects.

¹² In this case, the revenues amount to the spark spread, i.e. the difference between costs of the gas purchased to produce heat and electricity and the yield from the electricity supply. The spark spread is currently favourable, which means that a horticulturist with a co-generation system has an additional source of income.

¹³ Two-thirds of the horticulturists produce CO₂ for their own demand via a CHP, while a third use gas boilers. In the case of CHPs, a correction is made based on the electricity price to take into account the potential foregone sales of the extra electricity produced with CHP. The average reduction coefficient for CO₂ delivery to a horticulturist is 0.93 ton CO₂ avoided/ton CO₂ delivered (WEcR study). This means that in the case of a boiler, a horticulturist saves 520 m³ of gas per ton of CO₂ supplied for an amount of 103 EUR/ton of CO₂. In the case of CHP, a loss of revenues from the sale of electricity of 77 EUR/ton (net cost at CHP 103-77 = 26 EUR/ton) is also considered. According to the distribution of CHP/boiler equal to two thirds/one third, ultimately the correction amount of producing its own CO₂ for a horticulturist is 52 EUR/ton.

¹⁴ According to the annual edition of Quantitative Information for Greenhouse Horticulture (WUR, KWIN 2016-2017), the purchase price of pure CO₂ for horticulturists amounts to 80 to 140 EUR/ton (including the rent for CO₂ storage installations from the horticulturist).

iii. Other remarks

- (39) Because the amount of the subsidy is corrected with the price that final users are willing to pay for CO₂, the subsidy amount will be reduced if the CO₂ price goes up. In a case where the CO₂ price that the final users are willing to pay is equal to or higher than the base amount (the costs for the CCU operator), no subsidy will therefore be granted at all given that the CCU project is profitable.
- (40) The PBL analysed for all CCU variants whether they have an unprofitable component. The CCU variants, which have no unprofitable component,¹⁵ do not qualify for a subsidy under the SDE++ scheme, because they can be delivered at market terms and State aid is not required to address any market failure in such case.

2.4.2 Advanced biofuels for transport

- (41) The current SDE++ scheme promotes only biogas as part of the Renewable Energy Sources (RES) technologies, but does not the production of advanced renewable fuels for transportation.
- (42) The notified amendment covers four specific categories of advanced renewable fuels for transportation, which are considered eligible: 1) bioethanol from lignocellulosic biomass 2) Bio-LNG from (a) manure only fermentation or (b) from all-purpose fermentation and 3) Bio-gasoline and 4) bio-diesel from hydrolysis oil from lignocellulosic biomass. All of the above products constitute advanced biofuels, based on the Renewable Energy Directive (RED II)¹⁶ and are produced from feedstock contained in Part A of the Annex IX of that Directive.
- (43) Support for projects of production of such biofuels is identified as currently the most promising to contribute to the Dutch targets for advanced biofuels for transport. This is based on the large availability of feedstock in the Netherlands (manure and fermentable wastes) and in Europe (lignocellulosic biomass), market uptake (all are drop-in fuels), wide range applications and the current industries in the Netherlands.
- (44) Bioethanol would be produced from lignocellulose-containing raw materials. The reference case concerns a standalone production facility, 77 MWth output (about 80 kt out-put capacity), where the process is self-sufficient (the demand for steam and electricity is met internally). The main steps to produce ethanol from lignocellulose are pre-processing of biomass, followed by enzymatic hydrolysis and fermentation and recovery with ethanol as the final product.

¹⁵ According to the PBL, for example “variant 2A” does not have an unprofitable component. This concerns a CCU project where many essential components are already in place, so it involves additional pre-combustion CO₂ capture in an existing installation and gaseous transport through an existing pipeline. Since under this scenario, a CCU project is profitable, it will not eligible for aid under the SDE++ scheme.

¹⁶ 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.

- (45) For bio-LNG, the Dutch authorities refer to production of bio-LNG from biogas extracted from: (a) either manure only fermentation or (b) all-purpose fermentation. The biogas from the digester is upgraded to biomethane with a purity of 96-99 % and converted into bio-LNG through a liquefaction process. Biogas upgrade to biomethane includes the removal of H₂S, by means of activated carbon, removal of moisture, removal of other contaminants and removal of CO₂ by membrane separation as the most widely used upgrade technology.
- (46) The third and fourth types of biofuel covered by the notified amendment are bio-gasoline and bio-diesel from hydropyrolysis oil from lignocellulosic biomass. The Dutch authorities have explained that the pyrolysis oil is produced via rapid pyrolysis of solid biomass in an oxygen-free environment. The process involves three steps: a preprocessing of biomass, pyrolysis and oil production. The preprocessing consists of the reduction of the moisture content and the grinding of biomass into smaller particles (< 3 mm). The reprocessed bio-oil can contain an oxygen concentration below 2 % vol., which can be directly processed in a distillation column to extract products such as biogasoline and biodiesel.
- (47) In order to be eligible for support, Dutch Authorities require that the biofuels shall be brought on the Dutch market for transport and deliveries must be claimed in the Energy for Transport Registry under the Energy for Transport legislation and contribute to the sub target on advanced biofuels and biogas produced from the feedstock listed in Part A of Annex IX or qualify as Renewable Fuels of Non Biological Origin (RFNBO) under RED II. Following the implementation of the RED II in the Dutch Energy for Transport legislation, the advanced biofuels under the SDE++ scheme have to comply with RED II (notably Article 29 and delegated legislation) on “sustainability” and green-house gas savings criteria.
- (48) According to the Dutch authorities, the abovementioned advanced renewable fuels lead to significantly lower levels of greenhouse gas emissions, while being cost effective. This is also the reason why aid to those fuels is limited to the extent that they cannot be produced and distributed by making use of renewable transport fuel certificates (HBE’s in Dutch).
- (49) In the Netherlands, there is a supply and blending obligation in place, plus a specific voluntary obligation beyond the minimum RED II target. Because of the RED II directive, it is expected that 33 PJ of renewable fuels will be realised in road and rail transport in the Netherlands in 2030. The Netherlands will set a target of 7 % (double counting so 3.75 % physical amount, equals 17 PJ) for advanced biofuels from feedstock listed in Annex IX A to RED II. That is twice the minimum as laid down in the RED II. On top of that target, the Netherlands set an additional target in the Dutch national climate agreement that was agreed upon in June 2019: in 2030 a maximum of 27 PJ renewable fuels extra in road and rail transport, and 5 PJ extra for inland shipping. This leads to an additional 2.4 Mton CO₂ reduction. The climate agreement stipulated that the 27 PJ must come from advanced biofuels, which are much more expensive to produce. It is estimated that this additional target requires an extra 16 PJ of biofuels from Annex IX A feedstock. In conclusion, the Dutch target for advanced biofuels from Annex IX A adds up to 33 PJ, which is four times the minimum required from the RED II.

- (50) The Dutch authorities have clarified that the supply obligation alone does not provide sufficient incentive for investments in advanced renewable fuels. Producers of renewable electricity, heat or gas for the grid get a guaranteed price for a period of 8-12 years from the SDE++ scheme. Because that fixed price limits the financial risks, financing companies are willing to invest in such projects. However, prices for renewable transport fuel certificates are not fixed. They are determined by the fuel market and thus fluctuate on a day-to-day basis. Consequently, financing companies are not willing to finance advanced renewable fuel projects, as the combination of new technologies and uncertain market prices on the long run form a risk that is considered too high.
- (51) The implementation of the subsidies will last between 12 and 15 years, depending on the biofuels types. The Dutch Authorities have clarified that no aid will be granted to projects on which work has started before the aid is granted.
- (52) As set out in detail in the 2020 Decision, the SDE++ scheme only covers the unprofitable component of the technologies and uses a competitive bidding process to ensure the subsidies are limited to the minimum. The Dutch authorities have clarified that, in this way, the most cost-effective roll-out of advanced renewable fuels for transportation will be realised. No aid will be granted if the price for renewable transport fuel certificates exceeds the price for which support would be granted under the SDE++ scheme.
- (53) The subsidy is based on the difference between the production costs and revenues (market price and price for renewable transport fuel certificates). The Dutch authorities have provided detailed data, distinct per specific advanced renewable fuel, on levelised costs of producing energy (“LCOE”), including investment costs, the fixed operating costs (excluding electricity costs) and variable operating costs. The estimated weighted average cost of capital (“WACC”) for advanced biofuels is between 5.6 % (nominal) and 4 % (real). The final subsidy will be calculated by the end of each year, when it would be possible to determine the so-called price differential between the production costs and market prices as well as HBE prices. As for the production costs, the Dutch authorities have committed to verify costs on a yearly basis.
- (54) As per the rules under the SDE++ scheme, described in the 2020 Decision, the subsidy is essentially based on the difference between the production costs and and the correction amount, which represents the revenues or avoided costs of the project (see recital (52) of the 2020 Decision).
- (55) For advanced transport fuels, the correction amount consists of the bare pump price based on figures by the Dutch statistics agency CBS (“*Centraal Bureau voor Statistiek*”), plus the price of renewable fuel certificates (“HBE”). HBE-revenues for advanced fuels are based on the value of HBE-G (advanced biofuels). The HBE-G value will be determined by the PBL annually based on information from the Dutch Emissions Authority, the “*Nederlandse Emissieautoriteit*” (“NEa”), the public body appointed to manage the “Register of Energy for Transport” database. For bioLNG, the market price is related to the

price of natural gas¹⁷. The correction amount, i.e. the market price and the HBE price, will be determined by the PBL annually.

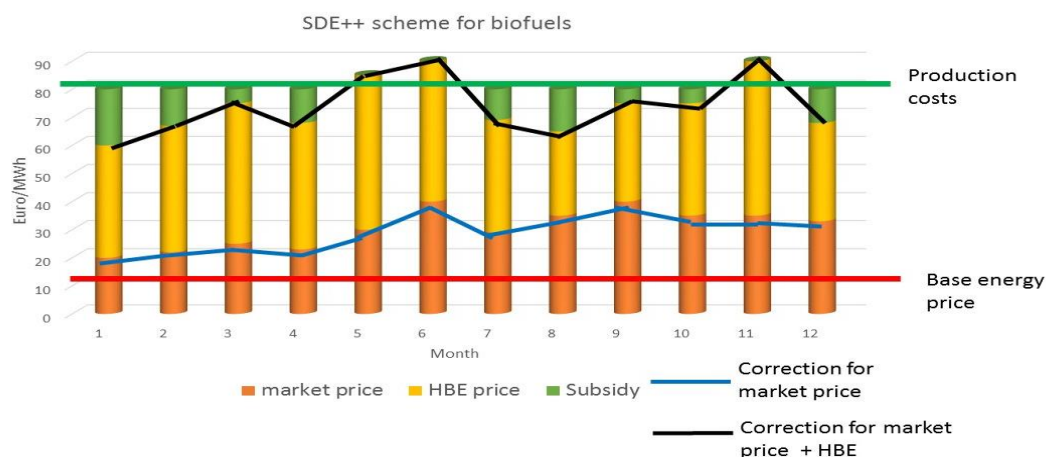
- (56) The table below contains the PBL estimates for 2021 for the correction amount, market price and HBE prices. In the table, the long term price is the expectation for the market price. The PBL takes a certain percentage of that price to calculate the correction amount. The HBE-value is $0.0935/2 = 0,046$ €/kWh.

Table 1 PBL estimates for the correction amount and market prices/HBE prices for 2021

Categorie	Eenheid	Berekeningswijze correctiebedrag	Lange termijn prijs	Bodem-prijs of basis-prijs	Voorlopig correctiebedrag 2021	Voorlopige GvO- of HBE-waarde 2021	Voorlopige ETS-waarde 2021
		[Methode-ID]	[€/eenheid]	[€/eenheid]	[€/eenheid]	[€/eenheid]	[€/eenheid]
Geavanceerde hernieuwbare brandstoffen							
Bio-ethanol uit lignocellulosehoudende biomassa	kWh	36	0,0750	0,0500	0,0577	0,0935	0,0000
Bio-LNG uit allesvergisting	kWh	40	0,0235	0,0167	0,0179	0,0935	0,0000
Bio-LNG uit monomestvergisting	kWh	40	0,0235	0,0167	0,0179	0,0935	0,0000
Hydropyrolyse-olie uit lignocellulose	kWh	37	0,0740	0,0493	0,0576	0,0935	0,0000

- (57) The figure below shows how the scheme works over the running time of 12 (or 15) years (fictional numbers). Subsidy is awarded when the sum of the market price and HBE price is below the production costs. If HBE-prices are high enough to cover production costs, no subsidy will be granted. If they drop and energy and market price together are lower than the production costs, the subsidy will be paid out.

Figure 1: Illustration working of SDE++ scheme for biofuels



2.5. Budget

- (58) The notified amendments do not involve changes in the budget or financing of the SDE++ scheme, as set out in section 2.9 of the 2020 Decision.

¹⁷ The reference was the price difference between the Argus index for LNG in North-West Europe (*free on truck*) and the natural gas price (TTF).

3. ASSESSMENT OF THE SCHEME

3.1. Presence of State aid

- (59) Article 107(1) TFEU states that *“any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertaking or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market”*.
- (60) In order to determine whether a measure constitutes State aid within the meaning of Article 107(1) TFEU, it must be established whether (i) the measure confers a selective economic advantage to the undertakings concerned, (ii) that advantage has been financed through State resources and the measure is imputable to the State, (iii) the advantage distorts or threatens to distort competition and, finally, (iv) the measures affect trade between Member States. Those conditions must be cumulatively met, which means that if one is not met the measure does not fall within the scope of Article 107(1) TFEU.
- (61) In Section 3.1 at recitals (94) and (95) of the 2020 Decision, the Commission found that the scheme is financed through State resources which are imputable to the Member State. The Commission also found that the respective undertakings, which are awarded aid under the scheme, benefit from a selective advantage, which strengthens their competitive position and that the scheme is likely to distort competition and affect trade across the EEA. The notified amendments of the SDE++ scheme do not affect that conclusion. Consequently, the measure at hand continues to constitute State aid within the meaning of Article 107(1) TFEU.

3.2. Compatibility of the aid

- (62) The SDE++ scheme approved by the Commission in the 2020 Decision subject to the notified amendment was declared compatible with the internal market pursuant to Article 107(3)(c) TFEU since it complied with the relevant provisions of the Energy and Environmental Aid Guidelines (“EEAG”)¹⁸. The Commission refers to the respective assessment outlined in the 2020 Decision.
- (63) The Commission takes note of the Dutch authorities’ confirmation that, apart from the notified amendments, all other conditions of the existing aid scheme remain unaltered (see recital (9)).
- (64) In order to determine whether the notified amendments, described in recitals (12) to (58) affect the Commission’s conclusion on the compatibility of the SDE++ scheme, the Commission must carry out a compatibility assessment of the notified amendments.

¹⁸ Guidelines on State aid for environmental protection and energy 2014-2020 (2014/C 200/01), OJ C 200, 28.6.2014, p. 1–55, as corrected by the corrigendum adopted by the Commission OJ C 290, 10.8.2016, p.11.

Legal basis for assessment of State aid for CCU

- (65) Given the objective of the scheme (reduction of CO₂ emissions through the direct use of CO₂ supplied to the greenhouse horticulture industry), the Commission has examined whether the measure falls within the scope of the EEAG.
- (66) The scope of application of the EEAG is defined in point 13 as follows: *“These Guidelines apply to State aid granted for environmental protection or energy objectives in all sectors governed by the Treaty in so far as measures are covered by Section 1.2. They therefore also apply to those sectors that are subject to specific Union rules on State aid (transport, coal, agriculture, forestry, and fisheries and aquaculture) unless such specific rules provide otherwise”*.
- (67) Section 1.2, point 18(g) EEAG indicates that the EEAG apply to support measures for Carbon Capture and Storage (CCS) including individual elements of the CCS chain, but not for CCU like in the case at hand.
- (68) Section 1.2 EEAG also indicates that the EEAG apply to aid for going beyond Union standards or increasing the level of environmental protection in the absence of Union standards (point 18(a) EEAG). ‘Environmental protection’ is defined in point 19(1) EEAG as *“any action designed to remedy or prevent damage to physical surroundings or natural resources by a beneficiary's own activities, to reduce the risk of such damage or to lead to more efficient use of natural resources, including energy-saving measures and the use of renewable sources of energy”*.
- (69) In the present case, the measure will enable beneficiaries to provide CO₂ to greenhouses. The environmental effect of the aid results from the change in behaviour of the operators of those greenhouses that will be using CO₂ from industrial installations, waste incineration plants and small-scale biomass combustion installations instead of burning natural gas to produce their own CO₂ from their own boilers or of acquiring CO₂ originating from fossil fuels from an external supplier. Such a use will enable them to reduce their energy consumption in summer time and to use externally-supplied CO₂ to enhance plant growth. The capturing of the CO₂ and its transfer to the greenhouses also prevents that CO₂ emissions are released into the atmosphere. However, this reduction of CO₂ emissions that can be related to the capturing of the CO₂ is not due to the capturing in itself, but to the entire CCU chain, i.e. the transport of the CO₂ to the greenhouses and the consumption of the CO₂ by the plants.
- (70) Thus, in the case at hand, the measure does not, by itself, reduce industrial installations, waste incineration plants and small-scale biomass combustion installations’ pollution, but reduces the consumption of primary energy resources by the greenhouses and contributes to GHG emission savings by switching their consumption to the recuperated CO₂. For that reason the measure does not correspond to the category of measures referred to in point 18 EEAG. The present case therefore falls outside the scope of the EEAG.

- (71) The Commission has in its decision practice¹⁹ assessed State aid for similar infrastructures on the basis of Article 107(3)(c) TFEU, applying by analogy the criteria of the EEAG.
- (72) In conclusion, with regard to the extension of the SDE++ scheme to CCU, the Commission will assess the compatibility of the notified amendment directly on the basis of Article 107(3)(c) TFEU.

Legal basis for assessment of State aid for advanced biofuels for transport

- (73) With regard to the extension of the SDE++ scheme to advanced biofuels for transport, the Commission will analyse this part of the measure under section 3.3 EEAG, aid to energy from renewable sources, in order to determine whether it is in line with Article 107(3)(c) TFEU.

3.2.1. *Contribution to the development of certain economic activity*

- (74) Article 107(3)(c) TFEU provides that the Commission may declare compatible ‘aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest’. Therefore, compatible aid under that provision must contribute to the development of certain economic activity.²⁰

a) Identification of the supported economic activity

State aid for CCU

- (75) The notified scheme will facilitate green transition and fossil fuels CO₂ reduction through the direct use of gaseous and liquid CO₂ supplied to the greenhouse horticulture industry and will therefore increase environmental protection by reducing, for that industry, the use of primary energy sources for conventional CO₂ generation in the horticultural processes. To this end, the scheme supports the construction of the necessary equipment and installations to capture, compress, liquefy CO₂ from industrial installations and deliver it to growers with CO₂ demand and the related transport network connection (see recital (26)). The measure will also facilitate a better use of CO₂ from industrial processes in general and avoid release of CO₂ in the atmosphere.
- (76) According to the calculations of the Dutch authorities, based on the reference installations referred to in recital (25), the avoided CO₂ per unit of CO₂ delivered would be on average 0.80, with a spread between 0.74 and 0.85, depending on the capture installation, compression and liquefaction.

¹⁹ See in particular Commission decision C(2019)2888 final of 23 April 2019 - State Aid SA.52663 (2018/N) – The Netherlands – Aid to MEERLANDEN for investment in CO₂ capture technology, OJ C226, 5.7.2019, p. 2 and Commission decision C(2021) 5523 final of 29 July 2021 – State Aid SA.61295 (2021/N) – The Netherlands – Aid to TWENCE B.V. for investment in CO₂ capture technology, not yet published.

²⁰ Case C-594/18 P *Austria v Commission*, judgment of 22 September 2020, not yet published, paragraphs 20 and 24.

State aid for advanced biofuels for transport

(77) The notified amendment supports the production of specific categories of advanced biofuels for use in transport. Advanced biofuels for transport constitute energy from renewable energy sources, and the production of such biofuels is based on the climate and sustainability targets set in RED II.

b) The aid facilitates the development of the economic activity

(78) State aid facilitates the development of the economic activity if it incentivises the beneficiary to change its behaviour towards the development of a certain economic activity and if the change in behaviour would not occur without the aid²¹.

State aid for CCU

(79) The largest consumer of CO₂ in the Netherlands is the greenhouse horticultural industry, as CO₂ is used to stimulate plant growth (see recital ((13)).

(80) Based on the information provided by the Dutch authorities, the introduction of the CO₂ levy and the subsidy for CCS increase the price for use of CO₂ in the greenhouse horticultural industry in view of a future reduction of the number of CO₂ sources. This will prompt horticulturists to start using cogeneration systems, which in turn will increase CO₂ emissions from horticulture (see recitals (13) and (14)). In this context, the Commission notes that the intended support for carbon capture and use facilities could contribute to ensuring the accessibility of external CO₂ sources for the greenhouse horticultural industry. The scheme would ensure both security of supply and quality for several years, potentially leading the horticulturist sector to reduce its use of cogenerations systems based on conventional energy sources and turn to sustainable external supply sources of CO₂, in the context of their commitment to climate change (see recitals (20) and (21)).

(81) The aid is designed in a way that it effectively facilitates the development of an economic activity, for two main reasons: (i) it represents an incentive for the beneficiaries to construct the carbon capture and use infrastructure; and (ii) it represents an incentive for the horticulture greenhouses to modify their behaviour.

(82) The Commission observes that the state support will be available only to new installations (see recitals (8) and (21)), only covers costs that beneficiaries incur as a result of and would not incur without the project (see for example recital (29)) and only regards the unprofitable component of a project (see recitals (24) and (40)). In particular, the Commission notes that the base amount includes the costs relating solely to the investment and operation of CCU and does not cover the costs of the underlying CO₂ emitting facility. This is in line with the requirement that State aid must incentivise a change in the beneficiary's behaviour, which would not have taken place in the absence of aid.

²¹ See in that sense Section 3.2.4. EEAG, as well as the *Hinkley* judgment, Case C-594/18 P *Austria v Commission*, not yet published, paragraph 60.

State aid for advanced biofuels for transport

- (83) The extension of the measure relating to advanced biofuels for transport will enable the promotion of production of advanced biofuels – derived from feedstock which is qualified as a renewable energy source – and which enable the Dutch authorities to go beyond the renewable energy targets set at Union level.
- (84) As set out in recitals (8) and (51), the Dutch authorities have confirmed that aid will not be granted, whenever beneficiaries have started works.
- (85) As stated in recital (52) the Dutch authorities have also shown that, for the purposes of granting aid, they have put in place mechanisms to guarantee that there is an incentive effect achieved with aid granted under the SDE++ scheme to projects, which would not take place without the aid.
- (86) Since the measure concerns exclusively advanced biofuels, compliance with points 112 and 113 EEAG is ensured.
- (87) The Commission concludes that the existing scheme subject to the notified amendments contributes to the development of an economic activity- production of advanced biofuels- as required by Article 107(3)(c) TFEU.

3.2.2. Compliance with other provisions of EU Law

- (88) Based on the submitted information in the notification by the Dutch authorities, the Commission has no reason to assume that the notified measures would infringe any general provisions of EU law. More specifically, both as regards CCU and as regards biofuels projects, the notified amendments do not discriminate on grounds of nationality and origin of goods nor do they make support under the SDE++ scheme conditional upon relocating activities to the Netherlands from another Member State. Accordingly, the Commission has no reason to doubt that the measure complies with EU law.

3.2.3. Aid which does not adversely affect trading conditions to an extent contrary to the common interest

- a) Positive effects of the aid measure

State aid for CCU

- (89) The notified amendment can be expected to have a range of positive effects in facilitating the development of an economic activity (see recital (76)).
- (90) Moreover, the notified amendment will have positive effects in terms of environmental protection, as it aims at making better use of CO₂ from industrial installations, waste incineration plants and biomass combustion installations. To this end, the measure supports the construction of the necessary equipment and installations to capture such CO₂. The amendment is expected to lead to primary energy savings on the side of the end consumers of natural gas, i.e. the greenhouses, which in turn should reduce CO₂ emissions from fossil fuels, thus contributing to environmental protection (see recitals (20) and (21)). To that end, the Dutch authorities require the beneficiaries to demonstrate that captured CO₂ is

delivered to the horticulturists and used exclusively in greenhouse horticulture production (see recital (18)).

- (91) Furthermore, the aid measure is fully in line with the European Climate Law²² which recognises that “*carbon capture and use (CCU) technologies can play a role in decarbonisation, especially for the mitigation of process emissions in industry*” and with Union-wide 2050 climate-neutrality objective.

Advanced biofuels for transport

- (92) For the promotion of biofuels for transport, the notified amendment enables to achieve positive effects in facilitating the development of an economic activity (see recital ((78)). First of all the measure not only is in line with the renewable energy target for transport set in RED II, but aims at enabling the Netherlands to go beyond the minimum required in RED II. This would enable the Netherlands to promote the development of the production of advanced biofuels used for transport, displacing other conventional fossil fuels and thus contributing to the overall reduction of GHG emissions and pollution.

b) Negative effects of the aid measure

- (93) The Commission needs to assess whether and how the notified amendments minimise the distortions on competition and trade. In this regard, the Commission considers the following principles:
- a) need for State intervention: a State aid measure must be targeted towards a situation where aid can bring about a material improvement that the market cannot deliver itself, for example by remedying a market failure or addressing an equity or cohesion concern;
 - b) appropriateness of the aid measure: the proposed aid measure must be an appropriate policy instrument to address the contribution to an economic activity; and
 - c) proportionality of the aid: the amount and intensity of the aid must be limited to the minimum needed to induce the additional investment or activity by the undertaking(s) concerned.

(i) Need for State intervention

State aid for CCU

- (94) The Netherlands has identified the following market failures:
- (a) The negative externalities arising from GHG emissions are not reflected in the cost of emitting GHGs. Market players have insufficient incentives to take into account the negative externalities arising from production when they decide on a particular technology or production level. This market failure is addressed by the ETS and the national CO₂ levy. However, while

²² Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (‘European Climate Law’)

CCS offers a feasible alternative to incurring the CO₂ levy of foregoing revenues from selling ETS rights, CCU projects do not (see recitals (13) and (14)). Moreover, horticulturists that need CO₂ have the option to produce CO₂ themselves from fossil fuels while not being subject to the ETS or the national CO₂ levy.²³

- (b) The coordination failure thus arising as a result of a disincentive to either increase supply or demand hampers the development of new GHG reducing technologies, which moreover require a necessary critical mass before investors take the risks involved in investing in these technologies (see recitals (20) to (23)).
- (95) The Netherlands have also explained that the measure will only subsidise the unprofitable component, without which the beneficiaries would not have an incentive to realise the GHG emissions reduction (see recital (5)).
- (96) The Commission concludes that the aid effectively targets a market failure that is not fully addressed and therefore, there is a need for State intervention.

State aid for advanced biofuels for transport

- (97) As recalled above, the measure targets exclusively advanced biofuels in line with points 112 and 113 EEAG.
- (98) With regard to the extension to advanced biofuels for transport, as for other renewable energy technologies covered in the 2020 decision, point 115 EEAG notes that the ETS may not fully internalize the costs of GHG emissions. Thus, also for advanced biofuels, the Commission considers that this residual market failure applies equally to other measures aimed primarily at reducing GHG emissions.
- (99) The proposed measure on advanced biofuels addresses the current market situation. Point 114 EEAG sets out that aid for biofuels will not be considered to contribute to increased environmental protection, where such fuels are subject to a blending obligation, unless a Member State can demonstrate that the aid is limited to sustainable biofuels that are too expensive to reach the market with a supply or blending obligation only. Despite the existence of a supply obligation for transport in the Netherlands, the additional revenues from that obligation are insufficient to address the price difference between the production costs of advanced biofuels and their fossil fuel equivalent (see recital (50)). Therefore, the existing supply obligation for biofuels for transport market cannot in itself address the funding gap for advanced biofuel projects.

(ii) Appropriateness of the aid measure

- (100) Member States can make different choices with regard to policy instruments and State aid control does not impose a single way to intervene in the economy. However, State aid under Article 107(1) TFEU can only be justified by the appropriateness of a particular instrument to meet the public policy objective and contribute to one or more of the common interest objectives.

²³ The notified amendments thus do not counteract either the ETS or the national CO₂ levy. They respect those instruments but recognise that they exacerbate the coordination failure for CCU projects.

- (101) The Commission normally considers that a measure is an appropriate instrument where the Member State can demonstrate that alternative policy options would not be equally suitable to contribute to the development of economic activities, and where it can demonstrate that an aid scheme addressing residual market failures are designed in such a way as to not undermine the efficiency of the market-based mechanism.

State aid for CCU

- (102) The Dutch authorities have demonstrated that the ETS was not sufficient in isolation to trigger the GHG emissions projected to be incentivised by the support scheme (see recitals (13) and (14)).
- (103) As described in recitals (13) and (14), the Dutch authorities explained that the market and ETS do not provide enough incentives for beneficiaries to make the investment without aid and that absent this support the investment would not take place. The Commission recognises that the market fails to coordinate cooperation between suppliers and consumers, preventing the development of a project that could significantly reduce the CO₂ footprint of the greenhouse horticulture processes. Therefore, those less distortive market or policy instruments are insufficient to achieve the aim of the measure.²⁴
- (104) As regards less distortive types of aid instruments, like loans and guarantees instead of grants, the Commission notes that they are reversible in nature and would not allow for reliable closing of the funding gap, here called unprofitable element of the project.
- (105) Additionally, the aid under the measure is calibrated to close the difference between the total production cost of the technology (base amount) and the market revenues and/or cost savings linked to the project. The aid in its proposed form significantly reduces the level of uncertainty in carrying out the project for the beneficiaries, while limiting the level of support needed to trigger the projects.
- (106) The Commission therefore considers the notified extension of the SDE++ scheme to CCU investments to be appropriate.

State aid for advanced biofuels for transport

- (107) With regard to advanced biofuels for transport, point 116 EEAG states that, to allow Member States to achieve their targets in line with the EU 2020 objectives, the Commission presumes the appropriateness of aid for renewable energy sources provided all other conditions of section 3.3.2 EEAG are met.
- (108) According to point 107 EEAG, under certain conditions State aid for renewable energy sources can be an appropriate instrument to contribute to the achievement of EU objectives and related national targets.
- (109) Point 114 for biofuels states that “*the Commission will consider that the aid does not increase the level of environmental protection and can therefore not be found compatible with the internal market if the aid is granted for biofuels which are subject to a supply or blending obligation, unless a Member State can*

²⁴ See footnote 23.

demonstrate that the aid is limited to sustainable biofuels that are too expensive to come on the market with a supply or blending obligation only”.

- (110) As mentioned in recital (49), the supply obligation applies also to advanced biofuels in the Netherlands and entails an obligation to bring to the market biofuels based on specific percentages set out in the RED II. Besides the supply obligation, the Dutch authorities have introduced a voluntary commitment to produce additional quantities of advanced biofuels. As mentioned in recital (52), the Dutch authorities have shown that both measures are not sufficient to trigger investments to produce sufficient quantities of advanced biofuels, given the high production costs, the variable character of the revenues from the supply obligation revenues and the overall expensive character which renders unlikely production based only on the revenues flowing from the supply obligation.
- (111) Moreover, the methods of calculation of the subsidy in the measure enable to take full account of revenues flowing from the certificates issued pursuant to the supply obligation and reduce or annul the subsidy, should the revenues from the supply obligation fully cover the production costs (see recitals (53) and (54).
- (112) Based on such considerations, the measure can be considered as appropriate, in line with section 3.3.1 and notably point 114 EEAG.

(iii) Proportionality of the aid

- (113) In recitals (128) to (136) of the 2020 Decision, the Commission considered that the SDE++ scheme involved a competitive bidding process that meets definition thereof in point 19(43) EEAG.

State aid for CCU

- (114) As described in detail in recitals (24) to (40), the method to determine the amount of the subsidy allows to support only the unprofitable component of a CCU technology, i.e. the cost of the technology reduced by the expected revenues and costs savings. The Commission observes first that the technology base amount includes only the costs of installation, capture, liquefaction and transport of the CCU technology, as well as some related operational costs (see recitals (24) to (34)). The subsidy will not include aid for the emitting industrial installation²⁵.
- (115) Moreover, support does not exceed the funding gap of the projects given that the aid takes the form of the difference between positive and negative cash flows over the lifetime of the project. It includes all relevant costs on the negative side and takes into account all relevant revenues on the positive side. Investment support obtained from other sources is also deducted²⁶. In addition, the subsidy to all projects benefitting under the SDE++ scheme will be adjusted annually based on the factual costs of operating the CCU and the price of the CO₂ paid by the horticulturists (see recitals (25) and (35) to (38)). Therefore, the subsidy will always serve to merely close the funding gap, but will not give raise to any profits for the beneficiaries. On that basis, the Commission considers the risk of overcompensation is sufficiently mitigated.

²⁵ See recital (19) of the 2020 Decision.

²⁶ See recital (71) of the 2020 Decision.

- (116) The fact that the beneficiaries are selected based on a competitive bidding process will further ensure that beneficiaries integrate in their bids any further additional benefit they might derive from their subsidised CCU project. Given the design of the SDE++ scheme, with a competitive bidding process in which various technologies and decarbonisation solutions are in competition, subsidies to CCU projects are only granted under the SDE++ scheme if no other technology is available to reduce the GHG emissions in an equal or more cost-effective manner.
- (117) Given furthermore that support for CCU projects is limited to the same time period as the SDE++ scheme, i.e. till 2025, and is subject to the same evaluation plan as described in section 3.3.10 of the 2020 Decision, the Commission concludes that the support for CCU under the SDE++ scheme is limited to the minimum necessary and, thus, proportionate.

State aid for advanced biofuels for transport

- (118) For operating aid for advanced biofuels which constitute energy from renewable sources other than electricity, point 131 EEAG is applicable.
- (119) According to point 131 EEAG, operating aid for renewable energy production needs to meet the following cumulative conditions:
- a) The aid per unit of energy does not exceed the difference between the total LCOE from the particular technology in question and the market price of the form of energy concerned (no overcompensation).
 - 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.
 - 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.
- (120) On the condition in point 131(a) EEAG, the Dutch authorities have ensured that first of all the aid will be based on the differential between the production costs LCOE, calculated per each typology of biofuel, as set out in recital (54) and the market price of the fossil fuel equivalent.
- (121) The measure is structured so as to enable to deduct the market price from the support. Moreover, the mechanism set for the subsidy requires the authorities to calculate on a yearly basis the differential (between LCOE and market price). When performing that assessment, the national authorities also take into account the revenues earned by the beneficiaries through the HBEs, the certificates related to the supply obligation. In this manner, the measure prevents risks of overcompensation as it guarantees the deduction of the yearly revenues linked to the supply obligation. The annual updates of the LCOE calculation and price differential ensures that the market evolution and price fluctuations would not lead to overcompensation as required in point 131(a) EEAG.

- (122) As shown in recital (52), the Dutch authorities have provided calculations showing that the LCOE includes a normal return on capital investment and that any investment aid would be deducted from the total investment costs in calculating the LCOE, in line with point 131(b) EEAG.
- (123) Furthermore, the Dutch authorities have committed to verify the production costs on a yearly basis as per point 131(c) EEAG.
- (124) Based on point 131(d) EEAG, aid can normally only be granted until full depreciation of the plant. The Dutch authorities have confirmed that the measure would apply to new installations and that the duration of the awards is between 12 and 15 years, thus until the plants are fully depreciated according to normal accounting rules. The condition in point 131(d) EEAG is therefore met.

Cumulation

- (125) Section 3.3.6.6. of the 2020 Decision explained why the methodology applied under SDE++ scheme to establish the subsidy amounts cannot lead to cumulation of aid. Also for CCU projects and advanced biofuels, base amounts are set taking into account increased revenues or reduced costs resulting from other aid measures. Moreover, as mentioned in that section, the RVO will carry out a specific cumulation test to ensure that any SDE++ subsidy amount is reduced, where there is a risk that particular beneficiaries under the SDE++ scheme receive aid from another source.

3.2.4. Avoidance of undue negative effects on competition and trade and balancing test

State aid for CCU

- (126) According to the Dutch authorities, the notified amendment will have only a limited effect on competition and trade.
- (127) On the negative side, the Commission notes that the notified amendment will strengthen the competitive position of the undertakings receiving the aid as opposed to potential competitors. However, given that the application procedure will be operated in a non-discriminatory, open and transparent manner, the aid is limited to the minimum necessary. Further, since the subsidy does not give rise to any profits for the beneficiary, but merely serves to close the negative difference between the relevant costs of investing in and operating the CCU and revenues obtained from the sale of the captured CO₂, it will not unduly strengthen the financial position of the beneficiary.
- (128) On the positive side of the balance, the Commission notes that the notified amendment will have positive effects in terms of environmental gains, as it will result in energy savings and every ton of CO₂ captured and supplied to the horticulturists will on average lead to 0.8 tons of CO₂ savings for those horticulturists, with a spread between 0.74 and 0.85, depending on the capture installation, compression and liquefaction (see recital (22)).
- (129) Given the design of the SDE++ scheme, with a competitive bidding process in which various technologies and decarbonisation solutions are in competition, subsidies to CCU projects are only granted under the SDE++ scheme if no other

technology is available to reduce the GHG emissions in an equal or more cost-effective manner.

- (130) Finally, the Commission notes that the support to CCU subject to this amendment is limited to addressing the market failure, which prevents horticulturists from changing their behaviour to a more environmentally sustainable one. The scheme contains safeguards, which ensure that the CO₂ captured via the supported CCU installations is delivered to the horticulturists and contributes to the reduction in their CO₂ generation (see recital (18)). Therefore, the Commission considers the risk that the subsidised CO₂ would be unduly used to distort the CO₂ market for other applications to be negligible.
- (131) In light of the above, the Commission considers that the negative effects on competition and trade are limited by the use of a competitive bidding process and additional safeguards. They are thus outweighed by the positive effects for greening the horticultural sector and, moreover, the broader environmental positive effects that the aid will bring about.

State aid for advanced biofuels for transport

- (132) For advanced biofuels, similar considerations can be made. For aid to advanced renewable fuels for transportation under the SDE++ scheme, there will be no changes to the scheme that have an undue impact on trade. The broadening of scope by including support for the advanced biofuels described above would, in fact, increase the availability of more environmentally friendly alternatives to the equivalent fossil fuels. At the same time, the impact of the measure on trade is also reduced as the aid amount cannot go beyond the difference between the costs of production and the fossil equivalent, while taking due account of the additional revenues from the supply obligation.
- (133) Similar to the renewable energy technologies, aid to these advanced renewable fuels for transportation would enable the Member State to reach and – in this case – go beyond the targets set in line with the EU objectives. This, in turn, will also provide a manifest environmental benefit, which enables to presume the appropriateness and the limited distortive effects of the aid, pursuant to point 116 EEAG. Furthermore, it is expected to have a similar balance between its positive effects on the economic activity and, moreover, its overall environmental effect in relation to the negative impact on the market position and profits of non-aided firms, as the aid is determined and provided in the same manner as for other technologies supported under the SDE++.

3.2.5. Transparency

- (134) The Dutch authorities explain that details about the notified measure, including the identity of individual beneficiaries and the aid amounts awarded to them, will be available on the website of the Commission²⁷ in the same manner as they are made transparent under the existing SDE++ scheme.
- (135) Therefore, the Commission considers that the Dutch authorities comply with the transparency obligations set out in section 3.2.7 EEAG.

²⁷ <https://webgate.ec.europa.eu/competition/transparency/public/>

3.2.6. *Conclusion with regard to the compatibility of the notified amendments*

- (136) The Commission concludes that the extension of the aid scheme to CCU and advanced biofuels for transport facilitates the development of an economic activity and does not adversely affect trading conditions to an extent contrary to the common interest. Therefore, the Commission considers the aid compatible with the internal market based on Article 107(3)(c) TFEU.

4. CONCLUSION

The Commission has accordingly decided not to raise objections to the aid on the grounds that it is compatible with the internal market pursuant to Article 107(3)(c) of the Treaty on the Functioning of the European Union.

The decision is based on non-confidential information and is therefore published in full on the Internet site: <http://ec.europa.eu/competition/elojade/isef/index.cfm>.

Yours faithfully,

For the Commission

Margrethe VESTAGER
Member of the Commission