



Netherlands Enterprise Agency



# SDE++ 2021

## Stimulation of Sustainable Energy Production and Climate Transition

*Applications open between 5 October 2021 and 11 November 2021*

*Commissioned by the Ministry of Economic Affairs and Climate Policy*

*» Sustainable, Agricultural, Innovative and International Business*

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# The SDE++ scheme

## **Stimulation of Sustainable Energy Production and Climate Transition (SDE++)**

The Stimulation of Sustainable Energy Production and Climate Transition (SDE++) scheme focuses on the large-scale roll-out of technologies for renewable energy production and other technologies that reduce carbon dioxide (CO<sub>2</sub>) emissions.

### **What is the SDE++ scheme?**

The SDE++ is an operating subsidy. In other words, you may receive a subsidy during the operating period of your project. If you are planning to produce renewable energy or use carbon-reducing technologies, you may be eligible for an SDE++ subsidy.

An SDE++ subsidy compensates for the difference between the cost price of the sustainable energy or the reduction in CO<sub>2</sub> emissions and the revenue (if any). This is referred to as the 'unprofitable component'. Subsidies are allocated for periods of 12 or 15 years. The duration of your subsidy will depend on which technology you use. The amount of the subsidy will depend on the technology used and the level of CO<sub>2</sub> reduction you ultimately achieve by applying this technology. This brochure contains details of the eligible technologies and applicable conditions, as well as instructions on how to apply.

### **For whom is the SDE++ scheme intended?**

You may receive a subsidy as a business or organisation, whether non-profit or otherwise. You can for instance operate

in a sector as industry, mobility, electricity, agriculture or the built environment. National government entities cannot apply for a subsidy.

You will only be eligible for an SDE++ subsidy if you are a producer. If you do not plan to set up and operate the production facility yourself, you are not a producer and cannot apply for a subsidy. If you construct and operate parts of 1 production facility in corporation with other parties, you and the other parties could possibly be regarded as a partnership. If you and the other parties are regarded as a partnership, you must submit your application as a partnership. You should appoint 1 coordinator. Contact the Netherlands Enterprise Agency if you are not sure whether you should apply as a partnership.

If you intend to act as a producer, you may submit a maximum of 1 application per category and per site where the production facility is to be located during this round of applications.

### **When will the SDE++ scheme open and what is the budget?**

You may apply for a subsidy in the 2021 round of applications for SDE++ in the period between 9:00 CEST on 5 October and 17:00 CET on 11 November.

A budget of € 5 billion is available for all phases and categories combined.

# Methodology of the SDE++ scheme

## Base amount and application amount

A different base amount has been set for each technology. The base amount is the cost price for the production of renewable energy or the reduction of CO<sub>2</sub> emissions. This base amount is the maximum amount of the subsidy you can apply for. You can also apply for a lower subsidy amount. This will improve your chance of obtaining a subsidy. Accordingly, your application amount will be the same as or less than the base amount.

## Corrective amount and base energy price or base greenhouse gas amount

If you use 1 of the listed technologies to produce and supply energy in the form of electricity, heat, renewable gas, hydrogen gas or advanced renewable transport fuels or to store CO<sub>2</sub> underground, or capture CO<sub>2</sub> for use in greenhouse horticulture with your facility, you will generate revenue. We set the revenue level in the form of a corrective amount. The corrective amount is partly determined by the market value.

The value of the [guarantees of origin](#) (GOs) for the 'Wind' and 'Solar PV' categories forms part of the corrective amount in the SDE++ scheme. The Netherlands Environmental Assessment Agency (PBL) sets the average value of the GOs annually. If the technology concerned helps prevent the purchase, or yields proceeds from the sale, of CO<sub>2</sub> emission allowances under the European Emissions Trading System (EU-ETS), this as well is taken into account in the corrective amount.

The base amount and application amount are fixed for the entire duration of the subsidy, but the corrective amount is set annually.

The maximum SDE++ subsidy is equal to the base amount or application amount minus the corrective amount. For the 'Solar PV' categories, we make a distinction between electricity fed into the grid ('grid supply') and electricity you use yourself ('non-grid supply'). Therefore, there are 2 corrective amounts in the 'Solar PV' categories.

A lower limit is set for the corrective amount: the base energy price or the base greenhouse gas amount. The corrective amount may therefore not be lower than the base energy price or the base greenhouse gas amount. These amounts are based on two-thirds of the average expected revenue over the entire duration of the SDE++ subsidy. If the corrective amount is equal to the base energy price or base greenhouse gas amount, you will receive the maximum subsidy.

## Subsidy intensity

When considering SDE++ applications, we look at the subsidy requirement per tonne of CO<sub>2</sub> reduction. In 2021, the maximum [subsidy intensity](#) to which your SDE++ technology may be eligible for is € 300 per tonne of CO<sub>2</sub> reduction.

You may submit your application with an application amount of up to 4 decimal places. For ranking purposes, we will round the subsidy intensity down to 3 decimal places.

The subsidy intensity depends on the amount you apply for (application amount), the [long-term price](#) and the [emission factor](#).

Subsidies will be applied for, measured and granted per measured unit of electricity, heat, renewable gas, hydrogen, advanced renewable fuel or reduced CO<sub>2</sub>. These units need to be converted into subsidy intensities to enable projects to be ranked. The subsidy intensity will be calculated using one of the following formulas:

### Subsidy intensity, all categories except for CO<sub>2</sub> capture and storage (CCS) and CO<sub>2</sub> capture and use (CCU):

$$\text{Subsidy intensity [euro/tonne CO}_2\text{]} = \frac{(\text{application amount [euro/kWh]} - \text{long-term price [euro/kWh]})}{(\text{emission factor [kg CO}_2\text{/kWh]} / 1,000)}$$

### Subsidy intensity for CO<sub>2</sub> capture and storage (CCS) and CO<sub>2</sub> capture and use (CCU):

$$\text{Subsidy intensity [euro/tonne CO}_2\text{]} = \frac{(\text{application amount [euro/tonnes CO}_2\text{]} - \text{long-term price [euro/tonne CO}_2\text{]})}{(\text{emission factor [kg CO}_2\text{/tonne CO}_2\text{]} / 1,000)}$$

### **Phased opening and ranking**

The 2021 SDE++ scheme has 4 phases. During each phase, you may apply for a subsidy only up to a certain [subsidy intensity](#) per tonne of CO<sub>2</sub> emissions reduction. This is the phase limit. During subsequent phases, this amount will gradually increase. You may also submit projects with a lower subsidy requirement than the maximum set for the corresponding technology. This will improve your chance of obtaining a subsidy.

### **First come, first served basis**

We will process subsidy applications in the order in which we receive them. Applications received after 17:00 CET or on non-working days are considered to have been received on the next business day. In other words, each working day begins at 17:00 CET and runs until 17:00 CET the following business day. This also applies at the start of a new phase. Within each working day, the time of receipt of the subsidy application is irrelevant.

### **Reaching the budget limit**

If the budget limit is exceeded on a given day, we will rank the projects received on that day based on subsidy intensity. This means that projects with a lower subsidy intensity will get priority. If the budget limit is exceeded by projects with the same subsidy intensity, lots will be drawn for these projects.

Phase	Start and end date	Subsidy intensity phase limit (€/tonne CO <sub>2</sub> )
Phase 1	09:00 CEST, 5 October to 17:00 CET, 11 October	60
Phase 2	17:00 CET, 11 October to 17:00 CET, 25 October	80
Phase 3	17:00 CET, 25 October to 17:00 CET, 8 November	115
Phase 4	17:00 CET, 8 November to 17:00 CET, 11 November	300

### SDE++ contribution

To summarise: The amount of the SDE++ contribution depends on the application amount and changes in the revenue from the energy supplied or reduced CO<sub>2</sub>, up to a certain lower limit. The higher the revenue, the smaller the SDE++ contribution you receive. If you earn less revenue, you will receive a higher SDE++ contribution, up to a fixed lower limit.

### Subsidy grant decisions

The subsidy granted to you by the Netherlands Enterprise Agency in the decision is the maximum amount you will receive over the entire duration of the subsidy (12 or 15 years, depending on the technology). We determine this maximum amount based on the specified capacity and production. The production is capped based on a maximum number of [full-load hours](#) for each technology.

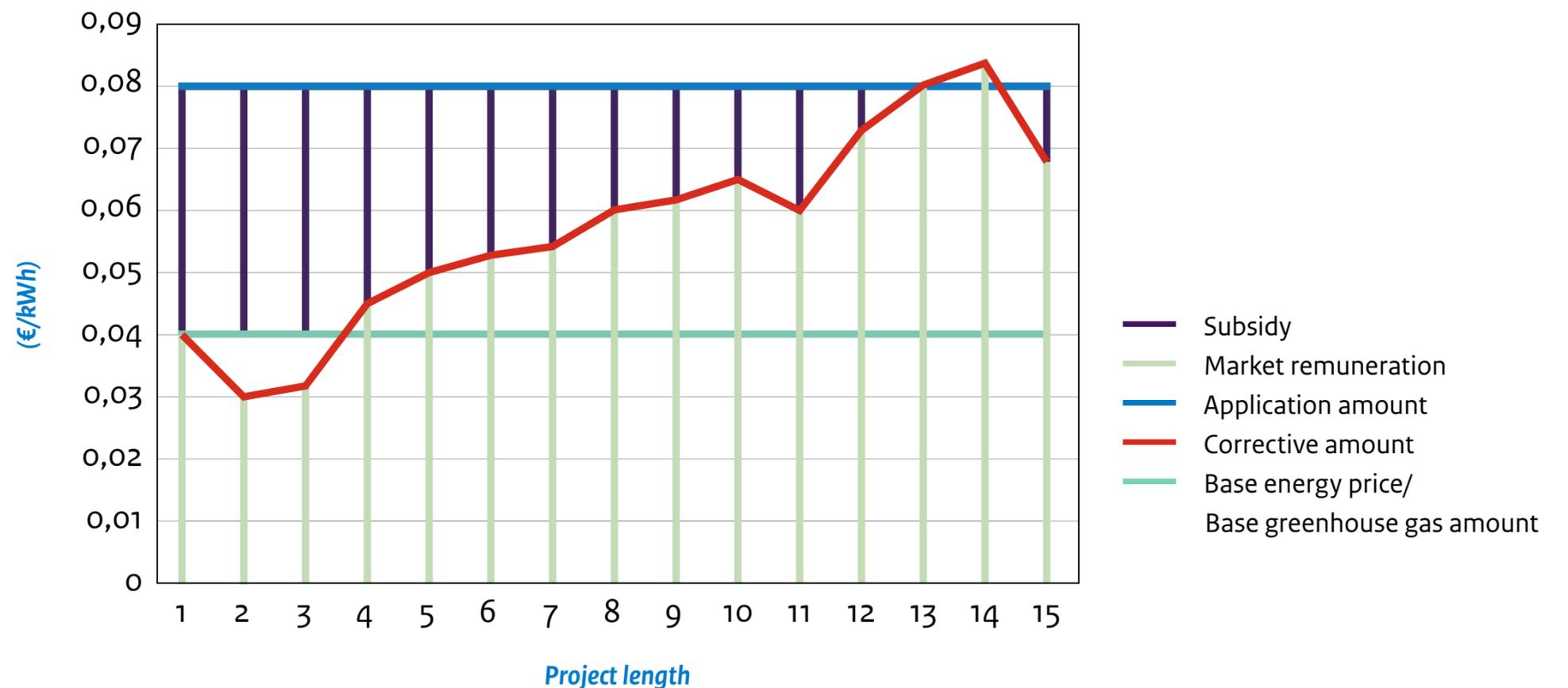
Every year, we re-calculate the actual subsidy amount you will be paid based on the amount of energy you have actually produced or the amount of CO<sub>2</sub> you have actually reduced. Revenue levels are also taken into account.

Maximum SDE++ contribution =  
(base amount or application amount – base energy price or base greenhouse gas amount) \* production or CO<sub>2</sub> reduction

### Measuring production

When you use the SDE++ scheme, you have to measure your production, or your CO<sub>2</sub> reduction in the case of CO<sub>2</sub> capture and storage or CO<sub>2</sub> capture and use. You can do so by installing a number of gross production meters in your production facility. Talk to your metering company about how to measure production.

Example of an SDE++ contribution



\* This example is applicable to all categories except CO<sub>2</sub> capture and storage (CCS) and CO<sub>2</sub> capture and use (CCU). For CCS and CCU, the unit on the vertical axis should be replaced by (€/tonne CO<sub>2</sub> reduction).

\*\* This example is applicable to categories with a term of 15 years. However, there are also categories with a term of 12 years.

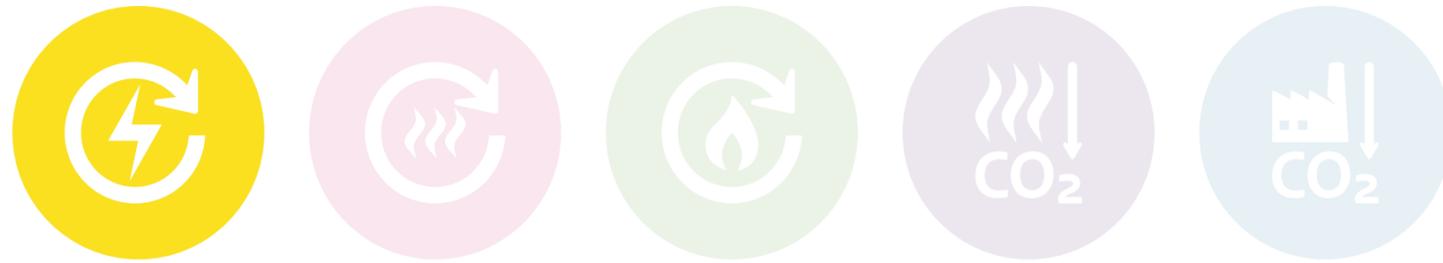
# SDE++ categories

<i>Main category</i>	<i>Subcategory</i>
 <b>Renewable electricity</b>	Osmosis Hydropower Wind Solar PV
 <b>Renewable heat (CHP)</b>	Biomass fermentation Biomass combustion Composting mushroom compost Geothermal (deep and ultra-deep) Solar thermal
 <b>Renewable gas</b>	Biomass fermentation Biomass gasification

<i>Main category</i>	<i>Subcategory</i>
 <b>Low-carbon heat</b>	Aquathermal Daylight greenhouses Solar PVT panels with a heat pump Electric boiler Geothermal (shallow) Use of waste heat Industrial heat pump
 <b>Low-carbon production</b>	CO <sub>2</sub> capture and storage (CCS) CO <sub>2</sub> capture and use (CCU) Advanced renewable fuels Electrolytic hydrogen production



# Renewable electricity



# Renewable electricity

In 2021, the 'Renewable electricity' SDE++ main category is divided into 'Solar PV', 'Wind', 'Hydropower' and 'Osmosis'.

## Guarantees of Origin

The value of the GOs for the 'Wind' and 'Solar PV' categories forms part of the corrective amount in the SDE++ scheme. The PBL sets the average value of GOs on an annual basis.

## Transmission capacity indication

If you are submitting an application for renewable electricity, you must include an indication of the grid operator's transmission capacity. This must demonstrate that sufficient transmission capacity is available for the location to which your application relates. The transmission capacity indication cannot be construed as a guarantee of transport capacity.

**Please note:** the transmission capacity indication must be given for the application round for which you are applying for a subsidy.

## Negative electricity prices

If the price of electricity is negative for a period of 6 consecutive hours or longer, you will not receive an SDE++ subsidy for the feed-in of renewable electricity. This does not apply to small-scale projects with a [rated output](#) per electricity grid connection of less than 500 kW. Nor does it apply to projects for which applications were submitted before 1 December 2015.

For wind energy projects, the lower limit is set at 3 MW per electricity grid connection. The [SDE++ website](#) has a list of dates on which the electricity prices were negative.

## Osmosis

If you produce renewable electricity by harnessing the difference in salt concentration between 2 bodies of water (osmosis), you can apply for a subsidy for this production facility.

### Permits

You will usually require 1 or more permits for an osmosis facility. These must already have been issued by the competent authority when you submit your subsidy application. The ['Required permits'](#) page details which permits may be required.

## Hydropower

Subsidies are available for 3 categories:

- New hydroelectric power stations with a drop of  $\geq 50$  cm\*;
- New hydroelectric power stations with a drop of  $\geq 50$  cm;
- Renovation of existing hydroelectric power stations with new turbines and a drop of  $\geq 50$  cm. All turbines for which you are applying for a subsidy must be newly installed in existing structures. The other components do not have to be new.

In all cases, this must involve energy derived from water that is not specially pumped upwards for the purpose of generating energy.

*\* Free flowing energy. Within this category, you can also apply for a subsidy for water turbines that use tidal energy with a drop of  $<50$  cm, for example.*

*\* Wave energy. Within this category, you can also apply for a subsidy for a production facility that converts energy from waves into renewable energy.*

### Permits

You will usually require 1 or more permits for a hydroelectric power station. These must already have been issued by the competent authority when you submit your subsidy application. The ['Required permits'](#) page details which permits may be required.

## Wind

You can apply for a subsidy for wind turbines for the categories ‘Onshore wind’, ‘Onshore wind with a height restriction’, ‘Wind on primary flood defences’ and ‘Wind on lakes’.

### Wind speeds

All municipalities in the Netherlands have been classified into 1 of the 6 wind speed categories. A different base amount has been calculated for each wind speed category. The wind speed categories are:

- $\geq 8.5$  m/s;
- $\geq 8$  and  $< 8.5$  m/s;
- $\geq 7.5$  and  $< 8.0$  m/s;
- $\geq 7.0$  and  $< 7.5$  m/s;
- $\geq 6.75$  and  $< 7.0$  m/s;
- $< 6.75$  m/s.

### Wind map

The map of ‘[Wind speeds for individual Dutch municipalities](#)’ shows the average wind speed for each Dutch municipality and is based on a wind map produced by the Royal Dutch Meteorological Institute (KNMI).

In 2021, the SDE++ scheme will apply the municipality classification as from 31 December 2019. You will find a list of municipalities in Annex 2 of the ‘Allocation Regulations for SDE categories’. A different base amount has been calculated for each wind speed category.

The wind map shows which wind speed category applies to your project location. When you submit your subsidy application through the online portal *eLoket*, select the municipality in which your project will be implemented.

The name of the municipality may be different from the place name of the location where you will implement the project. Owing to significant differences in wind speeds, the municipality of Rotterdam has been subdivided at district and neighbourhood level. Keep this in mind when selecting a municipality in the online portal *eLoket*.

We use the wind map for the following wind categories:

- Onshore wind;
- Onshore wind with a height restriction;
- Wind on flood defences.

### Large-scale grid connection

A new element of the SDE++ scheme in 2021 is that the ‘Wind’ category is only open for applications concerning wind turbines that are connected to the electricity grid via a large-scale energy connection. (This is a connection to the electricity grid with a total maximum transmission value of more than  $3 * 80$  A.)

If you are a producer with a small-scale connection, you might be eligible for:

- [a grant under the Subsidy Scheme for Cooperative Energy Generation](#) (SCE);
- [a Sustainable Energy Investment Grant](#) (ISDE).

### Onshore wind with a height restriction

The ‘Onshore wind with a height restriction’ category has been added to the SDE++ scheme. This is due to national laws and regulations related to the presence of an airport in the surrounding area, so the tip height of wind turbines in that area is limited to 150 metres. If you are applying for a subsidy

for wind turbines in an area subject to height restrictions, demonstrate this when you submit your application.

You can find more information about these height restrictions in Section 2.5.4 ‘Civilian airports and military airfields (CNS and aviation safety)’ of the PBL’s ‘[Height-restricted Onshore Wind](#)’ memorandum.

The ‘[Aviation Height Restrictions](#)’ viewer can be found on the ‘Building height restrictions’ page of the Netherlands Enterprise Agency’s website. For display areas with assessment or restriction levels for airports, the Defence and the Human Environment and Transport Inspectorate (ILT) layers in the viewer apply. A height restriction may apply due to the presence of an airport in the surrounding area, so the tip height of wind turbines in that area is legally limited to 150 metres. The viewer is only a guide, and you cannot use it as the only piece of supporting information showing that a height restriction exists when you submit your application.

### Wind on flood defences

In the ‘Wind on flood defences’ category, you can apply for a subsidy for wind turbines on a structure belonging to the Directorate-General for Public Works and Water Management. The wind turbines may also be in the protection zone of the flood defences. For a list of eligible flood defences, see Chapter 5 of Annex II of the ‘[Security of Primary Flood Defences Regulation 2017](#)’.

You may also apply for a subsidy for wind turbines in the protection zone of coastal flood defences. This relates to wind turbines on the waterside of flood defences bordering the North Sea, the Western Scheldt, the Eastern Scheldt, the

Wadden Sea, the Dollard, the Ems and the hard and soft Maasvlakte 2 seawalls.

Wind turbines placed on flood defences that do not fall into the 'Wind on flood defences' category fall into the 'Onshore wind' category. The 'SDE++ Wind on flood defences' map provides an overview of inland and coastal flood defences.

#### *Wind on lakes*

For the 'Wind on lakes' category, the foundation of the wind turbines must be in the water of a lake at least 1 square kilometre in size. The foundations must be completely under water. The centre of the foundations must be at least 25 metres from the water's edge. This ruling applies, for example, to the IJsselmeer lake and the lakes in the Dutch province of Zeeland.

#### *Replacement of wind turbines*

When replacing wind turbines, you can apply for a subsidy only if:

- Both the rated output and the target output of each of the replaced wind turbine must increase with at least 1 MW;
- At the time of replacement, the wind turbine to be replaced has been in use at the location for at least 15 years and was commissioned at least 13 years before the subsidy application.

#### *Wind report and Windviewer*

When applying for an SDE++ subsidy for wind energy over 100 kW, please attach a wind report as an annex to the [feasibility study](#). The wind report should include a wind energy yield calculation prepared by an organisation with expertise in the area of wind energy yield calculations. The average wind

speed used in the wind report should be calculated based on local wind data over a period of at least 10 consecutive years. That average wind speed may not exceed the average wind speed for the location concerned as derived from the [Windviewer](#). The Windviewer provides the average wind speed for every location in the Netherlands at every height between 20 and 260 metres.

For small wind turbines with an output of less than 100 kW, you do not need a wind report drawn by an expert. A simple energy yield calculation from your supplier will suffice. Include the result of that calculation in your application.

#### *Permits*

You will usually require 1 or more permits for the construction of a wind turbine. These must already have been issued by the competent authority when you submit your subsidy application. The '[Required permits](#)' page details which permits may be required.

#### **Solar PV**

You can apply for a subsidy for photovoltaic solar panels (solar PV). In order to be eligible for the subsidy the solar panel facility must have a peak output of  $\geq 15$  kWp and a connection to the grid with a total maximum transmission value of more than 3\*80 A (a large-scale energy connection).

For solar PV, the following 7 categories will be open for applications in the 2021 round of the SDE++ scheme:

- $\geq 15$  kWp and  $< 1$  MWp, buildings;
- $\geq 15$  kWp and  $< 1$  MWp, ground-mounted or floating on water;
- $\geq 1$  MWp, buildings;
- $\geq 1$  MWp, ground-mounted;

- $\geq 1$  MWp, ground, solar tracking;
- $\geq 1$  MWp, floating on water;
- $\geq 1$  MWp, floating on water, solar tracking.

#### *Implementation period*

The system must be completed within the following time frames:

- Solar PV  $< 1$  MWp: 2 years;
- Solar PV  $\geq 1$  MWp building-mounted systems: 3 years;
- Solar PV  $\geq 1$  MWp ground-mounted and floating systems: 4 years.

#### *Feasibility study with drawing*

If you are applying for an SDE++ subsidy for Solar PV, you must perform a [feasibility study](#). Always include a map or drawing showing the Solar PV facility requested within your feasibility study when submitting a subsidy application. If other facilities are or will be installed at the site in question, please clearly indicate this fact. The drawing must also show the orientation of the facility.

For the 'Solar PV with an output of less than 1 MW' categories, all you need to do for your feasibility study is to answer a number of supplementary questions about the feasibility of your project in eLoket and provide a map or drawing showing the solar PV facility requested.

#### *Permits*

In a number of situations, you will require 1 or more permits for the installation of solar panels. These must already have been issued by a competent authority when you submit your

subsidy application. The [‘Required permits’](#) page details which permits may be required.

#### *Large-scale energy connection*

The ‘Solar PV’ category applies solely to facilities connected to a large-scale energy connection. (This is a connection to the electricity grid with a total maximum transmission value of more than 3 \* 80 A). Facilities with a large-scale energy connection cannot use the offsetting scheme. It is also possible to connect your facility to the grid using multiple large-scale energy connections.

Furthermore, you can connect your production facility to the electricity grid using the large-scale energy connection of an adjacent plot, although your facility must of course be installed at the location for which the subsidy is granted. If you intend to construct a production facility at 2 adjacent sites, or if your site has multiple street numbers, describe the situation clearly in your subsidy application.

If you are a producer with a small-scale connection, you might be eligible for 1 or more of the following:

- [Subsidy Scheme for Cooperative Energy Generation](#) (SCE);
- [Sustainable Energy Investment Grant](#) (ISDE);
- [Energy-saving Investment Credit](#) (EIA);
- [Subsidy Scheme for the Construction and Maintenance of Sports Facilities](#) (BOSA).

#### *Grid supply and non-grid supply*

For the ‘Solar PV’ categories, there is a distinction between ‘grid supply’ and ‘non-grid supply’ (own use). Different base energy prices and corrective amounts apply to each type of supply. You will derive a greater financial benefit if you use the generated electricity internally, because you do not have to pay energy tax, the sustainable energy surcharge (ODE) and transmission costs. Accordingly, electricity generated for ‘own use’ is subject to a higher corrective amount. The procedure is as follows:

- On the eLoket form, indicate the amount of electricity produced that will be used for ‘non-grid supply’ (own use);
- We will base the subsidy granted on the base energy price for ‘grid supply’;
- Every autumn, we will set the advance payments based on the relative proportions of ‘grid supply’ and ‘non-grid supply’ over a recent 12-month period. To calculate the first advance payment, we will use the ‘grid supply’ and ‘non-grid supply’ percentages you have specified in the application form;
- Lastly, the advance payments may be adjusted. We will calculate these adjustments based on the measured values for ‘grid supply’ and ‘non-grid supply’ electricity as labelled by CertiQ for the calendar year concerned.

#### *Grid congestion*

If you are implementing a Solar PV project at a location where little or no feed-in is possible, please include an explanation with your application showing the technical adjustments you intend to make to accommodate this. If those technical adjustments mean that the output of the facility will be capped, temporarily or otherwise, please indicate when submitting your subsidy application what this will mean for the

financial feasibility of your project. This is because the financial return will be affected if the facility's production capacity is (temporarily) reduced. In this situation you still have to attach a transmission capacity indication from your grid operator to your subsidy application.

#### *Roof installation*

Before you submit your application, carry out an analysis of the roof on which you intend to install the system. This, in order to make sure that the system can be constructed quickly – within the set realisation period of 2 or 3 years. Calculate the available roof surface area, taking into account skylights and climate control systems on the roof.

Have an expert determine whether the load-bearing strength of the roof is sufficient for the system.

#### *Solar tracking systems*

With solar tracking systems, the panels automatically turn to follow the sun, enabling you to achieve higher energy production. Solar tracking systems have higher investment costs than standard systems, but they also have a higher number of [full-load hours](#) that qualify for the subsidy. For this reason, the base amounts and corrective amounts are the same as for standard systems. A [feasibility study](#) is required for solar tracking systems. An additional requirement has been included, which means you must also include an energy yield calculation. We will use this to determine the maximum number of full-load hours.

#### *Solar farm combining the use of fixed solar panels with solar tracking panels*

If you wish to submit a subsidy application for a solar farm where not all of the solar panels track the sun, you will have to

submit 2 separate applications: 1 for the panels that track the sun and 1 for those that do not. You will only have to prepare the solar energy yield calculation for the application for the solar-tracking part. It is not possible to change categories once you have submitted the subsidy application.

#### 2-sided solar panels (bifacial solar panels)

If you wish to use bifacial solar panels for your project, you may apply for a subsidy with a higher capacity (in kWp). In the Netherlands, the yield from this kind of panel is about 15% higher on an annual basis compared with a system using single-sided PV modules. Please enclose with your subsidy application an explanation showing how you worked out that capacity, if available, substantiated with a data sheet for the solar panel concerned.

#### Calculation example for solar PV

This example is based on a building-mounted Solar PV system with 40% grid supply and 60% non-grid supply, with 500 kWp output.	
<b>Category: Solar PV ≥15 kWp and &lt;1 MWp connection &gt;3 * 80 A, building-mounted</b>	
Maximum application amount in phase 1	0.0704 €/kWh
Maximum application amount in phase 2	0.0724 €/kWh
GO value solar PV grid supply	0.0040 €/kWh
2021 provisional corrective amount for grid supply*	$0.0272 + 0.0040 = 0.0312$ €/kWh
2021 provisional corrective amount for non-grid supply*	0.0706 €/kWh
<b>Provisional 2021 SDE++ subsidy for the maximum application amount in phase 1:</b>	
Grid supply	$7.04 - 3.12 = 3.92$ ct/kWh = € 39.20/MWh
Non-grid supply**	$7.04 - 7.06 = 0.00$ € ct/kWh = € 0.00/MWh
<b>Provisional 2021 SDE++ subsidy for the maximum application amount in phase 2:</b>	
Grid supply	$7.24 - 3.12 = 4.12$ €ct/kWh = € 41.20/MWh
Non-grid supply	$7.24 - 7.06 = 0.18$ €ct/kWh = € 1.80/MWh
Maximum number of eligible full-load hours	900 full-load hours
Total rated output	0.5 MWp
Maximum annual production eligible for a subsidy for a system with a 500k Wp output:	$0.5 * 900 = 450$ MWh
<b>Provisional 2021 SDE++ subsidy for the maximum application amount in phase 1:</b>	
Grid supply: $(40\% * 450) * € 39.20 =$	€ 7,056
Non-grid supply: $(60\% * 450) * € 0 =$	€ 0
<b>Total</b>	<b>€ 7,056</b>
<b>Provisional 2021 SDE++ subsidy for the maximum application amount in phase 2:</b>	
Grid supply: $(40\% * 450) * € 41.20 =$	€ 7,416
Non-grid supply: $(60\% * 450) * € 1.80 =$	€ 486
<b>Total</b>	<b>€ 7,902</b>

\* The GO value will also be taken into account when calculating the provisional corrective amount for this category.

\*\* If you submit an application for this category in phase 1 and the final corrective amount turns out to be higher than the maximum application amount in phase 1, you will not receive a subsidy for the part of the electricity generated that you do not supply to the grid for 2021. The SDE++ subsidy cannot be a negative amount. This means that no payment will be due from you should this situation arise.

## Phasing and rates for renewable electricity

Category	Maximum phase amount/base amount				Base energy price		Provisional corrective amount for 2021		Maximum full-load hours	Commissioning period	Subsidy term
	Phase 1 €/kWh	Phase 2 €/kWh	Phase 3 €/kWh	Phase 4 €/kWh	For Solar PV grid supply €/kWh	Solar PV non-grid supply €/kWh	For Solar PV grid supply and wind including the value of GOs €/kWh	Solar PV non-grid supply €/kWh	hours/year	years	years
<b>Water</b>											
New hydropower, drop of < 50 cm (including energy from free-flowing water and wave energy)	0.0579	0.0622	0.0697	0.1097	0.0299		0.0312		3700	4	15
New hydropower, drop of ≥ 50 cm	0.0579	0.0622	0.0697	0.1097	0.0299		0.0312		5700	4	15
Hydropower renovation with new turbine, drop of ≥ 50 cm	0.0579	0.0622	0.0697	0.0975	0.0299		0.0312		2600	4	15
Osmosis	0.0579	0.0622	0.0697	0.1097	0.0299		0.0312		8000	4	15
<b>Wind</b>											
Onshore wind, ≥ 8.5 m/s	0.0390	0.0390	0.0390	0.0390	0.0206		0.0324		P50	4	15
Onshore wind, ≥ 8.0 and < 8.5 m/s	0.0406	0.0406	0.0406	0.0406	0.0206		0.0324		P50	4	15
Onshore wind, ≥ 7.5 and < 8.0 m/s	0.0435	0.0435	0.0435	0.0435	0.0206		0.0324		P50	4	15
Onshore wind, ≥ 7.0 and < 7.5 m/s	0.0439	0.0475	0.0475	0.0475	0.0206		0.0324		P50	4	15
Onshore wind, ≥ 6.75 and < 7.0 m/s	0.0439	0.0482	0.0501	0.0501	0.0206		0.0324		P50	4	15
Onshore wind, < 6.75 m/s	0.0439	0.0482	0.0543	0.0543	0.0206		0.0324		P50	4	15
Onshore wind, height-restricted, ≥ 8.5 m/s	0.0439	0.0444	0.0444	0.0444	0.0206		0.0324		P50	4	15
Onshore wind, height-restricted, ≥ 8.0 and < 8.5 m/s	0.0439	0.0467	0.0467	0.0467	0.0206		0.0324		P50	4	15
Onshore wind, height-restricted, ≥ 7.5 and < 8.0 m/s	0.0439	0.0482	0.0505	0.0505	0.0206		0.0324		P50	4	15
Onshore wind, height-restricted, ≥ 7.0 and < 7.5 m/s	0.0439	0.0482	0.0550	0.0550	0.0206		0.0324		P50	4	15
Onshore wind, height-restricted, ≥ 6.75 and < 7.0 m/s	0.0439	0.0482	0.0557	0.0583	0.0206		0.0324		P50	4	15
Onshore wind, height-restricted, < 6.75 m/s	0.0439	0.0482	0.0557	0.0627	0.0206		0.0324		P50	4	15
Wind on flood defences, ≥ 8.5 m/s	0.0424	0.0424	0.0424	0.0424	0.0206		0.0324		P50	4	15
Wind on flood defences, ≥ 8.0 and < 8.5 m/s	0.0439	0.0442	0.0442	0.0442	0.0206		0.0324		P50	4	15
Wind on flood defences, ≥ 7.5 and < 8.0 m/s	0.0439	0.0472	0.0472	0.0472	0.0206		0.0324		P50	4	15
Wind on flood defences, ≥ 7.0 and < 7.5 m/s	0.0439	0.0482	0.0514	0.0514	0.0206		0.0324		P50	4	15

**Phasing and rates for renewable electricity**

Category	Maximum phase amount/base amount				Base energy price		Provisional corrective amount for 2021		Maximum full-load hours	Commissioning period	Subsidy term
	Phase 1 €/kWh	Phase 2 €/kWh	Phase 3 €/kWh	Phase 4 €/kWh	For Solar PV grid supply €/kWh	Solar PV non-grid supply €/kWh	For Solar PV grid supply and wind including the value of GOs €/kWh	Solar PV non-grid supply €/kWh	hours/year	years	years
Wind on flood defences, ≥ 6.75 and < 7.0 m/s	0.0439	0.0482	0.0548	0.0548	0.0206		0.0324		P50	4	15
Wind on flood defences, < 6.75 m/s	0.0439	0.0482	0.0557	0.0592	0.0206		0.0324		P50	4	15
Wind on lakes ≥ 1 km <sup>2</sup>	0.0439	0.0482	0.0557	0.0590	0.0206		0.0324		P50	4	15
<b>Solar</b>											
Solar PV ≥ 15 kWp and < 1 MWp connection > 3 * 80 A, building-mounted	0.0703	0.0724	0.0724	0.0724	0.0238	0.0672	0.0312	0.0706	900	2	15
Solar PV ≥ 15 kWp and < 1 MWp connection > 3 * 80 A, ground-mounted or floating on water	0.0660	0.0685	0.0685	0.0685	0.0238	0.0672	0.0312	0.0706	950	2	15
Solar PV ≥ 1 MWp, building-mounted	0.0588	0.0631	0.0655	0.0655	0.0238	0.0578	0.0312	0.0612	900	3	15
Solar PV ≥ 1 MWp, ground-mounted	0.0503	0.0546	0.0590	0.0590	0.0238	0.0578	0.0312	0.0612	950	4	15
Solar PV ≥ 1 MWp, floating on water	0.0503	0.0546	0.0621	0.0693	0.0238	0.0578	0.0312	0.0612	950	4	15
Solar PV ≥ 1 MWp, solar tracking on land	0.0503	0.0546	0.0590	0.0590	0.0238	0.0578	0.0312	0.0612	1045	4	15
Solar PV ≥ 1 MWp, solar tracking on water	0.0503	0.0546	0.0621	0.0693	0.0238	0.0578	0.0312	0.0612	1190	4	15

# Renewable heat



# Renewable heat

The main category ‘Renewable heat’ is divided into the following subcategories: ‘Biomass (fermentation and combustion)’, ‘Composting mushroom compost’, ‘Geothermal (deep and ultra-deep)’ and ‘Solar thermal’.

## **Transmission capacity indication for combined heat and power (CHP) at a sewage treatment plant and CHP from biomass fermentation**

If you are submitting an application in a ‘CHP from biomass fermentation’ category or in a CHP at a sewage treatment plant category, you must include an indication of the grid operator's transmission capacity for the feed-in of electricity. This must demonstrate that sufficient transmission capacity is available at the location to which your application relates. The transmission capacity indication must be given for the application round in which you are applying for a subsidy.

## **Negative electricity prices for CHP from biomass fermentation and sewage treatment plants**

If the price of electricity is negative for a period of 6 consecutive hours or longer, you will not receive an SDE++ subsidy for the feed-in of renewable electricity. This does not apply to CHP projects with a [rated output](#) per connection to the electricity grid of less than 500 kW. Nor does it apply to projects for which you submitted applications before 1 December 2015.

The [SDE++ website](#) has a list of dates on which the electricity prices were negative.

## **Emission Trading System (ETS)**

A provision relating to the ETS has been included in the SDE++ scheme. If your facility benefits from the ETS, we will include that ETS benefit into the corrective amount. This situation may change during the production period. The SDE++ scheme allows this correction to be adjusted during the production period.

## **Biomass fermentation**

The dividing lines between co-fermentation, all-purpose fermentation and fermentation of livestock manure only (manure mono-fermentation) have become blurred. This was made clear by various analyses performed by the PBL in regard to the increase in manure use. Accordingly, since 2019, there has been no separate co-fermentation category in the SDE+ or SDE++ schemes. Applications for co-fermentation may be submitted under the ‘All-purpose fermentation’ category.

## **All-purpose fermentation**

In the ‘All-purpose fermentation’ subcategory, you can submit a subsidy application for almost any type of biomass. This includes manure co-fermentation for the production of heat, heat and electricity (CHP) or renewable gas. This is subject to the condition that the biogas yield from the incoming biomass stream must be at least 25 Nm<sup>3</sup> natural gas equivalent per tonne. For combined heat and power (CHP), the rated output is determined by adding together the electrical and thermal outputs.

## **Manure mono-fermentation**

Manure mono-fermentation is used for the production of heat, electricity and heat (CHP) or renewable gas. The input must consist exclusively of livestock manure, with no co-products. There are 2 output categories for manure mono-fermentation: ‘≤ 400 kW’ and ‘> 400 kW’. For combined heat and power (CHP), the rated output is determined by adding together the electrical and thermal outputs.

## **All-purpose fermentation and Manure mono-fermentation service life extension**

The ‘All-purpose fermentation service life extension’ and ‘Manure mono-fermentation service life extension’ categories are for SDE projects for which the subsidy period is nearing its end. Operating expenses and renovation expenses mean that these projects will usually still have an unprofitable component. You may submit an application if your current subsidy grant decision expires within three years. This may give your facility some certainty regarding the future in advance.

## **Improved sludge fermentation in sewage treatment plants (STP)**

The SDE++ scheme supports improved sludge fermentation for the production of renewable heat or electricity in sewage treatment plants. This subcategory does not relate to a specific technology, which means there are multiple possibilities for the application of innovative technologies. Moreover, sewage treatment plants vary widely in terms of size and type of facility. For an SDE++ application, you need to show that you can increase the existing biogas production by at least 25%.

The facility components responsible for the increased biogas production must be new.

### **Biomass combustion**

The end products of renewable heat and renewable electricity are subsidised. You can apply for an SDE++ subsidy in 1 of 8 ‘Biomass combustion’ categories. The ‘Solid or liquid biomass boilers with an output of between 0.5 and 5 MWth’, which, on a one-off basis, was not included in the autumn of 2020, is once again open for applications.

### **Woody biomass for high-value heat only**

A new element of the 2021 SDE++ scheme is that no subsidy will be granted if woody biomass (e.g. wood cuttings and chips) is used for low-value heat. However, subsidies will be granted if woody biomass is used for high-value heat of > 100 °C.

For the production of heat or heat and electricity from biomass, the following categories are open for applications in the 2021 round of the SDE++ scheme:

- Solid or liquid biomass boilers with a thermal output of between 0.5 and 5 MWth;
- Liquid biomass boilers with an output of  $\geq 0.5$  MWth and  $\leq 100$  MWe;
- Large solid or liquid biomass boilers with a thermal output of  $\geq 5$  MWth to which the [graduated scale](#) applies;
- B-grade wood with an output of  $\geq 5$  MWth;
- Service life extension for solid or liquid biomass boilers with a minimum output of 5 MWth that have previously received an SDE subsidy;
- Steam boilers burning sustainable wood pellets with a minimum output of  $\geq 5$  MWth;

- Burners using sustainable wood pellets for industrial applications, with an output of  $\geq 5$  MWth (existing components may be used for this category). An upper limit of 100 MW electrical output applies here;
- Large boilers burning sustainable wood pellets for the built environment with an output of  $\geq 10$  MWth.

### *Heat or CHP*

For all 8 categories, generating both heat and electricity is permitted. The base amount and corrective amount are calculated on the basis of supplying heat. If you wish to produce electricity, you may use an existing steam turbine. The regulation on [guarantees of origin](#) and certificates of origin states that heat that is used to generate electricity cannot be considered as ‘[usefully employed heat](#)’. The correct subsidy amount is calculated by taking into account both electricity and other ‘usefully employed heat’. Accordingly, for these categories, we no longer set requirements around the electricity yield of the facility.

### *Liquid biomass boilers $\geq 0.5$ MWth*

For the ‘Liquid biomass boilers  $\geq 0.5$  MWth’ category, you can submit a subsidy application for a production facility for which you have previously received an SDE+ subsidy. It turned out that there are facilities that, owing to changing circumstances, can now operate for more [full-load hours](#) than was previously anticipated. The base amount for this type of facility does not take account the cost price of a boiler to avoid the risk of over-incentivisation. In addition, in every production year, you must fully use the previous grant before you receive any subsidy money under the later grant. You must demonstrate the sustainability of the liquid biomass every year in a report.

### *Facilities operating on sustainable wood pellets*

In the ‘Facilities operating on sustainable wood pellets’ categories, you do not have to use pellets made from fresh wood only. You can also use up to 15% A-grade wood pellets and 25% waste flows from biorefining. B-grade wood (demolition wood) is not permitted. The subsidy term is 12 years. To be entitled to an SDE++ subsidy, you must demonstrate the sustainability of the biomass used every year.

### *Service life extension*

A ‘Service life extension’ category has been included in 2021 for facilities in the categories for the combustion of biomass (waste flows) for the generation of electricity and heat. The ‘Service life extension’ category concerns SDE projects for which the subsidy period is nearing its end. Operating expenses mean that these projects will usually have an outstanding operating shortfall. That is why a service life extension category has been opened for such facilities for projects with an SDE grant decision where the grant will expire within 3 years. The lower limit has been set at 5 MWth for this category.

### *Fuel criteria*

B-grade wood is excluded for most boilers. And thus, when calculating the base amount for these facilities, we take into account the higher price you have to pay for clean wood.

Conversely, for ‘B-grade wood boilers’, the calculation of the base amount is based on the lower price paid for B-grade wood. This means that the base amount for these boilers is lower.

You can also burn other types of biomass in a ‘B-grade wood boiler’. If you have applied in a category specifically intended for boilers using sustainable wood pellets as fuel, you may

generate up to 15% of the energy production using A-grade wood pellets and up to 25% using waste flows from biomass refining. In the SDE++ scheme, 'biorefining' is considered to be a process in which the primary product replaces a fossil raw material. For this reason, lignin produced by the paper industry, for example, does not meet the criteria, but lignin released in the production of sugar from wood does. If the sugar is used to make bioplastics, the lignin is considered to be a waste flow from biorefining.

If you are using 1 of the following technologies: 'Solid or liquid biomass boilers', 'Wood pellet steam boilers', 'B-grade wood boilers', 'Service life extension for solid or liquid biomass boilers' or 'Wood pellet boilers for district heating', at least 95% of the [energy value](#) of the fuel used must be biogenic. This excludes the possibility of boilers being used for the combustion of waste or selected streams of waste or the co-firing of natural gas.

Liquid biomass may also be used in all biomass combustion facilities, but the sustainability of the liquid biomass must be demonstrated.

### Sustainability criteria for biomass

The biomass you use must meet sustainability criteria. The criteria apply to solid biomass used in wood pellet facilities differ from those applicable to other solid, liquid or gaseous biomass.

#### Solid biomass used in wood pellet facilities

For solid biomass used in wood pellet facilities, sustainability criteria apply to the following SDE categories:

- Wood pellet steam boilers  $\geq 5$  MW;
- Wood pellet burner for industrial applications  $\geq 5$  MWth and  $\leq 100$  MWe;
- Wood pellet boilers for  $\geq 10$  MWth for the built environment.

The sustainability criteria apply to all types of biomass, including woody biomass, waste from the agricultural sector and biomass from biorefining. The certification, verification and enforcement of the sustainability criteria for solid biomass are embedded in the Environmental Management Act (*Wet Milieubeheer*). The Order in Council under the Environmental Management Act took effect on 1 January 2019. The producer must commission what is known as a conformity assessment body to draw up the annual declaration of conformity. The producer uses this to demonstrate that the sustainability criteria are met throughout the entire year. More information may be found on the [SDE++ website](#).

#### Other solid, liquid and gaseous biomass

The sustainability criteria and emission reduction criteria for these other solid, liquid and gaseous biomasses are written in the Renewable Energy Directive (RED II). This includes

biomasses in facilities with larger outputs than the limits set out below. Every year, you must demonstrate the sustainability of the biomasses which must satisfy the RED II requirements in a report – an annual declaration of conformity (CJV). The CJV must be signed by a conformity assessment body (CBI). Currently, the Netherlands Enterprise Agency is developing a verification protocol to demonstrate sustainability for solid, liquid and gaseous biomasses that must satisfy the RED II requirements. On behalf of the Minister, the Netherlands Enterprise Agency will approve the conformity assessment bodies permitted to use this protocol. The new protocol and a list of approved conformity assessment bodies will be published on the [SDE++ website](#).

You may use certificates of sustainability schemes approved by the European Commission for RED II to demonstrate the sustainability of biomass. The European Commission has published the approval of sustainability schemes for RED II.

SDE++ categories, other than wood pellet facilities	Definition of used capacity	RED II criteria apply where the input capacity is
SDE++ categories involving solid biomass for the production of heat and/or electricity	boiler's nominal input capacity	$\geq 20$ MW
SDE++ categories involving liquid biomass for the production of heat and/or electricity	boiler's nominal input capacity	no lower limit
SDE++ categories for the production of biogas for the generation of heat and/or electricity	boiler's nominal input capacity	$\geq 2$ MW
SDE++ categories for the production of renewable gas for feed-in into the gas network	nominal capacity of the gas upgrading facility	$\geq 20$ MW

### Emission requirements

Ahead of the introduction of new emission requirements for the combustion of woody biomass, applicants will have to demonstrate convincingly through information in their feasibility studies that their facilities can satisfy those requirements, which are expected to be tightened up. Those requirements are included in the scheme as a subsidy condition. The emission requirements for each capacity category are set out in the following table.

Emission requirements	Capacity category		
	< 1 MW <sub>th</sub>	≥ 1 en < 5 MW <sub>th</sub>	≥ 5 MW <sub>th</sub>
Substance [mg/Nm <sup>3</sup> ]	< 15	< 5	< 5
NO <sub>x</sub> [mg / Nm <sup>3</sup> ]	< 275	< 145	< 100
SO <sub>2</sub> [mg / Nm <sup>3</sup> ]	< 60	< 60	< 60
NH <sub>3</sub> [mg / Nm <sup>3</sup> ]	N/A	< 5 of 10*	< 5

\* The requirement for selective catalytic reduction is 5 mg/Nm<sup>3</sup>, and for selective non-catalytic reduction 10 mg/Nm<sup>3</sup>.

### Composting mushroom compost

Composting mushroom compost releases a large amount of low-value heat. This low-value heat can be used to heat buildings or horticultural greenhouses. In this category, you may only use mushroom compost, since it has not been established that composting of other waste flows also has an unprofitable component. No sustainability criteria have been set for mushroom compost, because it is assumed that facilities will never exceed the output threshold of 20 MW.

#### Permits

You will usually need 1 or more permits for a biomass facility. These must already have been issued by a competent authority when you submit your subsidy application. The '[Required permits](#)' page details which permits you may require.

### Solar thermal

You can submit an application in the 2021 round of the SDE++ scheme under the 'Solar thermal energy' category. This category applies to facilities exclusively using 'covered' solar collectors. They must have a total thermal output of ≥ 140 kW. Indicate the aperture area in your subsidy application. There are 2 output classes for solar thermal. Since larger systems are more cost efficient, a lower base amount is calculated for this category. The base energy price and corrective amount also differ for small and large facilities.

#### Categories

- ≥ 140 kWth and < 1 MWth;
- ≥ 1 MWth.

Smaller systems may be entitled to the [Sustainable Energy Investment Grant](#) (ISDE).

The thermal output of the facility in kW is equal to the total aperture area in square metres multiplied by a factor of 0.7. For a facility to be eligible for a subsidy, the light-absorbing surface must form an integrated whole with the translucent layer. The translucent layer provides insulation, such as a glass sheet or tube. The greenhouse glazing is a translucent layer, and PVT also has a translucent layer, but neither of these forms an integrated whole with the light-absorbing surface. For this reason, neither is eligible for this category. However, if you have PVT panels, you could apply for a subsidy for PVT systems within the 'PVT panels with a heat pump' category. This category is being made available in the SDE++ scheme for the first time in 2021. It is explained in the section covering [low-carbon heat](#).

#### Implementation period

The implementation period for solar thermal is 3 years.

#### Permits

In a number of situations, you will require 1 or more permits for the installation of solar collectors. These must already have been issued by a competent authority when you submit your subsidy application. The '[Required permits](#)' page details which permits may be required.

## Geothermal

Geothermal energy (or geothermal heat) is eligible for an SDE++ subsidy. We make a distinction between geothermal energy used for the production of renewable heat and geothermal energy used for the production of low-carbon heat.

Shallow geothermal heat with a heat pump as a component of the production facility falls into the category of low-carbon heat. Renewable heat and low-carbon heat include a number of subcategories:

### *Geothermal (deep and ultra-deep)*

- Geothermal with a minimum depth of 1,500 metres and an output of up to 20 MW;
- Geothermal with a minimum depth of 1,500 metres and an output of at least 20 MW;
- Geothermal with a minimum depth of 4,000 metres;
- Geothermal with a minimum depth of 1,500 metres and an output of up to 20 MW, where existing oil or gas wells are used for 1 or both wells in the doublet;
- Geothermal with a minimum depth of 1,500 metres and an output of at least 20 MW, where existing oil or gas wells are used for 1 or both wells in the doublet;
- Geothermal involving expansion of a production facility with at least 1 additional well, with a minimum depth of 1,500 metres;
- Geothermal with a minimum depth of 1,500 metres, where the heat is used for the built environment.

### *Shallow geothermal (low-carbon heat)*

- Geothermal with a minimum depth of 500 metres and a maximum depth of 1,500 metres, where the heat is upgraded using a heat pump and is used for the built environment with 3,500 full-load hours;
- Geothermal with a minimum depth of 500 metres and a maximum depth of 1,500 metres, where the heat is upgraded using a heat pump with 6,000 full-load hours.

For these 2 categories, the compression heat pump must have a COP value of at least 3.0 and a rated thermal output of at least 500 kWth.

### *Geological report*

A geological survey is required for geothermal energy projects. Please attach the geological report to your subsidy application. The TNO report '[Specifications for geological surveys for geothermal projects – SDE+ and RNES reporting requirements](#)' sets out the minimum requirements that must be met by the geological survey underpinning your SDE++ subsidy application. You can find more information on the [SDE++ website](#).

### *DoubletCalc calculation*

TNO can facilitate the geological survey. TNO has made the software package and DoubletCalc user guide available on the [Netherlands oil and gas portal \(NLOG\)](#). You can use DoubletCalc to calculate the P50 output. The user guide explains the method used to calculate the P50 output.

For the SDE++ scheme, the rated output for geothermal heat must be determined with a probability of at least 50%.

### *Permits*

Generally, 1 or more permits are required for a geothermal facility. These must already have been issued by the competent authority when you submit your subsidy application. The '[Required permits](#)' page details which permits may be required.

## Phasing and rates for renewable heat and CHP

Category	Maximum phase amount/base amount				Base energy price €/kWh	Provisional corrective amount for 202		Maximum full-load hours hours/year	Commissioning period years	Subsidy term years
	Phase 1 €/kWh	Phase 2 €/kWh	Phase 3 €/kWh	Phase 4 €/kWh		ETS facilities (incl. ETS correction) €/kWh	Non-ETS facility €/kWh			
<b>Biomass cogeneration of electricity and heat</b>										
All-purpose fermentation, cogeneration	0.0508	0.0552	0.0629	0.0696	0.0260	0.0302	0.0274	7622	4	12
All-purpose fermentation, service life extension (renovation), cogeneration	0.0508	0.0552	0.0589	0.0589	0.0260	0.0302	0.0274	7622	4	12
Manure mono-fermentation, cogeneration ≤ 400 kW	0.0833	0.0908	0.1039	0.1310	0.0492	0.0533	0.0506	6374	4	12
Manure mono-fermentation, service life extension (renovation), cogeneration ≤ 400 kW	0.0833	0.0908	0.0959	0.0959	0.0492	0.0533	0.0506	6374	4	12
Manure mono-fermentation, cogeneration > 400 kW	0.0602	0.0677	0.0789	0.0789	0.0261	0.0302	0.0275	7353	4	12
Sewage treatment plant, improved sludge fermentation, cogeneration	0.0545	0.0589	0.0666	0.0932	0.0290	0.0324	0.0303	5729	4	12
<b>Biomass heat (or cogeneration of electricity and heat)</b>										
Liquid biomass boilers ≥ 0.5 MWth and < 100 MWe	0.0443	0.0488	0.0567	0.0665	0.0223	0.0292	0.0238	7000	4	12
Small solid or liquid biomass boilers ≥ 0.5 MWth and < 5 MWth	0.0443	0.0488	0.0567	0.0586	0.0223	0.0292	0.0238	3000	4	12
Large solid or liquid biomass boilers ≥ 5 MWth (4500 hours)	0.0339	0.0384	0.0463	0.0508	0.0135	0.0201	0.0147	4500	4	12
Large solid or liquid biomass boilers ≥ 5 MWth (5000 hours)	0.0339	0.0384	0.0463	0.0499	0.0135	0.0201	0.0147	5000	4	12
Large solid or liquid biomass boilers ≥ 5 MWth (5500 hours)	0.0339	0.0384	0.0463	0.0491	0.0135	0.0201	0.0147	5500	4	12
Large solid or liquid biomass boilers ≥ 5 MWth (6000 hours)	0.0339	0.0384	0.0463	0.0484	0.0135	0.0201	0.0147	6000	4	12
Large solid or liquid biomass boilers ≥ 5 MWth (6500 hours)	0.0339	0.0384	0.0463	0.0478	0.0135	0.0201	0.0147	6500	4	12
Large solid or liquid biomass boilers ≥ 5 MWth (7000 hours)	0.0339	0.0384	0.0463	0.0473	0.0135	0.0201	0.0147	7000	4	12
Large solid or liquid biomass boilers ≥ 5 MWth (7500 hours)	0.0339	0.0384	0.0463	0.0469	0.0135	0.0201	0.0147	7500	4	12
Large solid or liquid biomass boilers ≥ 5 MWth (8000 hours)	0.0339	0.0384	0.0463	0.0465	0.0135	0.0201	0.0147	8000	4	12
Large solid or liquid biomass boilers ≥ 5 MWth (8500 hours)	0.0339	0.0384	0.0462	0.0462	0.0135	0.0201	0.0147	8500	4	12
B-grade wood boilers ≥ 5 MWth	0.0277	0.0277	0.0277	0.0277	0.0135	0.0201	0.0147	7500	4	12
Wood pellet boilers for district heating ≥ 10 MWth	0.0339	0.0384	0.0463	0.0687	0.0135	0.0201	0.0147	6000	4	12

## Phasing and rates for renewable heat and CHP

Category	Maximum phase amount/base amount				Base energy price €/kWh	Provisional corrective amount for 202		Maximum full-load hours hours/year	Commissioning period years	Subsidy term years
	Phase 1 €/kWh	Phase 2 €/kWh	Phase 3 €/kWh	Phase 4 €/kWh		ETS facilities (incl. ETS correction) €/kWh	Non-ETS facility €/kWh			
Wood pellet steam boilers ≥ 5 MWth	0.0339	0.0384	0.0463	0.0664	0.0135	0.0201	0.0147	8500	4	12
Direct use of wood pellets for industrial applications ≥ 0.5 MWth and < 100 MWe	0.0412	0.0457	0.0519	0.0519	0.0201	0.0268	0.0214	3000	4	12
Solid or liquid biomass boilers ≥ 5 MWth, service life extension	0.0339	0.0352	0.0352	0.0352	0.0135	0.0201	0.0147	8000	4	12
<b>Geothermal heat</b>										
Deep geothermal < 20 MWth, base load (6000 full-load hours)	0.0333	0.0376	0.0452	0.0518	0.0135	0.0201	0.0147	6000	4	15
Deep geothermal ≥ 20 MWth, base load (6000 full-load hours)	0.0332	0.0375	0.0451	0.0455	0.0135	0.0201	0.0147	6000	4	15
Deep geothermal, conversion of existing oil and/or gas wells < 20 MWth, (6000 full-load hours)	0.0333	0.0376	0.0452	0.0518	0.0135	0.0201	0.0147	6000	4	15
Deep geothermal, conversion of existing oil and/or gas wells ≥ 20 MWth (6000 full-load hours)	0.0332	0.0375	0.0451	0.0455	0.0135	0.0201	0.0147	6000	4	15
Deep geothermal, heating for the built environment (3500 full-load hours)	0.0329	0.0371	0.0445	0.0833	0.0135	0.0201	0.0147	3500	4	15
Deep geothermal, expansion of production facility by at least 1 extra well (6000 full-load hours)	0.0331	0.0331	0.0331	0.0331	0.0135	0.0201	0.0147	6000	4	15
Ultra-deep geothermal (7000 full-load hours)	0.0333	0.0376	0.0451	0.0694	0.0135	0.0201	0.0147	7000	4	15
<b>Solar heat</b>										
Solar thermal ≥ 140 kW and < 1 MWth	0.0495	0.0540	0.0619	0.0938	0.0275	0.0344	0.0290	600	3	15
Solar thermal ≥ 1 MWth	0.0443	0.0488	0.0567	0.0800	0.0223	0.0292	0.0238	600	3	15

# Renewable gas



# Renewable gas

*In 2021, the SDE++ scheme will support the production of renewable gas from biomass. This is subject to the condition that the gas produced must meet the quality requirements of the gas network operator. In addition, you must actually feed the gas into a gas network.*

## **Biomass fermentation**

The dividing lines between co-fermentation, all-purpose fermentation and fermentation of livestock manure only (manure mono-fermentation) have become blurred. This was made clear by various analyses performed by the PBL in regard to the increase in manure use. Accordingly, since 2019, there has been no separate co-fermentation category in the SDE+ or SDE++ schemes. Applications for co-fermentation may be submitted under the 'All-purpose fermentation' category.

### *All-purpose fermentation*

You may submit a subsidy application in the 'All-purpose fermentation' category for nearly all types of biomass, including co-fermentation of manure. This is subject to the condition that the biogas yield from the incoming biomass stream must be at least 25 Nm<sup>3</sup> natural gas equivalent per tonne.

### *Manure mono-fermentation*

Manure mono-fermentation is used to produce renewable gas. The input must consist exclusively of livestock manure, with no co-products. There are 2 output categories for manure mono-fermentation: '≤ 400 kW' and '> 400 kW'.

### *All-purpose fermentation and Manure mono-fermentation service life extension*

The 'All-purpose fermentation service life extension' and 'Manure mono-fermentation service life extension' categories are for SDE projects for which the subsidy period is nearing its end. Operating expenses and renovation expenses mean that these projects will usually still have an unprofitable component. Based on market interest, the PBL has issued an opinion on the conversion of a CHP plant to green gas. This kind of upgrading system would require a substantial investment. Accordingly, this category in the SDE++ scheme is only open to the conversion of CHP plants to green gas. You may submit an application if your current subsidy grant decision expires within 3 years. This may give your facility some certainty regarding the future in advance.

### *Sewage treatment plant (STP)*

The SDE++ scheme supports improved sludge fermentation for the production of renewable heat or electricity and heat (CHP) or renewable gas in sewage treatment plants. This subcategory does not relate to a specific technology, which means there are multiple possibilities for the application of innovative technologies. Moreover, sewage treatment plants vary widely in terms of size and type of facility. For an SDE++ application, you need to show that you can increase the existing biogas production by at least 25%. The facility components responsible for the increased biogas production must be new.

Another subcategory is 'Existing sludge fermentation at sewage treatment plants with reprocessing into renewable gas'. This subcategory is for sludge fermentation systems without increased production. The gas reprocessing facility must be new. This subcategory is designed for projects to upgrade biogas to renewable gas, which can then be fed into the natural gas network.

## **Biomass gasification**

There are 2 categories for the production of renewable gas from biomass gasification. Biosyngas is not entitled to the subsidy. This is because biosyngas must first be converted to methane before it can be fed into the gas network.

- Biomass gasification excluding B-grade wood;
- Biomass gasification including gasification of B-grade wood.

### *Fuel requirements*

When calculating the base amount for 'Gasification excluding B-grade wood', we take the higher price you have to pay for clean wood into account.

Conversely, for 'Gasification of B-grade wood', the calculation of the base amount is based on the lower price paid for B-grade wood. This means the base amount for this category is lower. You can also burn other types of biomass under the 'Gasification of B-grade wood' category.

### *Sustainability and emission reduction criteria for biomass*

RED II sustainability criteria will apply to your production facility if it feeds  $\geq 20$  MW renewable gas into the natural gas network. These criteria are described in the Renewable Heat produced using [Other solid, liquid and gaseous biomass chapter](#).

### *Permits*

You will usually need 1 or more permits for a biomass facility. These must already have been issued by the competent authority when you submit your subsidy application. The '[Required permits](#)' page details which permits may be required.

### Phasing and rates for renewable gas

Category	Maximum phase amount/base amount				Base energy price €/kWh	Provisional corrective amount for 2021 €/kWh	Maximum full-load hours hours/year	Commissioning period years	Subsidy term years
	Phase 1 €/kWh	Phase 2 €/kWh	Phase 3 €/kWh	Phase 4 €/kWh					
<b>Renewable gas (fed into gas network)</b>									
Biomass gasification, excluding B-grade wood	0.0313	0.0349	0.0413	0.0752	0.0135	0.0147	7500	4	12
Biomass gasification, including B-grade wood	0.0313	0.0349	0.0413	0.0680	0.0135	0.0147	7500	4	12
All-purpose fermentation, renewable gas	0.0313	0.0349	0.0413	0.0661	0.0135	0.0147	8000	4	12
Manure mono-fermentation, renewable gas ≤ 400 kW	0.0404	0.0472	0.0589	0.0930	0.0135	0.0147	8000	4	12
Manure mono-fermentation, renewable gas > 400 kW	0.0404	0.0472	0.0589	0.0722	0.0135	0.0147	8000	4	12
Sewage treatment plant, improved sludge fermentation, renewable gas	0.0313	0.0349	0.0413	0.0752	0.0135	0.0147	8000	4	12
Sewage treatment plant, existing sludge fermentation, new gas upgrading system	0.0313	0.0319	0.0319	0.0319	0.0135	0.0147	8000	4	12
All-purpose fermentation, service life extension, (renovation) renewable gas	0.0313	0.0349	0.0413	0.0543	0.0135	0.0147	8000	4	12
All-purpose fermentation, service life extension, (renovation) conversion to renewable gas	0.0313	0.0349	0.0413	0.0575	0.0135	0.0147	8000	4	12
Manure mono-fermentation service life extension (renovation) ≤ 400 kW, renewable gas	0.0404	0.0472	0.0589	0.0722	0.0135	0.0147	8000	4	12
Manure mono-fermentation service life extension (renovation) ≤ 400 kW, conversion to renewable gas	0.0404	0.0472	0.0589	0.0794	0.0135	0.0147	8000	4	12

# Low-carbon heat



# Low-carbon heat

The 2021 SDE++ ‘Low-carbon heat’ main category is divided into the following subcategories: ‘Aquathermal’, ‘Daylight greenhouses’, ‘PVT panels with heat pump’, ‘Electric boilers’, ‘Shallow geothermal’, ‘Industrial heat pumps’ and ‘Use of waste heat’.

Low-carbon heat is heat that does not come from a renewable source, or only partially comes from a renewable source, but does have lower carbon emissions compared with a gas-fired facility. The SDE++ scheme contains a number of specific options to reduce CO<sub>2</sub> emissions.

The heat that is eligible for the subsidy is heat that does not come from a renewable source, or only partially comes from a renewable source. Consequently, when determining the heat produced, we cannot use the system of measurement and certification as described in the [Regulation on guarantees](#) of origin and certificates of origin. For that reason, extra provisions were included in the General Implementing Regulation. These provisions govern how we establish what is ‘[usefully employed heat](#)’. They also contain requirements for establishing the suitability of the production facility, the installation and classification of meters and how the measurement report should be drawn up.

*Availability of renewable electricity for electric boilers and electrolytic hydrogen production*

Over the next few years, the percentage of sustainably generated electricity will increase. With all the options included in this chapter, the use of natural gas to produce heat will decrease. However, electric boilers and electrolytic hydrogen production are still limited in terms of the number of full-load hours per year. For the next few years, the supply of renewable electricity will still be insufficient to ensure that longer use of these technologies will sufficiently reduce CO<sub>2</sub>.

ETS

If you will benefit from the ETS when your facility is commissioned, this ETS benefit will be factored into the corrective amount. This situation may change during the production period. Under the scheme, it is possible to adjust this correction during the production period.

## **Aquathermal**

The SDE++ scheme includes 2 technologies that extract heat from water for heating for the built environment or for direct supply to businesses. A heat pump increases the temperature.

*Thermal energy from surface water or drinking water (TEO or TED, respectively)*

This type of system extracts heat from surface water or drinking water and stores it in a seasonal storage system.

The heat is then taken out of the seasonal storage system during the heating season.

3 categories are available:

- Heating for the built environment, base load (6,000 hours);
- Heating for the built environment, seasonal supply (3,500 hours);
- Direct application (3,500 hours).

The same technical preconditions apply to these categories. Your system must satisfy the following conditions to qualify for a subsidy:

- You cannot use the seasonal storage system for cooling;
- The heat pump must deliver a thermal output of at least 0.5 MWth and have a COP value of at least 3.0.

The ‘Thermal energy from surface water, base load, heating for the built environment’ category differs from the other categories in the amount of full-load hours, i.e. 6,000 instead of 3,500. This situation could arise if the production facility feeds into a large heating grid where the heat pump can operate in base load mode. In addition, there is a new category for direct application. This is a special application whereby direct heat supply to a customer, bypassing a heat distribution grid, is permitted. It could be used, for example, in greenhouse horticulture.

### Thermal energy from wastewater (TEA)

This type of system extracts heat from wastewater. A heat pump increases the temperature. The system is subject to technical preconditions.

Your system must satisfy the following conditions to qualify for a subsidy:

- The heat pump must deliver a thermal output of at least 0.5 MWth and have a COP value of at least 3.0;
- You must use the heat exclusively for heating for the built environment;
- The system must not supply any cold energy.

### Daylight greenhouses

Some crops in horticultural greenhouses prefer less direct sunlight. For these crops, you can trap some of the incoming sunlight using a solar thermal system. You can then store the heat in a seasonal storage system, and take it out again during the heating season. You can use a heat pump to increase the temperature and then use the heat to heat the greenhouse. The system is subject to certain technical preconditions.

To be eligible for a subsidy, you must meet the following criteria:

- The sun-tracking collector system must form an integral part of a new horticultural greenhouse;
- The power output of the solar collector must be at least 4 times the power output of the heat pump to be installed. This will ensure the solar collector generates enough heat to fill the seasonal storage system completely;
- You cannot use the seasonal storage system for cooling. Systems that do so are profitable and do not require a subsidy;
- The heat pump must have a thermal output of at least 0.5 MWth and a COP value of at least 5.0.

### TEO calculation example

This example is based on a production facility for the production of heat extracted from surface water and upgraded using a heat pump with a rated thermal output of 2 MWth operating for 3,500 hours on an annual basis. Participation in the ETS has been factored into this example.

#### Category: Thermal energy from drinking water or surface water, direct application

Maximum application amount in phase 3	0.0401 €/kWh
Maximum application amount in phase 4	0.0584 €/kWh
Provisional ETS correction in 2021	0.0054 €/kWh
Provisional corrective amount in 2021*	$0.0147 + 0.0054 = 0.0201$ €/kWh

Provisional 2021 SDE++ subsidy for the maximum application amount in phase 3:  $4.01 - 2.01 = 2.00$  €/kWh = € 20.00/MWh

Provisional 2021 SDE++ subsidy for the maximum application amount in phase 4:  $5.84 - 2.01 = 3.83$  €/kWh = € 38.30/MWh

Maximum number of eligible full-load hours: 3,500 full-load hours

Total rated output: 2 MWth

Maximum annual production eligible for subsidy for a facility with an output of 2 MWth:  $2 * 3,500 = 7,000$  MWh

Provisional 2021 SDE++ subsidy for the maximum application amount in phase 3:  $7,000 * € 20.00 = € 140,000$

Provisional 2021 SDE++ subsidy for the maximum application amount in phase 4:  $7,000 * € 38.30 = € 268,100$

\* The ETS value is taken into account in the calculation of the provisional corrective amount.

### **PVT panels with a heat pump**

A new category has been included in the 2021 SDE++ scheme for the production of low-carbon heat from a solar thermal system by means of solar heating collectors that simultaneously produce heat and electricity, where a heat pump is used to increase the temperature further. The heat is used for heating for the built environment.

The facility should have a surface area of photovoltaic thermal collectors of at least 1.2 m<sup>2</sup> per kWth from the heat pump. The heat pump to which the collectors must be connected must have a minimum output of 500 kWth and a minimum COP of 3.0. This category is applicable only to photovoltaic thermal panels; standard uncovered solar heat collectors are excluded from the scheme because they are relatively inexpensive and are therefore profitable.

### **Electric boilers**

With support from an SDE++ subsidy, you can generate heat for businesses using an electric boiler instead of a gas boiler. You can also employ hybrid boilers that use both gas and electricity to supply heat. The boiler must be new.

The conversion of a gas boiler already present at the site is not permitted. For hybrid boilers, both the heat and the electricity used must be measured. You will receive a subsidy only for the heat generated from electricity

The system is subject to certain technical preconditions. You must satisfy the following conditions to be eligible for a subsidy:

- The electric boiler must have a thermal output of at least 5 MWth;
- The system the heat will be fed into must have a feed-in temperature of at least 100°C on the consumer side in the

heating season, or a steam system. This prevents electric boilers from being used in situations where a heat pump would be preferable due to its higher COP value;

- The capacity of the connection to the electricity grid must be at least as high as the output of the electric boiler;
- The output of the electric boiler must not be higher than the thermal output of the boilers present in the location that are fired with fossil fuels and the maximum thermal output they can supply at the same time.

### **Shallow geothermal energy**

You can find information about the ‘Geothermal heat (shallow)’ category, in which a heat pump is used, under the ‘Geothermal’ category in the [‘Renewable heat’](#) section.

### **Use of waste heat**

Waste heat is released during industrial processes or by data centres. The temperature of that heat is too low for the business itself to use it. Through the SDE++ scheme, we want to make it possible for this heat to be used elsewhere. It could also be supplied to a district heating network. The supply of steam is excluded from this category, as it does not involve an unprofitable component.

We define waste heat as the unavoidable thermal energy generated by a business as a by-product, that, if not usefully employed, would be released unused into the air or water, and which at the time of the application is not being usefully employed. There are 2 possible scenarios:

#### *Without a heat pump*

The temperature of the waste heat is sufficient for other users. A differentiation is made in the subsidy rate, depending on the

length of the transport pipeline per unit of output. The system is subject to certain technical preconditions. You must satisfy the following conditions to be eligible for a subsidy:

- The output connection must have a thermal capacity of at least 2 MWth;
- The transport pipeline must be at least 0.2 km/MWh in length.

#### *With a heat pump*

The temperature of the waste heat is too low to be directly usable by other users. A heat pump can be used to increase the temperature. The system is subject to certain technical preconditions. You must satisfy the following conditions to be eligible for a subsidy:

- The output connection must have a thermal capacity of at least 2 MWth;
- The heat pump must deliver a thermal output of at least 500 kWth and have a COP value of at least 3.0.

### **Industrial heat pump**

Factories can also use the waste heat themselves by using a heat pump to increase the temperature. Through the SDE++ scheme, this unusable heat can be upgraded to a higher level, making it usable for industrial applications.

Under this category, you can also make steam usable, so it can be re-injected into a process. There are 2 possible scenarios:

#### *With a closed-loop heat pump*

The system is subject to certain technical preconditions. You must satisfy the following conditions to be eligible for a subsidy:

- The heat pump must have a thermal output of at least 0.5 MWth and a COP value of at least 2.3.

#### *With an open-loop heat pump*

The system is subject to certain technical preconditions.

You must satisfy the following conditions to be eligible for a subsidy:

- The heat pump must have a thermal output of at least 0.5 MWth, a minimum COP value of 2.3 and a maximum COP value of 12.0. This upper limit has been added because it is not clear whether projects with a higher COP value require support.

#### *Permits*

You will usually require 1 or more permits for a facility.

These must already have been issued by a competent authority when you submit your subsidy application. The [‘Required permits’](#) page details which permits may be required.

## Phasing and rates for low-carbon heat

Category	Maximum phase amount/base amount				Basic greenhouse gas amount	2021 provisional corrective amount		Maximum full-load hours	Commissioning period	Subsidy term
	Phase 1 €/kWh	Phase 2 €/kWh	Phase 3 €/kWh	Phase 4 €/kWh	€/kWh	ETS facilities (incl. ETS correction) €/kWh	Non-ETS facilities €/kWh	hours/year	years	years
<b>Geothermal energy</b>										
Shallow geothermal heat, heating for the built environment (3500 full-load hours)	0.0408	0.0441	0.0500	0.0810	0.0223	0.0292	0.0238	3500	4	15
Shallow geothermal heat, base load (6000 full-load hours)	0.0408	0.0441	0.0500	0.0705	0.0223	0.0292	0.0238	6000	4	15
<b>Water</b>										
Aquathermal, thermal energy from surface water (TEO) or drinking water (TED), no base load	0.0452	0.0483	0.0537	0.0823	0.0275	0.0344	0.0290	3500	4	15
Aquathermal, thermal energy from surface water (TEO) or drinking water (TED), base load	0.0296	0.0327	0.0381	0.0667	0.0135	0.0201	0.0147	6000	4	15
Aquathermal, thermal energy from surface water or drinking water for direct application (TEO-d or TED-d)	0.0306	0.0341	0.0401	0.0584	0.0135	0.0201	0.0147	3500	4	15
Aquathermal, thermal energy wastewater (TEA)	0.0301	0.0334	0.0391	0.0678	0.0135	0.0201	0.0147	6000	4	15
<b>Solar</b>										
Solar PVT system with heat pump	0.0442	0.0442	0.0442	0.0442	0.0275	0.0344	0.0290	3500	4	15
Daylight greenhouses	0.0310	0.0346	0.0408	0.0739	0.0135	0.0201	0.0147	3850	4	15
<b>Electrification</b>										
Industrial heat pump (closed-loop system)	0.0302	0.0334	0.0365	0.0365	0.0135	0.0201	0.0147	8000	4	12
Industrial heat pump (open-loop system)	0.0320	0.0359	0.0360	0.0360	0.0135	0.0201	0.0147	8000	4	12
Large-scale electric boilers	0.0339	0.0384	0.0463	0.0492	0.0135	0.0201	0.0147	3000	4	15
<b>Use of waste heat</b>										
Use of waste heat (hot water) without a heat pump, length-output ratio $\geq 0.20$ and $< 0.30$ km/MWth	0.0188	0.0188	0.0188	0.0188	0.0135	0.0201	0.0147	6000	4	15
Use of waste heat (hot water) without a heat pump, length-output ratio $\geq 0.30$ and $< 0.40$ km/MWth	0.0238	0.0238	0.0238	0.0238	0.0135	0.0201	0.0147	6000	4	15
Use of waste heat (hot water) without a heat pump, length-output ratio $\geq 0.40$ and $< 0.50$ km/MWth	0.0287	0.0287	0.0287	0.0287	0.0135	0.0201	0.0147	6000	4	15
Use of waste heat (hot water) without a heat pump, length-output ratio $\geq 0.50$ km/MWth	0.0322	0.0337	0.0337	0.0337	0.0135	0.0201	0.0147	6000	4	15
Use of waste heat (hot water) with a heat pump	0.0283	0.0309	0.0356	0.0391	0.0135	0.0201	0.0147	7000	4	15

# Low-carbon production



# Low-carbon production

The 2021 SDE++ scheme divides the main category 'Low-carbon production' into the following sub-categories: 'Electrolytic hydrogen production', 'CO<sub>2</sub> capture and storage', 'CO<sub>2</sub> capture and use in greenhouse horticulture' and 'Advanced renewable fuels'.

## Electrolytic hydrogen production

At present, most hydrogen is produced from natural gas in a furnace, because this method is cost efficient. However, using electrolysis powered by renewable electricity to produce hydrogen reduces CO<sub>2</sub> emissions. Systems will be eligible for a subsidy if the hydrogen production capacity is at least 0.5 MW. The full-load hours for using such facilities will be limited for the next few years, because the supply of renewable electricity will still be insufficient for this technology to stimulate this technology with 3,000 full-load hours.

Over the subsidy term, the eligible production (including banking) of hydrogen from electrolysis must not exceed:

Year	Full-load hours for electrolytic hydrogen
2021	2,940
2022	2,530
2023	2,390
2024	4,910
2025	4,930
From 2026	5,000

The lower production in the years 2021 to 2023 can be made up from 2024 onwards through [banking](#).

## CO<sub>2</sub> capture and storage (CCS)

CCS is a CO<sub>2</sub>-reducing solution for businesses that, in the short term, cannot make their processes carbon neutral in any other way. Their reasons may be both technical and financial. The captured CO<sub>2</sub> is stored in empty gas fields under the sea. As a producer, if you would like to receive support from the SDE++ scheme for CCS, you have to capture the CO<sub>2</sub> yourself. The scheme is open only for storage in gas fields in the Netherlands and the Dutch part of the Continental Shelf.

### Production limits

The Climate Agreement includes agreements about the maximum amount of CO<sub>2</sub> that will be stored by 2030. The amount specified for industry is 7.2 Mt per year.

The amount specified for the electricity sector is 3 Mt per year. For the first round of the SDE++ scheme, subsidies of 2.5 Mt per year were granted to the industry. The amount of the remaining limit is expressed in the scheme in kg of greenhouse gas. The amounts are multiplied by 15 because the CCS subsidy is granted for a period of 15 years. The difference between the 2 upper limits was determined on the basis of the Dutch Standard Industrial Classification (SBI) codes.

If more applications, than permitted within the CCS production limit, are received on a particular day, we will rank the CCS applications in the order of subsidy intensity.

### Corrective amount

If the establishment (your business location) where the capture facility is installed will benefit from the Emissions Trading System (ETS), that ETS benefit will be factored into the corrective amount. For non-ETS businesses, e.g. AVIs, that intend to start CCS, the corrective amount is 0. A separate category has been made available for them.

### Combined with CCU

Producers wishing to start CCS as well as CO<sub>2</sub> capture and use (CCU) within a single capture facility may submit applications for CCS and CCU combinations. Due to the base amount calculation method of PBL not every combination is possible, otherwise an excessively large subsidy would be granted. The combinations are presented in the appended [CO<sub>2</sub> capture and storage \(CCS\)](#) table. If you wish to combine CCS and CCU,

you must submit a separate subsidy application for both the CCS part and the CCU part in the same round of applications.

#### Permits

Different submission requirements have been drawn up for CCS. The [‘Required permits’](#) page details which permits may be required. This concerns the new parts of your system to be installed: the capture facility and the liquefaction facility, if you have 1.

#### Transport and storage capacity declaration and report

If you do not transport and store the CO<sub>2</sub> yourself, you must enclose 1 or more declarations about the availability of capacity with your subsidy application for CCS. The declaration must be issued by the party or parties that will be responsible

for the transport and permanent storage of the captured CO<sub>2</sub>. In this way, we can be certain that the capacity you are applying for can actually be stored. You should use the ‘Transport and Storage Capacity Model Declaration’ template to provide supporting information for your project. It is available at the [SDE++-website](#). The party issuing the ‘Transport and Storage Capacity Model Declaration’ must draw up a report on the storage capacity offered. It will also be assessed by the Netherlands Organisation for Applied Scientific Research (TNO) advisory group on economic affairs.

Requirements have been set for the chapter layout of the ‘Model report containing the required information for the transport and storage declaration’ for CCS.

The report may be no more than 80 pages long.

#### Partnerships

If you construct and operate parts of 1 production facility with other parties, you and the other parties could possibly be regarded as a partnership. This does not apply to the part of the facility covered by the transport and storage declaration. If you and the other parties are regarded as a partnership, you must submit your application as a partnership. You should appoint 1 coordinator. Contact the RVO if you are not sure whether you should apply as a partnership.

#### Implementation agreement and bank guarantee

The following additional conditions will apply if you are applying for a subsidy for a new capture facility or for more than € 400,000,000:

#### CO<sub>2</sub> capture and storage (CCS)

Process	Capture facility		Producer participates in the ETS	Transport of CO <sub>2</sub> in gaseous form by pipeline, compressor must be new			Transport in liquid form (by ship/lorry)				
	existing/new	full-load hours		MRAC article	PBL variant	Combination of CCU and MRAC article	Liquefaction facility	MRAC article	PBL variant	Combination of CCU and MRAC article	
existing	process	unspecified	4000	yes	83.a	1A	85.a-c, f-m	unspecified	83.c	2A	85.b, g, j, m
				no	83.o				83.p		
	combustion process	new	8000	yes	83.b	1B	not possible	new	83.d	2B	not possible
				no	83.e	3			83.f	4	
new	process	new	8000	yes	83.g	5	not possible	new	83.i	6	not possible
	combustion process			no	83.h				83.j		
				yes	83.k	7			83.l	8	
					83.m	9			83.n	10	

combustion process = These categories are available only for post-combustion CO<sub>2</sub> capture (CO<sub>2</sub> capture in processes such as SMR, ATR and POX cannot be submitted in this category)

MRAC = Ministerial Regulation designating the 2021 SDE++ categories

PBL = variant as specified by the PBL in the calculation of the base amounts for SDE++ 2021

- You must conclude an implementation agreement with the government within 2 weeks of the issue of the subsidy grant decision.
- You must supply a bank guarantee within 4 weeks of the issue of the subsidy grant decision.

#### Progress requirements

Owing to the size of the project, a longer assignment period (2.5 years) and implementation period (5 years) apply to this category. To enable progress to be monitored, the complete permit application for the storage sites must be submitted to the Ministry of Economic Affairs and Climate Policy within 1 year of the granting of the subsidy. In addition, you must send the complete permit issued under the Environmental Permitting (General Provisions) Act (Wabo) for the capture facility and, if applicable, the liquefaction facility to the Netherlands Enterprise Agency within 2.5 years of the granting of the subsidy. If these milestones cannot be achieved, this may result in the withdrawal of the subsidy granted and the collection of the bank guarantee.

#### Determining the level of production

The measured values from production must be provided to the Netherlands Enterprise Agency on a monthly basis. An annual declaration will be used to demonstrate at the end of every calendar year that the CO<sub>2</sub> captured has actually been stored.

### Calculation example for CCS

This example is calculated based on new post-combustion CO<sub>2</sub> capture in an existing production process where the CO<sub>2</sub> is transported in gaseous form, with 8,000 full-load hours and a capacity of 100 tonnes of CO<sub>2</sub>/hour. Participation in the ETS has been factored into this example.

#### Category: New post-combustion CO<sub>2</sub> capture in existing production processes, transported in gaseous form

Maximum application amount in phase 1	88.5477 €/tonne CO <sub>2</sub>
Maximum application amount in phase 2	104.7633 €/tonne CO <sub>2</sub>
Provisional ETS correction in 2021	26.6006 €/tonne CO <sub>2</sub>
Provisional corrective amount in 2021*	0.0000 + 26.6006 = 26.6006 €/tonne CO <sub>2</sub>
Provisional 2021 SDE++ subsidy for the maximum application amount in phase 1:	€ 88.5477 - € 26.6006 = € 61.9471/tonne CO <sub>2</sub>
Provisional 2021 SDE++ subsidy for the maximum application amount in phase 2:	€ 104.7633 - € 26.6006 = € 78.1627/tonne CO <sub>2</sub>
Maximum number of eligible full-load hours	8,000 full-load hours
Total capacity	100 tonne CO <sub>2</sub> /hour
Maximum eligible annual production for a facility with a capacity of 100 tonnes CO <sub>2</sub> /hour	8,000 * 100 = 800,000 tonne CO <sub>2</sub> /year
Provisional SDE++ subsidy in 2021 for an application for the maximum amount in phase 1:	800,000 * € 61.9471 = € 49,557,680
Provisional SDE++ subsidy in 2021 for an application for the maximum amount in phase 2:	800,000 * € 78.1627 = € 62,530,160

\* The product CO<sub>2</sub> itself has no value in the calculation of the provisional corrective amount, but the ETS value is included in this example.

### CO<sub>2</sub> capture and use in greenhouse horticulture (CCU)

As well as those granted for the storage of CO<sub>2</sub>, subsidies may also be granted for the use of the captured CO<sub>2</sub> in greenhouse horticulture. Since the emission factor calculation is based on the avoidance of what is known as ‘summer heating’, only the use of captured CO<sub>2</sub> in greenhouse horticulture qualifies for a subsidy. You should provide supporting information in your feasibility study showing how you intend to sell the CO<sub>2</sub> to the greenhouse horticulture sector. The ‘CO<sub>2</sub> capture and use in greenhouse horticulture (CCU)’ table shows the different situations.

#### Combined with CCS

Producers wishing to start CCS and also CCU with a single capture facility may submit applications for CCS and CCU combinations. Due to the base amount calculation method of

PBL not every combination is possible, otherwise an excessively large subsidy would be granted. The combinations are presented in the following table. If you wish to combine CCS and CCU, you must submit a separate subsidy application for both the CCS part and the CCU part in the same round of applications.

#### Implementation agreement and bank guarantee

The following additional conditions will apply if you are applying for a subsidy for a new capture facility or for more than € 400,000,000:

- You must conclude an implementation agreement with the government within 2 weeks of the issue of the subsidy grant decision;
- You must supply a bank guarantee within 4 weeks of the issue of the subsidy grant decision.

#### Permit requirements

Different submission requirements have been formulated for CCU. The ‘[Required permits](#)’ page details which permits may be required. This concerns the new parts of your system to be installed: the capture plant and the liquefaction plant, if you have 1.

#### Progress requirements

Owing to the size of the project, a longer assignment period (2.5 years) and implementation period (5 years) apply to this category. In addition, you must send the complete permit issued under the Environmental Permitting (General Provisions) Act (Wabo) for the capture facility and, if applicable, the liquefaction facility to the Netherlands Enterprise Agency within 2.5 years of the granting of the subsidy.

### CO<sub>2</sub> capture and use in greenhouse horticulture (CCU)

Process		Capture facility		Transport of CO <sub>2</sub> in gaseous form by pipeline						Transport in liquid form (by ship/lorry)			
				(existing) transport pipeline			new transport pipeline and new compressor			new liquefaction facility			
		existing/ new	full-load hours	compressor	MRAC article	PBL variant	Combination of CCS and MRAC article	MRAC article	PBL variant	Combination of CCS and MRAC article	MRAC article	PBL variant	Combination of CCS and MRAC article
existing	process	new	4000	new	85.a	1A	83.a, o	85.c	1C	83.a, o	85.b	1B	83.a, c, o, p
		unspecified			not available	2A	not available	85.e	2C	not possible	85.d	2B	not possible
new	new	85.f			3A	83.a, o	85.h	3C	83.a, o	85.g	3B	83.a, c, o, p	
		85.i			4A	83.a, o	85.k	4C	83.a, o	85.j	4B	83.a, c, o, p	
existing		waste incineration facility		unspecified	85.l	5A	83.a, o	not available			85.m	5B	83.a, c, o, p
		biomass incineration facility											

MRAC = Ministerial Regulation designating the 2021 SDE++ categories

PBL = variant as specified by the PBL in the calculation of the base amounts for SDE++ 2021

If these milestones cannot be achieved, this may result in the withdrawal of the subsidy granted and the collection of the bank guarantee.

#### *Determining the level of production*

The measured values from production must be provided to the Netherlands Enterprise Agency on a monthly basis. An annual declaration will be used to demonstrate at the end of every calendar year that the CO<sub>2</sub> captured has actually been supplied to the greenhouse horticulture sector.

#### **Advanced renewable fuels**

The Climate Agreement includes arrangements made to stimulate the production of advanced renewable transport fuels. An amount of € 200 million of the SDE++ budget has been earmarked for this. To enable projects to be implemented in the future as well, the maximum budget for this round is € 100 million, the equivalent of 7.4 billion kWh over the full term. The corrective amount for these categories consists of the average market price of the fuel plus the average payment for the renewable fuel units. Both are set annually by the PBL. The fuel produced will be eligible for a subsidy only if renewable fuel units that count double have been issued and it can be proven that the fuel will be used in the Netherlands for road transport and inland waterway transport.

Based on market consultation, 4 categories have been formulated and are included for the first time in the SDE++ scheme in this round of applications:

- Bioethanol produced from solid lignocellulosic biomass;
- Diesel and petrol substitutes produced from solid lignocellulosic biomass;
- Bio-LNG produced by manure mono-fermentation;
- Bio-LNG produced by all-purpose fermentation.

#### *Permitted biomass*

Only biomass that satisfies the requirements presented in Annex IX, part A of the Renewable Energy Directive may be used. As far as fermentation is concerned, the definitions applying to all-purpose fermentation and manure mono-fermentation are in line with the existing definitions for fuels in the SDE++ scheme. A new definition has been included in the scheme for lignocellulosic biomass. The biomass used here may consist only of solid lignocellulosic biomass that comprises no more than 50% B-grade wood.

#### *Permits*

You will usually require 1 or more permits for a facility. These must already have been issued by a competent authority when you submit your subsidy application. The [‘Required permits’](#) page details which permits may be required.

#### *Determining the level of production*

The measured values from production must be provided to the Netherlands Enterprise Agency on a monthly basis. An annual declaration will be used to demonstrate at the end of every calendar year that the fuel produced has been released onto the Dutch market and used for road transport or inland waterway transport. Information from the Dutch Emissions Authority (NEa) register is used for this.

## Phasing and rates for low-carbon production

Category	Maximum phase amount/base amount				Basic greenhouse gas amount €/unit of product <sup>1</sup>	2021 provisional corrective amount (including advanced renewable fuel units and ETS) €/unit of product <sup>1</sup>	Maximum full-load hours hours/year	Commissioning period year	Subsidy term year
	Phase 1 €/unit of product <sup>1</sup>	Phase 2 €/unit of product <sup>1</sup>	Phase 3 €/unit of product <sup>1</sup>	Phase 4 €/unit of product <sup>1</sup>					
<b>Electrification</b>									
Electrolytic hydrogen production	0.0463	0.0509	0.0589	0.1013	0.0242	0.0257	3000	4	15
<b>Advanced renewable transport fuels (gas, petrol and diesel substitutes)</b>									
Bioethanol produced from solid lignocellulosic biomass (petrol substitute)	0.0931	0.0991	0.1096	0.1222	0.0500	0.1513	8000	4	15
Bio-LNG produced by manure mono-fermentation (liquid gas)	0.0469	0.0547	0.0683	0.0880	0.0167	0.1115	8000	4	12
Bio-LNG produced by all-purpose fermentation (liquid gas)	0.0375	0.0421	0.0503	0.0814	0.0167	0.1115	8000	4	12
Diesel and petrol substitutes produced from solid lignocellulosic biomass converted to hydrolysis oil	0.0890	0.0939	0.1027	0.1106	0.0493	0.1512	7500	4	15
<b>CO<sub>2</sub> capture and storage (CCS) where the CO<sub>2</sub> is transported in gaseous form<sup>2</sup></b>									
CCS – partial CO <sub>2</sub> storage in existing facilities, transported in gaseous form (variant 1A, ETS company)	98.2454	98.2454	98.2454	98.2454	26.6006	26.6006	4000	5	15
CCS – partial CO <sub>2</sub> storage in existing facilities, transported in gaseous form (variant 1A, non ETS company)	58.3800	77.8400	98.2454	98.2454	0.0000	0.0000	4000	5	15
CCS – full CO <sub>2</sub> storage in existing facilities, transported in gaseous form (variant 1B)	61.5061	61.5061	61.5061	61.5061	26.6006	26.6006	8000	5	15
CCS – new pre-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form (variant 3)	93.3886	97.7752	97.7752	97.7752	26.6006	26.6006	8000	5	15
CCS – new post-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form (variant 5, ETS company)	88.5477	104.7633	130.2545	130.2545	26.6006	26.6006	8000	5	15
CCS – new post-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form (variant 5, non-ETS company)	48.6468	64.8624	93.2397	130.2545	0.0000	0.0000	8000	5	15
CCS – new pre-combustion CO <sub>2</sub> capture, new facility, transported in gaseous form (variant 7)	89.7870	89.7870	89.7870	89.7870	26.6006	26.6006	8000	5	15
CCS – new post-combustion CO <sub>2</sub> capture, new facility, transported in gaseous form (variant 9)	89.4969	106.0289	114.2829	114.2829	26.6006	26.6006	8000	5	15
<b>CO<sub>2</sub> capture and storage (CCS), transported in liquid form<sup>2</sup></b>									
CCS – partial CO <sub>2</sub> storage at existing facilities, transported in liquid form (variant 2A, ETS company)	71.6077	71.6077	71.6077	71.6077	26.6006	26.6006	4000	5	15
CCS – partial CO <sub>2</sub> storage at existing facilities, transported in liquid form (variant 2A, non ETS company)	57.9005	71.6077	71.6077	71.6077	0.0000	0.0000	4000	5	15
CCS – full CO <sub>2</sub> storage at existing facilities, transported in liquid form (variant 2B)	91.7963	91.7963	91.7963	91.7963	26.6006	26.6006	8000	5	15
CCS – new pre-combustion CO <sub>2</sub> capture, existing facility, transported in liquid form (variant 4)	92.9091	110.5785	124.7259	124.7259	26.6006	26.6006	8000	5	15
CCS – new post-combustion CO <sub>2</sub> capture, existing facility, transported in liquid form (variant 6, ETS company)	88.0682	104.1239	132.2215	156.5234	26.6006	26.6006	8000	5	15

<sup>1</sup> For CCS and CCU, unit of product is expressed in tonnes of CO<sub>2</sub> (in kWh for the other categories).

<sup>2</sup> For the CCS and CCU categories, the variant numbers stated are in accordance with the PBL's Final Recommendations on SDE++ 2021

**Phasing and rates for low-carbon production**

Category	Maximum phase amount/base amount				Basic greenhouse gas amount €/unit of product <sup>1</sup>	2021 provisional corrective amount (including advanced renewable fuel units and ETS) €/unit of product <sup>1</sup>	Maximum full-load hours hours/year	Commissioning period year	Subsidy term year
	Phase 1 €/unit of product <sup>1</sup>	Phase 2 €/unit of product <sup>1</sup>	Phase 3 €/unit of product <sup>1</sup>	Phase 4 €/unit of product <sup>1</sup>					
CCS – new post-combustion CO <sub>2</sub> capture, existing facility, transported in liquid form (variant 6, ETS company)	48.1673	64.2230	92.3206	156.5234	0.0000	0.0000	8000	5	15
CCS – new pre-combustion CO <sub>2</sub> capture, new facility, transported in liquid form (variant 8)	93.2752	111.0667	114.6757	114.6757	26.6006	26.6006	8000	5	15
CCS – new post-combustion CO <sub>2</sub> capture, new facility, transported in liquid form (variant 10)	89.0174	105.3895	134.0408	138.8041	26.6006	26.6006	8000	5	15
<b>CO<sub>2</sub> capture and reuse (CCU), gaseous/transported in gaseous form<sup>2</sup></b>									
CCU – new pre-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form, existing transport pipeline (variant 1A)	74.1442	74.1442	74.1442	74.1442	34.5397	38.9761	4000	5	15
CCU – new pre-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form, new transport pipeline (variant 1C)	105.3040	123.1355	127.0015	127.0015	34.5397	38.9761	4000	5	15
CCU – additional pre-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form, new transport pipeline (variant 2C)	63.1832	63.1832	63.1832	63.1832	34.5397	38.9761	4000	5	15
CCU – new pre-combustion CO <sub>2</sub> capture, new facility, transported in gaseous form, existing transport pipeline (variant 3A)	67.7699	67.7699	67.7699	67.7699	34.5397	38.9761	4000	5	15
CCU – new pre-combustion CO <sub>2</sub> capture, new facility, transported in gaseous form, new transport pipeline (variant 3C)	105.6579	120.6271	120.6271	120.6271	34.5397	38.9761	4000	5	15
CCU – new post-combustion CO <sub>2</sub> capture at WIP, transported in gaseous form, existing transport pipeline (variant 4A)	100.4563	116.6719	142.2112	142.2112	34.5397	38.9761	4000	5	15
CCU – new post-combustion CO <sub>2</sub> capture at WIP, transported in gaseous form, new transport pipeline (variant 4C)	100.4563	116.6719	145.0492	195.0684	34.5397	38.9761	4000	5	15
CCU – new post-combustion CO <sub>2</sub> capture, existing horticulture biomass facility, gaseous (variant 5A)	62.5419	62.5419	62.5419	62.5419	34.5397	38.9761	4000	5	15
<b>CO<sub>2</sub> capture and reuse (CCU), liquid/transported in liquid form<sup>2</sup></b>									
CCS – new pre-combustion CO <sub>2</sub> capture, existing facility, transported in liquid form (variant 1B)	104.8245	122.4961	133.3971	133.3971	34.5397	38.9761	4000	5	15
CCS – additional pre-combustion CO <sub>2</sub> capture, existing facility, transported in liquid form (variant 2B)	84.2550	84.2550	84.2550	84.2550	34.5397	38.9761	4000	5	15
CCS – new pre-combustion CO <sub>2</sub> capture, new facility, transported in liquid form (variant 3B)	105.1784	122.9680	127.0228	127.0228	34.5397	38.9761	4000	5	15
CCS – new post-combustion CO <sub>2</sub> capture at WIP, transported in liquid form (variant 4B)	99.9768	116.0325	144.1301	201.4640	34.5397	38.9761	4000	5	15
CCS – new post-combustion CO <sub>2</sub> capture, existing horticulture biomass facility, liquid (variant 5B)	100.1971	104.9962	104.9962	104.9962	34.5397	38.9761	4000	5	15

<sup>1</sup> For CCS and CCU, unit of product is expressed in tonnes of CO<sub>2</sub> (in kWh for the other categories).

<sup>2</sup> For the CCS and CCU categories, the variant numbers stated are in accordance with the PBL's Final Recommendations on SDE++ 2021

# Applying for an SDE++ subsidy

If you would like to take advantage of the 2021 SDE++ scheme, applying for a subsidy is quick and easy via the Netherlands Enterprise Agency's online portal eLoket.

The 2021 round of the SDE++ scheme is open from 9:00 CEST on 5 October until 17:00 CET on 11 November. Applications will be accepted in 4 phases. The phase amount will increase for each phase.

## Application process

### 1. Forms of ID for eLoket

Before you can use eLoket, you must identify yourself with a user name and password. Businesses and organisations can identify themselves using eHerkenning.

As of 1 July 2021, eHerkenning with Trust Level 3, and with the authorisation of Netherlands Enterprise Agency services, level eH3, is required for the SDE++ scheme. It is not possible to apply for an SDE++ subsidy with a supply chain authorisation. Make sure you apply for eHerkenning in time, and bear in mind that it has delivering time of 1 to 5 business days. Private individuals can log in using the DigiD service for citizens.

### 2. Logging in to eLoket

To log in to eLoket, follow these steps:

- Go to [mijn.rvo.nl/sde](https://mijn.rvo.nl/sde).

- Click the 'Aanvragen' (Apply) button under the 'Direct regelen' (Do it yourself) heading;
- Select the form of ID you want to use and log in.\*
- By default, you will be taken to the eLoket homepage;
- On the 'Nieuwe aanvraag' (New application) tab, you can scroll through the 'Formulierencatalogus' (Forms catalogue) and open the 'Stimulering Duurzame Energieproductie en Klimaattransitie 2021 (SDE++)' (Stimulation of Sustainable Energy Production and Climate Transition 2021 (SDE++)) form;
- Next, in the tab the 'Thema selecteren' (Topic selection) you can indicate the category you are applying the SDE++ subsidy for. On the 'Formulier aanmaken' (Form creation) tab, you will be asked a series of questions, after which the correct form will be created for you.

### 3. Filling in the application form

You will then be directed to the application form containing the questions relevant to your application.

- The application form consists of several tabs;
- Before moving on to the next tab, you can check your answers by clicking the 'Controleren' (Verify) button. If any information is missing or has not been entered correctly, you will see an alert message;
- You can upload documents on the last tab of the application form. Mandatory documents are indicated with an asterisk (\*);
- Check the entire application for errors before you submit it. If you receive an alert message, navigate to the specified tab to correct your input;

- You can submit your application from 9:00 CEST on 5 October. You can also save your application as a draft and log out. To submit your application, log in again later and follow the steps under point 4 to send it.

### 4. Sending the form

- To send a correctly completed form, click 'Naar verzenden' (Ready to send) on the 'Controleren' (Verification) tab. Carry out a final check to make sure that all the information is correct;
- All questions and answers will appear in sequence on the screen;
- Then tick the box 'Verklaring en ondertekening' (Declaration and signature). Finally, send your application by clicking 'Ondertekenen en verzenden' (Sign and send);
- You will receive a confirmation message via the email address indicated in your profile.

### 5. Retrieving your application

- Your application form will be saved automatically when you navigate to a new tab. You can also choose to save the information at any point;
- Saved applications can be found in 'Mijn overzicht' (My overview);
- Submitted applications are assigned a project number. You can use this number in any correspondence relating to your application.

\* When logging in for the first time, a profile screen will appear. Complete the required fields and save them. You will then be logged out and will need to log in again, which you can do by repeating the steps under 2 'Logging in to eLoket'.

### ***Do you not yet have an eHerkenning or DigiD?***

As of 1 July 2021, an *eHerkenning*smiddel with Trust Level 3, and with the authorisation of the Netherlands Enterprise Agency services, level eH3, is required when applying for an SDE++ subsidy. Click on the link below to request an *eHerkenning* or DigiD, and bear in mind that it will take between 1 and 5 business days for it to arrive.

[www.eherkenning.nl](http://www.eherkenning.nl) and [www.digid.nl](http://www.digid.nl).

### ***Combined applications for wind and green gas hubs***

Combining applications is possible for applications in the wind category and applications for power generation facilities that are part of a green gas hub. This may be useful if you want to implement the project in collaboration with other applicants, but only if all of the applications are approved. If the subsidy applications received on a single day exceed the available budget, we will rank the applications by subsidy intensity, in euros per tonne of CO<sub>2</sub> reduction. In the case of combined applications, the highest amount of all applications in the combination will apply. If it becomes necessary to draw lots, the combined applications will be treated as single applications.

# Attachments to your application

There are several documents that must be appended to your subsidy application. The documents concerned will depend on the category for which you are submitting the subsidy application. Examples include a feasibility study, permission from the location owner and the required permits. If 1 of the required attachments is missing from your application, it will be regarded as incomplete. This will have an impact on your date of submission and therefore the ranking of your project. Therefore, it is important that you send all the required attachments with your application. The attachments you might have to enclose with your application are explained below. You will find more information about category-specific, required attachments in the [‘Feasibility study guide’](#) and in the [‘Renewable electricity’](#), [‘Renewable heat \(CHP\)’](#), [‘Renewable gas’](#), [‘Low-carbon heat’](#) and [‘Low-carbon production’](#) chapters.

## Feasibility study

You must attach a [feasibility study](#) to your application, unless you are applying under the ‘Solar PV with output of less than 1MW’ categories.

Compulsory elements of the feasibility study include: a clear financial plan, proof of your equity, an operation calculation and a detailed time frame regarding the commissioning of the production facility.

The study must also include a technical description of the production facility and an energy or product yield calculation. For more complex facilities, you must also include a process diagram. Equity capital figures must be substantiated with documents demonstrating that the necessary resources (financial and otherwise) are available, or will be available at the time the investment is made. These documents may include annual accounts or a balance sheet. The feasibility study must in any event include proof of equity capital to cover the total value of the projects for which you are applying the SDE++ subsidy in 2021.

For the sake of completeness, your application should always provide information on the following aspects:

- Equity capital;
- The amount of equity capital to be contributed by third parties or shareholders.

If the percentage of equity capital in the overall investment is less than 20%, a declaration from your financial backers is also required. Proof of the equity capital sourced from third parties or shareholder(s) should be provided in the form of a contract, which must also provide information on these parties’ own equity capital. Depending on the project, we may request additional information.

**Tip:** use the ‘SDE++ feasibility study guide’ and the ‘SDE++ feasibility study template’.

## Transmission capacity indication from the grid operator

If you wish to apply for a subsidy to produce renewable electricity, you must include a transmission capacity indication from the grid operator. This is to show that sufficient transmission capacity is available for the location to which your application relates. Ask your grid operator to prepare the transmission capacity indication for you. Because transmission capacity in the electricity grid can change, the transmission capacity indication must be issued specifically for the 2021 round of the SDE++ scheme. A transmission capacity indication requested for a previous round of the SDE+ or SDE++ scheme is not sufficient. If you do not know who your grid operator is, consult the overview of EAN codes ([‘Eancodeboek’](#)).

### Permission of the location owner

If you are not the owner of the intended location for the production facility, you require the owner's permission. You must ask the location owner to complete and sign the '[Model for permission by location owner](#)'. With this declaration, the location owner gives permission for you to build and operate the production facility. If there are multiple owners, each of them must complete a permission declaration. This applies to all categories.

### Required permits

For the realisation of a production facility, 1 or more permits are usually required. These must already have been issued by a competent authority when you submit your subsidy application. If you require a permit for your production facility, this permit must be added as an attachment to your subsidy application.

This obligation was included in the Stimulation of Sustainable Energy Production and Climate Transition Decree (*Besluit SDEK*) to obtain greater certainty regarding timely implementation of the project for which you are submitting a subsidy application.

The following permits may be required:

- Environmental permits. If you are planning to site your production facility in, on top of or next to a building yet to be built, you will require a permit under the Environmental Permitting (General Provisions) Act (Wabo). You may also require a permit for the environmental part, e.g. a permit to use manure and co-products in a fermentation facility. In this case, you will need to enclose both the permit application and the permit or permits granted with your subsidy application. If you would like to know more about environmental permits, contact the Environmental Service Desk;

- Water permit. If you need a permit pursuant to the Water Act (*Waterwet*) for your production facility, enclose the granted permit with your subsidy application. If you would like to know more about water permits, contact the Environmental Service Desk;
- Permit required under the Public Works Management Act (Wbr). If the production facility is to be built on or around public works of the Directorate-General for Public Works and Water Management, such as roads, motorways, viaducts, tunnels, bridges or dykes, you will probably need a Public Works and Water Management Act (Wbr) permit for your facility. In that case, enclose the permit with your subsidy application. If you would like to know more about Public Works and Water Management Act permits, visit the [rijkswaterstaat.nl](http://rijkswaterstaat.nl) website;
- Nature Conservation Act (Wnb). Where applicable, you must enclose a Nature Conservation Act permit with your application for a 2021 SDE++ subsidy. A permit or exemption under the Wnb is an increasingly important precondition for ensuring renewable energy projects to be implemented on time. This applies to projects with a substantial nitrogen discharge during the operating phase, such as biomass projects. If you would like to know more about Nature Conservation Act permits, go to the [Bij12.nl](http://Bij12.nl) website.

As a general rule, the main components of a production facility will require permits to be in place. For other elements, including underground cables or pipelines, fencing, etc., it is not obligatory to enclose all the permits or partial permits required for them with your subsidy application.

The permit requirements applicable when submitting a subsidy application are explained below for a number of categories.

In addition, the parts of the production facility that require permits when the subsidy application is submitted are dealt with in more detail for certain categories. 'Parts' should be understood as the parts needed for the realisation of the production facility.

If a category does not appear in the explanatory notes below, the general permit requirements described above will apply. The [Required Permits table](#) contains a schematic overview of the required permits per category.

#### Renewable electricity

##### Solar PV

If you require 1 or more permits for your production facility, enclose the permit or permits granted with your subsidy application. You do not need to enclose the permit application.

If applicable, please enclose the following permit documents with your application:

- An environmental permit (Environmental Permitting (General Provisions) Act), if, instead of installing the solar panels on an existing roof, the solar panels will be installed on a field or water array or installation on a newly constructed building or carport, listed building or building façade (within view);
- A water permit or a Public Works (Management) Act permit, if you apply for a field or water system subsidy.

#### Renewable heat

##### Composting mushroom compost

If applicable, please enclose the following permit documents with your application:

- The environmental permit and the permit application (Environmental Permitting (General Provisions) Act);

- The environmental permit and the permit application for the building in which the production facility will be located, if a new building is constructed or modifications are made to an existing building for the production facility;
- The permit under the Nature Conservation Act.

### **Solar thermal**

If applicable, please enclose the following permit documents with your application:

- An environmental permit and the permit application (Environmental Permitting (General Provisions) Act), in the case of installation on a newly constructed building or carport, listed building or building façade (within view) or a field or water array;
- Water permit or Public Works (Management) Act permit. If you need a water permit or a Public Works (Management) Act permit to install the production facility, please enclose them as well.

### **Geothermal**

Please enclose the following permit(s) with your application:

- An exploration license issued under the Mining Act (*Mijnbouwwet*);
- A production license issued under the Mining Act. If there is an existing geothermal project for which you already have a production license, you will not need a new exploration license.

### *Renewable gas*

#### **Biomass (fermentation and gasification)**

If applicable, please enclose the following permit documents with your application:

- The environmental permit and the permit application (Environmental Permitting (General Provisions) Act);
- The permit under the Nature Conservation Act;
- The environmental permit and the permit application for the building in which the production facility will be located, if a new building is constructed or modifications are made to an existing building for the production facility.

### *Low-carbon heat*

#### **Aquathermal (TEO, TEA and TED)**

If applicable, please enclose the following permit documents with your application:

- The environmental permit or permits and the permit application or applications (Environmental Permitting (General Provisions) Act) for the system used to extract heat from surface water (TEO) or the decoupling of heat from drinking or wastewater (TEA, TED);
- The environmental permit and the application for the environmental permit for the construction of the new building to accommodate the heat pump on the source side;
- A water permit for the seasonal storage system and/or the system used to extract the heat from surface water.

#### **Daylight greenhouses**

Please enclose the following permit(s) with your application.

- An environmental permit and the permit application (Environmental Permitting (General Provisions) Act) for the construction of the new greenhouse and for the collector system that captures heat from sunlight and is an integral part of the new greenhouse;
- A water permit for the installation of the seasonal storage system.

### **PVT panels with a heat pump**

If applicable, please enclose the following permit documents with your application:

- The environmental permit and the permit application (Environmental Permitting (General Provisions) Act) for the PVT system and the heat pump;
- The environmental permit and the permit application for the building on which and/or in which the production facility is to be installed, if a new building is constructed or modifications are made to an existing building for the production facility;
- The water permit for the seasonal storage system;
- The water permit or Public Works (Management) Act permit for the PVT panels.

### **Electric boilers**

If applicable, please enclose the following permit documents with your application:

- The environmental permit and the permit application (Environmental Permitting (General Provisions) Act);
- The environmental permit and the permit application for the building in which the production facility will be located, if a new building is constructed or modifications are made to an existing building for the production facility.

### **Geothermal (shallow)**

See geothermal.

### **Industrial heat pump**

If applicable, please enclose the following permit documents with your application:

- The environmental permit and the permit application (Environmental Permitting (General Provisions) Act). If you need a permit for the amount of coolant to be used in a heat

pump, you must also send the relevant environmental permit and the permit application with your subsidy application;

- The environmental permit and the permit application for the building in which the production facility will be located, if a new building is installed or modifications are made to an existing building for the production facility.

#### *Low-carbon production*

##### **Use of waste heat without a heat pump**

If applicable, please enclose the following permit documents with your application:

- The environmental permit and the permit application (Environmental Permitting (General Provisions) Act) for the heat transfer station and the extraction of the waste heat on the source side.

##### **Use of waste heat with a heat pump**

If applicable, please enclose the following permit documents with your application:

- The environmental permit and the permit application for the centrally located heat pump;
- If the heat pump is located in a new building or modifications are made to an existing building, please also send the environmental permit and the permit application for the structural facilities with your application.

##### **Electrolytic hydrogen production**

If applicable, please enclose the following permit documents with your application:

- The environmental permit and the permit application (Environmental Permitting (General Provisions) Act);
- The environmental permit and the permit application for the building in which the production facility will be located, if a

new building is installed or modifications are made to an existing building for the production facility.

##### **CO<sub>2</sub> capture and storage (CCS)**

You must in any event send the complete permit application submitted for the environmental part of the environmental permit (pursuant to the Environmental Permitting (General Provisions) Act) for the parts that, in accordance with the Allocation Regulations, must be new (capture facility or liquefaction facility). In the case of CO<sub>2</sub> transportation in liquid form, the complete application for at least the environmental part of the new liquefaction facility should be sent. To enable progress to be monitored, the complete permit application for the storage sites must be submitted to the Ministry of Economic Affairs and Climate Policy within 1 year of the granting of the subsidy. In addition, you must send the complete permit issued under the Environmental Permitting (General Provisions) Act (Wabo) for the capture facility and, if applicable, the liquefaction facility to the Netherlands Enterprise Agency within 2.5 years of the granting of the subsidy.

##### **CO<sub>2</sub> capture and use in greenhouse horticulture (CCU)**

You must in any event send the complete permit application submitted for the environmental part of the environmental permit (pursuant to the Environmental Permitting (General Provisions) Act) for the parts that, in accordance with the Allocation Regulations, must be new (capture facility or liquefaction facility). In the case of CO<sub>2</sub> transportation in liquid form, the complete application for at least the environmental part of the new liquefaction facility should be sent. In addition, you must send the complete permit issued under the Environmental Permitting (General Provisions) Act (Wabo) for

the capture facility and, if applicable, the liquefaction facility to the Netherlands Enterprise Agency within 2.5 years of the granting of the subsidy.

##### **Advanced renewable fuels**

If applicable, please enclose the following permit documents with your application:

- The environmental permit and the permit application (Environmental Permitting (General Provisions) Act);
- The permit under the Nature Conservation Act;
- The environmental permit and the permit application for the building in which the production facility will be located, if a new building is constructed or modifications are made to an existing building.

Table indicating required permits

	Category	Permit issued under the Environmental Permitting (General Provisions) Act <sup>4</sup>		Permit issued under the Public Works (Management) Act <sup>1</sup>	Permit issued under the Nature Conservation Act	Permit issued under the Water Act <sup>1</sup>	Permit issued under the Mining Act <sup>5</sup>
		Application	Permit				
Renewable energy	Wind and Hydropower	x	x	x		x	
	Solar PV ≥ 15 kWp and < 1 MWp, building-mounted		x <sup>1</sup>				
	Solar PV ≥ 15 kWp and < 1 MWp, ground-mounted and floating systems		x	x		x	
	Solar PV ≥ 1 MWp, building-mounted (including carports)		x <sup>1</sup>				
	Solar PV ≥ 1 MWp, ground-mounted and floating systems		x	x		x	
	Biomass	x	x		x		
	Solar thermal		x <sup>1</sup>	x		x	
	Geothermal						x
Low-carbon technologies	Shallow geothermal energy with a heat pump						x
	Aquathermal (TEO and TED)	x	x			x	
	Aquathermal (TEA)	x	x				
	PVT panels with a heat pump	x	x	x		x	
	Daylight greenhouses	x	x			x <sup>2</sup>	
	Electric boilers and industrial heat pumps	x	x				
	Use of waste heat	x	x				
	Electrolytic hydrogen production	x	x				
	CO <sub>2</sub> capture and storage (CCS)	x <sup>3</sup>	x <sup>3</sup>				
	CO <sub>2</sub> capture and use (CCS)	x <sup>3</sup>	x <sup>3</sup>				
	Advanced renewable fuels	x	x		x		

<sup>1</sup> If applicable. <sup>2</sup> In connection with TES. <sup>3</sup> Complete application for a permit under the Environmental Permitting (General Provisions) Act for at least the environmental part and, if there is 1, the permit issued.

<sup>4</sup> If a right of superficies has been obtained through a public tender for government-owned land and roofs, a draft permit issued under the Environmental Permitting (General Provisions) Act should be appended.

<sup>5</sup> Exploration license for a new project or production license if an existing project is being expanded.

**Note: if a facility is placed in a building and that building is new or has been renovated, the permit issued under the Environmental Permitting (General Provisions) Act and the application for it should also be sent with your subsidy application.**

**Note: permits or partial permits for the laying of cabling, underground or otherwise, fencing and pipework, underground or otherwise, need not be sent with your subsidy application.**

# SDE++ grant decisions

## Implementation agreement and bank guarantee

If you have received a subsidy grant decision for a CCS or CCU project with a new capture facility, or your grant decision relates to a subsidy of € 400 million or more for your project, note that the decision is subject to the following conditions:

- Within 2 weeks after the subsidy grant decision is issued, you must send the Netherlands Enterprise Agency a signed implementation agreement. You can send the implementation agreement on the website under [‘Realisatiefase’](#) (Implementation phase). The implementation agreement is also included in annex 1 of the ‘Allocation Regulations for 2021 SDE++ categories’;
- The bank guarantee associated with the implementation agreement must be sent to the Netherlands Enterprise Agency within 4 weeks after the subsidy grant decision is issued. You will also find the bank guarantee template in Annex 1 of the ‘Allocation Regulations for the 2021 SDE++ categories’ and on the website.

You will find more information in the [‘Implementation Agreement FAQ’](#) section on the website.

## Receiving your SDE++ subsidy

Once you have been granted an SDE++ subsidy, you must complete several further steps before you can actually receive it.

- After receiving your subsidy grant decision, you must send the Netherlands Enterprise Agency copies of your agreements with contractors within 18 months. For CCS and CCU projects, this timeframe is extended to 2.5 years. The documents you provide must describe the components of the production facility and the contracts issued for the construction of the facility. For the ‘Solar PV  $\geq$  15 kWp and  $<$  1 MWp’ category, you do not need to send contractor agreements, in connection with the 2-year implementation period;
- You must carry out the project in accordance with your application, and the production facility must be commissioned within the implementation period;
- You must register with a certifying authority, these are CertiQ (for renewable electricity and heat) and Vertogas (for renewable gas). For low-carbon heat and low-carbon production, you must register with a metering company, using the ‘Request for an opinion on the suitability of a production facility’ form. You will find that form at [mijn.rvo.nl/sde](https://mijn.rvo.nl/sde);
- You must register with the grid operator (or, in the case of heat, CCS or CCU, with the metering company) as a producer.

Once these steps have been completed, you will receive monthly advance payments. Every year, we make a retrospective correction based on the actual energy price and the certified meter readings received by the Netherlands Enterprise Agency. You will find more information on the [SDE++ website](#).

## Environmental Aid Guidelines (EAG)

The European Environmental Aid Guidelines (EAG) stipulate how much financial support may be given to projects concerned with environmental protection. If you are receiving or are due to receive other forms of government aid for your project on top of the SDE++ subsidy, it is possible that you will receive more aid than permitted by the EAG. The EAG assessment can be used to determine the situation as regards the aid received for your project. An EAG assessment is always carried for the ‘Use of waste heat’, ‘Electric boilers’, ‘Electrolytic Hydrogen’, ‘CCS’ and ‘CCU’ categories, even if you have received no incentives other than the SDE++ subsidy.

A year after the commissioning of your production facility, you will receive a letter asking you to provide the details required for the EAG assessment. If the EAG assessment reveals that you are receiving or will receive an excessive amount of aid, the rate will be reduced for the remaining term.

## Ranking and phasing by maximum base amount categories

Category	Subsidy intensity <sup>1</sup>	Base amount	Long-term price	Emission factor
	€/tonne CO <sub>2</sub>	€/unit of product <sup>2</sup>	€/unit of product <sup>2</sup>	kg CO <sub>2</sub> /unit of product <sup>2</sup>
	A = (B-C) / D	B	C	D
<b>Phase 1 – 9:00 CEST on 5 October to 17:00 CET on 11 October</b>				
Use of waste heat (hot water) without a heat pump, length-output ratio ≥ 0.20 and < 0.30 km/MWth	-7.459	0.0188	0.0203	0.2011
CCU – additional pre-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form, new transport pipeline (variant 2C)	12.382	63.1832	51.8095	918.5750
CCU – new post-combustion CO <sub>2</sub> capture, existing horticulture biomass facility, gaseous (variant 5A)	12.778	62.5419	51.8095	839.9014
Use of waste heat (hot water) without a heat pump, length-output ratio ≥ 0.30 and < 0.40 km/MWth	17.474	0.0238	0.0203	0.2003
CCU – new pre-combustion CO <sub>2</sub> capture, new facility, transported in gaseous form, existing transport pipeline (variant 3A)	17.784	67.7699	51.8095	897.4736
CCS – full CO <sub>2</sub> storage in existing facilities, transported in gaseous form (variant 1B)	22.205	61.5061	39.9009	973.0000
CCU – new pre-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form, existing transport pipeline (variant 1A)	25.051	74.1442	51.8095	891.5750
B-grade wood boiler ≥ 5 MWth	32.743	0.0277	0.0203	0.2260
CCS – partial CO <sub>2</sub> storage at existing facilities, transported in liquid form (variant 2A, ETS company)	32.857	71.6077	39.9009	965.0080
CCS – additional pre-combustion CO <sub>2</sub> capture, existing facility, transported in liquid form (variant 2B)	36.720	84.2550	51.8095	883.5830
Onshore wind, ≥ 8.5 m/s	37.500	0.0390	0.0309	0.2160
Use of waste heat (hot water) without a heat pump, length-output ratio ≥ 0.40 and < 0.50 km/MWth	42.105	0.0287	0.0203	0.1995
Solar PVT system with heat pump	42.761	0.0442	0.0359	0.1941
Onshore wind, ≥ 8 and < 8.5 m/s	44.907	0.0406	0.0309	0.2160
Wind on flood defences, ≥ 8.5 m/s	53.241	0.0424	0.0309	0.2160
CCS – full CO <sub>2</sub> storage at existing facilities, transported in liquid form (variant 2B)	53.777	91.7963	39.9009	965.0080
CCS – new pre-combustion CO <sub>2</sub> capture, new facility, transported in gaseous form (variant 7)	55.579	89.7870	39.9009	897.5640
Onshore wind, ≥ 7.5 and < 8.0 m/s	58.333	0.0435	0.0309	0.2160
Deep geothermal, expansion of the production facility by at least 1 extra well (6000 full-load hours)	59.177	0.0331	0.0203	0.2163
CCS – partial CO <sub>2</sub> storage in existing facilities, transported in gaseous form (variant 1A, ETS company)	59.964	98.2454	39.9009	973.0000
<b>Phase 2 – 17:00 CET on 11 October to 17:00 CET on 25 October</b>				
Wind on flood defences, ≥ 8 and < 8.5 m/s	61.574	0.0442	0.0309	0.2160
Onshore wind, height-restricted, ≥ 8.5 m/s	62.500	0.0444	0.0309	0.2160
Sewage treatment plant, existing sludge fermentation, new gas upgrading system	63.388	0.0319	0.0203	0.1830
CCS – new pre-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form (variant 3)	64.921	97.7752	39.9009	891.4620
Solid or liquid biomass boilers ≥ 5 MWth, service life extension	65.929	0.0352	0.0203	0.2260

<sup>1</sup> If the application amount is less than the maximum base amount, the subsidy intensity will be lower and you may be able to submit an application in an earlier phase.

<sup>2</sup> The unit of product for CCS and CSU is expressed in tonnes of CO<sub>2</sub> (in kWh for all other categories).

<sup>3</sup> For this category, the base amount has been calculated at € 300/tonne of CO<sub>2</sub> and rounded up to 4 decimal places; working backwards to the subsidy intensity, this can lead to more than € 300/tonne of CO<sub>2</sub>.

### Ranking and phasing by maximum base amount categories

Category	Subsidy intensity <sup>1</sup>	Base amount	Long-term price	Emission factor
	€/tonne CO <sub>2</sub>	€/unit of product <sup>2</sup>	€/unit of product <sup>2</sup>	kg CO <sub>2</sub> /unit of product <sup>2</sup>
	A = (B-C) / D	B	C	D
CCS – new post-combustion CO <sub>2</sub> capture, existing horticulture biomass facility, liquid (variant 5B)	65.951	104.9962	51.8095	806.4600
Use of waste heat (hot water) without a heat pump, length-output ratio ≥ 0.50 km/MWth	67.438	0.0337	0.0203	0.1987
Heat from composting mushroom compost	68.142	0.0461	0.0307	0.2260
Solar PV ≥ 15 kWp and < 1 MWp connection > 3 * 80 A, building-mounted	69.444	0.0724	0.0574	0.2160
Solar PV ≥ 15 kWp and < 1 MWp connection > 3 * 80 A, ground-mounted or floating on water	71.759	0.0685	0.0530	0.2160
Onshore wind, height-restricted, ≥ 8 and < 8.5 m/s	73.148	0.0467	0.0309	0.2160
CCS – partial CO <sub>2</sub> storage at existing facilities, transported in liquid form (variant 2A, non ETS company)	74.204	71.6077	0.0000	965.0080
Wind on flood defences, ≥ 7.5 and < 8.0 m/s	75.463	0.0472	0.0309	0.2160
CCU – new pre-combustion CO <sub>2</sub> capture, new facility, transported in gaseous form, new transport pipeline (variant 3C)	76.679	120.6271	51.8095	897.4736
Onshore wind, ≥ 7.0 and < 7.5 m/s	76.852	0.0475	0.0309	0.2160
<b>Phase 3 – 17:00 CET on 25 October to 17:00 CET on 8 November</b>				
Industrial heat pump (open-loop system)	80.472	0.0360	0.0203	0.1951
CCS – new pre-combustion CO <sub>2</sub> capture, new facility, transported in liquid form (variant 8)	84.057	114.6757	39.9009	889.5720
CCU – new pre-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form, new transport pipeline (variant 1C)	84.336	127.0015	51.8095	891.5750
CCS – new pre-combustion CO <sub>2</sub> capture, new facility, transported in liquid form (variant 3B)	84.559	127.0228	51.8095	889.4816
Onshore wind, ≥ 6.75 and < 7.0 m/s	88.889	0.0501	0.0309	0.2160
CCS – new post-combustion CO <sub>2</sub> capture, new facility, transported in gaseous form (variant 9)	89.985	114.2829	39.9009	826.6000
Onshore wind, height-restricted, ≥ 7.5 and < 8.0 m/s	90.741	0.0505	0.0309	0.2160
Solar PV ≥ 1 MWp, building-mounted	91.204	0.0655	0.0458	0.2160
CCS – new pre-combustion CO <sub>2</sub> capture, existing facility, transported in liquid form (variant 1B)	92.337	133.3971	51.8095	883.5830
Manure mono-fermentation, service life extension (renovation), cogeneration ≤ 400 kW	93.633	0.0959	0.0609	0.3738
Wind on flood defences, ≥ 7.0 and < 7.5 m/s	94.907	0.0514	0.0309	0.2160
CCS – new pre-combustion CO <sub>2</sub> capture, existing facility, transported in liquid form (variant 4)	96.013	124.7259	39.9009	883.4700
All-purpose fermentation, service life extension (renovation), cogeneration	96.745	0.0589	0.0375	0.2212
Manure mono-fermentation, heat > 400 kW	96.885	0.0674	0.0307	0.3788
Industrial heat pump (closed system)	98.600	0.0365	0.0203	0.1643
All-purpose fermentation, service life extension (renovation), heat	100.442	0.0534	0.0307	0.2260

<sup>1</sup> If the application amount is less than the maximum base amount, the subsidy intensity will be lower and you may be able to submit an application in an earlier phase.

<sup>2</sup> The unit of product for CCS and CSU is expressed in tonnes of CO<sub>2</sub> (in kWh for all other categories).

<sup>3</sup> For this category, the base amount has been calculated at € 300/tonne of CO<sub>2</sub> and rounded up to 4 decimal places; working backwards to the subsidy intensity, this can lead to more than € 300/tonne of CO<sub>2</sub>.

### Ranking and phasing by maximum base amount categories

Category	Subsidy intensity <sup>1</sup>	Base amount	Long-term price	Emission factor
	€/tonne CO <sub>2</sub>	€/unit of product <sup>2</sup>	€/unit of product <sup>2</sup>	kg CO <sub>2</sub> /unit of product <sup>2</sup>
	A = (B-C) / D	B	C	D
Solar PV ≥ 1 MWp, ground-mounted	100.463	0.0590	0.0373	0.2160
Solar PV ≥ 1 MWp, solar tracking on land	100.463	0.0590	0.0373	0.2160
Direct use of wood pellets for industrial applications ≥ 0.5 MWth and < 100 MWe	107.522	0.0519	0.0276	0.2260
Onshore wind, < 6.75 m/s	108.333	0.0543	0.0309	0.2160
Manure mono-fermentation, cogeneration > 400 kW	109.952	0.0789	0.0378	0.3738
CCS – partial CO <sub>2</sub> storage in existing facilities, transported in gaseous form (variant 1A, non ETS company)	100.972	98.2454	0.0000	973.0000
Wind on flood defences, ≥ 6.75 and < 7.0 m/s	110.648	0.0548	0.0309	0.2160
CCS – new post-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form (variant 5, ETS company)	111.440	130.2545	39.9009	810.7800
CCU – new post-combustion CO <sub>2</sub> capture at WIP, transported in gaseous form, existing transport pipeline (variant 4A)	111.500	142.2112	51.8095	810.7800
Onshore wind, height-restricted, ≥ 7.0 and < 7.5 m/s	111.574	0.0550	0.0309	0.2160
Large solid or liquid biomass boilers ≥ 5 MWth (8500 hours)	114.602	0.0462	0.0203	0.2260
<b>Phase 4 – 17:00 CET on 8 November to 17:00 CET on 11 November</b>				
Large solid or liquid biomass boilers ≥ 5 MWth (8000 hours)	115.929	0.0465	0.0203	0.2260
Deep geothermal ≥ 20 MWth, base load (6000 full-load hours)	117.046	0.0455	0.0203	0.2153
Deep geothermal, conversion of existing oil and/or gas wells ≥ 20 MWth (6000 full-load hours)	117.046	0.0455	0.0203	0.2153
Large solid or liquid biomass boilers ≥ 5 MWth (7500 hours)	117.699	0.0469	0.0203	0.2260
Large solid or liquid biomass boilers ≥ 5 MWth (7000 hours)	119.469	0.0473	0.0203	0.2260
Manure mono-fermentation, service life extension (renovation), heat ≤ 400 kW	120.644	0.0764	0.0307	0.3788
CCS – new post-combustion CO <sub>2</sub> capture, new facility, transported in liquid form (variant 10)	120.819	138.8041	39.9009	818.6080
Large solid or liquid biomass boilers ≥ 5 MWth (6500 hours)	121.681	0.0478	0.0203	0.2260
Small solid or liquid biomass boilers ≥ 0.5 MWth and < 5 MWth	123.451	0.0586	0.0307	0.2260
Large solid or liquid biomass boilers ≥ 5 MWth (6000 hours)	124.336	0.0484	0.0203	0.2260
Onshore wind, height-restricted, ≥ 6.75 and < 7.0 m/s	126.852	0.0583	0.0309	0.2160
Large solid or liquid biomass boilers ≥ 5 MWth (5500 hours)	127.434	0.0491	0.0203	0.2260
Large-scale electric boilers	127.876	0.0492	0.0203	0.2260
Wind on lakes ≥ 1 km <sup>2</sup>	130.093	0.0590	0.0309	0.2160
Large solid or liquid biomass boilers ≥ 5 MWth (5000 hours)	130.973	0.0499	0.0203	0.2260

<sup>1</sup> If the application amount is less than the maximum base amount, the subsidy intensity will be lower and you may be able to submit an application in an earlier phase.

<sup>2</sup> The unit of product for CCS and CSU is expressed in tonnes of CO<sub>2</sub> (in kWh for all other categories).

<sup>3</sup> For this category, the base amount has been calculated at € 300/tonne of CO<sub>2</sub> and rounded up to 4 decimal places; working backwards to the subsidy intensity, this can lead to more than € 300/tonne of CO<sub>2</sub>.

### Ranking and phasing by maximum base amount categories

Category	Subsidy intensity <sup>1</sup>	Base amount	Long-term price	Emission factor
	€/tonne CO <sub>2</sub>	€/unit of product <sup>2</sup>	€/unit of product <sup>2</sup>	kg CO <sub>2</sub> /unit of product <sup>2</sup>
	A = (B-C) / D	B	C	D
Wind on flood defences, < 6.75 m/s	131.019	0.0592	0.0309	0.2160
Large solid or liquid biomass boilers ≥ 5 MWth (4500 hours)	134.956	0.0508	0.0203	0.2260
All-purpose fermentation for heat	140.265	0.0624	0.0307	0.2260
Use of waste heat (hot water) with a heat pump	141.460	0.0391	0.0203	0.1329
All-purpose fermentation, cogeneration	145.118	0.0696	0.0375	0.2212
CCS – new post-combustion CO <sub>2</sub> capture, existing facility, transported in liquid form (variant 6, ETS company)	145.272	156.5234	39.9009	802.7880
Deep geothermal < 20 MWth, base load (6000 full-load hours)	145.631	0.0518	0.0203	0.2163
Deep geothermal, conversion of existing oil and/or gas wells < 20 MWth, (6000 full-load hours)	145.631	0.0518	0.0203	0.2163
Diesel and petrol substitutes produced from solid lignocellulosic biomass converted to hydrolysis oil	146.811	0.1106	0.0740	0.2493
Onshore wind, height-restricted, < 6.75 m/s	147.222	0.0627	0.0309	0.2160
Solar PV ≥ 1 MWp, floating on water	148.148	0.0693	0.0373	0.2160
Solar PV ≥ 1 MWp, solar tracking on water	148.148	0.0693	0.0373	0.2160
Manure mono-fermentation, service life extension (renovation) ≤ 400 kW, renewable gas	154.556	0.0722	0.0203	0.3358
Manure mono-fermentation, renewable gas > 400 kW	154.556	0.0722	0.0203	0.3358
Bioethanol produced from solid lignocellulosic biomass (petrol substitute)	156.707	0.1222	0.0750	0.3012
Liquid biomass boilers ≥ 0.5 MWth and < 100 MWe	158.407	0.0665	0.0307	0.2260
CCS – new post-combustion CO <sub>2</sub> capture, existing facility, transported in gaseous form (variant 5, non-ETS company)	160.653	130.2545	0.0000	810.7800
Bio-LNG produced by manure mono-fermentation (liquid gas)	165.639	0.0880	0.0235	0.3894
Sewage treatment plant, existing sludge fermentation, heat	165.929	0.0682	0.0307	0.2260
Manure mono-fermentation, service life extension (renovation) ≤ 400 kW, conversion to renewable gas	175.998	0.0794	0.0203	0.3358
CCU – new post-combustion CO <sub>2</sub> capture at WIP, transported in gaseous form, new transport pipeline (variant 4C)	176.693	195.0684	51.8095	810.7800
All-purpose fermentation, service life extension (renovation), renewable gas	185.792	0.0543	0.0203	0.1830
CCS – new post-combustion CO <sub>2</sub> capture at WIP, transported in liquid form (variant 4B)	186.418	201.4640	51.8095	802.7880
Manure mono-fermentation, cogeneration ≤ 400 kW	187.533	0.1310	0.0609	0.3738
CCS – new post-combustion CO <sub>2</sub> capture, existing facility, transported in liquid form (variant 6, ETS company)	194.975	156.5234	0.0000	802.7880
Manure mono-fermentation, heat ≤ 400 kW	199.050	0.1061	0.0307	0.3788
All-purpose fermentation, service life extension (renovation), conversion to renewable gas	203.279	0.0575	0.0203	0.1830

<sup>1</sup> If the application amount is less than the maximum base amount, the subsidy intensity will be lower and you may be able to submit an application in an earlier phase.

<sup>2</sup> The unit of product for CCS and CSU is expressed in tonnes of CO<sub>2</sub> (in kWh for all other categories).

<sup>3</sup> For this category, the base amount has been calculated at € 300/tonne of CO<sub>2</sub> and rounded up to 4 decimal places; working backwards to the subsidy intensity, this can lead to more than € 300/tonne of CO<sub>2</sub>.

### Ranking and phasing by maximum base amount categories

Category	Subsidy intensity <sup>1</sup>	Base amount	Long-term price	Emission factor
	€/tonne CO <sub>2</sub>	€/unit of product <sup>2</sup>	€/unit of product <sup>2</sup>	kg CO <sub>2</sub> /unit of product <sup>2</sup>
	A = (B-C) / D	B	C	D
Wood pellet steam boilers ≥ 5 MWth	203.982	0.0664	0.0203	0.2260
Wood pellet boilers for district heating ≥ 10 MWth	214.159	0.0687	0.0203	0.2260
Manure mono-fermentation, renewable gas ≤ 400 kW	216.498	0.0930	0.0203	0.3358
Solar thermal ≥ 1 MWth	218.142	0.0800	0.0307	0.2260
Aquathermal, thermal energy from surface water or drinking water for direct application (TEO-d or TED-d)	221.512	0.0584	0.0203	0.1720
Ultra-deep geothermal (7000 full-load hours)	227.420	0.0694	0.0203	0.2159
Sewage treatment plant, improved sludge fermentation, cogeneration	235.909	0.0932	0.0413	0.2200
Shallow geothermal, basic load (6000 full-load hours)	237.470	0.0705	0.0307	0.1676
Hydropower renovation with new turbine, drop of ≥ 50 cm	243.519	0.0975	0.0449	0.2160
Bio-LNG produced by all-purpose fermentation (liquid gas)	248.711	0.0814	0.0235	0.2328
All-purpose fermentation, renewable gas	250.273	0.0661	0.0203	0.1830
Solar thermal ≥ 140 kWth and < 1 MWth	256.195	0.0938	0.0359	0.2260
Biomass gasification, including B-grade wood	260.656	0.0680	0.0203	0.1830
Aquathermal, thermal energy from wastewater (TEA)	291.054	0.0678	0.0203	0.1632
Deep geothermal, heating for the built environment (3500 full-load hours) <sup>3</sup>	299.857	0.0833	0.0203	0.2101
Osmosis	300.000	0.1097	0.0449	0.2160
New hydropower, drop of < 50 cm (including energy from free-flowing water and wave energy) <sup>3</sup>	300.000	0.1097	0.0449	0.2160
New hydropower, drop of ≥ 50 cm <sup>3</sup>	300.000	0.1097	0.0449	0.2160
Biomass gasification, excluding B-grade wood <sup>3</sup>	300.000	0.0752	0.0203	0.1830
Sewage treatment plant, improved sludge fermentation, renewable gas <sup>3</sup>	300.000	0.0752	0.0203	0.1830
Electrolytic hydrogen production <sup>3</sup>	300.000	0.1013	0.0326	0.2290
Shallow geothermal, heating for the built environment (3500 full-load hours) <sup>3</sup>	300.119	0.0810	0.0307	0.1676
Daylight greenhouses <sup>3</sup>	300.280	0.0739	0.0203	0.1785
Aquathermal, thermal energy from surface water (TEO) or drinking water (TED), base load <sup>3</sup>	300.324	0.0667	0.0203	0.1545
Aquathermal, thermal energy from surface water (TEO) or drinking water (TED), no base load <sup>3</sup>	300.324	0.0823	0.0359	0.1545

<sup>1</sup> If the application amount is less than the maximum base amount, the subsidy intensity will be lower and you may be able to submit an application in an earlier phase.

<sup>2</sup> The unit of product for CCS and CSU is expressed in tonnes of CO<sub>2</sub> (in kWh for all other categories).

<sup>3</sup> For this category, the base amount has been calculated at € 300/tonne of CO<sub>2</sub> and rounded up to 4 decimal places; working backwards to the subsidy intensity, this can lead to more than € 300/tonne of CO<sub>2</sub>.

# Glossary

## *Banking*

Banking is possible for most SDE++ applications. This means that any annual production that is eligible for the subsidy and that you do not use can be carried forward to later years (forward banking). In addition, production that is higher than the maximum annual production eligible for the subsidy can be transferred to a subsequent year (backward banking). This can be used if production is lower than expected in a later year. The latest form of banking is capped at 25% of the annual production eligible for a subsidy. You can read more about banking on the [SDE++ website](#). Only forward banking is possible for ‘Electrolytic hydrogen production’ and ‘Electric boilers’. This is capped at 2000 additional full-load hours per year.

## *Emission factor*

Avoided emissions related to the commissioning of the technology concerned.

Examples:

- Electricity 0.2160 kg CO<sub>2</sub>/kWh
- Heat 0.2260 kg CO<sub>2</sub>/kWh
- Gas 0.1830 kg CO<sub>2</sub>/kWh
- Hydrogen 0.2290 kg CO<sub>2</sub>/kWh
- CCS, existing capture 973.0000 kg CO<sub>2</sub>/tonne CO<sub>2</sub>

## *Energy value*

The amount of energy that can be extracted from a specific quantity of matter through combustion.

## *Long-term price*

The unweighted average of the actual energy, product or ETS price over the subsidy period, based on price movements estimated by the International Energy Agency (IEA).

## *Subsidy term*

The maximum period (in years) for which you can receive the subsidy.

## *Rated output*

The maximum output of the production facility when used under nominal (design) conditions, guaranteed by the supplier for continuous use.

## *Usefully employed heat*

The Netherlands Enterprise Agency grants subsidies for heat only if it meets the definition of ‘usefully employed heat’ as defined in the Regulation on guarantees of origin and certificates of origin or the General Implementing Regulation for the SDE++ scheme. You can find information and an informative video about the Regulation on guarantees of origin and certificate of origin on the [CertiQ website](#).

## *Subsidy intensity*

The subsidy amount in euros per tonne of CO<sub>2</sub> emissions avoided. The subsidy intensity determines the phase in which you can submit your subsidy application. It is also used to determine where your application will be ranked.

You can calculate the subsidy intensity as follows:

$(\text{Application amount} - \text{Long-term price}) / \text{Emission factor}$

## *Final period for commissioning*

The period (after the decision has been issued) within which your facility must start production.

## *Heating for the built environment*

Urban heating network supply or direct supply, for space heating and hot water supply in a building that is not a greenhouse.

## *Full-load hours*

The maximum number of production hours at the rated output for each year for which you receive a subsidy.

## *Graduated scale for heat*

A graduated scale for heat applies to the ‘Large solid or liquid biomass boilers  $\geq 5$  MWth’ category. Under this system, we calculate a base amount depending on the full-load hours.

## *CHP*

Combined heat and power.

## *Guarantees of origin*

Guarantees of origin are issued by [Vertogas](#) and CertiQ. Registration and certification through Vertogas is required for renewable gas. The route of registration and certification through [CertiQ](#) is required for renewable heat and renewable electricity.

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Netherlands Enterprise Agency

Hanzelaan 310 | 8017 JK Zwolle

PO Box 10073 | 8000 GB Zwolle

T +31 (0)88 042 42 42 (weekdays from 08:30 to 17:00)

E [sde@rvo.nl](mailto:sde@rvo.nl)

[rvo.nl/sde](https://rvo.nl/sde)

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