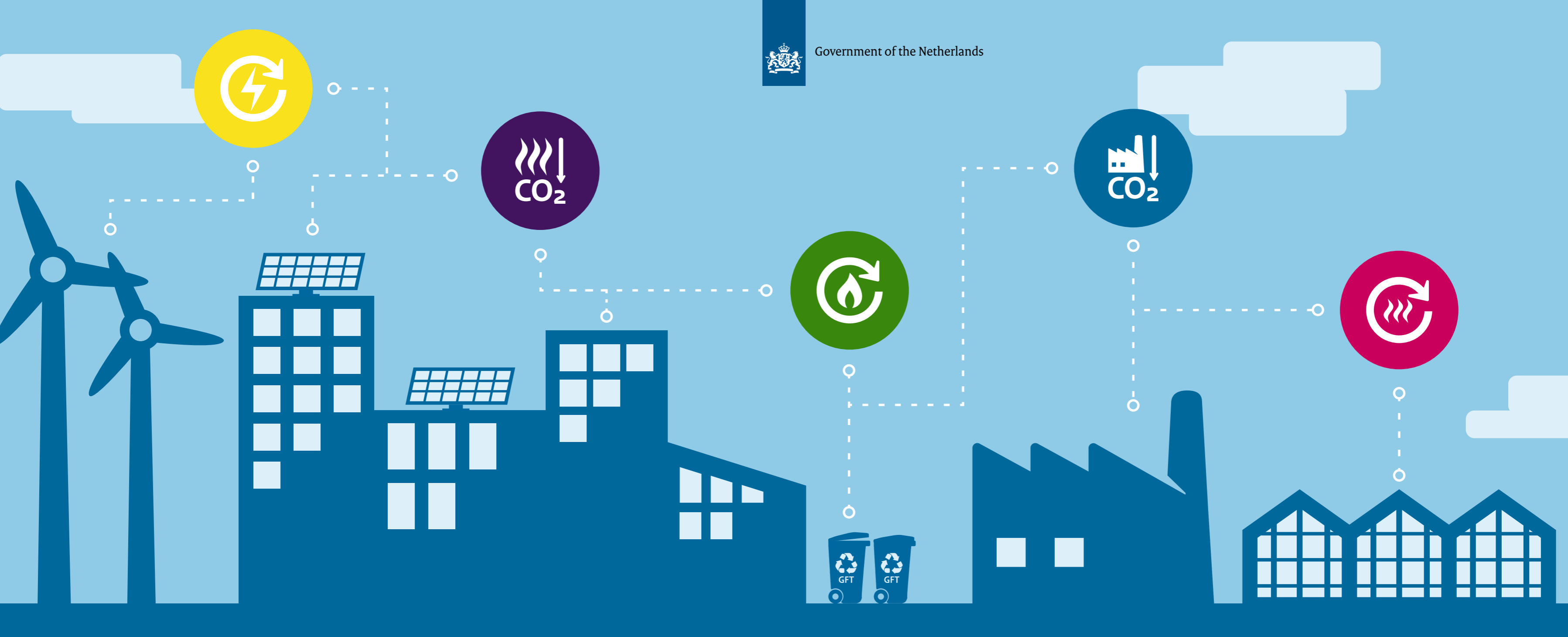




Government of the Netherlands



SDE ++ 2023

Stimulation of Sustainable Energy Production and Climate Transition

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++) scheme

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 (CO₂) emissions.

What is the SDE++ scheme?

The SDE++ is an operating subsidy. In other words, the subsidy only covers the operational period of your project. An SDE++ subsidy compensates the difference between the cost price of the sustainable energy (or the reduction in CO₂ 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 also depend on the technology used and the CO₂ reduction you ultimately achieve with it. This brochure contains details of the eligible technologies and applicable conditions.

For whom is the SDE++ scheme intended?

If you are planning to produce renewable energy or use carbon-reducing technologies, you may be entitled to an

SDE++ subsidy. You may receive a subsidy as a business or organisation, whether non-profit or otherwise. You must operate in a sector such as industry, mobility, electricity, agriculture or the built environment. National government entities cannot apply for a subsidy.

Only the operator of a power generation facility can receive SDE++ subsidies. If you do not plan to build and operate the power generation facility yourself, you are not considered to be an operator and cannot apply for a subsidy.

If you plan to build and operate a single power generation facility together with other parties, you must establish either a project entity or a partnership for this purpose.

If you are the operator of the facility then you may submit no more than 1 application per category and per power generation site during this round of applications. Do you want to start producing and have you not yet started realizing your project? Then this opening round you can submit a maximum of 1 application per category, per address on which the [production installation](#) is placed.

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

The SDE++ 2023 application round will open in the autumn. The opening date is listed on the website.

A budget of €8 billion is available for all phases and categories combined.

Methodology of the SDE++ scheme

Base rate and application amount

A different base rate has been set for each technology.

The base rate is the cost price for the production of renewable energy or the reduction of CO₂ emissions. This base rate is the maximum amount of subsidy you can apply for. The amount of the subsidy application may be lower than the base rate, but never higher. The application amount is fixed for the entire duration of the subsidy.

For almost all technologies, you must apply for an amount rounded to 1 decimal place and expressed in euros per MWh. For carbon capture and storage (CCS) or carbon capture and use (CCU) only, you can apply for an amount rounded to 4 decimal places expressed in euros per tonne of CO₂ avoided.

Correction amount and base energy price/base greenhouse gas price

If you plan to generate and supply energy with one of these technologies, or use a CO₂-reducing technology as part of the SDE++ scheme, then you will also be generating revenue. You may also avoid the costs of purchasing energy or emissions allowances as a result of this energy generation. Your revenue and the avoided costs are compensated for with a correction amount. The correction amount is determined annually, among others based on the market value of energy. In the SDE++ scheme, the value of [Guarantees of Origin \(GOs\)](#)

for the 'Wind' and 'Solar PV' categories forms part of the correction amount. The Netherlands Environmental Assessment Agency ([PBL](#)) sets the average value of the GOs annually. As of the 2023 round of applications, a correction can also be applied for renewable gas GOs. PBL will also include this correction in their calculations. This is necessary because additional market revenues may be generated if a green gas blending requirement is introduced. This requirement is currently being developed.

If purchase costs are avoided or revenues are generated through the sale of CO₂ emissions allowances under the European Emissions Trading System (EU-ETS), this too is taken into account in the correction amount. A lower limit has been set for the correction amount: the base energy price or the base greenhouse gas price.

The correction amount may not be lower than the base energy price or the base greenhouse gas price. These amounts are based on two-thirds of the [long-term price](#), which is the average expected revenue over the entire duration of the SDE++ subsidy.

Subsidy intensity

SDE++ applications are assessed based on the subsidy amount requested per tonne of CO₂ reduction. This is called the [subsidy intensity](#). The subsidy intensity is rounded to 3 decimal places.

The subsidy intensity depends on the application amount, the long-term price and the [emissions factor](#). You can calculate the subsidy intensity using the calculation tool on the SDE++ website under step 1, '[Bepaal in welke fase u aanvraagt](#)' (Determining the application phase).

The subsidy intensity is calculated using one of the following formulae:

Subsidy intensity, all categories except CO₂ capture and storage (CCS) and CO₂ capture and utilization (CCU).

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

Subsidy intensity CO₂ capture and storage (CCS) and CO₂ 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 2023 SDE++ scheme has five phases. During each phase, you may apply for a subsidy only up to a predetermined subsidy intensity per tonne of CO₂ emissions reduction. This is the phase limit. This amount will gradually be increased during subsequent phases. You may also submit applications for a lower subsidy amount than the maximum set for the relevant technology. You can do this by applying for a lower amount than the maximum base amount and phase amount.

By applying for a lower subsidy intensity, you will increase the chances of your application being approved.

Phase	Phase limit subsidy intensity (€/tonne CO ₂)
Phase 1	90
Phase 2	180
Phase 3	240
Phase 4	300
Phase 5	400

First come, first served processing

We will process subsidy applications in the order in which we receive them. Applications received after 17:00 or on non-business days are considered to have been received on the next business day. In other words, each business day begins at 17:00 and runs until 17:00 the following business day. This also applies at the start of a new phase. The time of receipt of the subsidy application during a business day is not taken into account.

Domain fencing

A new feature of the subsidy in 2023 is domain fencing. Domain fencing affects how the budget is distributed, not the subsidy application itself. A domain fence ensures that certain technologies with a higher subsidy intensity are more likely to be approved. A domain fence is used to reserve a budget for such a technology. This will facilitate technologies that are less cost-effective in the short term but are necessary to achieve the energy transition in the longer term, the costs of which may fall as they are more widely deployed. Three domain fences will be established in this round of applications, with a budget of €750 million reserved for each domain. These domains are: ‘Low-temperature heat’, ‘High-temperature heat’ and ‘Molecules’. The table below displays which technologies fall under these domains.

Domain High temperature heat	Domain Low temperature heat	Domain Molecules
<ul style="list-style-type: none">• Biomass combustion techniques	<ul style="list-style-type: none">• Biomass fermentation techniques (renewable heat)	<ul style="list-style-type: none">• Biomass fermentation techniques (renewable gas)
<ul style="list-style-type: none">• Ultra-deep geothermal energy	<ul style="list-style-type: none">• Composting	<ul style="list-style-type: none">• Biomass gasification
<ul style="list-style-type: none">• Industrial heat pump (open)	<ul style="list-style-type: none">• Solar thermal energy	<ul style="list-style-type: none">• Hydrogen from electrolysis
<ul style="list-style-type: none">• Electric boiler	<ul style="list-style-type: none">• Deep geothermal energy	<ul style="list-style-type: none">• Advanced renewable fuels
	<ul style="list-style-type: none">• Geothermal energy with heat pump	
	<ul style="list-style-type: none">• Aquathermal energy	
	<ul style="list-style-type: none">• Air-to-water heat pump	
	<ul style="list-style-type: none">• Solar PVT with heat pump	
	<ul style="list-style-type: none">• Daylight greenhouse	
	<ul style="list-style-type: none">• Industrial heat pump (closed)	
	<ul style="list-style-type: none">• Residual waste heat utilisation	

Technologies that do not fall under any of the above domains, such as renewable electricity production techniques, CCS and CCU, may still be applicable for an SDE++ subsidy (the three domain fences add up to €2.25 billion, while €8 billion in total is available this round of applications).

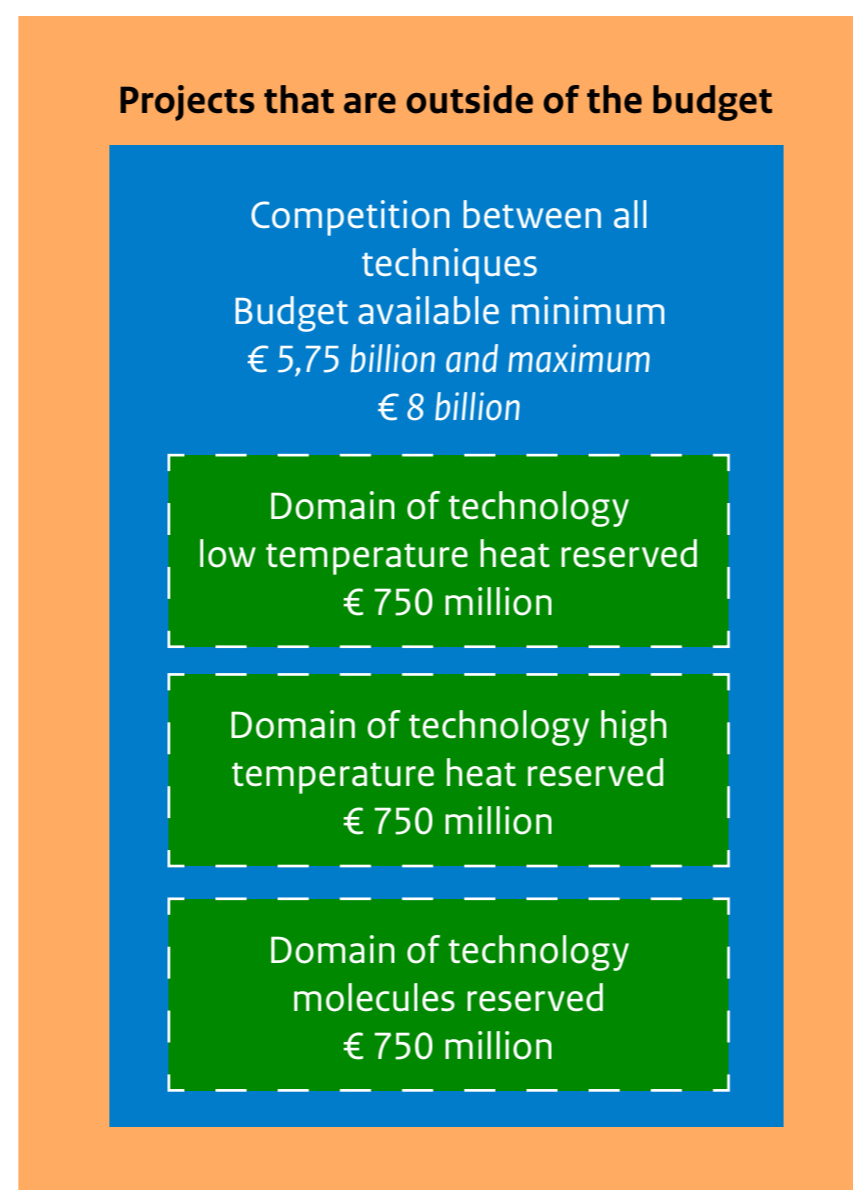
We will process the subsidy applications within the domain fences in the order in which they are received. Once the budget for a fenced domain has been distributed, any remaining applications for this domain will be processed outside the domain fence budget. These will also be processed in the order in which they are received and compete with other projects such as electricity, CCS and CCU. Any budget that is not distributed within a domain fence will be added to the budget outside the domains, so that other technologies can still claim it.

In previous rounds of applications, the maximum subsidy intensity was €300 per tonne of CO₂ reduction. This limit was set to ensure the cost effectiveness of the SDE++ scheme. In 2023, this limit has been increased to €400 per tonne of CO₂ reduction within the domain fences. This provides opportunities within the domain fences for technologies that are less cost-effective in the short term. For all technologies outside the domain fences, the maximum subsidy intensity remains €300 per tonne of CO₂ reduction. This base rate is always the maximum amount of the subsidy application. In most cases, this will be lower than the maximum subsidy intensities described above.

The figure below provides a visual representation of how domain fencing works.

Budget limit

If the budget limit is exceeded on a given day, we will rank the projects on that day based on subsidy intensity (the lower subsidy intensity, the higher the ranking). If the budget limit is exceeded by projects with the same subsidy intensity, lots will be drawn for these projects.



Assessment of applications

We will only process completed applications. This means that the application form must be fully completed and all appendixes required for the category must be attached.

We will then review your application for feasibility and technical, financial and economic viability. We will also check whether the application meets the category requirements.

Only fully completed applications for feasible and viable projects are eligible for a subsidy. During the assessment period, we may ask you to provide further information or

Green category: the domains of technology

- A budget of €750 million has been reserved for each domain for 'low temperature heat', 'high-temperature heat' and 'molecules'.
- For technologies within the domains of 'low-temperature heat', 'high-temperature heat' and 'molecules', the maximum subsidy intensity is 400 €/tonne CO₂ instead of 300 €/tonne CO₂.

Blue category: competition between all techniques

- The following projects are eligible for this part of the budget:
 - projects in domains that are not placed within a domain of technology; and
 - projects that were not covered within a domain of technology because the domain is 'full'.

If a domain of technology is not fully utilized because there are not enough projects within the domain that are eligible for subsidy, the remainder of the budget is transferred to the blue category.

Orange category: projects for which there may be no available budget

- No more subsidy is granted than the total available budget of € 8 billion. As in previous opening rounds, it is possible that no budget is available for projects.

supplemental documents to support your application. Subsidy applications are assessed within 13 weeks, starting from the date the application was submitted. We may extend the assessment period by a maximum of 13 weeks if required. After the deadline for applications closes, we will publish a global application progress report on our [website](#).

Resubmitting an application

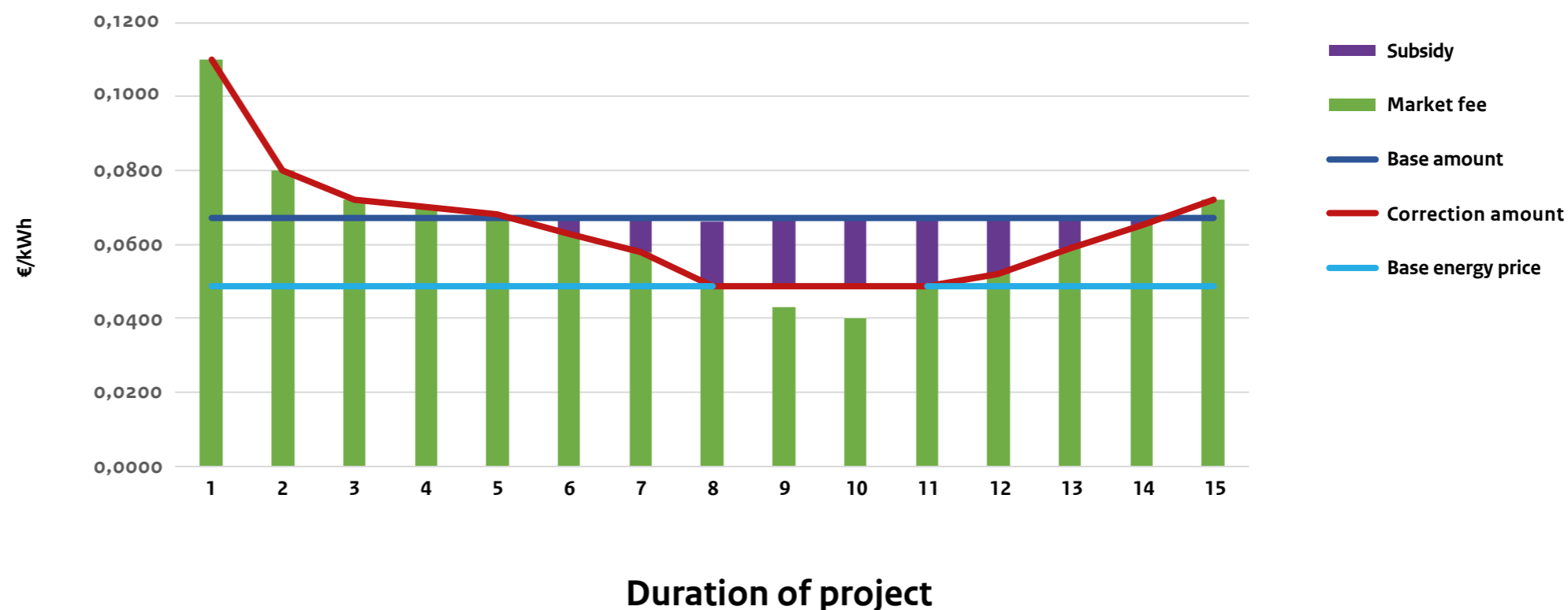
It could be that your subsidy application for a previous round of applications was approved, but you can no longer develop this project under the conditions of the subsidy, for example, because the costs are higher than you estimated. In this case, you can resubmit your application.

Before reapplying for a subsidy, you must submit a reasoned request to us to withdraw your current subsidy decision, stating why the project cannot be developed based on this decision. This request can be sent to sde@rvo.nl, stating your SDE project number. We will assess whether the current subsidy decision can be withdrawn. If you submit a new application before your current subsidy decision has been withdrawn, the new application will have to be rejected. This is because the scheme allows for no more than 1 positive decision to be issued for each power generation facility.

SDE++ subsidy amount

The SDE++ subsidy is equal to the application amount minus the correction amount. If the correction amount is equal to the base energy price or base greenhouse gas price, you will be granted the maximum subsidy. If the correction amount is higher than the application amount, you will not receive a subsidy. The graph below illustrates how this system works.

**Example mechanism unprofitable component compensation SDE++
Solar PV ≥ 1 MWp roof-bound (non-grid supply)**



High energy or carbon prices

In case of high energy or carbon prices, the correction amount may be higher than the application amount. If this is the case you will not receive a subsidy. We advise you to take this mechanism into account in the contracts with your customers.

Subsidy decision

The subsidy granted to you by the Netherlands Enterprise Agency (RVO) in the decision is the maximum amount you can receive over the entire duration of the subsidy (12 or 15 years, depending on the technology). We determine this maximum amount based on the power output of the facilities and the targeted production. The actual production is capped based on a maximum number of [full-load hours](#) for each technology. In practice, the actual subsidy amount you receive will almost always be lower than the maximum amount of the subsidy decision.

**Maximum SDE++ contribution =
(application amount – basic energy price or basic greenhouse gas amount) * production or CO₂ reduction**

Payment of the SDE++ subsidy

We will pay the SDE++ subsidy in the form of monthly advances. After the end of each calendar year, the subsidy is adjusted based on the actual production or CO₂ reduction and the final correction amount.

Negative electricity prices

If you have received a subsidy for renewable electricity production but the price of electricity is negative, you will not receive an SDE++ subsidy for the feed-in of renewable electricity. If you are granted a subsidy in the 2023 round of applications, this subsidy will apply to power generation facilities with a rated power output of 200 kW or more. If you were granted a subsidy in any round of applications between 2015 and 2023, the limit of 500 kW or more for solar PV, hydropower and osmosis and 3 MW or more for wind energy will continue to apply.

We will initially correct the amount of subsidies approved from 2023 on the basis of the negative-priced hours. The electricity prices (day-ahead) are fixed on an hourly basis. Should these prices be fixed every 15 minutes in the future, we will correct the subsidies accordingly. The old conditions remain in force for subsidies approved in previous rounds of applications and we will correct these amounts based on periods with a negative price of 6 continuous hours or longer.

SDE++-technics

Main category



Renewable electricity

Technology

Osmose
Hydropower
Wind
Solar PV



Renewable gas

Biomass fermentation
Biomass gasification



Renewable heat

Biomass fermentation
Biomass gasification
Composting
Solar thermal energy
Geothermal energy

Main category



Low carbon heat

Technology

Aquathermal energy
Air-water heat pump
Daylight greenhouses
Solar PVT panels with heat pump
Electric boilers
Geothermal energy with heat pump
Waste heat utilisation
Industrial heat pump



Low-carbon production

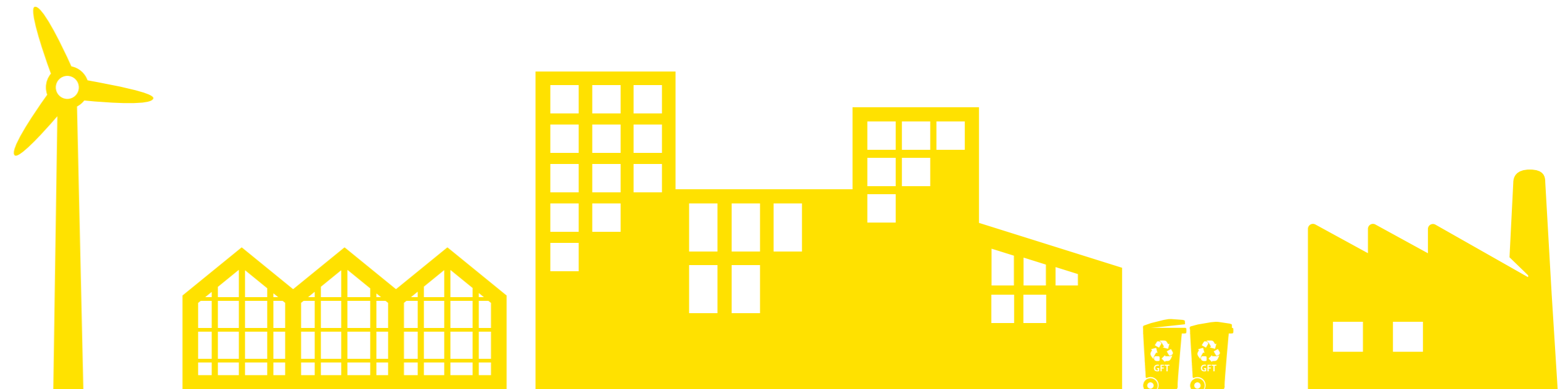
Electrolytic hydrogen production
Carbon capture and storage (CCS)
Carbon capture and use in greenhouse horticulture (CCU)
Advanced renewable fuels



Renewable electricity



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Renewable electricity

The ‘Renewable electricity’ SDE++ category includes the technologies ‘Osmosis’, ‘Wind’, ‘Hydropower’ and ‘Solar PV’. This section explains the general conditions for electricity production in SDE++ 2023 and the technology-specific application conditions. The table ‘Phases and tariffs for renewable electricity in SDE++ 2023’ at the end of this section provides an overview of the categories, associated phase amounts, full-load hours and other key figures.

Required attachments

If you are applying for one of the renewable electricity categories, you must include a number of attachments with your application. These are explained in [‘Documents to attach to renewable electricity applications’](#), which follows this section.

Osmosis

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

Hydropower

Only energy derived from water that is not specially pumped upwards for the purpose of generating energy is applicable for the SDE++ subsidy. Subsidies are available for 3 categories:

- New hydroelectric power plants with a hydraulic drop < 50 cm. Various types of power generating facilities fall under this category, such as facilities based on free-flowing water, water turbines based on tidal energy with a hydraulic drop < 50 cm, and facilities for converting wave energy into renewable electricity.
- New hydroelectric power plants with a hydraulic drop ≥ 50 cm.
- Renovation of existing hydroelectric power plants with new turbines and a hydraulic head ≥ 50 cm. All applications under this category must apply to turbines that are newly installed in existing plants. The other components do not have to be new.

Wind

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

Wind speeds

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

- ≥ 8.5 m/s
- ≥ 8 and < 8.5 m/s
- ≥ 7.5 and < 8.0 m/s

- ≥ 7.0 and < 7.5 m/s
- ≥ 6.75 and < 7.0 m/s
- < 6.75 m/s

Wind map

We use the wind map for all wind categories. The map, [‘Windsnelheid per gemeente in Nederland’](#) (Wind speed per municipality in the Netherlands), shows the average wind speed for each Dutch municipality and is based on a wind map produced by the Royal Dutch Meteorological Institute (KNMI). The SDE++ 2023 scheme applies the municipal wind speed categories established on 1 January 2022. You will find a list of municipalities in Annex 2 of the [‘Aanwijzingsregeling SDE-categorieën’](#).

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. You can select the appropriate municipality when you submit your subsidy application through the online portal (eLoket). 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 further divided into districts and neighbourhoods, so keep this in mind when selecting a municipality in eLoket.

Large-scale grid connection

The 'Wind' category is open only for wind turbines that are connected to the electricity grid with a large-scale grid connection (this is a connection to the electricity grid with a total maximum power output of more than 3 x 80 A).

If you are a producer with a small grid connection, you might be entitled to these subsidies:

- [Subsidieregeling Coöperatieve Energieopwekking \(SCE\)](#).
- [Investeringssubsidie duurzame energie en energiebesparing \(ISDE\)](#).

Combined applications

You can also combine applications for wind categories. This may be useful if you want to implement a project in collaboration with other applicants, but only if all of the applications have been separately approved. If the subsidy

applications received on any one day exceed the available budget, we will rank the applications by subsidy intensity in euros per tonne of CO₂ reduction. In the case of combined applications, the highest amount of the applications in the combination will apply. If it becomes necessary to draw lots, the combined applications will be treated as a single application.

Onshore wind with a height restriction

The 'Onshore wind with a height restriction' category is a new addition to the SDE++ scheme. This is due to national laws and regulations that apply if an airport is located in the surrounding area. 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, you must indicate 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 PBL's ['Notitie hoogtebeperkte categorie Wind op land'](#) memorandum.

The 'Aviation Height Restrictions' viewer can be found on the ['Hoogtebeperkingen luchtvaart'](#) page of RVO's website. The map layers of the Ministry of Defence and the Human Environment and Transport Inspectorate (ILT) in the viewer apply to height restrictions near airports. A height restriction may apply due to the presence of an airport in the surrounding

area. The tip height of wind turbines in that area is legally limited to 150 metres.

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 erected in the protection zone of the flood defences. For a list of eligible flood defences, see Chapter 5 of Annex II of the 2017 ['Regeling veiligheid primaire waterkeringen'](#).

You may also apply for a subsidy for wind turbines erected 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 ['Wind op waterkering SDE+'](#) map provides an overview of the inland and coastal flood defences.

Replacement of wind turbines

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

- Both the rated power output and the targeted power output of each new wind turbine are minimum 1 MW greater than the old turbine. or
- The old wind turbine has been in use at the location for minimum 15 years (up until the date of replacement) and started operation at least 13 years before the subsidy application was submitted.

Solar PV

You can apply for a subsidy for photovoltaic solar panels (solar PV). These must be solar panels with a peak output of ≥ 15 kWp and a connection to the grid with a total maximum power output of more than 3×80 A (a large-scale grid connection).

New in SDE++ 2023

1. The peak power limits have been changed for some categories of onshore solar PV and onshore solar tracking systems. Whereas in the previous round of applications the peak power limit was 15 MWp, this is now 20 MWp. PBL studies have revealed that this more closely ties in with the limits of the grid connections.
2. Power generation facilities may only have an additional contracted feed-in capacity of maximum 50% of the peak power output of the solar panels. As of 2023, this restriction

has been extended to include power generation facilities < 1 MWp. This restriction already applied to power generation facilities ≥ 1 MWp and does not apply to solar tracking systems.

The following 10 solar PV categories are included in this round of applications:

- ≥ 15 kWp and < 1 MWp, on buildings
- ≥ 1 MWp, on buildings
- ≥ 15 kWp and < 1 MWp, floating
- ≥ 1 MWp, floating
- ≥ 15 kWp and < 1 MWp, onshore
- ≥ 1 MWp and < 20 MWp, onshore
- ≥ 20 MWp, onshore
- ≥ 1 MWp and < 20 MWp, onshore solar tracking systems
- ≥ 20 MWp, onshore solar tracking systems
- ≥ 1 MWp, floating solar tracking systems

Large-scale grid connection

The 'Solar PV' category applies solely to facilities with a large-scale grid connection (this is a connection to the electricity grid with a total maximum power output of more than 3×80 A). It is also possible to connect your facility to the grid using multiple large-scale grid connections.

You can also connect your power generation facility to the electricity grid using the large-scale grid connection of an adjacent site, although your facility must of course be installed

at the location to which the subsidy applies. If you intend to construct a power generation facility at two adjacent sites, or if your site has multiple street numbers, describe the situation clearly in your subsidy application.

Restriction of additionally contracted feed-in capacity

For the 2023 round of applications, with the exception of solar tracking projects, all solar PV projects are subject to the restriction that any additional contracted feed-in capacity of the power generation facility may be maximum 50% of the peak power output of the solar panels. In 2022, this only applied to projects larger or equal to 1 MWp (this restriction has hence been extended). Projects are compensated for the limited loss of revenue due to less full-load hours and a higher base amount. The application form includes additional questions about the grid connection and the contracted feed-in capacity.

Several scenarios are conceivable for the feed-in capacity. For example, the subsidy application may involve a new contract or the extension of an existing one. In the case of new connections, there is no existing feed-in capacity and so the feed-in capacity in the contract may be maximum 50% of the peak power output of the solar panels. For existing contracts, the feed-in capacity allocated to other facilities (such as a wind farm or an existing solar PV system) does not have to be included in the calculation. Any feed-in capacity that is additionally included in the contract for the new power

generation facility may be maximum 50% of the peak power output of the solar panels. If your current feed-in capacity exceeds the peak power output of the existing system, you must deduct this excess capacity from the amount of the contract for the new power generation facility (maximum 50% of the peak power output).

This change allows for more renewable energy projects to be developed using the same grid capacity.

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 correction amounts apply to each type of supply. You will benefit more financially if you can use the electricity you generate for your own processes, because you will not have to pay energy tax, the sustainable energy surcharge (ODE) and transmission costs for this electricity. This means that electricity generated for ‘own use’ is subject to a higher correction amount.

The procedure is as follows:

- Indicate how much of the electricity you produce will be used for ‘non-grid supply’ (own use) in your subsidy application.
- We will base the amount of the subsidy on the base energy price for ‘grid supply’. The subsidy amount is the maximum amount you will receive during the full duration of the

subsidy. The actual amount of the subsidy will depend on various factors, including the actual ratio of ‘grid supply’ to ‘non-grid supply’ and, for example, the average market value of the energy supplied.

- We will make advance payments every autumn based on the proportion of ‘grid supply’ to ‘non-grid supply’ calculated over a recent 12-month period. To calculate the first advance payment, we will use the ‘grid supply’ and ‘non-grid supply’ percentages you specify in the application form.

Grid congestion

If you are developing a solar PV project at a location with little or no feed-in capacity, please include an explanation with your application describing the technical and financial consequences this will have for your project (because the financial returns will be affected by the reduced production capacity). In this situation, too, you must provide your grid operator’s transmission capacity statement with your subsidy application.

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 correction amounts are the same as for standard systems. A [‘haalbaarheidsstudie’](#) is required for solar tracking systems, which must include an

energy yield calculation. We will use this calculation to determine the maximum number of full-load hours.

Solar farm with fixed solar panels and solar tracking panels combined

If you wish to submit a subsidy application for a solar farm where not all of the panels are solar tracking, you will have to submit two separate applications: one for the solar tracking panels and one for the fixed panels. You only have to carry out the energy yield calculation for the solar-tracking panels. It is not possible to change categories once you have submitted the subsidy application.

Bifacial solar panels

If you wish to use bifacial solar panels for your project, you may apply for a subsidy for a higher production capacity (in kWp). In the Netherlands, the yield from these panels is maximum 15% higher (per year) compared with a system with monofacial PV panels. Please enclose an explanation showing how you calculated the production capacity of your bifacial panels with your subsidy application, substantiated with a datasheet of the model of solar panel concerned if possible.

Calculation example Solar-PV

This example is based on a building-related solar PV system with 40% grid supply and 60% non-grid supply, with a capacity of 2 MWp.

Category: Solar PV ≥ 1 MWp, building-related

Maximum application amount in phase 1	0.0804 €/kWh
Provisional GO value 2023 grid supply	0.0020 €/kWh
Provisional correction amount 2023 grid supply ¹	$0.1499 + 0.0020 = 0.1519$ €/kWh
Provisional correction amount for 2023 non-grid supply	0.1847 €/kWh
Fictitious provisional GO value 2030 grid supply	0.0020 €/kWh
Fictitious provisional correction amount 2030 grid supply ¹	$0.0740 + 0.0020 = 0.0760$ €/kWh
Fictitious provisional correction amount 2030 non-grid supply	0.1120 €/kWh

Provisional SDE++ contribution in the year 2023 for the maximum application amount in phase 1:

Grid supply ²	$8.04 - 15.19 = 0.00$ €ct/kWh = € 0.00/MWh
Non-grid supply ²	$8.04 - 18.47 = 0.00$ €ct/kWh = € 0.00/MWh

Fictitious provisional SDE++ contribution in the year 2030 for the maximum application amount in phase 1:

Grid supply ²	$8.04 - 7.60 = 0.44$ €ct/kWh = € 4.40/MWh
Non-grid supply ²	$8.04 - 11.20 = 0.00$ €ct/kWh = € 0.00/MWh

Maximum number of eligible full load hours 800 full load hours

"Total nominal capacity 2 MWp

Maximum eligible annual production for an installation with a capacity of 2 MWp **$2 * 800 = 1,600$ MWh**

Provisional SDE++ contribution in 2023 when applying for the maximum application amount in phase 1:

Grid supply: $(40\% * 1,600) * € 0.00 =$	€ 0
Non-grid supply: $(60\% * 1,600) * € 0.00 =$	€ 0

Total **€ 0**

Fictitious provisional SDE++ contribution in 2030 when applying for the maximum application amount in phase 1:

Grid supply: $(40\% * 1,600) * € 4.40 =$	€ 2,816
Non-grid supply: $(60\% * 1,600) * € 0.00 =$	€ 0

Total **€ 2,816**

¹ The provisional GO value is also included in the calculation of the provisional correction amount for this category.

² The provisional correction amount is higher than the basic amount for this category. If this is also the case for the final correction amount, you will not receive a subsidy for this part of the electricity production for this year. The SDE++ contribution cannot become negative. You do not have to pay anything in this situation.

Phasing and tariffs for renewable electricity SDE++ 2023	Maximum phase amount/base amount					Basic energy price		Provisional correction amount 2023		Maximum full load hours	Order term	Commissioning period	Grant term	Domain	
	Category	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	(with solar PV grid supply)	Solar PV non-grid supply	(with solar PV grid supply and wind including value GOs)						Non-grid solar PV
		€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh						€/kWh
Water															
Hydropower, drop height < 50 cm (including wave energy and free flow energy)	0.1015	0.1123	0.1195	0.1267	0.1267	0.0605		0.2255		3700	1,5	4	15	-	
Hydropower, drop height ≥ 50 cm	0.1015	0.1123	0.1195	0.1267	0.1267	0.0605		0.2255		5700	1,5	4	15	-	
Hydropower, drop height ≥ 50 cm, renovation	0.1015	0.1123	0.1195	0.1225	0.1225	0.0605		0.2255		2600	1,5	4	15	-	
Osmosis	0.1015	0.1123	0.1195	0.1267	0.1267	0.0605		0.2255		8000	1,5	4	15	-	
Wind															
Wind on land, ≥ 8.5 m/s	0.0530	0.0530	0.0530	0.0530	0.0530	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, ≥ 8 and < 8.5 m/s	0.0533	0.0533	0.0533	0.0533	0.0533	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, ≥ 7.5 and < 8.0 m/s	0.0585	0.0585	0.0585	0.0585	0.0585	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, ≥ 7.0 and < 7.5 m/s	0.0624	0.0624	0.0624	0.0624	0.0624	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, ≥ 6.75 and < 7.0 m/s	0.0666	0.0666	0.0666	0.0666	0.0666	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, < 6.75 m/s	0.0712	0.0714	0.0714	0.0714	0.0714	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, height-restricted ≥ 8.5 m/s	0.0543	0.0543	0.0543	0.0543	0.0543	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, height-restricted ≥ 8 and < 8.5 m/s	0.0616	0.0616	0.0616	0.0616	0.0616	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, height-restricted ≥ 7.5 and < 8.0 m/s	0.0689	0.0689	0.0689	0.0689	0.0689	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, height-restricted ≥ 7.0 and < 7.5 m/s	0.0712	0.0788	0.0788	0.0788	0.0788	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, height-restricted ≥ 6.75 and < 7.0 m/s	0.0712	0.0805	0.0850	0.0850	0.0850	0.0414		0.1880		P50	1.5	4	15	-	
Wind on land, height-restricted < 6.75 m/s	0.0712	0.0805	0.0866	0.0926	0.0926	0.0414		0.1880		P50	1.5	4	15	-	

Phasing and tariffs for renewable electricity SDE++ 2023	Maximum phase amount/base amount					Basic energy price		Provisional correction amount 2023		Maximum full load hours	Order term	Commissioning period	Grant term	Domain
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	(with solar PV grid supply)	Solar PV non-grid supply	(with solar PV grid supply and wind including value GOs)	Non-grid solar PV					
	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	Hours/year	years	years	years	
Wind on dam, ≥ 8.5 m/s	0.0590	0.0590	0.0590	0.0590	0.0590	0.0414		0.1880		P50	1.5	4	15	-
Wind on dam, ≥ 8 and < 8.5 m/s	0.0611	0.0611	0.0611	0.0611	0.0611	0.0414		0.1880		P50	1.5	4	15	-
Wind on dam, ≥ 7.5 and < 8.0 m/s	0.0665	0.0665	0.0665	0.0665	0.0665	0.0414		0.1880		P50	1.5	4	15	-
Wind on dam, ≥ 7.0 and < 7.5 m/s	0.0703	0.0703	0.0703	0.0703	0.0703	0.0414		0.1880		P50	1.5	4	15	-
Wind on dam, ≥ 6.75 and < 7.0 m/s	0.0712	0.0758	0.0758	0.0758	0.0758	0.0414		0.1880		P50	1.5	4	15	-
Wind on dam, < 6.75 m/s	0.0712	0.0804	0.0804	0.0804	0.0804	0.0414		0.1880		P50	1.5	4	15	-
Sun														
Solar-PV ≥ 15 kWp and < 1 MWp connection > 3*80 A, building-related (net = 50%)	0.0916	0.0916	0.0916	0.0916	0.0916	0.0476	0.0920	0.1519	0.1943	800	-	2	15	-
Solar-PV ≥ 1 MWp, building-related (net = 50%)	0.0804	0.0804	0.0804	0.0804	0.0804	0.0476	0.0824	0.1519	0.1847	800	1.5	3	15	-
Solar-PV ≥ 15 kWp and < 1 MWp connection > 3*80 A, floating on water (net = 50%)	0.0916	0.0916	0.0916	0.0916	0.0916	0.0476	0.0920	0.1519	0.1943	840	-	2	15	-
Solar-PV ≥ 1 MWp, floating on water (net = 50%)	0.0811	0.0811	0.0811	0.0811	0.0811	0.0476	0.0824	0.1519	0.1847	840	1.5	4	15	-
Solar-PV ≥ 15 kWp and < 1 MWp connection > 3*80 A, on land (net = 50%)	0.0916	0.0916	0.0916	0.0916	0.0916	0.0476	0.0920	0.1519	0.1943	840	-	2	15	-
Solar-PV ≥ 1 MWp and < 20 MWp, on land (net = 50%)	0.0701	0.0701	0.0701	0.0701	0.0701	0.0476	0.0824	0.1519	0.1847	840	1.5	4	15	-
Solar-PV ≥ 20 MWp, on land (net = 50%)	0.0667	0.0667	0.0667	0.0667	0.0667	0.0476	0.0824	0.1519	0.1847	840	1.5	4	15	-
Solar-PV ≥ 1 MWp and < 20 MWp, sun following on land	0.0633	0.0633	0.0633	0.0633	0.0633	0.0476	0.0824	0.1519	0.1847	1045	1.5	4	15	-

Phasing and tariffs for renewable electricity SDE++ 2023		Maximum phase amount/base amount					Basic energy price		Provisional correction amount 2023		Maximum full load hours	Order term	Commissioning period	Grant term	Domain
Category	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	(with solar PV grid supply)	Solar PV non-grid supply	(with solar PV grid supply and wind including value GOs)	Non-grid solar PV						
	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	Hours/year	years	years	years		
Solar-PV ≥ 20 MWp, sun following on land	0.0602	0.0602	0.0602	0.0602	0.0602	0.0476	0.0824	0.1519	0.1847	1045	1.5	4	15	-	
Solar-PV ≥ 1 MWp, sun following on water	0.0734	0.0734	0.0734	0.0734	0.0734	0.0476	0.0824	0.1519	0.1847	1190	1.5	4	15	-	

Documents to attach to renewable electricity applications

You must include a number of attachments with your subsidy application. In the table below you can see which attachments may be required for your technology. These attachments are explained in more detail below the table and you can also download the required formats.

Table of mandatory attachments for categories of renewable electricity	Attachments compulsory elements of the feasibility study ¹											Attachments permits			Other attachments	
	Description of the production installation	Financing plan	Substantiation of equity	Letter of intent from a financier if the intended share of equity in the investment is ≤ 20%	Operating calculation	Wind report (from > 100 kW)	Substantiation of height limitation	Detailed scale drawing of production plant	Declaration of load-bearing capacity of the roof construction	Solar energy Revenue calculation ¹¹	Energy yield calculation	Environmental permit ²	Wbr permit ²	Water permit ²	Site owner permission ²	Transport indication network operator
Water (all categories)																
Hydropower	x	x	x	x	x						x	x	x	x	x	x
Osmosis	x	x	x	x	x							x	x	x	x	x
Wind (all categories)																
Wind on land and Wind on water barrier	x	x	x	x	x	x					x ²	x	x	x	x	x
Wind on land, height limited	x	x	x	x	x	x	x				x ²	x	x	x	x	x
Solar																
Solar PV ≥ 15 kWp and < 1 MWp connection > 3*80 A, building-related	x ³	x ³						x	x			x			x	x
Solar PV ≥ 15 kWp and < 1 MWp connection > 3*80 A, ground-bound	x ³	x ³						x				x	x	x	x	x
Solar PV ≥ 15 kWp and < 1 MWp connection > 3*80 A, floating on water	x ³	x ³						x				x	x	x	x	x
Solar PV ≥ 1 MWp, building-related	x	x	x	x	x			x	x			x			x	x

Table of mandatory attachments for categories of renewable electricity

Production plant categories	Attachments compulsory elements of the feasibility study ¹											Attachments permits			Other attachments	
	Description of the production installation	Financing plan	Substantiation of equity	Letter of intent from a financier if the intended share of equity in the investment is ≤ 20%	Operating calculation	Wind report (from > 100 kW)	Substantiation of height limitation	Detailed scale drawing of production plant	Declaration of load-bearing capacity of the roof construction	Solar energy Revenue calculation ³	Energy yield calculation	Environmental permit ²	Wbr permit ²	Water permit ²	Site owner permission ²	Transport indication network operator
Solar PV ≥ 1 MWp, floating on water	x	x	x	x	x		x					x	x	x	x	x
Solar PV ≥ 1 MWp, ground-bound; and Solar PV ≥ 20 MWp, ground-bound	x	x	x	x	x		x					x	x	x	x	x
Solar PV ≥ 1 MWp, following the sun on land; and Solar PV ≥ 20 MWp, following the sun on land	x	x	x	x	x		x		x			x	x	x	x	x
Solar PV ≥ 1 MWp, following the sun on water	x	x	x	x	x		x		x			x	x	x	x	x

¹ Consult the SDE++ 2023 Feasibility Study Manual for more information.

² If applicable

³ For this category, it is sufficient to answer the questions in the digital application form in eLoket.

Note: If an installation is placed on, in or onto a building, the environmental permit must be included in your subsidy application in the case of new construction or renovation. A ground-level carport is also regarded as a building. The environmental permit must also be included in the application when installing on a monumental building or on a facade in sight.

Note: In the case of building rights obtained through a public award procedure (tender) of state land and state roofs, a draft environmental permit will suffice.

Note: (partial) permits for the installation of (underground) cabling, fencing, and (underground) pipework do not need to be submitted with your grant application."

General attachments

The general attachments apply to all renewable electricity technologies.

Feasibility study

An application for an SDE++ subsidy for renewable electricity must be supported by a [‘haalbaarheidsstudie’](#). For the ‘Solar PV’ categories with a capacity of less than 1 MWp, you can suffice with answering a number of supplementary questions about the feasibility of your project in eLoket.

The general part of the feasibility study must comprise of the following information:

- A description of the power generation facility.
- A comprehensive financing plan.
- The own funds to be invested by yourself, third parties or your shareholders. Own funds must be substantiated with documents (annual accounts/balance statements) demonstrating that the required resources (financial and otherwise) will be available when needed. If you submit several projects, you must provide proof of funding to cover the total value of these SDE++ 2023 projects.
- A declaration of intent from a financial banker if less than 20% of the total investment is covered by own funds.
- A calculation of the operational costs.

During our assessment, we may ask you additional questions about the feasibility of your project.

You can find more information about the above requirements in the [‘Handleiding haalbaarheidsstudie SDE++’](#) and the [‘Model haalbaarheidsstudie SDE++’](#).

Permits

One or more permits are usually required to develop a power generation facility. These must have been issued by a competent authority before you submit your subsidy application. If you require a permit for your power generation facility, this permit must be attached to your subsidy application. This requirement was included in the Renewable Energy Production and Climate Transition Incentive Decree (‘Besluit SDEK’) to provide more certainty (and speed up the process) when applying for subsidies under the scheme. As a general rule, only the permits for the main components of a power generation facility are required. Permits for other components such as underground cables or pipelines, fencing, etc. are not required as part of your subsidy application.

- Environmental and planning permit: If you will be installing your power generation facility in, on, or next to a planned building, you will require a permit under the Environmental Permitting (General Provisions) Act (‘Wabo’). You may also require a permit based on the environmental impact of your project.

- Please visit the service desk for environmental and planning permits ([‘Omgevingsloket’](#)) for more information.
 - A carport is also considered a building.
 - If a right of superficies has been obtained through a public tender for government-owned land and roofs, a draft environmental and planning permit will suffice.
- Public Works Management Act (‘Wbr’) permit: If the power generation 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 Wbr permit for your facility. If you would like to know more about Wbr permits, please visit the [rijkswaterstaat.nl](#) website.
- Water permit: You may also require a Water Act permit. Please visit the [‘Omgevingsloket’](#) for environmental and planning permits for more information about Water Act permits.
For example, you may need a Water Act permit for solar PV if you are applying for a subsidy for a field-based or floating system.

Transmission capacity statement from the grid operator

If you wish to apply for a subsidy to produce renewable electricity, you must include a transmission capacity statement from the grid operator. This must demonstrate that sufficient transmission capacity is available for the relevant location.

Ask your grid operator to prepare the transmission capacity statement for you. Because the transmission capacity of the electricity grid is subject to change, the transmission capacity statement must be issued specifically for the SDE++ 2023 round of applications. A transmission capacity statement requested for a previous round of the SDE+ or SDE++ scheme will not be sufficient. If you do not know who your grid operator is, consult the overview of [EAN codes](#) ('Eancodeboek'). The transmission capacity statement is not a guarantee of transport capacity.

If you are developing a project at a location with little or no feed-in capacity, please also include an explanation with your application describing the technical consequences this will have for your project.

Site owner's permission

If the applicant is not the owner of the intended site of the power generation facility, then the owner's permission must be obtained. The site owner will need to complete and sign a [form](#) ('Model toestemming locatie-eigenaar'), which gives you permission to install and operate the power generation facility.

If there are multiple owners, each owner must complete a separate form. This applies to all categories. Please note that either the subsidy applicant or the owner who completes the form must be officially registered in the land registry as the owner or leaseholder of the site.

If a right of superficies has been obtained through a public tender for government-owned land and roofs, you do not need to include the form signed by the owner with your application. Instead, you must attach the preliminary agreement ('Voorovereenkomst') or land purchase agreement ('Grondovereenkomst') you have closed with the Central Government Real Estate Agency to your subsidy application.

Additional attachments for wind applications

Wind report and Windviewer

When applying for an SDE++ subsidy for wind energy over 100 kW, you must include a wind report with the ['haalbaarheidsstudie'](#). The wind report must include a wind energy yield calculation prepared by an organisation with expertise in the field 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 from 20 to 260 metres.

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

Demonstrating a height restriction

If you are applying for a subsidy for wind turbines in an area subject to height restrictions, you must indicate this when you submit your application. You can demonstrate that a height restriction applies to your subsidy application by attaching a letter from a competent authority or quoting the relevant sections in the applicable laws and regulations.

Additional attachments for solar PV applications

Detailed map

Always include a detailed map to scale clearly showing where the solar PV system will be sited. Unclear maps or photos will not be accepted. If other facilities exist or are to be installed at the site in question, please clearly indicate this too. The map must also display the solar orientation of the system. For systems erected on buildings, calculate the available roof surface area, taking into account any skylights and climate control systems on the roof.

Load-bearing capacity

If you intend to install your power generation facility on a building, you must submit a declaration of load-bearing capacity (['Model draagkracht dakconstructie'](#)). This declaration must be signed by a structural engineer who has calculated the load-bearing capacity of the applicable roof or wall in accordance with the 2012 Buildings Decree.

During the assessment of your subsidy application, RVO may ask you to send the structural design calculations and/or contact the structural engineer to request an explanation of the declaration of load-bearing capacity. The structural engineer who carries out these calculations and signs the declaration may also be an employee of the subsidy applicant who is certified to this end. You can read more about the declaration of load-bearing capacity in the relevant fact sheet ([‘Informatieblad toelichting draagkracht dakconstructie’](#)).

This requirement has been introduced because less power generation facilities have been installed on buildings than expected, and an important reason for this is that previous applications ran into problems when the roof turned out to be unsuitable and it was costly to modify the roof to meet the requirements.

Energy yield calculation

If you want to apply for a solar tracking system, you will need to include an energy yield calculation with the [‘haalbaarheidsstudie’](#).

We use this calculation to determine the maximum number of full-load hours. You can read more about this requirement in the feasibility study guide.

Installing bifacial solar panels

If you will be installing bifacial solar panels, you must explain why this system will have a higher power output than a regular solar panel system. You could substantiate this with a datasheet of the model of solar panel you intend to use.

Renewable gas



- Feed-in requirement
- Required attachments
- Biomass fermentation
- Biomass gasification

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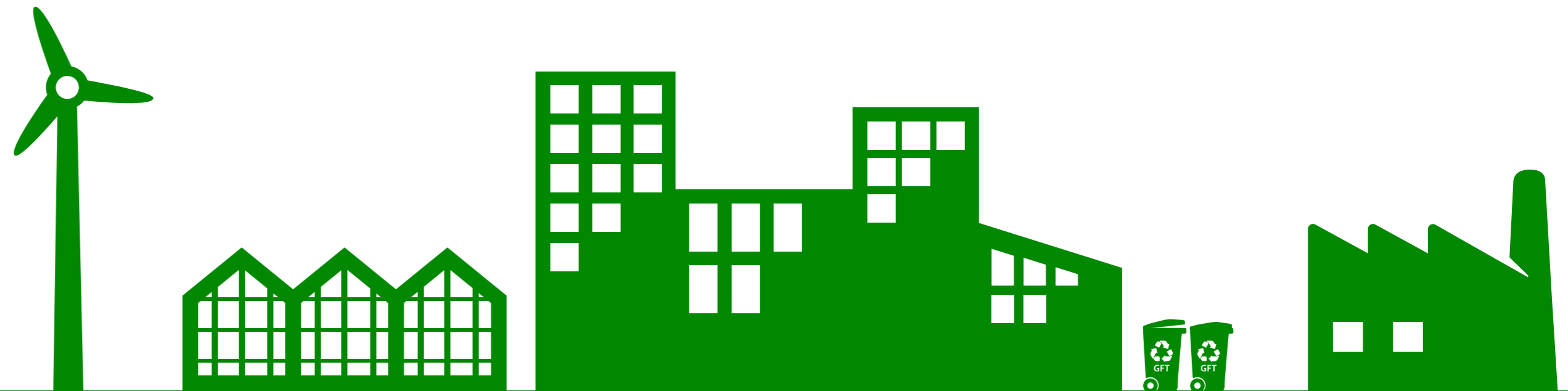
- Sustainability criteria for biomass
- Combined applications

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Documents to attach to renewable gas applications

- General attachments

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Renewable gas

The 'Renewable gas' SDE++ category includes the technologies 'biomass fermentation' and 'biomass gasification'. This section explains the general conditions for the production of renewable gas in SDE++ 2023 and the technology-specific application conditions. The table 'Phases and tariffs for renewable gas in SDE++ 2023' at the end of this section provides an overview of the categories, associated phase amounts, full-load hours and other key figures.

Feed-in requirement

One of the SDE++ conditions is 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.

Required attachments

If you are applying for one of the renewable gas categories, you must include a number of attachments with your application. These are explained in ['Documents to attach to renewable gas applications'](#).

Biomass fermentation

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 minimum 25 Nm³ natural gas equivalents 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 two output categories for manure mono-fermentation: '≤ 450 kW' and '> 450 kW'.

All-purpose fermentation and manure mono-fermentation lifetime extension

The 'All-purpose fermentation lifetime extension' and 'Manure mono-fermentation lifetime extension' categories are for SDE projects nearing the end of the subsidy period and for converting existing [CHP](#) plants to renewable gas plants.

Requests for lifetime extensions depend on which category you are applying for.

As of 2023, if you want to convert a CHP plant to a renewable gas production facility, you may apply for a lifetime extension at any time after the CHP plant has been installed. A condition is that the upgraded gas plant may not have been taken into operation when the subsidy application is submitted. This rule has been implemented to boost the production of green gas.

For all other lifetime extension categories, you may submit an application if your current subsidy expires within 3 years. This provides applicants with more certainty about the future of their power generation facility.

Sewage treatment plant (STP)

The SDE++ scheme provides incentives for improved sludge fermentation for the production of renewable heat, heat and power (CHP), or renewable gas in sewage treatment plants. This subcategory does not relate to a specific technology, which means there are more opportunities to apply innovative technologies. Moreover, sewage treatment plants vary widely in terms of size and type of facility. For an SDE++ application, you need to demonstrate that you can increase the existing biogas production capacity by minimum 25%. The facility components responsible for the increased biogas production must all be new.

Biomass gasification

There are two categories for the production of renewable gas from biomass gasification. Biosyngas plants are not entitled to a 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 account of the higher price you have to pay for clean wood.

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 criteria for biomass

The RED II sustainability criteria will apply to your power generation facility if it feeds ≥ 2 MW renewable gas into the natural gas network. These criteria can be found on our web page ‘Duurzaamheidseisen biomassa REDII SDE++’ ([REDII sustainability criteria for biomass under the SDE++ scheme](#)).

REDIII is currently being negotiated in the European Union. and will involve tighter criteria than REDII. The limits that specify the minimum output above which a facility must meet the RED sustainability criteria may also be subject to change. Be aware that facilities that are granted a subsidy for the SDE++ 2023 round of applications must comply with the new REDIII criteria.

Combined applications

You can submit a combined application for power generation facilities that together form part of a renewable gas hub. This may be useful if you want to implement a project in

collaboration with other applicants, but only if all of the applications have been separately approved. If the subsidy applications received on any one day exceed the available budget, we will rank the applications by subsidy intensity in euros per tonne of CO₂ reduction. In the case of combined applications, the highest amount of the applications in the combination will apply. If it becomes necessary to draw lots, the combined applications will be treated as a single application.

Phasing and tariffs for renewable gas SDE++ 2023	Maximum phase amount/base amount					Basic energy price	Provisional correction amount 2023	Maximum full load hours	Order term	Commissioning period	Grant term	Domain
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5							
Category	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	Hours/year	years	years	years	
Renewable gas (input gas network)												
All-purpose fermentation, gas	0.0615	0.0779	0.0889	0.0893	0.0893	0.03	0.0755	8000	1.5	4	12	Molecules
Mono-fermentation of manure > 450 kW, gas	0.0754	0.1057	0.1066	0.1066	0.1066	0.03	0.0755	8000	1.5	4	12	Molecules
Mono-fermentation of manure ≤ 450 kW, gas	0.0925	0.1400	0.1523	0.1523	0.1523	0.0300	0.0755	8000	1.5	4	12	Molecules
All-purpose fermentation extended lifespan, conversion to gas	0.0615	0.0777	0.0777	0.0777	0.0777	0.0300	0.0755	8000	1.5	4	12	Molecules
All-purpose fermentation extended lifespan, gas	0.0615	0.0733	0.0733	0.0733	0.0733	0.0300	0.0755	8000	1.5	4	12	Molecules
Mono-fermentation of manure extended lifespan ≤ 450 kW, conversion to gas	0.0949	0.1309	0.1309	0.1309	0.1309	0.0300	0.0755	8000	1.5	4	12	Molecules
Mono-fermentation of manure extended lifespan ≤ 450 kW, gas	0.0949	0.1212	0.1212	0.1212	0.1212	0.0300	0.0755	8000	1.5	4	12	Molecules
Sewage treatment plant improved sludge digestion, gas	0.0615	0.0779	0.0889	0.0999	0.1148	0.0300	0.0755	8000	1.5	4	12	Molecules
Biomass gasification (including B wood)	0.0601	0.0751	0.0797	0.0797	0.0797	0.0300	0.0755	7500	1.5	4	12	Molecules
Biomass gasification (excluding B wood)	0.0601	0.0751	0.0852	0.0952	0.1120	0.0300	0.0755	7500	1.5	4	12	Molecules

Documents to attach to renewable gas applications

You must include a number of attachments with your subsidy application. In the table below you can see which attachments may be required for your technology. These attachments are explained in more detail below the table and you can also download the required formats.

Table of mandatory attachments for categories of renewable gas	Attachments compulsory elements of the feasibility study ¹						Attachments permits		Other attachments
	Financing plan	Substantiation of equity	Letter of intent from a financier if the intended share of equity in the investment is ≤ 20%	Operating calculation	Feed-in statement with price indication from network operator (for connection > 40 Nm ³ /hour)	Energy yield calculation	Environmental permit	Wbr permit	Site owner permission ²
Production plant categories									
Renewable gas for feeding into the gas network (all categories)									
All-purpose fermentation, mono-fermentation of manure, WWTP improved sludge digestion, biomass gasification and extended lifespan	x	x	x	x	x	x	x	x	x

¹ Consult the [Handleiding haalbaarheidsstudie SDE++ 2023](#) for more information.

² If applicable

Note: If an installation is placed in a building, the environmental permit must be included in your subsidy application in the case of new construction or renovation.

Note: (partial) permits for the installation of (underground) cabling, fencing, fencing, and (underground) pipework do not need to be submitted with your grant application.

General attachments

The general attachments apply to all renewable gas technologies.

Feasibility study

An application for an SDE++ subsidy for renewable gas must be supported by a [‘haalbaarheidsstudie’](#).

The general part of the feasibility study must comprise of the following information:

- A description of the power generation facility, including the technical specifications.
- A comprehensive financing plan.
- The own funds to be invested by yourself, third parties or your shareholders. Own funds must be substantiated with documents (annual accounts/balance statements) demonstrating that the required resources (financial and otherwise) will be available when needed. If you submit several projects, you must provide proof of funding to cover the total value of these SDE++ 2023 projects.
- A declaration of intent from a financial backer if less than 20% of the total investment is covered by own funds.
- A calculation of the operational costs.
- A declaration of feed-in rights with price estimate provided by the grid operator (for connections > 40 Nm³/h).
- An energy yield calculation.
- For more complex facilities, you must also include a process flow diagram.

During our assessment, we may ask you additional questions about the feasibility of your project.

You can find more information about the above requirements in the [‘Handleiding haalbaarheidsstudie SDE++ 2023’](#) and the [‘Model haalbaarheidsstudie SDE++ 2023’](#).

Permits

One or more permits are usually required to develop a power generation facility. These must have been issued by a competent authority before you submit your subsidy application. If you require a permit for your power generation facility, this permit must be attached to your subsidy application. This requirement was included in the Renewable Energy Production and Climate Transition Incentive Decree (‘Besluit SDEK’) to provide more certainty (and speed up the process) when applying for subsidies under the scheme. As a general rule, only the permits for the main components of a power generation facility are required. Permits for other components such as underground cables or pipelines, fencing, etc. are not required as part of your subsidy application.

- Environmental and planning permit: If you will be installing your power generation facility in, on, or next to a planned building, you will require a permit under the Environmental Permitting (General Provisions) Act (‘Wabo’). You may also require a permit based on the environmental impact of your project.

If you would like more information about environmental and planning permits, please visit the [‘Omgevingsloket’](#).

- Nature Conservation Act: if your power generation facility will generate substantial nitrogen emissions during its operation (e.g. biomass plants), you must include a Nature Conservation Act permit with your subsidy application. If you would like more information about the Nature Conservation Act permit, please visit the [Bij12 website](#).

Site owner’s permission

If the applicant is not the owner of the intended site of the power generation facility, then the owner’s permission must be obtained. The site owner will need to complete and sign a form ([‘Model toestemming locatie-eigenaar’](#)), which gives you permission to install and operate the power generation facility.

If there are multiple owners, each owner must complete a separate form. This applies to all categories. Please note that either the subsidy applicant or the owner who completes the form must be officially registered in the land registry as the owner or leaseholder of the site.

Partnerships

If your project is being implemented in a partnership, please include the following information in addition to the general attachments:

- A list of all the partners in the project (required).

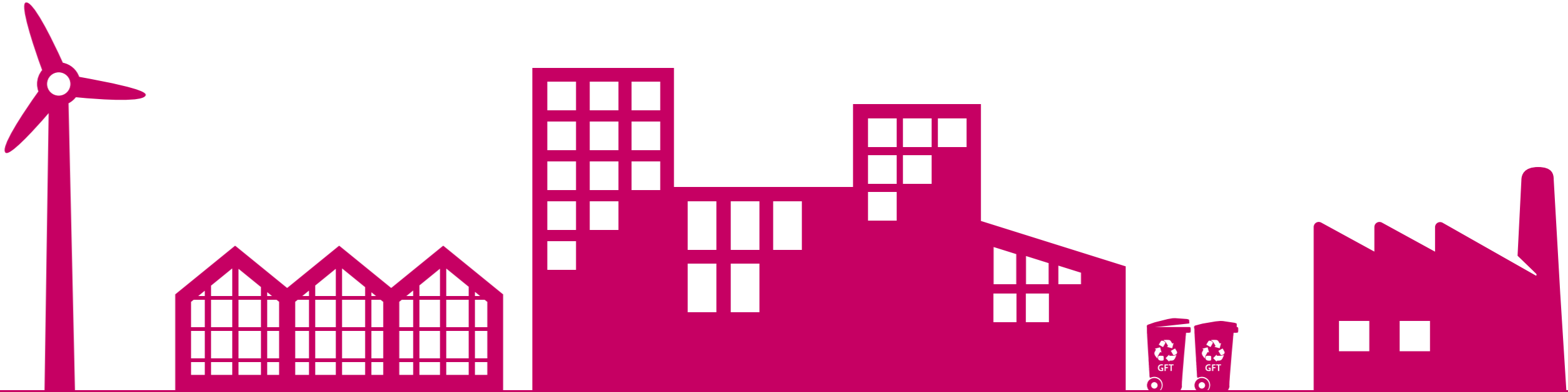
- A partnership agreement signed by all the partners in the project (or a declaration that the lead party is authorised to apply for a subsidy for this project).

A partnership agreement template can be found on the page [‘Downloads en hulpmiddelen bij uw aanvraag SDE++’](#).

Renewable heat



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• Sewage treatment plant, improved sludge fermentation	35	• Additional attachments for geothermal energy applications	44
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Renewable heat

The 'Renewable heat' SDE++ category includes the technologies 'Biomass (fermentation and combustion)', 'Composting', 'Deep and ultra-deep geothermal energy' and 'Solar thermal energy'. This section explains the general conditions for the production of renewable heat in SDE++ 2023 and the technology-specific application conditions. The table 'Phases and tariffs for renewable heat in SDE++ 2023' at the end of this section provides an overview of the categories, associated phase amounts, full-load hours and other key figures.

Emissions 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 factor that ETS benefit into the correction amount. This situation may change during the production period. Under the SDE++ scheme, it is possible to adjust this correction during the production period.

ETS benefits may apply to renewable heat production if the power generation facility forms part of an ETS system. The Netherlands Environmental Assessment Agency (PBL) has calculated an ETS correction for each category of power generation facility based on the most representative use of the

heat produced. If the power generation facility does not form part of an ETS system (based on the assessment of the subsidy application), this part of the correction amount will not be applicable and will be set at zero.

The subsidy for biomass fermentation combined with generation of renewable electricity and renewable heat is corrected with a generic ETS correction based on the heat share (calculated using the CHP factor of PBL's reference plant). Here too, the ETS correction is only applied if the power generation facility forms part of an ETS system.

Required attachments

If you are applying for one of the renewable heat categories, you must include a number of attachments with your application. These are explained in ['Documents to attach to renewable heat applications'](#), which follows this section.

Biomass fermentation

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, combined heat and power (CHP), or renewable gas. This is subject to the condition that the biogas yield from the

incoming biomass stream must be minimum 25 Nm³ natural gas equivalents per tonne. For combined heat and power (CHP), the rated power output is determined by adding together the electrical and thermal outputs.

Manure mono-fermentation

Manure mono-fermentation is used for the production of heat, combined heat and power (CHP), or renewable gas. The input must consist exclusively of livestock manure, with no co-products. There are two output categories for manure mono-fermentation: '≤ 450 kW' and '> 450 kW'.

For combined heat and power (CHP), the rated power output is determined by adding together the electrical and thermal outputs.

All-purpose fermentation and manure mono-fermentation lifetime extension

The 'All-purpose fermentation lifetime extension' and 'Manure mono-fermentation lifetime extension' categories are for SDE projects for which the subsidy period is nearing its end. The involved operating expenses and renovation expenses mean that these projects will usually have an unprofitable component. You may submit an application if your current subsidy expires within three years. This provides applicants

with more certainty about the future of their power generation facility.

Combined applications

You can also combine applications for power generation facilities based on manure mono-fermentation and all-purpose fermentation. This may be useful if you want to implement a project in collaboration with other applicants, but only if all of the applications have been separately approved. If the subsidy applications received on any one day exceed the available budget, we will rank the applications by subsidy intensity in euros per tonne of CO₂ reduction. In the case of combined applications, the highest amount of the applications in the combination will apply. If it becomes necessary to draw lots, the combined applications will be treated as a single application.

Sewage treatment plant, improved sludge fermentation

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 more opportunities to apply innovative technologies. Moreover, sewage treatment plants vary widely in terms of size and type of facility. For an SDE++ application, you need to demonstrate that you can increase the existing biogas production by minimum 25%. The facility components responsible for the increased biogas production must be new.

Biomass combustion

Renewable heat and renewable electricity from biomass combustion may be eligible for a subsidy. There are nine such 'Biomass combustion' categories.

Wood biomass for high-grade heat only

As of 2021, subsidies are no longer available for facilities where wood biomass (e.g. thinnings and wood chips) is used to produce low-grade heat. Subsidies are available for facilities that use wood biomass to produce high-grade heat (> 100°C) if the heat generated is used in an industrial application. Horticultural applications are not eligible. The 100°C requirement applies to the first user of the heat.

For the production of heat or combined heat and power 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 ≥ 0.5 MWth and ≤ 100 MWe for district heating.
- Liquid biomass boilers with an output of ≥ 0.5 MWth and ≤ 100 MWe for all other applications.
- Large solid or liquid biomass boiler with a thermal capacity of ≥ 5 MWth.
- B-grade wood boiler with an output of ≥ 5 MWth.

- Lifetime extension for solid or liquid biomass boilers with a minimum output of 5 MWth that have previously received an SDE subsidy.
- Steam boilers fired with sustainable wood pellets with a minimum output of 5 MWth and < 50 MWth. Steam boiler on sustainable wood pellets with a minimum capacity of ≥ 50 MWth
- Burners fired with sustainable wood pellets for industrial applications, with an output of ≥ 5 MWth (existing components may be used for this category). An upper limit of 100 MW power output applies here.

Heat or CHP

For all 9 categories, generating both heat and electricity is permitted. The base amount and correction amount are calculated on the basis of the estimated heat supply.

This is why there are no longer requirements for the electricity yield of the facility. 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'](#).

Liquid biomass boilers ≥ 0.5 MWth

Due to the variety of applications of the generated heat and the possible ETS benefits associated with it, as of 2023,

the category for liquid biomass boilers is divided into subcategories for district heating and for all other applications.

You can submit a subsidy application for either subcategory if your power generation facility was granted an SDE subsidy in a previous round of applications. Owing to changing conditions, some facilities currently achieve more full-load hours than was previously possible. To avoid the risk of over-incentivisation, the base amount for this type of facility does not take account of the cost price of a boiler.

In addition, in any production year, you must use up the full amount of the previous subsidy before you can receive any subsidy for the new application. You must demonstrate the sustainability of the liquid biomass system every year in a report.

Lifetime extension

'Lifetime extension' categories have been included for facilities in the categories for the combustion of biomass (waste streams) for the generation of combined heat and power. The 'Lifetime extension' categories are for SDE projects for which the subsidy period is nearing its end.

The involved operating expenses mean that these projects will usually have an unprofitable component. That is why a lifetime extension category has been opened for applications for projects with an SDE subsidy that is due to expire within three

years. A lifetime extension category has also been opened for applications for power generation facilities with an output of ≥ 5 MWth. A requirement of the lifetime extension subsidy is that woody biomass may only be used for producing high-grade heat ($> 100^{\circ}\text{C}$) for an industrial application. Horticultural applications are not eligible. The 100°C requirement applies to the first user of the heat.

Fuel requirements

B-grade wood is excluded for most boilers. When calculating the base amount for these facilities, we therefore take account of 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 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 submitted an application in a category specifically intended for boilers using sustainable wood pellets as fuel, you may generate up to 15% of the energy using A-grade wood pellets and up to 25% using waste streams from biomass refining. In the SDE++ scheme, 'biorefining' is considered to be a process in which the primary product replaces a fossil raw material. 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 biorefinery waste stream.

If your application is for a 'Solid or liquid biomass boiler', 'Wood pellet steam boiler', 'B-grade wood boiler', or a 'Lifetime extension for solid or liquid biomass boilers',

At least 97% of the [energy value](#) of the fuel used must be biogenic. This excludes 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 the sustainability criteria. Different requirements apply for the following categories:

- Wood pellet steam boiler with an output of ≥ 5 MW.
- Wood pellet burner with an output of ≥ 5 MWth and ≤ 100 MWe.

These categories must comply with the regulations on the conformity assessment of solid biomass for energy applications.

For other technologies that use solid, liquid and gaseous biomass, the sustainability requirements in REDII must be met if the power output of the facility exceeds the above limits. REDIII is currently being negotiated in the European Union.

At this time the REDIII is being negotiated in the European Union. The REDIII will involve tighter criteria than REDII. The limits that specify the minimum output above which a facility must meet the RED sustainability criteria may also be subject to change. Be aware that facilities that are granted a subsidy for the SDE++ 2023 round of applications must comply with the new REDIII criteria.

The current criteria and limits are explained in more detail on our web pages 'Duurzaamheidseisen biomassa in pelletinstallaties SDE++' ([Sustainability criteria for biomass in pellet facilities under the SDE++ scheme](#)) and 'Duurzaamheidseisen biomassa REDII SDE++' ([REDII sustainability criteria for biomass under the SDE++ scheme](#)). You may also provide certificates of sustainability schemes approved by the European Commission under RED II to demonstrate the sustainability of biomass facilities (these certificates are published by the European Commission).

Composting

The composting process produces a large amount of low-grade heat. This low-grade heat can be used to heat buildings or greenhouses. In this category, you may only use biomass with NTA code 8003:2017 (composting). An exception is manure (numbers 300 to 329 under NTA code 8003:2017), which may not be used under this category. There are currently no sustainability requirements for composting. If the output limits are changed in REDIII, composting facilities may well come to

fall under the REDIII sustainability requirements. Be aware that facilities that are granted a subsidy in the 2023 SDE++ round of applications must also comply with the new REDIII criteria.

Solar thermal energy

You can submit an application for an SDE++ subsidy for the 'Solar thermal energy' category. This category applies to facilities that exclusively deploy 'covered collectors' or 'tracking concentrating collectors' with a total thermal output of ≥ 140 kW. State the aperture area or the effective surface area of the mirrors or lenses for concentrating sunlight in the subsidy application.

There are two output classes for solar thermal energy. Since larger systems are more cost efficient, a lower base amount is calculated for this category. The base energy price and correction amount also differ for small and large facilities. The lower limit for solar thermal energy in the SDE++ scheme is 140 kWth. Smaller systems may be entitled to the [Investeringssubsidie duurzame energie en energiebesparing \(ISDE\)](#).

The thermal output of the facility in kW is equal to the total aperture area of the covered collectors or the effective surface area of the mirrors or lenses for concentrating sunlight (both 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 (e.g. a pane of glass or a glass tube) provides insulation. The glazing of a greenhouse is a translucent layer, and PVT panels also have a translucent layer, but neither of these form an integrated whole with the light-absorbing surface.

For this reason, neither is eligible for this category. You can, however, apply for a subsidy for PVT systems or daylight greenhouses under the 'Solar PVT panels with a heat pump' or 'Daylight greenhouses' category. These categories are explained under the section on [low-carbon heat](#) technologies.

Geothermal energy

Geothermal energy 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 and deep geothermal energy combined with a heat pump as a component of a power generation facility falls under the category of low-carbon heat. Renewable heat and low-carbon heat include a number of categories:

Geothermal renewable heat

- Geothermal energy system with a minimum depth of 1,500 metres and a power output of:
 - ≤ 12 MWth
 - > 12 MWth and ≤ 20 MWth, or
 - > 20 MWth
- Geothermal energy system with a minimum depth of 4,000 metres.
- Geothermal energy system with a minimum depth of 1,500 metres, in which existing oil or gas wells are used for 1 or both wells in the doublet and with a power output of:
 - ≤ 12 MWth
 - > 12 MWth and ≤ 20 MWth, or
 - > 20 MWth
- Geothermal energy system involving expansion of a power generation facility with at least one additional well with a minimum depth of 1,500 metres.
- Geothermal energy system with a minimum depth of 1,500 metres of which the heat is used in the built environment based on 5,000 full-load hours.
- Geothermal energy system with a minimum depth of 1,500 metres of which the heat is used in the built environment based on 3,500 full-load hours.

Geothermal low-carbon heat

- Geothermal energy system with a depth between 500 and 1,500 metres, of which the heat is upgraded using a heat

pump with a COP of minimum 3.0 and based on 3,500 full-load hours.

- Geothermal energy system with a depth between 500 and 1,500 metres, of which the heat is upgraded using a heat pump with a COP of minimum 3.0, used in the built environment, and based on 6,000 full-load hours.
- Geothermal energy system with a minimum depth of 1,500 metres, of which the heat is upgraded using a heat pump with a COP of minimum 3.0, with all the produced heat used in a heating system for the built environment with a user supply temperature of minimum 90°C in the heating season and based on 6,000 full-load hours. The user is the first user of the heat.

For these three categories, the compression heat pump must have a rated thermal output of minimum 500 kWth. Only heat pumps with halogen-free refrigerants may be used as of the 2023 round of applications.

Phasing and tariffs for renewable heat and CHP SDE++ 2023	Maximum phase amount/base amount					Basic energy price	Provisional energy price correction for 2023	Provisional ETS correction 2023	Maximum full load hours	Order term	Commissioning period	Grant term	Domain
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5								
Category	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	hours/year	years	years	years	
Biomass combined generation of electricity and heat													
All-purpose fermentation, combined generation	0.0853	0.0853	0.0853	0.0853	0.0853	0.0515	0.1608	0.0089	7625	1.5	4	12	-
All-purpose fermentation extended lifespan, combined generation	0.0705	0.0705	0.0705	0.0705	0.0705	0.0515	0.1608	0.0089	7625	1.5	4	12	-
Mono-fermentation of manure, combined generation ≤ 450 kW	0.1746	0.2039	0.2039	0.2039	0.2039	0.0726	0.1981	0.0063	4989	1.5	4	12	-
Mono-fermentation of manure extended lifespan, combined generation ≤ 450 kW	0.1427	0.1427	0.1427	0.1427	0.1427	0.0726	0.1981	0.0063	4989	1.5	4	12	-
Mono-fermentation of manure, combined generation > 450 kW	0.1160	0.1180	0.1180	0.1180	0.1180	0.0554	0.1888	0.0051	6060	1.5	4	12	-
Sewage treatment plant improved sludge digestion, combined generation	0.0959	0.1105	0.1202	0.1299	0.1299	0.0557	0.1775	0.0007	5728	1.5	4	12	-
Biomass heat													
All-purpose fermentation, heat	0.0737	0.0737	0.0737	0.0737	0.0737	0.0430	0.0993	0.0174	7000	1.5	4	12	LT heat
All-purpose fermentation extended lifespan, heat	0.0679	0.0679	0.0679	0.0679	0.0679	0.0430	0.0993	0.0174	7000	1.5	4	12	LT heat
Mono-fermentation of manure, heat ≤ 450 kW	0.1234	0.1399	0.1399	0.1399	0.1399	0.0430	0.0993	0.0174	6500	1.5	4	12	LT heat
Mono-fermentation of manure extended lifespan, heat ≤ 450 kW	0.0960	0.0960	0.0960	0.0960	0.0960	0.0430	0.0993	0.0174	6500	1.5	4	12	LT heat
Mono-fermentation of manure, heat > 450 kW	0.0988	0.1004	0.1004	0.1004	0.1004	0.0430	0.0993	0.0174	6000	1.5	4	12	LT heat
Sewage treatment plant improved sludge digestion, heat	0.0819	0.0980	0.0980	0.0980	0.0980	0.0430	0.0993	0.0017	7000	1.5	4	12	LT heat
Composting plant, heat	0.0563	0.0563	0.0563	0.0563	0.0563	0.0430	0.0993	0.0017	5200	1.5	4	12	LT heat
Biomass heat (of combined generation of electricity and heat)													
Liquid biomass boiler, district heating	0.0819	0.0826	0.0826	0.0826	0.0826	0.043	0.0993	0.0017	7000	1.5	4	12	HT heat
Liquid biomass boiler, other applications	0.0819	0.0826	0.0826	0.0826	0.0826	0.043	0.0993	0.0174	7000	1.5	4	12	HT heat
Small boiler on solid or liquid biomass	0.0715	0.0715	0.0715	0.0715	0.0715	0.043	0.0993	0.0174	3000	1.5	4	12	HT heat

Phasing and tariffs for renewable heat and CHP SDE++ 2023	Maximum phase amount/base amount					Basic energy price	Provisional energy price correction for 2023	Provisional ETS correction 2023	Maximum full load hours	Order term	Commissioning period	Grant term	Domain
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5								
Category	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	hours/year	years	years	years	
Large solid or liquid biomass boiler (4,500 full load hours)	0.0553	0.0611	0.0611	0.0611	0.0611	0.0233	0.0588	0.0174	4500	1.5	4	12	HT heat
Large solid or liquid biomass boiler (5,000 full load hours)	0.0553	0.0601	0.0601	0.0601	0.0601	0.0233	0.0588	0.0174	5000	1.5	4	12	HT heat
Large solid or liquid biomass boiler (5,500 full load hours)	0.0553	0.0591	0.0591	0.0591	0.0591	0.0233	0.0588	0.0174	5500	1.5	4	12	HT heat
Large solid or liquid biomass boiler (6,000 full load hours)	0.0553	0.0584	0.0584	0.0584	0.0584	0.0233	0.0588	0.0174	6000	1.5	4	12	HT heat
Large solid or liquid biomass boiler (6,500 full load hours)	0.0553	0.0575	0.0575	0.0575	0.0575	0.0233	0.0588	0.0174	6500	1.5	4	12	HT heat
Large solid or liquid biomass boiler (7,000 full load hours)	0.0553	0.0570	0.0570	0.0570	0.0570	0.0233	0.0588	0.0174	7000	1.5	4	12	HT heat
Large solid or liquid biomass boiler (7,500 full load hours)	0.0553	0.0568	0.0568	0.0568	0.0568	0.0233	0.0588	0.0174	7500	1.5	4	12	HT heat
Large solid or liquid biomass boiler (8,000 full load hours)	0.0553	0.0563	0.0563	0.0563	0.0563	0.0233	0.0588	0.0174	8000	1.5	4	12	HT heat
Large solid or liquid biomass boiler (8,500 full load hours)	0.0553	0.0558	0.0558	0.0558	0.0558	0.0233	0.0588	0.0174	8500	1.5	4	12	HT heat
Large solid or liquid biomass boiler extended lifespan	0.0436	0.0436	0.0436	0.0436	0.0436	0.0233	0.0588	0.0174	8000	1.5	4	12	HT heat
Large boiler on B-wood	0.0338	0.0338	0.0338	0.0338	0.0338	0.0233	0.0588	0.0174	7500	1.5	4	12	HT heat
Large steam boiler on wood pellets ≥ 5 MWth and < 50 MWth	0.0553	0.0757	0.0830	0.0830	0.0830	0.0233	0.0588	0.0174	8500	1.5	4	12	HT heat
Large steam boiler on wood pellets ≥ 50 MWth	0.0553	0.0757	0.0892	0.0910	0.0910	0.0233	0.0588	0.0174	8500	1.5	4	12	HT heat
Direct use (burner) of wood pellets for industrial applications	0.0635	0.0635	0.0635	0.0635	0.0635	0.0387	0.0893	0.0174	3000	1.5	4	12	HT heat

Phasing and tariffs for renewable heat and CHP SDE++ 2023	Maximum phase amount/base amount					Basic energy price	Provisional energy price correction for 2023	Provisional ETS correction 2023	Maximum full load hours	Order term	Commissioning period	Grant term	Domain
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5								
Category	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	hours/year	years	years	years	
Geothermal heat													
Deep geothermal energy < 12 MWth (6000 full load hours)	0.0595	0.0595	0.0595	0.0595	0.0595	0.0233	0.0588	0.0017	6000	3.0	5	15	LT heat
Deep geothermal energy ≥ 12 and < 20 MWth (6000 full load hours)	0.0531	0.0531	0.0531	0.0531	0.0531	0.0233	0.0588	0.0017	6000	3.0	5	15	LT heat
Deep geothermal energy ≥ 20 MWth (6000 full load hours)	0.0471	0.0471	0.0471	0.0471	0.0471	0.0233	0.0588	0.0017	6000	3.0	5	15	LT heat
Deep geothermal energy, conversion of existing oil and gas wells < 12 MWth (6000 full load hours)	0.0595	0.0595	0.0595	0.0595	0.0595	0.0233	0.0588	0.0017	6000	3.0	5	15	LT heat
Deep geothermal energy, conversion of existing oil and gas wells ≥ 12 and < 20 MWth (6000 full load hours)	0.0531	0.0531	0.0531	0.0531	0.0531	0.0233	0.0588	0.0017	6000	3.0	5	15	LT heat
Deep geothermal energy, conversion of existing oil and gas wells ≥ 20 MWth, base load (6000 full load hours)	0.0471	0.0471	0.0471	0.0471	0.0471	0.0233	0.0588	0.0017	6000	3.0	5	15	LT heat
Deep geothermal energy, heating built environment (3500 full load hours)	0.0742	0.1134	0.1240	0.1240	0.1240	0.0233	0.0588	0.0017	3500	3.0	6	15	LT heat
Deep geothermal energy, heating built environment (5000 full load hours)	0.0745	0.0973	0.0973	0.0973	0.0973	0.0233	0.0588	0.0017	5000	3.0	6	15	LT heat
Deep geothermal energy, expansion of production installation with at least one additional well (6000 full load hours)	0.0353	0.0353	0.0353	0.0353	0.0353	0.0233	0.0588	0.0017	6000	3.0	5	15	LT heat
Ultra deep geothermal energy (7000 full load hours)	0.0748	0.0814	0.0814	0.0814	0.0814	0.0233	0.0588	0.0174	7000	3.0	5	15	HT heat
Solar heat													
Solar thermal ≥ 140 kWth and < 1 MWth	0.0873	0.1077	0.1170	0.1170	0.1170	0.0485	0.1047	0.0017	600	1.5	3	15	LT heat
Solar thermal ≥ 1 MWth	0.0819	0.0986	0.0986	0.0986	0.0986	0.0430	0.0993	0.0017	600	1.5	3	15	LT heat

Documents to attach to renewable heat applications

You must include a number of attachments with your subsidy application. In the table below you can see which attachments may be required for your technology. These attachments are explained in more detail below the table and you can also download the required formats.

Table of mandatory attachments for categories of renewable heat and combined heat and power (CHP)	Attachments compulsory elements of the feasibility study ¹									Attachments permits				Other attachments		
	Financing plan	Substantiation of equity	Letter of intent from a financier if the intended share of equity in the investment is ≤ 20%	Operating calculation	Detailed scale drawing of production plant	Declaration of load-bearing capacity of the roof construction	Substantiation of heat transfer	Geological report	Energy yield calculation	Environmental permit	Wbr permit ²	Wnr permit	Water permit ²	Mining permit	Site owner permission ²	Transport indication network operator
Production plant categories																
Biomass digestion for combined generation of electricity and heat (all categories)																
All-purpose fermentation, mono-fermentation of manure, WWTP improved sludge fermentation and extended lifespan	x	x	x	x			x		x	x					x	x
Biomass digestion for heat (all categories)																
All-purpose fermentation, mono-fermentation of manure, WWTP improved sludge digestion, composting and extended lifespan	x	x	x	x			x		x	x					x	
Biomass combustion in boilers for heat (or combined electricity and heat generation) (all categories)																
Biomass combustion in boilers	x	x	x	x			x		x	x					x	
Geothermal energy (all categories)																
(Ultra) deep geothermal energy	x	x	x	x			x	x						x	x	
Solar thermal energy																
Solar thermal energy ≥ 140 kW and < 1 MW and solar thermal energy ≥ 1 MW	x	x	x	x	x	x ²	x			x ²	x		x		x	

¹ Consult the SDE++ 2023 Feasibility Study Manual for more information.

² If applicable

Note: If an installation is placed in a building, the environmental permit must be sent with your subsidy application in the case of new construction or renovation.

Note: (partial) permits for the installation of (underground) cabling, fencing, and (underground) pipework do not need to be submitted with your grant application.

General attachments

The general attachments apply to all renewable heat technologies.

Feasibility study

An application for an SDE++ subsidy for renewable heat must be supported by a [‘haalbaarheidsstudie’](#).

The general part of the feasibility study must comprise of the following information:

- A description of the power generation facility.
- A comprehensive financing plan.
- The own funds to be invested by yourself, third parties or your shareholders. Own funds must be substantiated with documents (annual accounts/balance statements) demonstrating that the required resources (financial and otherwise) will be available when needed. If you submit several projects, you must provide proof of funding to cover the total value of these SDE++ 2023 projects.
- A declaration of intent from a financial backer if less than 20% of the total investment is covered by own funds.
- A calculation of the operational costs.
- A substantiation of the heat output.

During our assessment, we may ask you additional questions about the feasibility of your project.

You can find more information about the above requirements in the [‘Handleiding haalbaarheidsstudie SDE++’](#) and the [‘Model haalbaarheidsstudie SDE++’](#).

Permits

One or more permits are usually required to develop a power generation facility. These must have been issued by a competent authority before you submit your subsidy application. If you require a permit for your power generation facility, this permit must be attached to your subsidy application. This requirement was included in the Renewable Energy Production and Climate Transition Incentive Decree (‘Besluit SDEK’) to provide more certainty (and speed up the process) when applying for subsidies under the scheme. As a general rule, only the permits for the main components of a power generation facility are required. Permits for other components such as underground cables or pipelines, fencing, etc. are not required as part of your subsidy application.

- Environmental and planning permit: If you will be installing your power generation facility in, on, or next to a planned building, you will require a permit under the Environmental Permitting (General Provisions) Act (‘Wabo’). You may also require a permit based on the environmental impact of your project.
- If you would like more information about environmental and planning permits, please visit the [‘Omgevingsloket’](#).

- Nature Conservation Act: if your power generation facility will generate substantial nitrogen emissions during its operation (e.g. biomass plants), you must include a Nature Conservation Act permit with your subsidy application. If you would like more information about the Nature Conservation Act permit, please visit the [Bij12 website](#).
- Public Works Management Act (‘Wbr’) permit: If the power generation 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 Wbr permit for your facility. If you would like to know more about Wbr permits, please visit the [rijkswaterstaat.nl](#) website.
- Mining Act permits: If your application concerns a geothermal energy project, please include an exploration permit. (or the production licence of an existing geothermal energy project for which no new exploration permit is required).
- Water permit: You may also require a Water Act permit. Please visit the [‘Omgevingsloket’](#) for more information about Water Act permits.

Transmission capacity statement 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 for CHP at a sewage treatment plant, and your facility requires a large-scale grid connection (> 3 x 80 A), you must include the grid operator's transmission capacity statement for the feed-in of electricity. This statement must demonstrate that sufficient transmission capacity is available at the relevant location and must apply to the current round of applications.

Do you want to connect your production installation to a private network (GDS network)? Together with the operator of the private network, request a transmission indication from your national or regional network operator. This concerns the network operator responsible for the transfer point to which the private network is connected.

Site owner's permission

If the applicant is not the owner of the intended site of the power generation facility, then the owner's permission must be obtained. The site owner will need to complete and sign a form (['Model toestemming locatie-eigenaar'](#)), which gives you permission to install and operate the power generation facility. If there are multiple owners, each owner must complete a separate form. This applies to all categories. Please note that either the subsidy applicant or the owner who completes the

form must be officially registered in the land registry as the owner or leaseholder of the site.

Additional attachments for biomass energy applications

Wind energy yield calculation

If you want to apply for a biomass combustion or fermentation facility, you will need to include an energy yield calculation with the feasibility study. You can read more about this requirement in the feasibility study guide.

Additional attachments for solar thermal energy applications

Detailed map

Always include a detailed map to scale clearly showing where the power generation facility will be sited. Unclear maps or photos will not be accepted. If other facilities exist or are to be installed at the site in question, please clearly indicate this too. The map must also display the solar orientation of the system. For systems erected on buildings, calculate the available roof surface area, taking into account any skylights and climate control systems on the roof.

Load-bearing capacity

If you intend to install your power generation facility on a building, you must submit a declaration of load-bearing capacity (['Model draagkracht dakconstructie'](#)). This declaration must be signed by a certified structural engineer who has calculated the load-bearing capacity of the applicable roof or wall in accordance with the 2012 Buildings Decree.

The declaration corresponds to the project for which you are applying for a subsidy.

During the assessment of your subsidy application, RVO may ask you to send the structural design calculations and/or contact the structural engineer to request an explanation of the declaration of load-bearing capacity. The structural engineer who carries out these calculations and signs the declaration may also be an employee of the subsidy applicant who is certified to this end. You can read more about the declaration of load-bearing capacity in the relevant fact sheet (['Informatieblad toelichting draagkracht dakconstructie'](#)).

This requirement has been introduced because less power generation facilities have been installed on buildings than expected, and an important reason for this is that previous applications ran into problems when the roof turned out to be unsuitable and it was costly to modify the roof to meet the requirements.

Additional attachments for geothermal energy applications

Geological survey report

A geological survey is required for geothermal energy projects. Please attach the geological survey 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 of the geological survey for your SDE++ subsidy application.

DoubletCalc calculation

TNO can facilitate the geological survey. TNO has made the software package and DoubletCalc user guide available on [NLOG](#), the Netherlands oil and gas portal. 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 power output of the geothermal system must be determined with a probability of minimum 50%.

Low carbon heat



- Emissions Trading System (ETS)
- Required attachments
- Halogen-free refrigerants in heat pumps
- Aquathermal energy
- Calculation example for TEO
- Air-water heat pump
- Daylight greenhouses
- Solar PVT panels with heat pump
- Electric boilers

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Low carbon heat

The 2023 SDE++ ‘Low-carbon heat’ category includes the technologies ‘Aquathermal energy’, ‘Daylight greenhouses’, ‘PVT panels with heat pump’, ‘Electric boilers’, ‘Geothermal energy with heat pump’, ‘Waste heat utilisation’, ‘Industrial heat pumps’ and ‘Air-water heat pumps’. This section explains the general conditions for the production of low-carbon heat in SDE++ 2023 and the technology-specific application conditions. The table ‘Phases and tariffs for low-carbon heat in SDE++ 2023’ at the end of this section provides an overview of the categories, associated phase amounts, full-load hours and other key figures.

Low-carbon heat is heat that is not, or only partially, obtained from a renewable source, but does produce lower carbon emissions compared with a gas-fired facility. The SDE++ scheme includes a number of specific options to reduce CO₂ emissions.

The eligible heat is not, or only partially, obtained from a renewable source. This means we cannot use the measurement and certification system as described in the [regulation on guarantees of origin](#) and certificates of origin to determine the amount of heat produced. To this end, extra

provisions have been 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 power generation facility, the installation of suitable meters, and the requirements of the measurement report.

Emissions Trading System (ETS)

If your facility benefits from the ETS, we will factor that ETS benefit into the correction amount. This situation may change during the production period. Under the SDE++ scheme, it is possible to adjust this correction during the production period.

ETS benefits may apply to low-carbon heat production if the power generation facility forms part of an ETS system. The Netherlands Environmental Assessment Agency (PBL) has calculated an ETS correction for each category of power generation facility based on the most representative use of the heat produced. If the power generation facility does not form part of an ETS system (based on the assessment of the subsidy application), this part of the correction amount will not be applicable and will be set at zero.

Required attachments

If you are applying for one of the low-carbon heat categories, you must include a number of attachments with your application. These are explained in ‘[Documents to attach to low-carbon heat applications](#)’.

Halogen-free refrigerants in heat pumps

Halogen-free refrigerants are required for all categories of heat pumps as of the SDE++ 2023 round of applications.

Aquathermal energy

The SDE++ scheme includes technologies for extracting heat from water for heating the built environment or for direct commercial supply. A heat pump is used to upgrade the temperature.

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

These systems extract heat from surface water, sea water or drinking water. You can apply for a TEO application with and without heat storage. This type of system stores the heat in a seasonal storage system and uses it during the heating season.

Cold supply systems were included in the scheme as of 2022. Because cold supply systems have a positive impact on the

business case, the base amounts have since been adjusted accordingly. You will only receive a subsidy for the supply of heat, and are not required to measure the cold supply.

This technology includes 4 categories:

- Exclusively for heating the built environment, with seasonal heat storage, base load (6,000 hours).
- Exclusively for heating the built environment, base load (6,000 full-load hours).
- Exclusively for heating the built environment, with seasonal heat storage, no base load (3,500 full-load hours).
- Direct application, with seasonal storage (3,500 full-load hours).

The same technical preconditions apply to these categories. The heat pump must deliver a thermal output of minimum 0.5 MWth and have a COP of minimum 3.0.

Calculation example for TEO

This example is based on a production installation for the production of heat extracted from surface water and upgraded by means of a heat pump with a nominal thermal capacity of 2 MWth, which is in operation for 3,500 full load hours on an annual basis and uses seasonal storage. This example assumes a production installation that is not part of an ETS installation. Therefore, no ETS value has been included in the provisional correction amount in this example.

Category: Thermal energy from surface water with seasonal storage, direct application

Maximum application amount in phase 3	0.0812 €/kWh
Maximum application amount in phase 4	0.0872 €/kWh
Provisional correction amount 2023	0.0588 €/kWh
Provisional SDE++ contribution 2023 for the maximum application amount in phase 3:	$8.12 - 5.88 = 2.24 \text{ €ct/kWh} = \text{€ } 22.40/\text{MWh}$
Provisional SDE++ 2023 contribution for the maximum application amount in phase 4:	$8.72 - 5.88 = 2.84 \text{ €ct/kWh} = \text{€ } 28.40/\text{MWh}$
Maximum number of eligible full load hours	3,500 full load hours
Total nominal capacity	2 MWth
Maximum eligible annual production for an installation with a capacity of 2 MWth	$2 * 3,500 = 7,000 \text{ MWh}$
Provisional SDE++ contribution in 2023 when applying for the maximum application amount in phase 3:	$7,000 * \text{€ } 22.40 = \text{€ } 156,800,-$
Provisional SDE++ contribution in 2023 when applying for the maximum application amount in phase 4:	$7,000 * \text{€ } 28.40 = \text{€ } 198,800,-$

Thermal energy from waste or drinking water (TEA or TED)

These systems extract heat from waste or drinking water. A heat pump is used to upgrade the temperature. The system is subject to technical preconditions.

Your system must meet the following conditions to be eligible for a subsidy:

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

The category with 6,000 full-load hours is for power generation facilities that feed into a large-scale heating grid where the heat pump can operate at base load. The built environment category with 3,500 full-load hours is for power generation facilities where the heat pump does not operate at base load. There is also a category for direct application.

This is an application whereby direct heat supply to a customer is permitted (for example for a greenhouse).

Air-water heat pump

The 2023 round of applications includes air-water heat pumps for the first time. You must meet the following conditions to be eligible for a subsidy:

- The heat pump must have a thermal output of minimum 500 MWth and a COP of minimum 3.0. The supply temperature of the heat pump must be minimum 70°C during the heating season.
- The heat produced may only be used to heat existing buildings or greenhouses. The user's system must have a feed-in temperature of minimum 70°C during the heating season. The user is the first user of the heat. No heat requirements apply outside the heating season.

Daylight greenhouses

Some greenhouse crops do not like direct sunlight. In greenhouses with these crops, a proportion of the incoming sunlight can be trapped using a solar tracking thermal system and the heat can be stored in a seasonal storage system. The systems use almost the entire greenhouse roof to capture heat and use it during the heating season. A heat pump is used to upgrade the temperature to heat the greenhouse. The system is subject to certain technical preconditions.

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

- The solar tracking collector system must form an integral part of a new horticultural greenhouse.
- The power output of the solar collector must be minimum 4 times the power output of the heat pump to be installed. This will ensure the solar collector generates enough heat to replenish the seasonal storage system.

- You cannot use the seasonal storage system for cooling. Systems that do so do not usually have an unprofitable component.
- The heat pump must have a thermal output of minimum 0.5 MWth and a COP of minimum 5.0.

Solar PVT panels with heat pump

You can apply for a 2021 SDE++ subsidy for the production of low-carbon heat using a solar thermal system with solar heating collectors that simultaneously produce heat and electricity, whereby a heat pump is used to upgrade the temperature. The heat must be used in the built environment.

The facility should have a surface area of photovoltaic thermal collectors of minimum 1.2 m² per kWth produced by the heat pump. The heat pump to which the collectors are 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.

Electric boilers

You can use an SDE++ subsidy to generate commercial heat with an electric boiler instead of a gas boiler. You can also employ hybrid boilers that use both gas and electricity to supply heat. The power generation facility must be new. You cannot convert a gas boiler already present at the site. For hybrid boilers, both the heat and the electricity used must

be metered. You will receive a subsidy only for the heat generated from electricity. The heat may be stored in an intermediate medium before being transferred to a fluid.

Due to the variety of applications of the generated heat and the possible ETS benefits associated with it, as of 2023, the category for electric boilers is divided into two subcategories:

- Electric boiler for use in district heating.
- Electric boiler for other applications.

Both categories are subject to certain technical preconditions. You must meet the following conditions to be eligible for a subsidy:

- The electric boiler must have a thermal output of minimum 2 MWth (this was formerly 5 MWth).
- The user’s system must have a feed-in temperature of minimum 100°C during the heating season (unless it concerns a steam boiler). The user is the first user of the heat. No heat requirements apply outside the heating season. This condition allows wider deployment of this technology than only industrial applications, and also prevents the use of electric boilers in situations where a heat pump would be preferable due to its higher COP.
- The capacity of the connection to the electricity grid must be at least as high as the output of the electric boiler.

Production hours and full-load hours

To prevent more emissions as a result of switching to an electrical boiler, a maximum applies to the years in the table below. If the table lists a lower number of production hours, this amount will apply as the maximum. This amount may also not be exceeded when applying forward banking. If less than the number of full load hours (3,600) can be made in these years, the deficit can be made up through [banking](#) if the number of permitted production hours exceeds the maximum number of full load hours. Banking of overproduction is no longer possible.

Year	Production hours electric boiler
2023	2,540
2024	2,550
2025	3,360
2026	3,700
2027	4,710
2028	6,660

Geothermal energy with heat pump

You can find information about the ‘Geothermal energy with heat pump’ category under the ‘Geothermal’ category in the chapter on [‘Renewable heat’](#).

Waste heat utilisation

Industrial processes, data centres and other businesses produce waste heat. The temperature of that heat is too low for the business itself to use it. The SDE++ scheme makes it possible to use this heat elsewhere, such as supplying it to a district heating network. The supply of steam is excluded from this category, as it does not involve an unprofitable component. To qualify for an SDE++ subsidy, the waste heat must be transported to a location other than the site where the heat was decoupled.

There are two possible scenarios:

Without a heat pump

The temperature of the waste heat is sufficient for other users. The subsidy rate is differentiated depending on the length of the transport pipeline per unit of output. The system is subject to certain technical preconditions. You must meet the following conditions to be eligible for a subsidy:

- The decoupling point must have a thermal capacity of minimum 2 MWth.
- The transport pipeline must have a length of minimum 0.1 km/MWh.

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

- The decoupling point must have a thermal capacity of minimum 2 MWth.
- The heat pump must be new, deliver a thermal output of minimum 500 kWth and have a COP of minimum 3.0.
- The transport pipeline must have a length of minimum 0.1 km/MWh.

The party that supplies and decouples the waste heat and operates the heat transport network applies for the subsidy. If several parties are involved, they must form a project entity or partnership to jointly submit the subsidy application.

The SDE++ subsidy is an incentive to decouple waste heat from a heat source, including the facilities needed to deliver the waste heat to the customer (business or district heating network). The distribution network itself is not covered by the subsidy.

Industrial heat pumps

The SDE++ scheme makes it possible for industries to reuse their own waste heat by using a heat pump to upgrade it to a temperature suitable for industrial applications. Greenhouse

horticulture is not considered an industry in this sense.

This category also allows for the reuse of steam in an industrial process. The heat must be used at the same location where it was produced and the facility may not be used to supply cold energy.

The SDE++ scheme distinguishes various categories based on full-load hours (3,000 or 8,000 full-load hours).

We also distinguish various types of heat pump, to which a number of technical preconditions are attached:

- With a closed-loop heat pump: The heat pump must have a thermal output of minimum 500 MWth and a COP of minimum 2.3.
- With an open-loop heat pump: The heat pump must have a thermal output of minimum 500 MWth and a COP of minimum 2.3 and maximum 12. This upper limit has been included because it is not clear whether projects with a higher COP will need to be subsidised.

Phasing and rates for low-carbon heat SDE++ 2023	Maximum phase amount/base amount					Bottom price or base price	Provisional correction energy price 2023	Provisional ETS correction 2023	Maximum full load hours	Order term	Commissioning period	Grant term	Domain
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5								
Category	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	hours/year	years	years	years	
Geothermal energy													
Shallow geothermal energy with heat pump, heating built environment (3500 full load hours)	0.0698	0.1047	0.1279	0.1506	0.1506	0.0233	0.0588	0.0016	3500	3.0	6	15	LT heat
Shallow geothermal energy with heat pump (6000 full load hours)	0.0698	0.0957	0.0957	0.0957	0.0957	0.0233	0.0588	0.0016	6000	3.0	5	15	LT heat
Deep geothermal energy with heat pump, heating built environment (6000 full load hours)	0.0692	0.1033	0.1089	0.1089	0.1089	0.0233	0.0588	0.0016	6000	3.0	6	15	LT heat
Water													
Aquathermal energy, thermal energy from surface water, drinking water or sea water, with seasonal storage, heating built environment (3500 full load hours)	0.0514	0.0678	0.0788	0.0897	0.1080	0.0233	0.0588	0.0016	3500	1.5	4	15	LT heat
Aquathermal energy, thermal energy from surface water, drinking water or sea water, with seasonal storage, heating built environment (6000 full load hours)	0.0516	0.0681	0.0792	0.0902	0.1086	0.0233	0.0588	0.0016	6000	1.5	4	15	LT heat
Aquathermal energy, thermal energy from surface water, drinking water or sea water, heating built environment (6000 full load hours)	0.0522	0.0695	0.0734	0.0734	0.0734	0.0233	0.0588	0.0016	6000	1.5	4	15	LT heat
Aquathermal energy, thermal energy from surface water, drinking water or sea water, with seasonal storage, direct application (3500 full load hours)	0.0523	0.0696	0.0812	0.0872	0.0872	0.0233	0.0588	0.0130	3500	1.5	4	15	LT heat
Aquathermal energy, thermal energy from drinking water or waste water (6000 full load hours)	0.0522	0.0694	0.0805	0.0805	0.0805	0.0233	0.0588	0.0016	6000	1.5	4	15	LT heat

Phasing and rates for low-carbon heat SDE++ 2023	Maximum phase amount/base amount					Bottom price or base price	Provisional correction energy price 2023	Provisional ETS correction 2023	Maximum full load hours	Order term	Commissioning period	Grant term	Domain
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5								
Category	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	hours/year	years	years	years	
Air													
Air-to-water heat pump, heating of existing objects in the built environment	0.0780	0.0945	0.1054	0.1164	0.1241	0.0430	0.0993	0.0016	3500	1.5	4	15	LT heat
Sun													
Solar-PVT system with heat pump	0.0530	0.0530	0.0530	0.0530	0.0530	0.0485	0.1047	0.0016	3500	1.5	4	15	LT heat
Daylight greenhouse	0.0530	0.0709	0.0829	0.0907	0.0907	0.0233	0.0588	0.0016	3850	1.5	4	15	LT heat
Electrification													
Industrial closed heat pump (3000 full load hours)	0.0523	0.0695	0.0810	0.0925	0.0970	0.0233	0.0588	0.0125	3000	1.5	4	12	LT heat
Industrial closed heat pump (8000 full load hours)	0.0523	0.0530	0.0530	0.0530	0.0530	0.0233	0.0588	0.0125	8000	1.5	4	12	LT heat
Industrial open heat pump (3000 full load hours)	0.0538	0.0726	0.0851	0.0977	0.1176	0.0233	0.0588	0.0149	3000	1.5	4	12	HT heat
Industrial open heat pump (8000 full load hours)	0.0525	0.0525	0.0525	0.0525	0.0525	0.0233	0.0588	0.0149	8000	1.5	4	12	HT heat
Electric boiler, district heating	0.0653	0.0857	0.0954	0.0954	0.0954	0.0300	0.0755	0.0061	3600	1.5	4	15	HT heat
Electric boiler, other applications	0.0653	0.0857	0.0954	0.0954	0.0954	0.0300	0.0755	0.0000	3600	1.5	4	15	HT heat
Residual heat utilization													
Use of residual heat with heat pump, length-to-power ratio ≥ 0.10 and < 0.20 km/MWth	0.0522	0.0682	0.0682	0.0682	0.0682	0.0233	0.0588	0.0037	5500	1.5	4	15	LT heat
Use of residual heat with heat pump, length-to-power ratio ≥ 0.20 and < 0.30 km/MWth	0.0522	0.0694	0.0755	0.0755	0.0755	0.0233	0.0588	0.0037	5500	1.5	4	15	LT heat
Use of residual heat with heat pump, length-to-power ratio ≥ 0.30 and < 0.40 km/MWth	0.0522	0.0694	0.0808	0.0827	0.0827	0.0233	0.0588	0.0037	5500	1.5	4	15	LT heat

Phasing and rates for low-carbon heat SDE++ 2023	Maximum phase amount/base amount					Bottom price or base price	Provisional correction energy price 2023	Provisional ETS correction 2023	Maximum full load hours	Order term	Commissioning period	Grant term	Domain
	Category	Phase 1	Phase 2	Phase 3	Phase 4								
	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	€/kWh	hours/year	years	years	years	
Use of residual heat with heat pump, length-to-power ratio ≥ 0.40 km/MWth	0.0522	0.0693	0.0808	0.0899	0.0899	0.0233	0.0588	0.0037	5500	1.5	4	15	LT heat
Use of residual heat (without heat pump), length-to-power ratio ≥ 0.10 and < 0.20 km/MWth	0.0243	0.0243	0.0243	0.0243	0.0243	0.0233	0.0588	0.0052	5500	1.5	4	15	LT heat
Use of residual heat (without heat pump), length-to-power ratio ≥ 0.20 and < 0.30 km/MWth	0.0315	0.0315	0.0315	0.0315	0.0315	0.0233	0.0588	0.0052	5500	1.5	4	15	LT heat
Use of residual heat (without heat pump), length-to-power ratio ≥ 0.30 and < 0.40 km/MWth	0.0387	0.0387	0.0387	0.0387	0.0387	0.0233	0.0588	0.0052	5500	1.5	4	15	LT heat
Use of residual heat (without heat pump), length-to-power ratio ≥ 0.40 km/MWth	0.0460	0.0460	0.0460	0.0460	0.0460	0.0233	0.0588	0.0052	5500	1.5	4	15	LT heat

Documents to attach to low-carbon heat applications

You must include a number of attachments with your subsidy application. In the table below you can see which attachments may be required for your technology. These attachments are explained in more detail below the table and you can also download the required formats.

Table of mandatory attachments for categories of low-carbon heat	Attachments compulsory elements of the feasibility study ¹											Attachments permits			Other attachments	
	Financing plan	Substantiation of equity	Letter of intent from a financier if the intended share of equity in the investment is ≤ 20%	Operating calculation	Subscription to scale of production plant	Declaration of load-bearing capacity of the roof construction	Substantiation of heat transfer	Geological report	Energy yield calculation	Subscription route transport line	Partnership participants	Environmental permit	Wbr permit ²	Water permit ²	Mining permit	Site owner permission ²
Geothermal energy with heat pump (all categories)																
(Shallow) deep geothermal energy	x	x	x	x			x	x	x						x	x
Aquathermal energy (all categories)																
Surface water thermal energy (TEO)	x	x	x	x			x		x		x		x			x
Thermal energy from waste or drinking water (TEA or TED)	x	x	x	x			x		x		x		x			x
Solar																
Solar PVT system with heat pump	x	x	x	x	x	x	x		x		x	x	x			x
Daylight greenhouse	x	x	x	x			x		x		x		x			x
Electrification (all categories)																
Large-scale electric water heater	x	x	x	x			x		x		x					x
Industrial heat pump	x	x	x	x			x		x		x					x
Air-to-water heat pump	x	x	x	x			x		x		x					x
Residual heat utilization (all categories)																
Residual heat utilization	x	x	x	x			x		x	x	x					x

¹ Consult the SDE++ 2023 Feasibility Study Manual for more information.

² If applicable

³ If equipped

Note: If an installation is placed in a building, the environmental permit must be sent along with your subsidy application in the case of new construction or renovation.

Note: (partial) permits for the installation of (underground) cabling, fencing, fencing, and (underground) pipework do not need to be submitted with your grant application.

General attachments

The general attachments apply to all low carbon heat technologies.

Feasibility study

An application for an SDE++ subsidy for low-carbon heat must be supported by a [‘haalbaarheidsstudie’](#).

The general part of the feasibility study must comprise of the following information:

- A description of the power generation facility, including the technical specifications.
- A comprehensive financing plan.
- The own funds to be invested by yourself, third parties or your shareholders.
Own funds must be substantiated with documents (annual accounts/balance statements) demonstrating that the required resources (financial and otherwise) will be available when needed. If you submit several projects, you must provide proof of funding to cover the total value of these SDE++ 2023 projects.
- A declaration of intent from a financial backer if less than 20% of the total investment is covered by own funds.
- A calculation of the operational costs.
- For more complex facilities, you must also include a process flow diagram.
- A substantiation of the heat output.
- An energy yield calculation.

During our assessment, we may ask you additional questions about the feasibility of your project.

You can find more information about the above requirements in the [‘Handleiding haalbaarheidsstudie SDE++’](#) and the [‘Model haalbaarheidsstudie SDE++’](#).

Permits

One or more permits are usually required to develop a power generation facility. These must have been issued by a competent authority before you submit your subsidy application. If you require a permit for your power generation facility, this permit must be attached to your subsidy application. This requirement was included in the Renewable Energy Production and Climate Transition Incentive Decree (‘Besluit SDEK’) to provide more certainty (and speed up the process) when applying for subsidies under the scheme. As a general rule, only the permits for the main components of a power generation facility are required. Permits for other components such as underground cables or pipelines, fencing, etc. are not required as part of your subsidy application.

- Environmental and planning permit: If you will be installing your power generation facility in, on, or next to a planned building, you will require a permit under the Environmental Permitting (General Provisions) Act (‘Wabo’). You may also require a permit based on the environmental impact of your project.

If you would like more information about environmental and planning permits, please visit the [‘Omgevingsloket’](#). In addition, you may require an environmental and planning permit for certain components of your power generation facility.

These components are listed below.

- Aquathermal energy: for a system used to extract heat from surface water (TEO), or decouple heat from drinking or wastewater (TEA, TED), and for a centrally located heat pump. If you need a permit for the coolant used in a heat pump, you must also include this permit with your subsidy application.
- Daylight greenhouses: for a collector system that is an integrated part of a new greenhouse.
- Solar PVT system: for the PVT system and heat pump.
- Waste heat utilisation without a heat pump: for a heat transfer station and the extraction of waste heat from the source.
- Waste heat utilisation with heat pump: for centrally located heat pump. If you need a permit for the coolant used in a heat pump, you must also include this permit with your subsidy application.
- Industrial heat pumps: if you need a permit for the coolant used in a heat pump, you must also include this permit with your subsidy application.
- Air-water heat pump: if you need a permit for the coolant used in a heat pump, you must also include this permit with your subsidy application.

- Water permit: You may also require a Water Act permit for an aquathermal energy, solar PVT or daylight greenhouse power generation facility. Please visit the [‘Omgevingsloket’](#) for more information about Water Act permits.
- Public Works Management Act (‘Wbr’) permit: If the solar PVT system 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 Wbr permit for your facility. If you would like to know more about Wbr permits, please visit the [rijkswaterstaat.nl](#) website.
- Mining Act permits: if you are applying for a geothermal energy project, please include an exploration permit. (or the production licence of an existing geothermal energy project for which no new exploration permit is required).

Site owner’s permission

If the applicant is not the owner of the intended site of the power generation facility, then the owner’s permission must be obtained. The site owner will need to complete and sign a form ([‘Model toestemming locatie-eigenaar’](#)), which gives you permission to install and operate the power generation facility.

If there are multiple owners, each owner must complete a separate form. This applies to all categories. Please note that either the subsidy applicant or the owner who completes the form must be officially registered in the land registry as the owner or leaseholder of the site.

Partnerships

If your project is being implemented in a partnership, please include the following information in addition to the general attachments:

- A list of all the partners in the project (required).
- A partnership agreement signed by all the partners in the project (or a declaration that the lead party is authorised to apply for a subsidy for this project).

A partnership agreement template can be found on the page [‘Downloads en hulpmiddelen bij uw aanvraag SDE++’](#) (Documents to attach to SDE++ applications).

Additional attachments for solar PVT applications

Detailed map

If you are applying for an SDE++ subsidy for ‘Solar PVT panels with heat pump’, you must perform a [‘haalbaarheidsstudie’](#). Always include a detailed map to scale clearly showing where the solar PVT system will be sited. If other facilities exist or are to be installed at the site in question, please clearly indicate this too. The map must also display the solar orientation of the system. If you will be installing your power generation facility on a roof, calculate the available roof surface area, taking into account skylights and climate control systems on the roof.

Load-bearing capacity

If you intend to install your power generation facility on a building, you must submit a declaration of load-bearing capacity ([‘Model draagkracht dakconstructie’](#)). This declaration

must be signed by a structural engineer who has calculated the load-bearing capacity of the roof in accordance with the 2012 Buildings Decree. This declaration must correspond to the project for which you are applying for a subsidy.

During the assessment of your subsidy application, RVO may ask you to send the structural design calculations and/or contact the structural engineer to request an explanation of the declaration of load-bearing capacity. The structural engineer who carries out these calculations and signs the declaration may also be an employee of the subsidy applicant who is certified to this end. You can read more about the declaration of load-bearing capacity in the relevant fact sheet (‘Informatieblad toelichting draagkracht dakconstructie’).

Additional attachments for geothermal energy applications

Geological survey report

A geological survey is required for geothermal energy projects. Please attach the geological survey report to your subsidy application. The TNO report [‘Specificaties geologisch onderzoek voor geothermieprojecten – Rapportagevereisten SDE+ en RNES’](#) sets out the minimum requirements of the geological survey for your SDE++ subsidy application.

DoubletCalc calculation

TNO can facilitate the geological survey. TNO has made the software package and DoubletCalc user guide available on [NLOG](#), the Netherlands oil and gas portal. 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 power output of the geothermal system must be determined with a probability of minimum 50%.

Additional attachments for waste heat utilisation applications

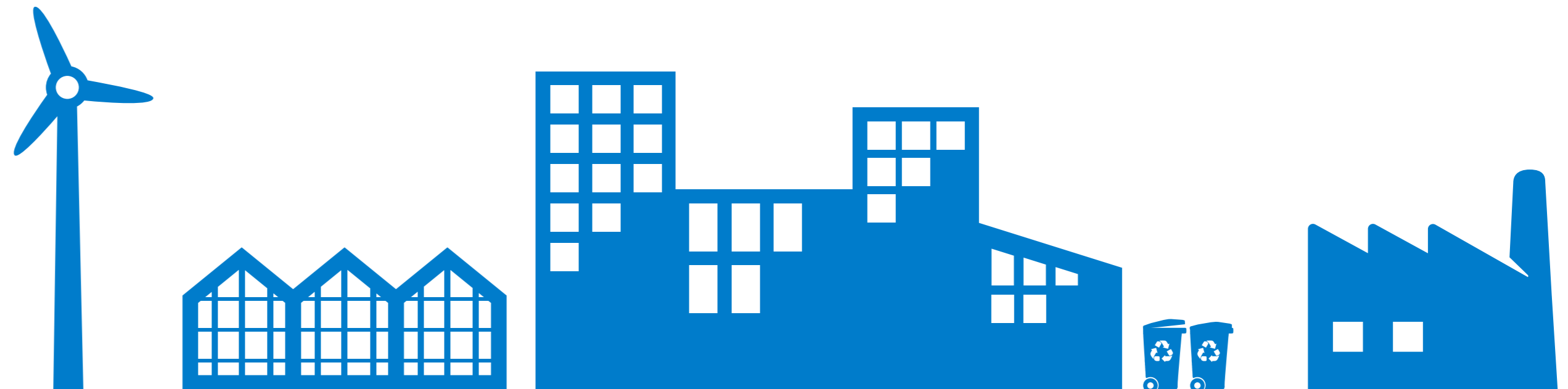
Map of the transport pipeline route

Your application must include a map depicting the intended pipeline route. Also state the pipe diameters and length of the pipeline from the decoupling point to the waste heat customer.

Low-carbon production



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Low-carbon production

The ‘Low-carbon production’ SDE++ category includes the technologies ‘Electrolytic hydrogen production’, ‘Carbon capture and storage’, ‘Carbon capture and use in greenhouse horticulture’ and ‘Advanced renewable fuels’. This section explains the general conditions for low-carbon production in SDE++ 2023 and the technology-specific application conditions. The table ‘Phases and tariffs for low-carbon production in SDE++ 2023’ at the end of this section provides an overview of the categories, associated phase amounts, full-load hours and other key figures.

Required attachments

If you are applying for one of the low-carbon production categories, you must include a number of attachments with your application. These are explained in [‘Documents to attach to low-carbon production subsidy applications’](#).

Electrolytic hydrogen production, grid-connected

At present, most hydrogen is produced from natural gas in a furnace, because this method is cost efficient. However, hydrogen from electrolysis powered by renewable electricity produces less CO₂ emissions. Systems will be eligible for a subsidy if the hydrogen production capacity is at least 500 kW.

Production hours and full-load hours

To ensure that using a grid-connected electrolyser would not lead to more emissions, a maximum of 5,150 production hours has been established. This maximum applies to all years with the exception of those listed in the table below. If the table lists a lower number of production hours, this amount will apply as the maximum. This amount may also not be exceeded when applying forward [banking](#). If less than the number of [full load hours](#) (3,492) can be made in these years, the deficit can be made up through banking if the number of permitted production hours exceeds the maximum number of full load hours. Banking of overproduction is no longer possible.

Electricity consumption

Hydrogen power generation facilities are expected to be deployed only when there is a surplus of renewable electricity. At other times, the power consumption should be as low as possible to avoid greenhouse gas emissions. To this end, you are required to demonstrate in your application that the operational power generation facility can be limited to consume only 1% electricity in relation to the maximum power output of the facility.

Year	Production hours hydrogen grid connected
2023	2,180
2024	2,190
2025	2,880
2026	3,170
2027	4,040
2028	4,750
2029	5,460

Electrolytic hydrogen production, direct connection

In addition to the grid-connected systems described above, an SDE++ subsidy can also be granted to produce hydrogen from electrolysis if the electricity is supplied through a direct connection to a wind or solar farm. Systems will be eligible for a subsidy if the hydrogen production capacity is at least 500 kW.

Because only renewable electricity is produced, more full-load hours apply than in grid-connected systems (5,448). You may be granted a subsidy if your power generation facility is directly powered by sufficient renewable electricity supplied through a direct connection whenever it is operating. If you want to produce hydrogen year round, the wind or solar farm will therefore have to have sufficient excess capacity. No subsidy will be provided for the renewable electricity that is used to this end.

Electricity consumption

Hydrogen power generation facilities are expected to be deployed only when there is a surplus of renewable electricity. At other times, the power consumption should be as low as possible to avoid greenhouse gas emissions. To this end, you are required to demonstrate in your application that the operational power generation facility can be limited to consume only 1% electricity in relation to the maximum power output of the facility.

Carbon capture and storage (CCS)

CCS is a CO₂-reducing solution for businesses that have no other way to make their processes carbon neutral in the short term, be it for technical or financial reasons. The captured CO₂ is stored in empty gas fields under the sea. If you would like to apply for an SDE++ subsidy for CCS, you will have to capture and purify the CO₂ yourself.

The scheme is open only for storage in gas fields in the Netherlands and the Dutch part of the Continental Shelf.

CCS in the SDE++ scheme

Production caps no longer apply for the industrial and power sectors in the 2023 round of applications. The type of carbon capture has not changed since the previous rounds: only carbon capture from an industrial process stream or from gas-fired CHP plants is eligible.

ETS or Non-ETS business

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 correction amount. For non-ETS businesses that intend to start CCS, the correction amount is 0. This is why separate categories have been opened for ETS and Non-ETS businesses.

Combined with CCU

Producers who plan to implement CCS combined with CCU using a single capture facility may submit applications for combined CCS and CCU. This is due to PBL's method of calculating the base amount, which would result in some

situations being over-subsidised. Not every combination of CCS and CCU is eligible for a subsidy. The combinations eligible for subsidies are listed in the [CCS tables for ETS businesses and non-ETS businesses](#). Combinations of CCS and CCU are only possible if you apply for both in the same round of applications, or if you already have a CCU subsidy that was approved in a previous round of applications.

Combining CCS grants with one capture facility

CCS facilities subsidised during various rounds of applications can be combined into a single carbon capture facility. This is due to PBL's method of calculating the base amount, which would result in some situations being over-subsidised. Not every combination of CCS and CCU is eligible for a subsidy. Only CCS categories involving a new capture facility based on 8,000 full-load hours may be combined. The various subsidies are paid out annually in the order they were approved.

CO₂ capture and storage (CCS) for ETS companies

Process		CO ₂ capture or CO ₂ purification installation		Gaseous transport by pipeline, compressor must be new				Liquid transport (by ship/truck)				
		Existing/new	Full load hours	Article MRAC	Base amount	PBL variant	Combi CCU article MRAC	Liquefaction plant	Article MRAC	Base amount	PBL variant	Combi CCU article MRAC
Existing	Proces	Undetermined	4,000	81.1.a.1	193,2830	1A	CCU liquid and gaseous 85.1.a, c-g	Undetermined	81.1.a.3	219,1409	1C	CCU liquid 85.1.a, c-g
									81.1.a.2	265,9978	1B	CCU gaseous 85.1.a, c-g
New	Combustion process	New CO ₂ purification	8,000	81.1.b.1	108,8450	2A	Not possible	New	81.1.b.2	146,1369	2B	Not possible
Existing				81.1.c.1	146,9185	3A			81.1.c.2	182,4241	3B	
New				81.1.f.1	125,9515	7A			81.1.f.2	165,5532	7B	
Existing				81.1.e.1	191,7169	5A			81.1.e.2	226,5740	5B	
New				81.1.g.1	172,6223	8A			81.1.g.2	205,5177	8B	
New	Conversion of residual gases to hydrogen	New CO ₂ capture	8,000	81.1.g.1	172,6223	8A	Not possible	New	81.1.d.2	228,8453	4B	Not possible
Existing	81.1.d.2								228,8453	4B		

CO₂ capture and storage (CCS) for non-ETS companies

Process		CO ₂ capture or CO ₂ purification installation		Gaseous transport by pipeline, compressor must be new				Liquid transport (by ship/truck)				
		Existing/new	Full load hours	Article MRAC	Base amount	PBL variant	Combi CCU article MRAC	Liquefaction plant	Article MRAC	Base amount	PBL variant	Combi CCU article MRAC
Existing	Proces	Undetermined	4,000	83.1.a.1	193,2830	1A	CCU liquid and gaseous 85.1.a, c-g	Undetermined	83.1.a.3	219,1409	1C	CCU liquid 85.1.a, c-g
									83.1.a.2	265,9978	1B	CCU gaseous 85.1.a, c-g
New	Combustion process	New CO ₂ purification	8,000	83.1.b.1	108,8450	2A	Not possible	New	83.1.b.2	146,1369	2B	Not possible
Existing				83.1.c.1	146,9185	3A			83.1.c.2	182,4241	3B	
New				83.1.g.1	125,9515	7A			83.1.g.2	165,5532	7B	
Existing				83.1.e.1	191,7169	5A			83.1.e.2	226,5740	5B	
New				83.1.h.1	172,6223	8A			83.1.h.2	205,5177	8B	
New	Conversion of residual gases to hydrogen	New CO ₂ capture	8,000	83.1.d.1	191,0295	4A	Not possible	New	83.1.d.2	228,8453	4B	Not possible
Existing	83.1.f.1								216,0474	6A	83.1.f.2	
Existing	Waste incineration plant	New CO ₂ capture	8,000	83.1.f.1	216,0474	6A	Not possible	New	83.1.f.2	222,6696	6B	Not possible
Existing	83.1.f.2								222,6696	6B		

Combustion process = This category is only open for post-combustion CO₂ capture (CO₂ capture in processes such as: SMR, ATR and POX cannot be submitted in this category)

MRAC = Ministeriële regeling aanwijzing categorieën SDE++ 2023

PBL = variant as mentioned by PBL in the calculation of the Base amount and SDE++ 2023

Calculation example CCS

In this example, a new post-combustion CO₂ capture installation has been developed at an existing installation using gaseous transport, with a capacity of 81.25 tonnes of CO₂/hour and with stored CO₂.

Category: CCS - New post-combustion CO₂ capture, existing installation, gaseous transport (variant 5A)

Maximum application amount in phase 1:	191,7169 €/ton CO ₂
Provisional correction amount 2023	79,2844 €/ton CO ₂
Provisional contribution to SDE++ 2023 for the maximum application amount in phase 1:	€ 191,7169 - € 79,2844 = € 112,4325/ton CO ₂
Maximum number of eligible full load hours	8,000 vollasturen
Total capacity	81,25 ton CO ₂ /uur
Maximum eligible annual production at an installation with a capacity of 81.25 tonnes of CO ₂ /hour	8,000 * 81,25 = 650,000 ton CO ₂ /jaar
Provisional SDE++ contribution in 2023 when applying for the maximum application amount in phase 1:	650,000 * € 112,4325 = € 73,081,125

Implementation agreement and bank guarantee

If you are applying for a CCS subsidy and parts of the power generation facility are required to be new under the allocation regulations, but you have not obtained environmental and planning permits yet, or if you are applying for a subsidy for more than €400 million, the following conditions apply:

- You must conclude an implementation agreement with the government within 2 weeks of approval of your subsidy application.
- You must supply a bank guarantee within 4 weeks of approval of your subsidy application.

Progress requirements

Owing to the size of the project, the CCS category is subject to a contract period of 3 years and an implementation period of 6 years. 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 approval of the subsidy application. In addition, you must submit the complete environmental and planning permit for the parts of the facility that are required to be new under the allocation regulations (capture, purification and, if applicable, liquefaction facility) to RVO within 3 years of approval of the subsidy. If you already have these permits, please include them with your subsidy application.

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

Determining the production level

The production levels must be submitted to RVO every month. An annual declaration must be submitted at the end of every calendar year that demonstrates that the carbon captured has actually been stored.

Carbon capture and use in greenhouse horticulture (CCU)

Subsidies may also be approved for the use of the captured CO₂ in greenhouse horticulture in the Netherlands. As the emissions factor is calculated to prevent the application of 'summer heating' (burning natural gas in the summer only to produce CO₂), only applications in greenhouse horticulture applications are eligible for a subsidy. Your ['haalbaarheidsstudie'](#) should demonstrate how you intend to sell the CO₂ to the greenhouse horticulture sector. The various situations we distinguish are listed in the ['CCU table'](#).

Combined with CCS

Producers who plan to implement CCS combined with CCU using a single capture facility may submit applications for combined CCS and CCU. This is due to [PBL's](#) method of calculating the base amount, which would result in some situations being over-subsidised. Not every combination of CCS and CCU is eligible for a subsidy. The applications of CCS and CCU that can be combined in the same round of applications are listed in the table below.

CO₂ capture and use in greenhouse horticulture (CCU)

Process		CO ₂ capture or CO ₂ purification installation		Gaseous transport by pipeline								Liquid transport (by ship/truck)				
				(Existing) transport line				Transport pipeline must be new or extended, and compressor must be new				Liquefaction installation must be new				
		Existing/new	Full load hours	Compressor	Article MRAC	Base amount	PBL variant	Combi CCS article MRAC	Article MRAC	Base amount	PBL variant	Combi CCS article MRAC	Article MRAC	Base amount	PBL variant	Combi CCS article MRAC
Existing	Process	Undetermined	4,000	New	niet open gesteld		2A		Niet open gesteld		2B		85.1.b	107,9342	2C	
New		New CO ₂ purification			85.1.a.1	101,2105	1A	81.1.a.1, 2 of 83.1.a.1, 2	85.1.a.2	115,5628	1B	81.1.a.1, 2 of 83.1.a.1, 2	85.1.a.3	158,3779	1C	81.1.a.1, 3 of 83.1.a.1, 3
Existing	Combustion process				New CO ₂ capture	85.1.c.1	71,2260	3A	81.1.a.1, 2 of 83.1.a.1, 2	85.1.c.2	85,5783	3B	81.1.a.1, 2 of 83.1.a.1, 2	85.1.c.3	130,9846	3C
New		85.1.d.1				167,3015	4A	81.1.a.1, 2 of 83.1.a.1, 2	85.1.d.2	181,6538	4B	81.1.a.1, 2 of 83.1.a.1, 2	85.1.d.3	225,8159	4C	81.1.a.1, 3 of 83.1.a.1, 3
Existing	Waste incineration plant	New CO ₂ capture			85.1.e.1	141,2888	5A	81.1.a.1, 2 of 83.1.a.1, 2	85.1.e.2	155,6411	5B	81.1.a.1, 2 of 83.1.a.1, 2	85.1.e.3	195,2963	5C	81.1.a.1, 3 of 83.1.a.1, 3
Undetermined	Biomass combustion plant				Undetermined	85.1.f.1	195,9294	6A	81.1.a.1, 2 of 83.1.a.1, 2	85.1.f.2	210,2817	6B	81.1.a.1, 2 of 83.1.a.1, 2	85.1.f.3	260,5508	6C
Existing					85.1.g.1	130,8712	7A	81.1.a.1, 2 of 83.1.a.1, 2				85.1.g.2	174,7290	7B	81.1.a.1, 3 of 83.1.a.1, 3	

Combustion process = This category is only open for post-combustion CO₂ capture (CO₂ capture in processes such as: SMR, ATR and POX cannot be submitted in this category)

MRAC = Ministeriële regeling aanwijzing categorieën SDE++ 2023

PBL = variant as mentioned by PBL in the calculation of the Base amount and SDE++ 2023

Implementation agreement and bank guarantee

If you are applying for a CCU subsidy and parts of the power generation facility are required to be new under the allocation regulations, but you have not obtained environmental and planning permits yet, or if you are applying for a subsidy for more than €400 million, the following conditions apply:

- You must conclude an implementation agreement with the government within 2 weeks of approval of your subsidy application.
- You must supply a bank guarantee within 4 weeks of approval of your subsidy application. For carbon capture at biomass facilities, you do not have to provide an implementation agreement and bank guarantee for a subsidy below €400 million.

Progress requirements

Owing to the size of the project, the CCU category is subject to a contract period of 3 years and an implementation period of 6 years. In addition, you must submit the complete environmental and planning permit for the parts of the facility that are required to be new under the allocation regulations (capture, purification and, if applicable, liquefaction facility) to RVO within 3 years of approval of the subsidy. If you already have these permits, please include them with your subsidy application. If these milestones cannot be achieved, this may result in the withdrawal of the subsidy and the collection of the bank guarantee.

Determining the production level

The production levels must be submitted to RVO every month. An annual declaration must be submitted at the end of every calendar year that demonstrates that the carbon captured has actually been supplied to the greenhouse horticulture sector.

Advanced renewable fuels

The Climate Agreement includes incentives for the production of advanced renewable transport fuels. In 2023, a production ceiling of 10.3 billion kWh has been included for advanced renewable biofuels. The correction amount for these categories consists of the average market price of the fuel plus the average payment for the renewable energy units. Both are established annually by 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 proved that the fuel will be used in the Netherlands for road transport and inland shipping.

There are 5 categories in the SDE++ scheme:

- Bioethanol produced from solid lignocellulosic biomass.
- Biomethanol 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 set out in [Annex IX, part A of the Renewable Energy Directive](#) may be used.

The definitions for all-purpose fermentation and manure mono-fermentation in the SDE++ scheme apply.

For lignocellulosic biomass, the biomass used here may consist only of solid lignocellulosic biomass that comprises no more than 50% B-grade wood.

Determining the production level

The production levels must be submitted to RVO every month. The annual declaration must demonstrate that the fuel produced was released for consumption on the Dutch market and used for road transport or inland shipping. Information from the Dutch Emissions Authority (NEa) register is used to this end.

Phasing and rates for low-carbon production SDE++ 2023	Maximum phase amount/base amount					Base green-house gas amount €/unit product ¹	Provisional energy price correction amount for 2023 (including HBE-Gs) €/unit product ¹	Provisional ETS value 2023 €/unit product ¹	Maximum full load hours hours/year	Order term year	Commis-sioning period year	Grant term year	Domain
	Phase 1 €/unit product	Phase 2 €/unit product	Phase 3 €/unit product	Phase 4 €/unit product	Phase 5 €/unit product								
Electrification													
Hydrogen from electrolysis, grid connected	0.0840	0.1046	0.1184	0.1321	0.1550	0.0448	0.1015	0.0000	3492	1.5	4	15	Molecules
Hydrogen from electrolysis, direct line with wind farm or solar farm	0.0840	0.1046	0.1184	0.1321	0.1550	0.0448	0.1015	0.0000	5448	1.5	4	15	Molecules
Advanced renewable transport fuels (gas, petrol and diesel substitutes)													
Bioethanol from lignocellulosic biomass	0.1211	0.1467	0.1637	0.1657	0.1657	0.0637	0.2392	0.0000	8000	1.5	4	15	Molecules
Bio-methanol from lignocellulosic biomass	0.1181	0.1407	0.1421	0.1421	0.1421	0.0637	0.2392	0.0000	8000	1.5	4	15	Molecules
Bio-LNG from mono-fermentation of manure	0.0893	0.1253	0.1494	0.1589	0.1589	0.0365	0.2189	0.0000	8000	1.5	4	12	Molecules
Bio-LNG from All-purpose fermentation	0.0753	0.0974	0.1088	0.1088	0.1088	0.0365	0.2189	0.0000	8000	1.5	4	12	Molecules
Diesel and petrol substitutes from solid lignocellulosic biomass	0.1171	0.1383	0.1383	0.1383	0.1383	0.0624	0.2362	0.0000	8000	1.5	4	15	Molecules
CO₂ capture and storage (CCS) with gaseous transport ETS company													
CCS - Partial CO ₂ storage at existing installations, gaseous transport	193,2830	193,2830	193,2830	193,2830	193,2830	79,2844	0,0000	79,2844	4000	3,0	6	15	-
CCS - Full CO ₂ storage at existing installations, gaseous transport	108,8450	108,8450	108,8450	108,8450	108,8450	79,2844	0,0000	79,2844	8000	3,0	6	15	-
CCS - New pre-combustion CO ₂ purification, existing installation, gaseous transport	146,9185	146,9185	146,9185	146,9185	146,9185	79,2844	0,0000	79,2844	8000	3,0	6	15	-
CCS - New pre-combustion CO ₂ capture in hydrogen production from residual gases for underfire, gaseous transport	191,0295	191,0295	191,0295	191,0295	191,0295	79,2844	0,0000	79,2844	8000	3,0	6	15	-
CCS - New post-combustion CO ₂ capture, existing installation, gaseous transport	191,7169	191,7169	191,7169	191,7169	191,7169	79,2844	0,0000	79,2844	8000	3,0	6	15	-

<i>Phasing and rates for low-carbon production SDE++ 2023</i>													Maximum phase amount/base amount	Base greenhouse gas amount	Provisional energy price correction amount for 2023 (including HBE-Gs)	Provisional ETS value 2023	Maximum full load hours	Order term	Commissioning period	Grant term	Domain
Category	Phase 1 €/unit product	Phase 2 €/unit product	Phase 3 €/unit product	Phase 4 €/unit product	Phase 5 €/unit product	€/unit product ¹	€/unit product ¹	€/unit product ¹	hours/year	year	year	year									
CCS - New pre-combustion CO ₂ purification, new installation, gaseous transport	125,9515	125,9515	125,9515	125,9515	125,9515	79,2844	0,0000	79,2844	8000	3,0	6	15	-								
CCS - New post-combustion CO ₂ capture, new installation, gaseous transport	172,6223	172,6223	172,6223	172,6223	172,6223	79,2844	0,0000	79,2844	8000	3,0	6	15	-								
CO₂ capture and storage (CCS) with liquid transport ETS company																					
CCS - Partial CO ₂ storage at existing installations, liquid transport, new liquefaction installation	200,2707	265,9978	265,9978	265,9978	265,9978	79,2844	0,0000	79,2844	4000	3,0	6	15	-								
CCS - Partial CO ₂ storage at existing installations, liquid transport	200,2707	219,1409	219,1409	219,1409	219,1409	79,2844	0,0000	79,2844	4000	3,0	6	15	-								
CCS - Full CO ₂ storage at existing installations, liquid transport, new liquefaction installation	146,1369	146,1369	146,1369	146,1369	146,1369	79,2844	0,0000	79,2844	8000	3,0	6	15	-								
CCS - New pre-combustion CO ₂ purification, existing installation, liquid transport, new liquefaction installation	182,4241	182,4241	182,4241	182,4241	182,4241	79,2844	0,0000	79,2844	8000	3,0	6	15	-								
CCS - New pre-combustion CO ₂ capture in hydrogen production from residual gases for underfire, liquid transport, new liquefaction plant	199,1907	228,8453	228,8453	228,8453	228,8453	79,2844	0,0000	79,2844	8000	3,0	6	15	-								
CCS - New post-combustion CO ₂ capture, existing installation, liquid transport, new liquefaction installation	193,0093	226,5740	226,5740	226,5740	226,5740	79,2844	0,0000	79,2844	8000	3,0	6	15	-								
CCS - New pre-combustion CO ₂ purification, new installation, gaseous transport	165,5532	165,5532	165,5532	165,5532	165,5532	79,2844	0,0000	79,2844	8000	3,0	6	15	-								
CCS - New post-combustion CO ₂ capture, new installation, liquid transport, new liquefaction installation	194,4331	205,5177	205,5177	205,5177	205,5177	79,2844	0,0000	79,2844	8000	3,0	6	15	-								

<i>Phasing and rates for low-carbon production SDE++ 2023</i>													
Category	Maximum phase amount/base amount					Base green-house gas amount	Provisional energy price correction amount for 2023 (including HBE-Gs)	Provisional ETS value 2023	Maximum full load hours	Order term	Commis-sioning period	Grant term	Domain
	Phase 1 €/unit product	Phase 2 €/unit product	Phase 3 €/unit product	Phase 4 €/unit product	Phase 5 €/unit product	€/unit product ¹	€/unit product ¹	€/unit product ¹	hours/year	year	year	year	
CO₂ capture and storage (CCS) with gaseous transport non-ETS company													
CCS - Partial CO ₂ storage at existing installations non-ETS operation, gaseous transport	81,7436	163,4872	193,2830	193,2830	193,2830	0.0000	0.0000	0.0000	4000	3,0	6	15	-
CCS - Full CO ₂ storage at existing installations non-ETS operation, gaseous transport	81,7436	108,8450	108,8450	108,8450	108,8450	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New pre-combustion CO ₂ purification, existing installation non-ETS company, gaseous transport	81,7436	146,9185	146,9185	146,9185	146,9185	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New pre-combustion CO ₂ capture in hydrogen production from residual gases for underfire non-ETS operation, gaseous transport	80,6636	161,3272	191,0295	191,0295	191,0295	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New post-combustion CO ₂ capture, existing installation non-ETS company, gaseous transport	74,4822	148,9644	191,7169	191,7169	191,7169	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New post-combustion CO ₂ capture, existing waste incineration plant non-ETS company, gaseous transport	67,2005	134,4010	179,2013	216,0474	216,0474	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New pre-combustion CO ₂ purification, new installation non-ETS company, gaseous transport	82,2928	125,9515	125,9515	125,9515	125,9515	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New post-combustion CO ₂ capture, new installation non-ETS operation, gaseous transport	75,9060	151,8120	172,6223	172,6223	172,6223	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CO₂ capture and storage (CCS) with liquid transport non-ETS company													
CCS - Partial CO ₂ storage at existing installations non-ETS operation, liquid transport, new liquefaction installation	81,3440	162,6880	216,9173	265,9978	265,9978	0.0000	0.0000	0.0000	4000	3,0	6	15	-

<i>Phasing and rates for low-carbon production SDE++ 2023</i>													
Category	Maximum phase amount/base amount					Base greenhouse gas amount €/unit product ¹	Provisional energy price correction amount for 2023 (including HBE-Gs) €/unit product ¹	Provisional ETS value 2023 €/unit product ¹	Maximum full load hours hours/year	Order term year	Commissioning period year	Grant term year	Domain
	Phase 1 €/unit product	Phase 2 €/unit product	Phase 3 €/unit product	Phase 4 €/unit product	Phase 5 €/unit product								
CCS - Partial CO ₂ storage at existing installations non-ETS operation, liquid transport	81,3440	162,6880	216,9173	219,1409	219,1409	0.0000	0.0000	0.0000	4000	3,0	6	15	-
CCS - Full CO ₂ storage at existing installations non-ETS operation, liquid transport, new liquefaction installation	81,3440	146,1369	146,1369	146,1369	146,1369	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New pre-combustion CO ₂ purification, existing installation non-ETS company, liquid transport, new liquefaction installation	81,3440	162,6880	182,4241	182,4241	182,4241	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New pre-combustion CO ₂ capture in hydrogen production from residual gases for underfire non-ETS operation, liquid transport, new liquefaction plant	80,2640	160,5280	214,0373	228,8453	228,8453	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New post-combustion CO ₂ capture, existing installation non-ETS company, liquid transport, new liquefaction installation	74,0826	148,1652	197,5536	226,5740	226,5740	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New post-combustion CO ₂ capture, existing waste incineration plant non-ETS company, liquid transport, new liquefaction plant	66,8009	133,6018	178,1357	222,6696	222,6696	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New pre-combustion CO ₂ purification, new plant non-ETS operation, liquid transport, new liquefaction plant	81,8932	163,7863	165,5532	165,5532	165,5532	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CCS - New post-combustion CO ₂ capture, new installation non-ETS operation, liquid transport, new liquefaction installation	75,5064	151,0128	201,3504	205,5177	205,5177	0.0000	0.0000	0.0000	8000	3,0	6	15	-
CO₂ capture and reuse (CCU), gaseous/gaseous transport													
CCU - New pre-combustion CO ₂ purification, existing installation, gaseous transport	101,2105	101,2105	101,2105	101,2105	101,2105	69,1032	69,1032	0.0000	4000	3,0	6	15	-

<i>Phasing and rates for low-carbon production SDE++ 2023</i>													Maximum phase amount/base amount	Base greenhouse gas amount	Provisional energy price correction amount for 2023 (including HBE-Gs)	Provisional ETS value 2023	Maximum full load hours	Order term	Commissioning period	Grant term	Domain
Category	Phase 1 €/unit product	Phase 2 €/unit product	Phase 3 €/unit product	Phase 4 €/unit product	Phase 5 €/unit product	€/unit product ¹	€/unit product ¹	€/unit product ¹	hours/year	year	year	year									
CCU - New pre-combustion CO ₂ purification, existing installation, gaseous transport, new transport line	115,5628	115,5628	115,5628	115,5628	115,5628	69,1032	69,1032	0.0000	4000	3,0	6	15	-								
CCU - New pre-combustion CO ₂ purification, new installation, gaseous transport	71,2260	71,2260	71,2260	71,2260	71,2260	69,1032	69,1032	0.0000	4000	3,0	6	15	-								
CCU - New pre-combustion CO ₂ purification, new installation, gaseous transport, new transport line	85,5783	85,5783	85,5783	85,5783	85,5783	69,1032	69,1032	0.0000	4000	3,0	6	15	-								
CCU - New post-combustion CO ₂ capture, existing installation, gaseous transport	167,3015	167,3015	167,3015	167,3015	167,3015	69,1032	69,1032	0.0000	4000	3,0	6	15	-								
CCU - New post-combustion CO ₂ capture, existing installation, gaseous transport, new transport line	172,2959	181,6538	181,6538	181,6538	181,6538	69,1032	69,1032	0.0000	4000	3,0	6	15	-								
CCU - New post-combustion CO ₂ capture, new installation, gaseous transport	141,2888	141,2888	141,2888	141,2888	141,2888	69,1032	69,1032	0.0000	4000	3,0	6	15	-								
CCU - New post-combustion CO ₂ capture, new installation, gaseous transport, new transport line	155,6411	155,6411	155,6411	155,6411	155,6411	69,1032	69,1032	0.0000	4000	3,0	6	15	-								
CCU - New post-combustion CO ₂ capture at existing waste incineration plant, gaseous transport	165,0142	195,9294	195,9294	195,9294	195,9294	69,1032	69,1032	0.0000	4000	3,0	6	15	-								
CCU - New post-combustion CO ₂ capture at existing waste incineration plant, gaseous transport, new transport line	165,0142	210,2817	210,2817	210,2817	210,2817	69,1032	69,1032	0.0000	4000	3,0	6	15	-								
CCU - New post-combustion CO ₂ capture at horticultural biomass plant, gaseous	130,8712	130,8712	130,8712	130,8712	130,8712	69,1032	69,1032	0.0000	4000	3,0	6	15	-								

Phasing and rates for low-carbon production SDE++ 2023	Maximum phase amount/base amount					Base greenhouse gas amount €/unit product ¹	Provisional energy price correction amount for 2023 (including HBE-Gs) €/unit product ¹	Provisional ETS value 2023 €/unit product ¹	Maximum full load hours hours/year	Order term year	Commissioning period year	Grant term year	Domain
	Phase 1 €/unit product	Phase 2 €/unit product	Phase 3 €/unit product	Phase 4 €/unit product	Phase 5 €/unit product								
CO₂ capture and reuse (CCU), liquid/liquid transport													
CCU - New pre-combustion CO ₂ purification, existing installation, liquid transport, new liquefaction installation	158,3779	158,3779	158,3779	158,3779	158,3779	69,1032	69,1032	0.0000	4000	3,0	6	15	-
Additional CCU - Existing CO ₂ capture, existing installation, liquid transport, new liquefaction installation	107,9342	107,9342	107,9342	107,9342	107,9342	69,1032	69,1032	0.0000	4000	3,0	6	15	-
CCU - New pre-combustion CO ₂ purification, new installation, liquid transport, new liquefaction installation	130,9846	130,9846	130,9846	130,9846	130,9846	69,1032	69,1032	0.0000	4000	3,0	6	15	-
CCU - New post-combustion CO ₂ capture, existing installation, liquid transport, new liquefaction installation	171,4373	225,8159	225,8159	225,8159	225,8159	69,1032	69,1032	0.0000	4000	3,0	6	15	-
CCU - New post-combustion CO ₂ capture, new installation, liquid transport, new liquefaction installation	172,8611	195,2963	195,2963	195,2963	195,2963	69,1032	69,1032	0.0000	4000	3,0	6	15	-
CCU - New post-combustion CO ₂ capture at existing waste incineration plant, liquid transport, new liquefaction plant	164,1556	224,6565	260,5508	260,5508	260,5508	69,1032	69,1032	0.0000	4000	3,0	6	15	-
CCU - New post-combustion CO ₂ capture at biomass plant horticulture, liquid, new liquefaction plant	171,6209	174,7290	174,7290	174,7290	174,7290	69,1032	69,1032	0.0000	4000	3,0	6	15	-

¹ Unit product is in tons of CO₂ for CCS and CCU and in kWh for the other categories.

Documents to attach to low-carbon production subsidy applications

You must include a number of attachments with your subsidy application. In the table below you can see which attachments may be required for your technology. These attachments are explained in more detail below the table and you can also download the required formats.

Table of mandatory attachments for categories of low-carbon production	Attachments compulsory elements of the feasibility study ¹									Attachments permits			Other attachments	
	Financing plan	Substantiation of equity	Letter of intent from a financier if the intended share of equity in the investment is ≤ 20%	Operating calculation	Substantiation 1% electricity use of maximum power	Report transport and storage capacity	Substantiation carbon offset	Product yield calculation	Partnership participants ²	Environmental permit		Wnb permit	Site owner permission ²	Declaration transport and storage capacity
										Environmental part request ²	Permit ²			
Electrification (all categories)														
Hydrogen production from grid-connected electrolysis and hydrogen production from direct line electrolysis	x	x	x	x	x			x	x		x		x	
Advanced renewable transport fuels (all categories)														
Bioethanol, biomethanol, bioLNG and diesel and petrol substitutes	x	x	x	x				x	x		x	x	x	
CO₂ capture and storage (CCS) (all categories)														
CO ₂ capture and storage (CCS)	x	x	x	x		x		x	x	x	x ³		x	x
CO₂ capture and reuse (CCU) (all categories)														
CO ₂ capture and reuse (CCU)	x	x	x	x			x	x	x	x	x ³		x	

¹ Consult the SDE++ 2023 Feasibility Study Manual for more information.

² If applicable

³ If equipped

Note: If an installation is placed in a building, the environmental permit must be sent along with your subsidy application in the case of new construction or renovation.

Note: (partial) permits for the installation of (underground) cabling, fencing, fencing, and (underground) pipework do not need to be submitted with your grant application.

General attachments

The general attachments apply to all low-carbon production technologies.

Feasibility study

An application for an SDE++ subsidy for low-carbon production must be supported by a [‘haalbaarheidsstudie’](#).

The general part of the feasibility study must comprise of the following information:

- A description of the power generation facility, including the technical specifications.
- A comprehensive financing plan.
- The own funds to be invested by yourself, third parties or your shareholders.

Own funds must be substantiated with documents (annual accounts/balance statements) demonstrating that the required resources (financial and otherwise) will be available when needed. If you submit several projects, you must provide proof of funding to cover the total value of these SDE++ 2023 projects.

- A declaration of intent from a financial backer if less than 20% of the total investment is covered by own funds.
- A calculation of the operational costs.
- For more complex facilities, you must also include a process flow diagram.
- Product yield calculation.

During our assessment, we may ask you additional questions about the feasibility of your project.

You can find more information about the above requirements in the [‘Model haalbaarheidsstudie SDE++’](#) and the [‘Handleiding haalbaarheidsstudie SDE++’](#).

Permits

One or more permits are usually required to develop a power generation facility. These must have been issued by a competent authority before you submit your subsidy application. If you require a permit for your power generation facility, this permit must be attached to your subsidy application. This requirement was included in the Renewable Energy Production and Climate Transition Incentive Decree (‘Besluit SDEK’) to provide more certainty (and speed up the process) when applying for subsidies under the scheme. As a general rule, only the permits for the main components of a power generation facility are required. Permits for other components such as underground cables or pipelines, fencing, etc. are not required as part of your subsidy application. Alternative permit conditions apply to CCS.

- Environmental and planning permit: If you will be installing your power generation facility in, on, or next to a planned building, you will require a permit under the Environmental Permitting (General Provisions) Act (‘Wabo’). You may also require a permit based on the environmental impact of your

project. If you would like more information about environmental and planning permits, please visit the [‘Omgevingsloket’](#). In addition, you may require an environmental and planning permit for certain components of your power generation facility.

These components are listed below.

- Alternative permit conditions apply to CCS.

If you already have the permits for your production facility, please include the complete permit with your subsidy application.

If you do not have the permits yet, include the complete permit application submitted for the environmental part of the environmental and planning permit. This applies for the parts of the facility that are required to be new under the allocation regulations (capture, purification and, if applicable, liquefaction facility). So, for liquid transport, you must include the complete application for at least the environmental part of the new liquefaction plant.

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 approval of the subsidy application.

Also include the full environmental and planning permit for the capture, purification or liquefaction plant within 3 years of approval of the subsidy application.

- For CCU, include the complete permit application submitted for the environmental part of the environmental and planning permit. This applies for the parts of the facility that are required to be new under the allocation regulations (capture, purification and, if applicable, liquefaction facility). So, for liquid transport, you must include the complete application for at least the environmental part of the new liquefaction plant.
- Nature Conservation Act: if your power generation facility will generate substantial nitrogen emissions during its operation (e.g. biomass plants), you must include a Nature Conservation Act permit with your subsidy application. If you would like more information about the Nature Conservation Act permit, please visit the [Bij12 website](#).
- A Nature Conservation Act permit is required for advanced renewable fuels.

Site owner's permission

If the applicant is not the owner of the intended site of the power generation facility, then the owner's permission must be obtained. The site owner will need to complete and sign a form ([‘Model toestemming locatie-eigenaar’](#)), which gives you permission to install and operate the power generation facility. If there are multiple owners, each owner must complete a separate form. This applies to all categories. Please note that either the subsidy applicant or the owner who completes the form must be officially registered in the land registry as the owner or leaseholder of the site.

Partnerships

If your project is being implemented in a partnership, please include the following information in addition to the general attachments: A list of all the partners in the project (required).

- A partnership agreement signed by all the partners in the project (or a declaration that the lead party is authorised to apply for a subsidy for this project).
- A partnership agreement template can be found on the page [‘Downloads en hulpmiddelen bij uw aanvraag SDE++’](#) (Documents to attach to SDE++ applications).

Additional attachments for electrolytic hydrogen production, direct connection or grid-connected applications

Substantiation of 1% electricity consumption

Hydrogen power generation facilities are expected to be deployed only when there is a surplus of renewable electricity. At other times, the power consumption should be as low as possible to avoid greenhouse gas emissions. To this end, you are required to demonstrate in your application that the operational power generation facility can be limited to consume only 1% electricity in relation to the maximum power output of the facility.

Additional attachments for CCS applications

Explanation of transport and storage capacity

If you do not transport and store the CO₂ yourself, you must also include one 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 CO₂. This way, we can be certain that the capacity you are applying for can actually be stored. Use the template provided to this end ([‘Modelverklaring transport- en opslagcapaciteit’](#)).

Template: report model

The party who submits the template must include a report that verifies the storage capacity and has been assessed by TNO's advisory group on economic affairs. The CCS template with required information for the transport and storage declaration has a compulsory document structure.

Additional attachments for CCU applications

Substantiation of CO₂ sales

Your [feasibility study](#) should demonstrate how you intend to sell the CO₂ to the greenhouse horticulture sector. To this end, you could include the specification sheets of the carbon capture facility. Also include a description of the process by which the CO₂ is released and captured. You must also include a map showing the intended pipeline route or transport route from the CO₂ capture point to the CO₂ customer, indicating whether you, the applicant, will transport the CO₂ yourself or have it transported by a third party.

SDE++ scheme applications

If you would like to take advantage of the 2023 SDE++ scheme, applying for a subsidy is quick and easy through RVO's online portal eLoket. Applications will be accepted in five phases. The phase amount will increase for each phase.

Application procedure

Make sure to carefully prepare your application before you submit it. You must include all the required attachments for the relevant category. If any required attachments are 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. This is why it is important that you send all the required attachments with your application. Read more about required attachments in the chapter on 'Documents to attach your subsidy application' of the relevant category.

Applications through eLoket

You can log in to online application environment with eHerkenning (electronic identity verification). To submit an application, you will need at least Level 3 with RVO services authorisation at Level eH3.

Private individuals can log in using the DigiD service for citizens. The page '[SDE++: Aanvragen](#)' on the SDE++ website explains how to submit a subsidy application.

Partnerships

Are you applying for a SDE++ subsidy for a project in which you are going to realize and operate one production installation with several parties and are you not setting up a project entity? Then you can set up a partnership and apply for a subsidy for a project carried out by this partnership.

This option is intended for projects in which different parties realize and operate separate parts of the production installation. Does partnership only apply to financing your project? This means you are not a joint producer. Therefore you do not have to enter into a partnership for the project.

Applying for a subsidy for a project that is carried out by a partnership has consequences for the type of appendices you enclose with your application. This also has consequences during the eligible duration of your project. A partnership is valid for the entire term of your grant. All participants of the partnership remain involved.

The producer submits the application

If an application is submitted by a party that does not manage the entire production installation, we will not provide a subsidy. This is because the application has not been submitted by the (intended) producer of the production installation.

Realization

You always first apply for an SDE++ subsidy. You can then start realizing your project.

Secretariat

As a partnership, you designate one of the participants as lead party. This main applicant is applying for the subsidy. We grant and pay the subsidy to this main applicant. The main applicant is the (single) point of contact for us. The obligations of the subsidy also lie with the main applicant.

Attachments to your application

Are you applying for a project that is being carried out by a partnership? In addition to the generally required attachments, please also send the following:

- An overview of the participants in the partnership (mandatory);
- A partnership agreement signed by all participants in the partnership. Or a statement showing that the main applicant is authorized to apply for the subsidy for the project.

Also, for a project carried out by a partnership, you will need additional documentation to your feasibility study. See the [‘Handleiding Haalbaarheidsstudie SDE++’](#).

Example of a partnership

In the case of residual heat utilization, does one party disconnect heat and another exploit the transport network for the heat? Then the main applicant will apply for the subsidy for the project that is being carried out by the partnership. Both the parts required for the disconnection and those for the transport are part of the production installation as described in the [‘Aanwijzingsregeling categorieën’](#). Does the transport party also disconnect the heat (does it operate the heat exchanger)? In this case there is no partnership.

Ranking table

<i>Ranking and phasing at maximum base amount categories SDE++ 2023</i>				
Category	Subsidy intensity ¹	Base amount	Long-term price	Emission factor
	€/ton CO ₂ reduction ²	€/unit product ²	€/unit product ²	kg CO ₂ /unit product ²
	A=(B-C)/D	B	C	D
Phase 1				
Solar-PV ≥ 1 MWp, building-related (net = 50%)	-148,194	0.0804	0.0923	0.0803
Solar-PV ≥ 1 MWp and < 20 MWp, sun following on land	-145,000	0.0633	0.0749	0.0800
Solar-PV ≥ 20 MWp, sun following on land	-140,000	0.0602	0.0714	0.0800
Solar-PV ≥ 15 kWp and < 1 MWp connection > 3*80 A, building-related (net = 50%)	-108,344	0.0916	0.1003	0.0803
Wind on land, ≥ 8.5 m/s	-87,634	0.0530	0.0620	0.1027
Wind on land, ≥ 8 and < 8.5 m/s	-84,713	0.0533	0.0620	0.1027
Wind on land, height-restricted ≥ 8.5 m/s	-74,976	0.0543	0.0620	0.1027
Solar-PVT system with heat pump	-67,698	0.0530	0.0670	0.2068
Solar-PV ≥ 1 MWp and < 20 MWp, on land (net = 50%)	-59,701	0.0701	0.0749	0.0804
Solar-PV ≥ 20 MWp, on land (net = 50%)	-58,458	0.0667	0.0714	0.0804
Use of waste heat (without heat pump), length-to-power ratio ≥ 0.10 and < 0.20 km/MWth	-47,387	0.0243	0.0350	0.2258
CCU - New pre-combustion CO ₂ purification, new installation, gaseous transport	-38,180	71,2260	103,6547	849,3736
Wind on land, ≥ 7.5 and < 8.0 m/s	-34,080	0.0585	0.0620	0.1027
All-purpose fermentation extended lifespan, combined generation	-30,407	0.0705	0.0758	0.1743
Wind on dam, ≥ 8.5 m/s	-29,211	0.0590	0.0620	0.1027
Solar-PV ≥ 15 kWp and < 1 MWp connection > 3*80 A, on land (net = 50%)	-24,876	0.0916	0.0936	0.0804
Solar-PV ≥ 15 kWp and < 1 MWp connection > 3*80 A, floating on water (net = 50%)	-24,876	0.0916	0.0936	0.0804
Composting plant, heat	-23,451	0.0563	0.0616	0.2260
CCU - New pre-combustion CO ₂ purification, new installation, gaseous transport, new transport line	-21,282	85,5783	103,6547	849,3736
Solar-PV ≥ 1 MWp, sun following on water	-19,011	0.0734	0.0749	0.0789
Use of waste heat (without heat pump), length-to-power ratio ≥ 0.20 and < 0.30 km/MWth	-15,521	0.0315	0.0350	0.2255
CCS - Full CO ₂ storage at existing installations, gaseous transport	-11,100	108,8450	118,9267	908,2620
Wind on dam, ≥ 8 and < 8.5 m/s	-8,763	0.0611	0.0620	0.1027

<i>Ranking and phasing at maximum base amount categories SDE++ 2023</i>	Subsidy intensity ¹	Base amount	Long-term price	Emission factor
Category	€/ton CO ₂ reduction ²	€/unit product ²	€/unit product ²	kg CO ₂ /unit product ²
	A=(B-C)/D	B	C	D
Large boiler on B-wood	-5,310	0.0338	0.0350	0.2260
Wind on land, height-restricted ≥ 8 and < 8.5 m/s	-3,895	0.0616	0.0620	0.1027
CCU - New pre-combustion CO ₂ purification, existing installation, gaseous transport	-2,898	101.2105	103.6547	843.4750
Deep geothermal energy, base load, additional well	0.679	0.0353	0.0350	0.4418
Wind on land, ≥ 7.0 and < 7.5 m/s	3,895	0.0624	0.0620	0.1027
Extra CCU - Existing CO ₂ capture, existing installation, liquid transport, new liquefaction installation	5,132	107,9342	103,6547	833,9350
CCS - New pre-combustion CO ₂ purification, new installation, gaseous transport	7,683	125,9515	118,9267	914,3640
CCU - New pre-combustion CO ₂ purification, existing installation, gaseous transport, new transport line	14,118	115,5628	103,6547	843,4750
Use of waste heat (without heat pump), length-to-power ratio ≥ 0.30 and < 0.40 km/MWth	16,423	0.0387	0.0350	0.2253
Deep geothermal energy ≥ 20 MWth (6000 full load hours)	27,463	0.0471	0.0350	0.4406
Deep geothermal energy, conversion of existing oil and gas wells ≥ 20 MWth, base load (6000 full load hours)	27,463	0.0471	0.0350	0.4406
All-purpose fermentation extended lifespan, heat	27,876	0.0679	0.0616	0.2260
CCS - Full CO ₂ storage at existing installations, liquid transport, new liquefaction installation	30,106	146,1369	118,9267	903,8220
CCS - New pre-combustion CO ₂ purification, existing installation, gaseous transport	30,819	146,9185	118,9267	908,2620
CCU - New pre-combustion CO ₂ purification, new installation, liquid transport, new liquefaction installation	32,673	130,9846	103,6547	836,4736
CCU - New post-combustion CO ₂ capture at horticultural biomass plant, gaseous	35,173	130,8712	103,6547	773,7800
Direct use (burner) of wood pellets for industrial applications	35,841	0.0635	0.0554	0.2260
Large solid or liquid biomass boiler extended lifespan	38,053	0.0436	0.0350	0.2260
Deep geothermal energy ≥ 12 and < 20 MWth (6000 full load hours)	40,969	0.0531	0.0350	0.4418
Deep geothermal energy, conversion of existing oil and gas wells ≥ 12 and < 20 MWth (6000 full load hours)	40,969	0.0531	0.0350	0.4418
Small boiler on solid or liquid biomass	43,805	0.0715	0.0616	0.2260
Wind on dam, ≥ 7.5 and < 8.0 m/s	43,817	0.0665	0.0620	0.1027
Wind on land, ≥ 6.75 and < 7.0 m/s	44,791	0.0666	0.0620	0.1027
Mono-fermentation of manure extended lifespan, heat ≤ 450 kW	47,659	0.0960	0.0616	0.7218
CCU - New post-combustion CO ₂ capture, new installation, gaseous transport	48,342	141,2888	103,6547	778,5000
Use of residual heat (without heat pump), length-to-power ratio ≥ 0.40 km/MWth	48,867	0.0460	0.0350	0.2251
Mono-fermentation of manure extended lifespan, combined generation ≤ 450 kW	49,202	0.1427	0.0986	0.8963

<i>Ranking and phasing at maximum base amount categories SDE++ 2023</i>	Subsidy intensity ¹	Base amount	Long-term price	Emission factor
Category	€/ton CO ₂ reduction ²	€/unit product ²	€/unit product ²	kg CO ₂ /unit product ²
	A=(B-C)/D	B	C	D
CCS - New pre-combustion CO ₂ purification, new installation, gaseous transport	51,242	165,5532	118,9267	909,9240
All-purpose fermentation, heat	53,540	0.0737	0.0616	0.2260
All-purpose fermentation, combined generation	54,504	0.0853	0.0758	0.1743
Deep geothermal energy < 12 MWth (6000 full load hours)	55,834	0.0595	0.0350	0.4388
Deep geothermal energy, conversion of existing oil and gas wells < 12 MWth (6000 full load hours)	55,834	0.0595	0.0350	0.4388
CCS - New post-combustion CO ₂ capture, new installation, gaseous transport	63,666	172,6223	118,9267	843,4000
CCU - New pre-combustion CO ₂ purification, existing installation, liquid transport, new liquefaction installation	65,620	158,3779	103,6547	833,9350
CCU - New post-combustion CO ₂ capture, new installation, gaseous transport, new transport line	66,778	155,6411	103,6547	778,5000
Wind on land, height-restricted ≥ 7.5 and < 8.0 m/s	67,186	0.0689	0.0620	0.1027
CCS - New pre-combustion CO ₂ purification, existing installation, liquid transport, new liquefaction installation	70,254	182,4241	118,9267	903,8220
Solar-PV ≥ 1 MWp, floating on water (net = 50%)	77,114	0.0811	0.0749	0.0804
CCS - New pre-combustion CO ₂ capture in hydrogen production from residual gases for underfire, gaseous transport	80,448	191,0295	118,9267	896,2620
Wind on dam, ≥ 7.0 and < 7.5 m/s	80,818	0.0703	0.0620	0.1027
CCS - Partial CO ₂ storage at existing installations, gaseous transport	81,867	193,2830	118,9267	908,2620
CCU - New post-combustion CO ₂ capture, existing installation, gaseous transport	83,452	167,3015	103,6547	762,6800
Industrial open heat pump (8000 hours)	83,772	0.0525	0.0350	0.2089
CCS - New post-combustion CO ₂ capture, existing installation, gaseous transport	87,955	191,7169	118,9267	827,5800
Phase 2				
Wind on land, < 6.75 m/s	91,529	0.0714	0.0620	0.1027
Large solid or liquid biomass boiler (8,500 full load hours)	92,035	0.0558	0.0350	0.2260
Liquid biomass boiler, district heating	92,920	0.0826	0.0616	0.2260
Liquid biomass boiler, other applications	92,920	0.0826	0.0616	0.2260
Industrial closed heat pump (8000 hours)	93,897	0.0530	0.0350	0.1917
Mono-fermentation of manure, heat > 450 kW	93,992	0.1004	0.0616	0.4128
CCU - New post-combustion CO ₂ capture at biomass plant horticulture, liquid, new liquefaction plant	94,116	174,7290	103,6547	755,1800
Large solid or liquid biomass boiler (8,000 full load hours)	94,248	0.0563	0.0350	0.2260

<i>Ranking and phasing at maximum base amount categories SDE++ 2023</i>	Subsidy intensity ¹	Base amount	Long-term price	Emission factor
Category	€/ton CO ₂ reduction ²	€/unit product ²	€/unit product ²	kg CO ₂ /unit product ²
	A=(B-C)/D	B	C	D
Mono-fermentation of manure, combined generation > 450 kW	95,213	0.1180	0.0822	0.3760
Large solid or liquid biomass boiler (7,500 full load hours)	96,460	0.0568	0.0350	0.2260
Large solid or liquid biomass boiler (7,000 full load hours)	97,345	0.0570	0.0350	0.2260
Large solid or liquid biomass boiler (6,500 full load hours)	99,558	0.0575	0.0350	0.2260
CCU - New post-combustion CO ₂ capture, existing installation, gaseous transport, new transport line	102,270	181,6538	103,6547	762,6800
CCS - New post-combustion CO ₂ capture, new installation, liquid transport, new liquefaction installation	103,212	205,5177	118,9267	838,9600
Large solid or liquid biomass boiler (6,000 full load hours)	103,540	0.0584	0.0350	0.2260
Ultra deep geothermal energy, base load	105,025	0.0814	0.0350	0.4418
Large solid or liquid biomass boiler (5,500 full load hours)	106,637	0.0591	0.0350	0.2260
CCS - Partial CO ₂ storage at existing installations, liquid transport	110,878	219,1409	118,9267	903,8220
Large solid or liquid biomass boiler (5,000 full load hours)	111,062	0.0601	0.0350	0.2260
Mono-fermentation of manure, heat ≤ 450 kW	113,974	0.1399	0.0616	0.6870
Large solid or liquid biomass boiler (4,500 full load hours)	115,487	0.0611	0.0350	0.2260
CCU - New post-combustion CO ₂ capture, new installation, liquid transport, new liquefaction installation	119,176	195,2963	103,6547	768,9600
CCS - Full CO ₂ storage at existing installations non-ETS operation, gaseous transport	119,839	108,8450	0.0000	908,2620
CCS - New pre-combustion CO ₂ capture in hydrogen production from residual gases for underfire, liquid transport, new liquefaction plant	123,252	228,8453	118,9267	891,8220
Mono-fermentation of manure, combined generation ≤ 450 kW	124,689	0.2039	0.0986	0.8445
CCS - New post-combustion CO ₂ capture, existing installation, liquid transport, new liquefaction installation	130,776	226,5740	118,9267	823,1400
Wind on dam, ≥ 6.75 and < 7.0 m/s	134,372	0.0758	0.0620	0.1027
CCU - New post-combustion CO ₂ capture at existing waste incineration plant, gaseous transport	135,345	195,9294	103,6547	681,7720
Mono-fermentation of manure extended lifespan ≤ 450 kW, gas	137,570	0.1212	0.0450	0.5539
CCS - New pre-combustion CO ₂ purification, new installation non-ETS company, gaseous transport	137,748	125,9515	0.0000	914,3640
Deep geothermal energy, medium load, heating built environment	141,978	0.0973	0.0350	0.4388
All-purpose fermentation extended lifespan, gas	154,645	0.0733	0.0450	0.1830
Mono-fermentation of manure extended lifespan ≤ 450 kW, conversion to gas	155,082	0.1309	0.0450	0.5539
CCU - New post-combustion CO ₂ capture at existing waste incineration plant, gaseous transport, new transport line	156,397	210,2817	103,6547	681,7720

<i>Ranking and phasing at maximum base amount categories SDE++ 2023</i>	Subsidy intensity ¹	Base amount	Long-term price	Emission factor
Category	€/ton CO ₂ reduction ²	€/unit product ²	€/unit product ²	kg CO ₂ /unit product ²
	A=(B-C)/D	B	C	D
Shallow geothermal energy with heat pump (6000 full load hours)	156,807	0.0957	0.0350	0.3871
Sewage treatment plant improved sludge digestion, heat	161,062	0.0980	0.0616	0.2260
CCS - Full CO ₂ storage at existing installations non-ETS operation, liquid transport, new liquefaction installation	161,688	146,1369	0.0000	903,8220
CCS - New pre-combustion CO ₂ purification, existing installation non-ETS company, gaseous transport	161,758	146,9185	0.0000	908,2620
CCU - New post-combustion CO ₂ capture, existing installation, liquid transport, new liquefaction installation	162,203	225,8159	103,6547	753,1400
CCS - Partial CO ₂ storage at existing installations, liquid transport, new liquefaction plant	162,721	265,9978	118,9267	903,8220
Wind on land, height-restricted ≥ 7.0 and < 7.5 m/s	163,583	0.0788	0.0620	0.1027
Solar thermal ≥ 1 MWth	163,717	0.0986	0.0616	0.2260
Advanced renewable transport fuels, diesel and gasoline substitutes from solid lignocellulosic biomass	170,992	0.1383	0.0935	0.2620
Use of waste heat with heat pump, length-to-power ratio ≥ 0.10 and < 0.20 km/MWth	173,368	0.0682	0.0350	0.1915
All-purpose fermentation extended lifespan, conversion to gas	178,689	0.0777	0.0450	0.1830
Wind on dam, < 6.75 m/s	179,163	0.0804	0.0620	0.1027
Phase 3				
CCS - New pre-combustion CO ₂ purification, new installation non-ETS company, liquid transport, new liquefaction plant	181,942	165,5532	0.0000	909,9240
Mono-fermentation of manure > 450 kW, gas	182,573	0.1066	0.0450	0.3374
Advanced renewable transport fuels, bio-methanol from solid lignocellulosic biomass	185,657	0.1421	0.0955	0.2510
Deep geothermal energy with heat pump, heating built environment (6000 full load hours)	194,730	0.1089	0.0350	0.3795
Aquathermal energy, thermal energy from surface water, drinking water or sea water, heating built environment (6000 full load hours)	200,418	0.0734	0.0350	0.1916
CCS - New pre-combustion CO ₂ purification, existing installation non-ETS company, liquid transport, new liquefaction plant	201,836	182.4241	0.0000	903,8220
Mono-fermentation of manure ≤ 450 kW, gas	203,258	0.1523	0.0450	0.5279
Deep geothermal energy, no base load, heating built environment	204,457	0.1240	0.0350	0.4353
CCS - New post-combustion CO ₂ capture, new installation non-ETS company, gaseous transport	204,674	172,6223	0.0000	843,4000
Biomass gasification (including B wood)	207,288	0.0797	0.0450	0.1674
Use of waste heat with heat pump, length-to-power ratio ≥ 0.20 and < 0.30 km/MWth	211,709	0.0755	0.0350	0.1913
Large steam boiler on wood pellets ≥ 5 MWth and < 50 MWth	212,389	0.0830	0.0350	0.2260

<i>Ranking and phasing at maximum base amount categories SDE++ 2023</i>				
	Subsidy intensity ¹	Base amount	Long-term price	Emission factor
Category	€/ton CO ₂ reduction ²	€/unit product ²	€/unit product ²	kg CO ₂ /unit product ²
	A=(B-C)/D	B	C	D
CCS - Partial CO ₂ storage at existing installations, non-ETS operation, gaseous transport	212,805	193,2830	0.0000	908,2620
CCS - New pre-combustion CO ₂ capture in hydrogen production from residual gases for underfire non-ETS operation, gaseous transport	213,140	191,0295	0.0000	896,2620
Solar thermal ≥ 140 kWth and < 1 MWth	221,239	0.1170	0.0670	0.2260
Electric boiler, district heating	223,009	0.0954	0.0450	0.2260
Electric boiler, other applications	223,009	0.0954	0.0450	0.2260
Wind on land, height-restricted ≥ 6.75 and < 7.0 m/s	223,953	0.0850	0.0620	0.1027
Advanced renewable transport fuels, bio-LNG from all-purpose fermentation	226,661	0.1088	0.0532	0.2453
CCS - New post-combustion CO ₂ capture, existing installation non-ETS company, gaseous transport	231,660	191,7169	0.0000	827,5800
CCU - New post-combustion CO ₂ capture at existing waste incineration plant, liquid transport, new liquefaction plant	233,396	260,5508	103,6547	672,2320
Aquathermal energy, thermal energy from drinking water or waste water (6000 full load hours)	238,095	0.0805	0.0350	0.1911
Phase 4				
All-purpose fermentation, gas	242,077	0.0893	0.0450	0.1830
CCS - Partial CO ₂ storage at existing installations, non-ETS operation, liquid transport	242,460	219,1409	0.0000	903,8220
CCS - New post-combustion CO ₂ capture, new installation non-ETS company, liquid transport, new liquefaction plant	244,967	205,5177	0.0000	838,9600
Advanced renewable transport fuels, bioethanol from solid lignocellulosic biomass	247,009	0.1657	0.0955	0.2842
Large steam boiler on wood pellets ≥ 50 MWth	247,788	0.0910	0.0350	0.2260
Use of residual heat with heat pump, length-to-power ratio ≥ 0.30 and < 0.40 km/MWth	249,738	0.0827	0.0350	0.1910
CCS - New pre-combustion CO ₂ capture in hydrogen production from residual gases for underfire non-ETS company, liquid transport, new liquefaction plant	256,604	228,8453	0.0000	891,8220
Advanced renewable transportation fuels, bio-LNG from mono-fermentation of manure	263,788	0.1589	0.0532	0.4007
Hydropower, drop height ≥ 50 cm, renovation	265,000	0.1225	0.0907	0.1200
Aquathermal energy, thermal energy from surface water, drinking water or sea water, with seasonal storage, direct application (3500 full load hours)	271,310	0.0872	0.0350	0.1924
CCS - New post-combustion CO ₂ capture, existing installation non-ETS company, liquid transport, new liquefaction plant	275,256	226,5740	0.0000	823,1400
Daylight greenhouse	279,058	0.0907	0.0350	0.1996

Ranking and phasing at maximum base amount categories SDE++ 2023				
	Subsidy intensity¹	Base amount	Long-term price	Emission factor
Category	€/ton CO₂ reduction²	€/unit product²	€/unit product²	kg CO₂/unit product²
	A=(B-C)/D	B	C	D
Use of residual heat with heat pump, length-to-power ratio ≥ 0.40 km/MWth	287,736	0.0899	0.0350	0.1908
CCS - New post-combustion CO ₂ capture, existing waste incineration plant non-ETS company, gaseous transport	289,347	216,0474	0.0000	746,6720
CCS - Partial CO ₂ storage at existing installations, non-ETS operation, liquid transport, new liquefaction plant	294,303	265,9978	0.0000	903,8220
Wind on land, height-restricted < 6,75 m/s	297,955	0.0926	0.0620	0.1027
Shallow geothermal energy with heat pump, heating built environment (3500 full load hours)	298,631	0.1506	0.0350	0.3871
Sewage treatment plant improved sludge digestion, combined generation	300,000	0.1299	0.0813	0.1620
CCS - New post-combustion CO ₂ capture, existing waste incineration plant non-ETS company, liquid transport, new liquefaction plant	300,000	222,6696	0.0000	742,2320
Hydropower, drop height < 50 cm (including wave energy and free flow energy)	300,000	0.1267	0.0907	0.1200
Hydropower, drop height ≥ 50 cm	300,000	0.1267	0.0907	0.1200
Osmosis	300,000	0.1267	0.0907	0.1200
Phase 5				
Industrial closed heat pump (3000 hours)	323,422	0.0970	0.0350	0.1917
Air-to-water heat pump, heating of existing objects in the built environment	342,091	0.1241	0.0616	0.1827
Sewage treatment plant improved sludge digestion, gas	381,421	0.1148	0.0450	0.1830
Industrial open heat pump (3000 hours)	395,404	0.1176	0.0350	0.2089
Aquathermal energy, thermal energy from surface water, drinking water or sea water, with seasonal storage, heating built environment (6000 full load hours)	399,783	0.1086	0.0350	0.1841
Hydrogen from electrolysis, grid connected	400,000	0.1550	0.0634	0.2290
Hydrogen from electrolysis, direct line with wind farm or solar farm	400,000	0.1550	0.0634	0.2290
Aquathermal energy, thermal energy from surface water with seasonal storage, heating built environment (3500 full load hours) ³	400,219	0.1080	0.0350	0.1824
Biomass gasification (excluding B wood) ³	400,239	0.1120	0.0450	0.1674

¹ With an application amount below the maximum basic amount, the subsidy intensity is lower, and you may be able to submit in an earlier phase.

² Unit product is for CCS and CCU in tons of CO₂ and in kWh for the other categories.

³ For this category, the base amount is calculated at €400/ton CO₂ and mathematically rounded up to 4 decimals, when calculating back to subsidy intensity it can exceed €400/ton CO₂.

SDE++ subsidy decision

Implementation agreement and bank guarantee

If you are applying for a CCS or CCU subsidy and parts of the power generation facility are required to be new under the allocation regulations, but you have not obtained environmental and planning permits yet, or your application involves a subsidy of €400 million or more, note that the approval of your subsidy is subject to the following conditions:

- You must send a signed implementation agreement to RVO within two weeks of the subsidy being approved. The implementation agreement can be downloaded on the website under 'Uitvoeringsovereenkomst en bankgarantie on the webpage ['SDE++: Aanvragen'](#). The implementation agreement is also included in annex 1 of the ['Allocation Regulations for 2023 SDE++ categories'](#).
- The bank guarantee associated with the implementation agreement must be sent to RVO within 4 weeks of approval of your subsidy application. You will also find the bank guarantee template in Annex 1 of the ['Allocation Regulations for the 2023 SDE++ categories'](#) and on the website.

For carbon capture at biomass facilities used in greenhouse horticulture, you do not have to provide an implementation agreement and bank guarantee for a subsidy below €400 million.

Receiving your SDE++ subsidy

After your SDE++ subsidy application has been approved, you must complete a number of steps to actually receive the money.

- After your subsidy application has been approved, you must send RVO copies of your agreements with contractors within 18 months. The documents you provide must describe the components of the power generation facility and the contracts issued for the construction of the facility. A period of 36 months applies for geothermal energy, CCS and CCU projects. You do not need to send these contractor agreements for the 'Solar PV' categories ≥ 15 kWp and < 1 MWp (in connection with the 2-year implementation period). You must carry out the project in accordance with your application, and the power generation facility must be taken into operation within the implementation period.
- You are required to measure the production level of each subsidised technology. In the case of carbon capture and storage and carbon capture and use, you must measure the CO₂ reduction. This can be measured with 'gross production meters'. Talk to your metering company about how to measure energy production.
- You must register with a certifying authority, such as:
 - VertiCer (for renewable electricity, renewable gas and renewable heat) or a metering company for low-carbon heat and low-carbon

production. For low-carbon heat and low-carbon production, you must register using the form ['Formulier Oordeel geschiktheid productie-installatie'](#).

- You must register as a producer with the grid operator (or, in the case of low-carbon heat or low-carbon production, with the metering company). Your monthly advance payments will start after you have completed these steps. Every year, we carry out a retrospective correction based on the actual energy or carbon price and the certified meter readings submitted to RVO. You can 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 how the aid received by your project will be affected. An EAG assessment is always carried out for the following categories: 'Lifetime extension for the production of renewable electricity', 'Industrial heat pump with 3,000 full-load hours', 'Waste heat', 'Electric boilers', 'Electrolytic hydrogen production', 'CCS' and 'CCU'. This also applies if you have received no incentives other than the SDE++ subsidy. If the purchase price of energy for a production installation for the

production of heat, electricity or green gas from biomass or the production of advanced biofuels or the production of hydrogen or an eBoiler is 15% lower than the price at which the SDE++ subsidy was determined, an additional MSK test can be done.

More information about the [MSK test](#).

Terms and definitions

Banking

Banking can be applied for most SDE++ applications. Forward banking involves carrying any eligible annual unused production (underproduction) forward to later years. Backward banking involves transferring any eligible annual overproduction to a later year when your production is lower than expected. Backward banking is capped at 25% of the annual production eligible for a subsidy. You can read more about banking on the SDE++ website.

Boiler

Facility in which fuel is combusted and the combustion heat is transferred to a fluid through a heat exchanger.

CHP

Combined heat and power.

COP

Coefficient of Performance, expressed as the ratio between the heat produced on the condenser side and the electricity consumed under average operating conditions.

District heating

Supply of heat to a heat network by a producer as referred to in Article 1(1) of the Heating Supply Act.

Emissions factor

Emissions avoided by implementing the relevant technology. The ranking table displays the emissions factor for each category.

Energy value

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

Full-load hours

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

Guarantees of Origin (GO)

Guarantees of Origin (GO) are issued by VertiCer. You must register with and be certified by VertiCer to be applicable for renewable electricity and renewable gas subsidies.

Heating the built environment

District heating or space heating and hot water supply in a building that is not a greenhouse, whereby the producer supplies the heat directly to the building.

Implementation period

The period (after application has been approved) within which the facility must start production.

Long-term price

The unweighted average of the actual energy, product or ETS price over the subsidy period, based on estimated price movements.

PBL

Netherlands Environmental Assessment Agency. Read more about PBL's role in the SDE++ scheme [here](#).

Production installation

A combination of facilities for the production of renewable electricity, renewable gas or renewable heat, or for reducing greenhouse gases. The combination of facilities includes all components on a site that are connected to each other for the purposes of producing renewable energy or reducing greenhouse gases.

Producer

Any party who operates a power generation facility.

Production hours

Sum of all time periods during which a power generation facility produces power under partial or full-load operation.

Rated power output

The maximum output of the power generation facility when used under rated (design) conditions, guaranteed by the supplier under conditions of continuous use.

Subsidy intensity

The subsidy amount in euros per tonne of CO₂ emissions avoided.

The subsidy intensity determines the phase in which you can submit your subsidy application. It is also used to determine how your application will be ranked.

You can calculate the subsidy intensity as follows: (Application amount - Long-term price) / Emissions factor

Subsidy term

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

Usefully employed heat

RVO 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 about the regulation on guarantees of origin and certificates of origin on the VertiCer website.

Waste heat

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.

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