



Danish Energy Agency

Draft tender material for the Danish biochar aid scheme

Tender process and tender design

8/19/2026



Agenda

14.00-14.45

Tender design for the Danish biochar aid scheme,
by Jane Glindvad Kristensen.

14.45-14.50

Coffee break.

14.50-15.50

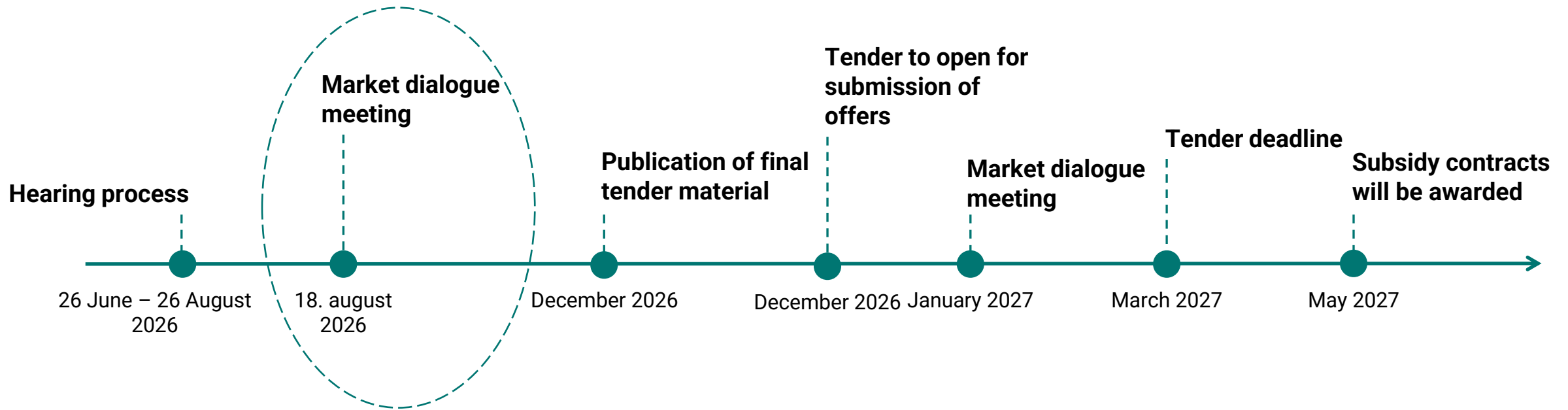
Q&A.

15.50-16.00

Wrap-up.



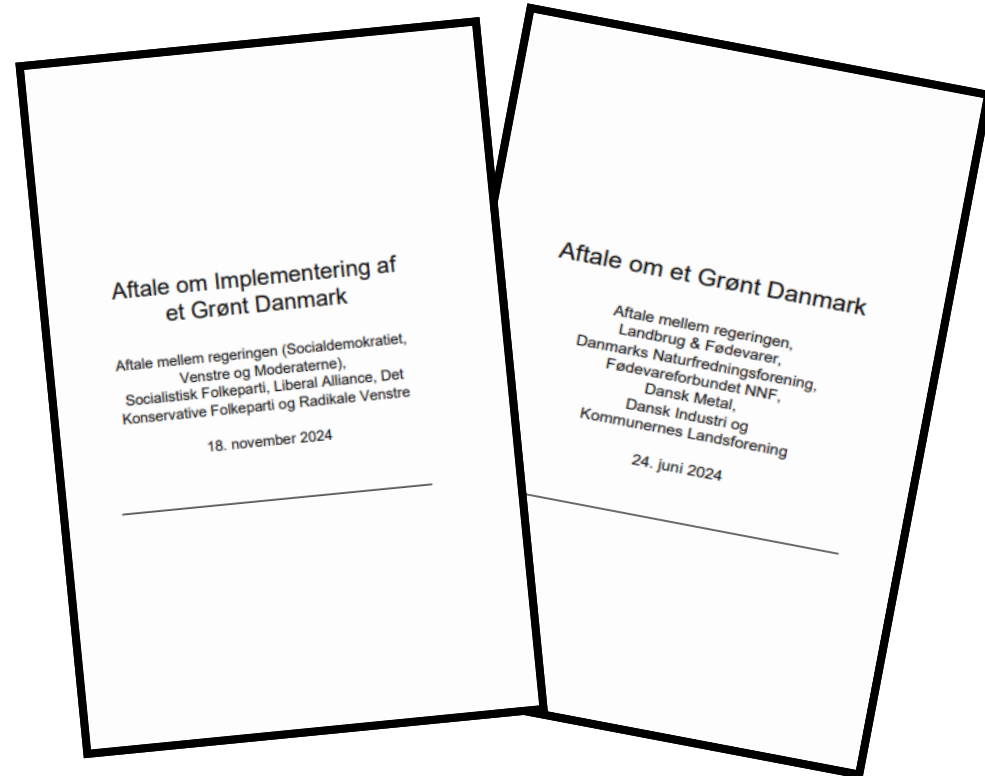
Preliminary timeline and next steps



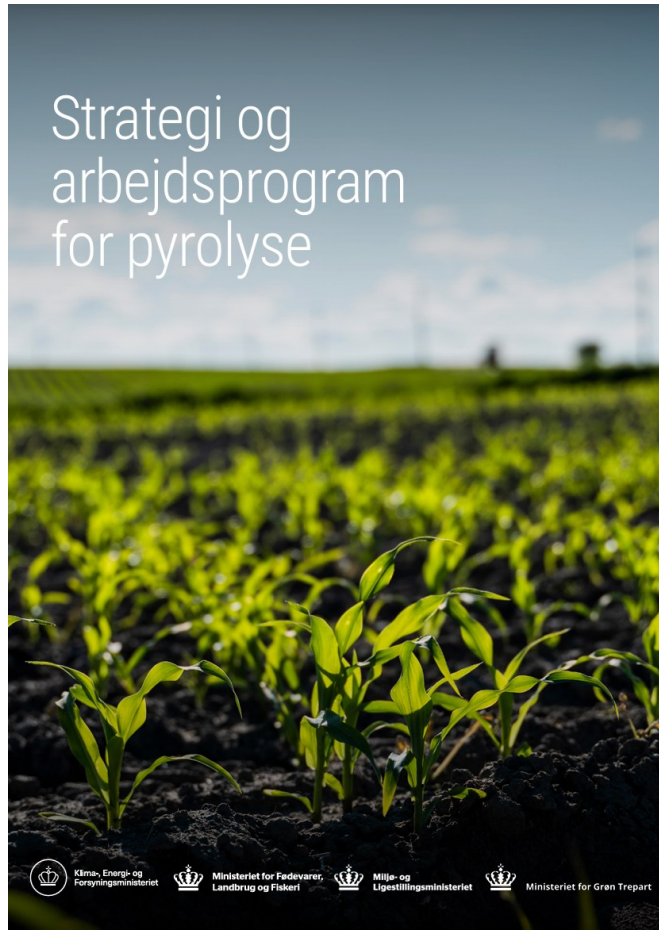
The political Agreement for biochar aid scheme (1/2)

The Agreement on a Green Denmark (Aftale om et Grønt Danmark) of June 24, 2024 states that:

- “Furthermore, funding will be allocated to support technological transition, including, in particular, a total subsidy pool of more than DKK 10 billion for the storage of biochar produced through pyrolysis up to 2045.” (Translated)
- The scheme is intended to contribute to Denmark’s 2030 climate target through permanent carbon removals from biochar storage.
- This was reaffirmed in the Agreement on the Implementation of a Green Denmark (18 November, 2024).



Strategy and Work Program for Pyrolysis



Box 1 Focus Areas in the Danish Pyrolysis Strategy and Work Program

Focus Area 1: Clear and Simple Regulation

- Establishment of clear and simple regulations under EU law for the application of biochar starting mid-2026.
- Greater clarity on site location options for pyrolysis plants through amendments to the Danish Planning Act effective January 1, 2025.
- Examination of the formation, content, and degradation of environmentally harmful substances during the pyrolysis process and the production of biochar by 2026.
- Assessment of potential environmental and agronomic effects through multi-year field experiments.
- Enhanced guidance for municipalities via advisory statements on § 19 permits by the end of 2024, along with guidance on environmental approvals.
- Creation of a Pyrolysis Task Force to coordinate the implementation of initiatives under the Danish pyrolysis strategy, involving a stakeholder group comprising relevant actors.

Focus Area 2: Strengthened Incentives for Adoption

- Establishment of a subsidy scheme for biochar stored in agricultural soil starting in 2027.
- Allocation of funds for research, development, and demonstration of pyrolysis technology in connection with an upcoming green research and innovation initiative in Denmark.
- Guidance on reduction factors for reporting pyrolysis-based fuels to meet the national Greenhouse gas reduction target.
- Support for the European Commission's work to implement an appropriate and credible EU-wide certification system for carbon removal.
- Analysis of opportunities to target CAP support for the use of biochar in agriculture in the next CAP reform period.

Focus Area 3: Climate Impact and Emissions inventory

- Development of an emission factor for biochar for inclusion in the Danish emissions inventory from 2027.
- Measurement of methane emissions in 2024 and determination of an emission factor for pyrolysis plants in 2025.
- Compilation of a knowledge synthesis on alternative biochar storage options by 2025.
- Contribution to the IPCC Methodology Report on Carbon Dioxide Removal Technologies and revision of IPCC guidelines to include more storage options in climate accounting.

The political Agreement (2/2)

From the Agreement on the Implementation of a Green Denmark

- The purpose of the subsidy scheme is to support the storage of carbon from CO₂ in biochar applied to Danish agricultural soils.
- The scheme is estimated to contribute annual carbon removals of 0.3 million tonnes of CO₂ by 2030.
- Given the considerable uncertainty surrounding the development of pyrolysis technology, funding was allocated to enable the realization of a potential of up to 0.6 million tonnes of CO₂ removals by 2030.



Prerequisites for launching the subsidy scheme

- Environmental regulatory framework in place.
- Necessary legislative framework adopted, including the relevant Act and Executive Order.
- Emission factor established and methodology for calculating subsidy levels finalized
- Administrative framework and systems established, including requirements for certification, monitoring, reporting and verification
- State aid approval obtained from the European Commission



Questions?



Tender design



Key principles of the tender design

- Delivering the greatest possible CO₂ impact at the earliest possible stage.
- Support establishment of the biochar storage market.
- Keeping administrative burdens proportionate for both public authorities and aid beneficiaries.
- Ensuring full compliance with EU State aid rules.
- Establishing a framework that supports ongoing monitoring, evaluation and, where necessary, adjustment of the scheme.
- Draw on lessons from CCS tenders.



Design of the Subsidy Scheme

Overall design	A simple open tender procedure without negotiation.
Support	Support is granted per tonne of CO ₂ stored in biochar applied to agricultural land. A single tender will be launched in 2026, covering the full funding envelope. Support may be granted for up to 19 years.
Target Group	Support may be granted for the storage of biochar produced through pyrolysis in Denmark or abroad and may cover both existing and new pyrolysis facilities. The introduction of specific requirements for biochar imported from outside the EU is being considered. The tender documents may include minimum eligibility requirements, including a minimum bid volume. The aid beneficiary will be responsible for the entire value chain, i.e. certification, reporting and the application of biochar to Danish agricultural soils). Only biochar accounted in Danish GHG inventory on soil is eligible for subsidy
Biochar requirements	Biochar must comply with biomass sustainability requirements. As a general rule, it may also be required to comply with the forthcoming EU CRCF certification requirements for carbon storage.
Bid evaluation	Bids will be evaluated solely on price. A price premium for the period 2027–2030 is being considered to incentivize early deployment of biochar storage. A maximum bid price of DKK 1,750 per tonne of CO ₂ stored is currently envisaged. The final bid ceiling will be determined following dialogue with the European Commission.
Penalty	A penalty mechanism is being considered under which future support payments would be reduced if biochar storage is not delivered from 2030 onwards. The final penalty level will be determined following dialogue with the European Commission.

Payment profile of Subsidy

The total maximum budget of the scheme is DKK 10.2 billion (2025-prices) disbursed over the years 2027 to 2045.

Budget for biochar carbon storage (million DKK/year) (2025-prices)						
	2027	2028	2029	2030	2031-2045	Total
Allocated funding	184	270	398	586	586	10.228

Selected preliminary design considerations



One tender - Two batches

Current consideration

DEA is considering dividing the tender into two delivery batches

Batch 1: commencement in 2027-2030, with full delivery expected by 2030

Batch 2: remaining funding; commencement in 2030, with penalty linked to full delivery in 2032

Both batches would be allocated within the available budget and ranked on a pay-as-bid basis

Not yet decided

Whether the tender will be divided into two batches

Whether the two-batch structure provides the right balance between early delivery, competition and project maturity.

Final funding split between the two batches.

Treatment of remaining funds after Batch 1.

Interaction with marginal bids and volume reductions.

Key consideration

A two-batch design could support early delivery towards 2030 while allowing projects with later maturity to participate, subject to competition and budget discipline.

Award criteria and ranking

- The subsidy scheme will be based on the **pay-as-bid principle**.
- The only award criterion will be the **lowest subsidy amount requested per tonne of biogenic CO₂ permanently stored** in biochar applied to Danish agricultural soils.

Bidders must state:

- The requested subsidy amount in **DKK per tonne of CO₂**
- The annual quantity of CO₂ to be permanently stored
- The proposed year for commencement of subsidy payments
- Subsidy payments may commence in **2027, 2028, 2029 or 2030** and continue until 2045.

Subsidy level & Bid cap

Current consideration

Aid will be granted as operating aid through a competitive bidding process.

A bid cap of DKK 1,750 per tonne of permanently stored CO₂ (2025 prices) is currently expected.

The actual subsidy rate will be determined through the tender on a pay-as-bid basis.

For State aid assessment purposes, the current estimated subsidy need is around DKK 1,000 per tonne of CO₂.

Not yet decided

The final bid cap applicable in the tender.

The final estimate of the subsidy need per tonne of CO₂.

The exact methodology for determining the amount of eligible CO₂ storage on which subsidy is paid.

The final support design may be adjusted based on the market dialogue, the national GHG inventory methodology and the State aid approval process.

Key distinction

DKK 1,750/t CO₂ = proposed maximum bid price

DKK 1,000/t CO₂ = tentative estimate of subsidy need (not a fixed subsidy rate)

Price premium for early delivery

Current consideration

The purpose is to incentivize early commencement of storage and support the pathway towards the 2030 climate target.

Aid is expected to be linked to the amount of carbon stored in biochar that can be recognized as eligible CO₂ storage

A price premium is considered for early deliveries in 2027-2029.

The premium would apply as a percentage of the bid price.

Not yet decided

The final implementation of the premium in the tender and contract.

The precise interaction with annual budgets, payment timing and verified delivery.

Whether market input or the State aid process leads to adjustments of the proposed premium structure.

2027

10%

2028

7.5%

2029

5%

2030-2045

0%

Carbon removal credits

Current consideration

A claw-back mechanism is considered to adjust support if credit revenues exceed a predefined baseline

Excess revenue may reduce the applicable subsidy rate to limit overcompensation

Bidders are expected to indicate expected credit income in their bids

Beneficiaries are expected to report realised credit income annually to DEA

The scheme draws on lessons learned from previous support programmes, including CCS

Not yet decided

A specific Claw-back mechanism

Baseline level for carbon-credit income

Share of excess revenue to be deducted and calculation method

Timing and frequency of revenue assessments and subsidy adjustments

Practical treatment of indirect or third-party revenue flows

Interaction with future EU regulation and State aid approval

The credits may be required to be certified under the CRCF framework.

Key distinction

Only biochar carbon storage that can be accounted for in the Danish GHG inventory under agricultural soils is eligible for subsidy. When carbon removal credits are sold, the ability to account cannot be transferred to other countries.

Biochar carbon stability and inertinite

Current consideration

Aid is expected to be linked to the amount of carbon stored in biochar that can be recognized as eligible CO₂ storage

Non-degradable carbon is expected to be central to the calculation of eligible storage

Inertinite and semi-inertinite carbon fractions are being considered as relevant stability indicators

Certificates may need to document carbon content and stability-related parameters based on accredited laboratory measurements

Not yet decided

The final stability metric and threshold values

Whether to rely on production requirements, direct stability indicators, or a combination of both

Whether semi-inert carbon can be included, and under which conditions

The final laboratory parameters required for certification and aid calculation

How the Danish GHG inventory methodology will translate biochar quality into eligible tonnes of CO₂

Key distinction

The final framework should document robust carbon permanence while avoiding unnecessary technology lock-in or disproportionate administrative burden.

Certification Framework

Current consideration

Carbon storage is expected to require certification by an accredited auditor.

DEA is considering CRCF or other appropriate certification requirements.

Each individual biochar type is expected to be assigned a unique annual batch number.

A new certification procedure and batch number would apply for each subsequent production year.

Not yet decided

Which certification framework should apply, and to what extent can existing certification schemes be relied upon to meet scheme-specific requirements?

Which requirements can be demonstrated through certification, and which may require additional documentation.

In addition to CRCF or other certification requirements, further criteria may be considered.

Penalty scheme for non-performance

Current consideration

One-time penalty expected if required delivery level is not met

- Batch 1: below 80% of annual bid quantity from 2030.
- Batch 2: below 80% of bid quantity in 2032.

Proposed basis: undelivered quantity × 25% of bid price

Deducted from future subsidy payments where possible

Letter of intention for financial guarantee expected with bid

Not yet decided

Final design and level of the penalty mechanism

When penalties may be waived or reduced

Detailed rules for time extensions and exemptions

Interaction with financial guarantees and final contract design

Key distinction

The mechanism should provide a credible incentive for timely delivery while remaining proportionate to project risks and financeability.

Input from the market

➤ How to submit:

E-mail subject: “Market dialogue biochar aid scheme”

biokul@ens.dk

Copy: stni@ens.dk

Written contributions: 26 August 2026, 23:59

The screenshot shows the Energiplan website. The main heading is 'Markedsdialog & informationsmøde om støtteordning'. Below it, there is a paragraph about the aid scheme. A green banner for 'HØRING PORTALEN' is visible. Below the banner, there is a table with the following data:

Høring	
Officielt titel	Invitation to market dialogue biochar aid scheme
Beskrivelse	Energiplanen indfører potentielle tilbudsgivere og relevante markedsaktører til at deltage i markedsdialog og informationsmøde om støtteordningen til kulstofflagring i biokul, der udbringes på danske landbrugsarealer. Markedsdialogen vil give markedsaktører, herunder potentielle tilbudsgivere, mulighed for at afgive skriftlig feedback, input og anbefalinger til Energiplanens forslag til støtteordning om kulstofflagring i biokul. Markedsaktørernes bidrag vil blive som input til Energiplanens endelige udformning af støtteordningen og udbringerne. Bidragsindlæg til høringsskemaet kan indsendes til Energiplanen, biokul@ens.dk med kopi til stni@ens.dk, senest den 26. august 2026.
Høringstype	Åbent materiale
Myndighed	Energiplanen
Område	Energi- og vandforsyning
Høringstid	26-08-2026
Aktiveringsdato	26-10-2026
Høringsside	2025/2026
Kontaktperson	Stefan Krüger Nielsen
Kontaktperson e-mail	stni@ens.dk
Publiceringsdato	26-08-2026

Below the table, there is a section titled 'DOKUMENTER' with a list of documents:

DOKUMENTER	
Download alle filer som zip	
Titel	Filerstørrelse
Markedsdialogen	
James 1.1 Requirements specification	371,140 KB
James 1.2 Strategy and Work Program for Pyrolysis	1,479 KB
Cover note regarding the market dialogue	161,886 KB
Invitation to market dialogue biochar aid scheme	885,789 KB

Coffee break



Q&A



Biochar value chain

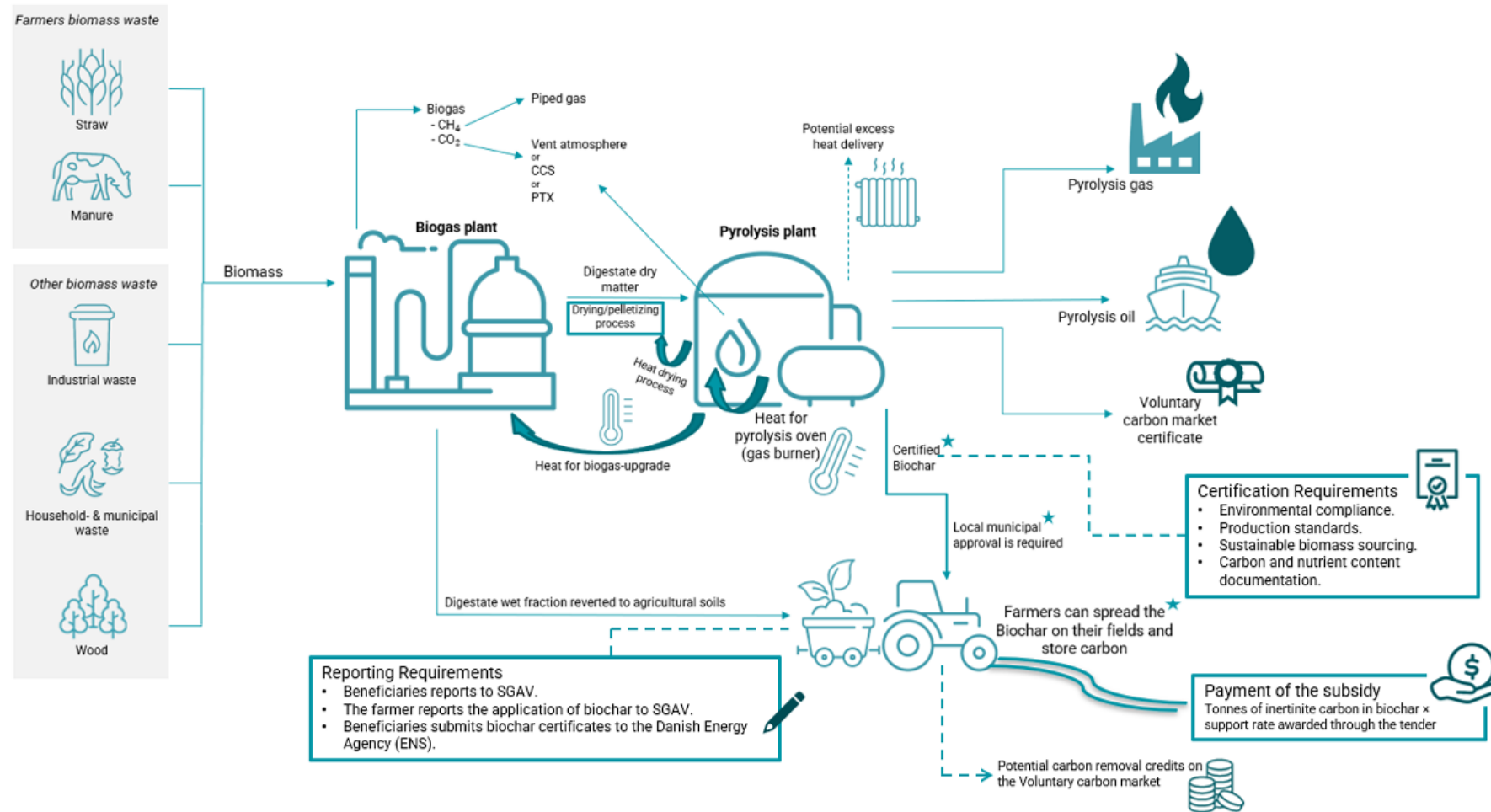


Figure 1. Biochar value chain, including considerations related to the support scheme.

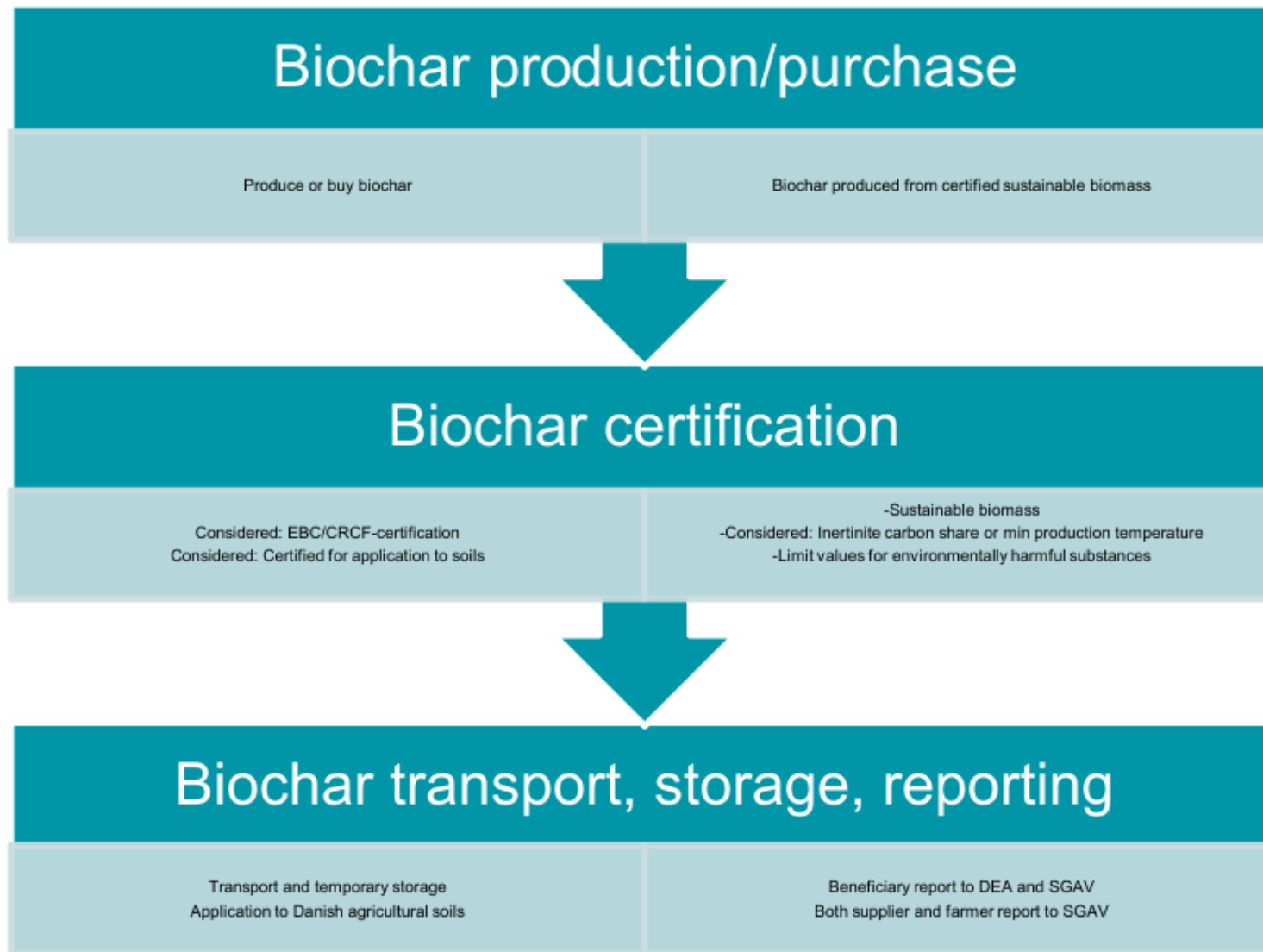


Figure 2: Description of biochar carbon storage value chain.

Note: SGAV = Danish Agency for Green Land Use and Aquatic Environment). DEA = Danish Energy Agency (Energistyrelsen).