

# Evaluation of Legislation Regulating Harvesting of Knicks in Schleswig-Holstein against the Danish Requirements for Non-Forest Biomass<sup>1</sup>



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<sup>1</sup> Bekendtgørelse om Håndbog om opfyldelse af bæredygtighedskrav og krav til besparelse af drivhusgasemissioner for biomassebrændsler til energiformål (HB 2021)

# 1. Background

According to the Danish Biomass Legislation biomass with non-forest origin (see definition published by the Danish Energy Agency<sup>1</sup>) delivered to Danish Energy companies from 1 January 2022 shall meet specific requirements related to replanting and nature protection.

The requirements apply to biomass originating from inside and outside Denmark.

In this report the term '*DK Biomass Legislation*' refers *Bekendtgørelse om Håndbog om opfyldelse af bæredygtighedskrav og krav til besparelse af drivhusgasemissioner for biomassebrændsler til energiformål (HB 2021)*.

Legislation in Schleswig-Holstein regulates felling, thinning and clearing of 'Knicks' which is a specific nonforest area type defined in Schleswig-Holstein legislation.

This paper presents the methodology, main findings and conclusions from an assessment of the current legal framework and operational practices for biomass production from Knicks and whether they comply fully or partially with the mentioned Danish Legislation<sup>1</sup>

The **primary purpose** of the analysis is to:

- 1) evaluate to what extent existing legislation and practices for felling, thinning and clearing of specific nonforest areas (Knicks) in Schleswig-Holstein fully or partly meets the Danish Legislation for non-forest biomass.
- 2) identify potential gaps and, if gaps are identified, propose mitigation actions that producers and/or buyers of biomass could implement to close identified gaps

The **secondary aim** of the project is to identify the type of evidence buyers of nonforest biomass (Knickholz) from Schleswig-Holstein should request from their suppliers to properly verify origin and biomass type in accordance with the mentioned Danish Legislation<sup>1</sup> (see chapter 6)

The geographic scope of this analysis cover only Schleswig-Holstein (SH)

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<sup>1</sup> Energistyrelsen, Overblik over biomassebrændsler, Version 9. november 2022

## 2. Methodology

The analysis covered the following steps:

1) Review of applicable national and regional legislation and documentation with the aim to:

- a. Evaluate whether the definition of the nonforest type *knicks* fully or partially match the category *ikkeskov*, ref. the Danish legislation.
- b. Evaluate whether current requirements and practices for replanting of the non-forest type *Knicks* fully or partially meet requirements of the *DK Biomass Legislation*.
- c. Evaluate whether current requirements and practices for nature protection in the non-forest type *knicks* fully or partially meet the requirements of the *DK Biomass Legislation*.

2) **Information collection** from relevant stakeholders (producers, authorities, NGO's and others), including reports, statements, public communication, interviews by phone/web and in connection with field visits.

3) Evaluation of implementation and enforcement of legislation, management practices and traceability of biomass from felling field visits / thinning / clearing of nonforest areas in connection with **field visits** to projects in Schleswig-Holstein.

**This report outlines:**

- a. To what extend regional legislation and practices for the nonforest type *knicks* meets applicable requirements of the *DK Biomass Legislation* for nonforest biomass
- b. Possibilities for maintaining traceability of *knickholz* for biomass supplies to Denmark
- c. In which areas, if any, there are gaps in relation to the Danish requirements (ref. *DK Biomass Legislation*)
- d. Recommendations for risk mitigation for identified gaps, if applicable
- e. Recommendation for a common Danish practice in relation to the basis on which *Knickholz* from the *Schlewig-Holstein* can be regarded as sustainable in relation to Danish requirements for nonforest biomass (ref. *DK Biomass Legislation*).

## 3. Evaluation process and documentation

### Applicable Legislation

The analysis is based on the following legislation:

- |  |  |
|--|--|
| a. Gesetz über Naturschutz und Landschaftspflege (Bundesnaturschutzgesetz - BNatSchG), 29.07.2009 (BNatSchG) | Vom 5. Dezember 2004 (LNatSchG)  |
| b. Gesetz zur Erhaltung des Waldes und zur Förderung der Forstwirtschaft (Bundeswaldgesetz), 02.05.1975      | e. Durchführungsbestimmungen zum Knickschutz. Erlass des Ministeriums für Energiewende, Landwirtschaft, Umwelt und ländliche Räume des Landes Schleswig-Holstein – V 534-531.04. 20 January 2017   |
| c. Gesetz zum Schutz der Natur (Landesnaturschutzgesetz - LNatSchG) Vom 24. Februar 2010                     | f. Verordnung über die Einhaltung von Grundanforderungen und Standards im Rahmen unionsrechtlicher Vorschriften über Agrarzahungen ( <a href="http://www.gesetze-im-internet.de/agrarzahlverpflv">http://www.gesetze-im-internet.de/agrarzahlverpflv</a> ) |
| d. Waldgesetz für das Land Schleswig-Holstein (Landeswaldgesetz - LWaldG)                                    |  |

In this report the term 'SH Knick Legislation' refers to the *Durchführungsbestimmungen zum Knickschutz. Erlass des Ministeriums für Energiewende, Landwirtschaft, Umwelt und ländliche Räume des Landes Schleswig-Holstein – V 534-531.04. 20 January 2017.*

### Other resources

The following non-binding guidance and resources has been evaluated:

- |   |  |
|---|--|
| a. Non-binding guidance: Knickpflege, wie sie sein sollte. Regelmäßig auf den Stock ( <a href="https://schleswig-holstein.nabu.de/natur-und-landschaft/knicks/knickschutz-und-pflege/02788.html">https://schleswig-holstein.nabu.de/natur-und-landschaft/knicks/knickschutz-und-pflege/02788.html</a> ) | c. Bauernblatt 30. Oktober 2021. Die Knicksaison hat begonnen. Vorschriften bei der Knickpflege beachten ( <a href="https://www.lksh.de/fileadmin/user_upload/32-33_Biernat.pdf">https://www.lksh.de/fileadmin/user_upload/32-33_Biernat.pdf</a> ) |
| b. Knickpflege, aber richtig! ( <a href="https://www.lksh.de/landwirtschaft/umwelt-und-gewaesserschutz/naturschutz/knickpflege">https://www.lksh.de/landwirtschaft/umwelt-und-gewaesserschutz/naturschutz/knickpflege</a> )   | d. Schleswig-Holstein Landwirtschafts- und Umweltatlas ( <a href="http://www.umweltdaten.landsh.de/atlas">www.umweltdaten.landsh.de/atlas</a> )  |

## Consulted Stakeholders and field evaluation.

The following groups of Stakeholders have been contacted and consulted if reachable:

- a. A wide range of Danish Energy Companies and importers of nonforest biomass from Schleswig-Holstein
- b. Biomass producers and traders operating in Schleswig Holstein
- c. NABU Schleswig-Holstein
- d. Applicable authorities (email communication)

The analysis included a field visit to Schleswig-Holstein in February and October 2022. App twenty operation sites and four storage facilities were visited, and eight biomass producers and traders were interviewed.

The daily management of Knicks involves:

- a. Landowners: The landowner request harvesting of Knicks and is overall responsible for compliance with applicable legislation and shall inform the contractor about protected areas or other regulations that the contractor shall observe. The landowner bares the cost for the harvesting.
- b. Harvesters (Baggers): The harvesters conduct the harvesting based on request from landowners. The harvesters and their machinery are specialized to operate in Knicks. The interviewed machine operators were well aware of legal requirements and had long term experience in management and harvesting of knicks. Apparently, some agricultural organizations run training courses for contractors that operates in Knicks.
- c. Chipper: Wood chipping is carried out at the harvesting sites, usually within a few weeks after harvesting. In some cases, the same company has both Harvesters and Chippers, but often this involves two separate companies who cooperate. The chippers usually take legal ownership of the chips and manage the downstream logistics of the chips. This includes transportation of chips to local storage facilities or directly from harvesting site to customer. Chippers are selling directly to end customer (e.g. Energy company in Denmark or Germany) and/or to traders.
- d. Traders: Traders source wood chips from the chippers and sell to end users (e.g. Energy company in Denmark or Germany). The traders manage logistics from harvesting site and/or the chippers storage facilities to the end user. Some traders maintain storage facilities.

In this report the term '*Biomass Producer*' refers to both Harvesters and Chippers.

## 4. Benchmarking of the SH Knicks Legislation against the DK Biomass legislation

The Durchführungsbestimmungen zum Knickschutz<sup>2</sup> specifically regulate the harvesting and maintenance of Knicks in Schleswig Holstein. This analysis is based mainly on the requirements set out in this legislation which is the core legislation for management of Knicks. Authorities, NGO's and biomass producers also refer to this legislation for the management of Knicks.

The legislation is based on, and refers to other national and regional legislation, including the BNatSchG, LNatSchG and AgrarZahlVerpflG.

### Definition

According to the SH Knicks legislation Knicks fully cover woody biotopes classified as 'nonforest' (ikkeskov) in the current Danish legislation. In addition, 'knicks' partly or fully cover the biomass type garden/park (have/park) material. In addition, Knicks along roadsides might potentially qualify as Infrastructure material.

**Note:** *The DK Biomass legislation puts stronger requirements on nonforest biomass (i.e. traceability, replanting, nature protection) than on biomass from garden/park area and infrastructure (traceability only). Thus, we recommend the Danish authorities accept that biomass from garden/park areas (have/park) and infrastructure can be classified as Knickholz (nonforest biomass) when local biomass producers in SH have not implemented procedures to accurately distinguish between the biomass types as per the Danish definitions, under the conditions that biomass from garden/park area and infrastructure has been produced in compliance with the SH Knicks Legislation.*

The SH Legislation defines Knicks: *Knicks sind gemäß § 1 Nummer 10*

*Biotopverordnung: „An aktuellen oder ehemaligen Grenzen landwirtschaftlicher Nutzflächen oder zur Kompensation von Eingriffen in Natur und Landschaft angelegte und mit vorwiegend heimischen Gehölzen, Gras- oder Krautfluren bewachsene Wälle mit oder ohne Überhälter. Knicks sind auch entsprechend Satz 1 angelegte Wälle ohne Gehölze und ein- oder mehrreihige Gehölzstreifen zu ebener Erde. Überhälter sind im Knick stehende Bäume mit einem Stammumfang von mindestens einem Meter gemessen in einem Meter Höhe über dem Erdboden.“*

*Knicks können danach auch im baulichen Innenbereich (§ 34 BBauG) geschützt sein.*

§ 2 Absatz 1 Nummer 3 LwaldG „Wald im Sinne dieses Gesetzes ist jede mit Waldgehölzen bestockte Grundfläche. Als Wald gelten auch 1.... 2.... 3. Im und am Wald gelegene Knicks....“

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<sup>2</sup> Durchführungsbestimmungen zum Knickschutz. Erlass des Ministeriums für Energiewende, Landwirtschaft, Umwelt und ländliche Räume des Landes Schleswig-Holstein – V 534-531.04, 20. Januar 2017

## Criteria 1: Replanting

The Danish Biomass legislation requires that there is **no conversion or permanent removal of trees in connection with biomass production from nonforest area**.

The table below outlines how the *SH Knick legislation* and management practices comply with the Danish requirements.

<p><b>Criteria 1.1:</b> The legislation Prohibit conversion of Knicks to other types of land uses and prohibit permanent removal of trees from Knicks.</p>
<p><b>Conclusion:</b> The criteria is met</p>
<p><b>Justification:</b> Knicks (with and without tree growth) are strictly protected and can only be converted to other land uses under specific conditions set out in section 5 (see further details below).</p> <p>There is a strong awareness among Biomass Producers about the strict protection of Knicks. The analysis has not identified information or reports indicating cases of violation of the protection of Knicks.</p> <p>The SH Knick legislation defines optimal harvesting practices for maintaining the functions of the knicks. It is recommended to coppice/prune (<i>auf den Stock zu setzen</i>) the stands every 10-15 years. Knicks are almost entirely managed based on coppice/pruning. In cases where sprouting from the roots does not occur replanting is required (section 3.1)</p> <p>In addition, it is required to leave groups of trees for each 40-60 meters when knicks are harvested. There are specific requirements related to harvesting of such trees. Large trees, with diameters above 2 meters (Überhälter) are strictly protected.</p> <p>As mentioned below there are strong incentives for landowners to comply with the legislation.</p> <p>Regional authorities are monitoring the protection and proper management of Knicks</p>
<p><b>Criteria 1.2:</b> The legislation specify clear conditions for converting Knicks and there are clear conditions for granting dispensation</p>
<p><b>Conclusion:</b> The criteria is met</p>
<p><b>Justification:</b> Conditions for conversion are specified in section 5.1 – 5.4 of the SH Knicks Legislation. Any conversion of knicks requires approval from the applicable authority and can only be approved under the condition that the converted knick is replaced by a larger knick area.</p> <p>Woody knicks shall be replaced by at least a factor 1:1,5, thus requiring at least a 50% increase of the knicks area.</p> <p>It is the responsibility of the landowner to ensure replacement areas are established and so it is likely that the replacement area will be on the same property.</p> <p>The analysis shows that the replacement of knicks occur very seldom. The interviewed stakeholders were not aware of such cases.</p>



**Criteria 1.3:** If removal of knicks is possible, the legislation specify whether compensation areas shall be reestablished/replanted

**Conclusion:** The criteria is met

**Justification:** Detailed compensation requirements apply if conversion or replacement of knicks is granted by the applicable authority (section 5.2). The area affected by the conversion shall be compensated. Woody knicks shall be replaced by at least a factor 1:1,5, thus requiring at least a 50% increase of the knicks area.

**Criteria 1.4:** The legislation allow conversion of Knicks for the purpose of nature restoration.

**Conclusion:** The criteria is met

**Justification:** This is not specifically mentioned in the legislation. There are generally very strict requirements for conversation, and it can only be granted by applicable authorities. Thus, landowners and biomass producers are not allowed to make such decisions on their own.



*Photo 1: Picture of stumps after harvesting of a Knick, February 2022. According to normal practices the stumps shall be cut clean by a chainsaw operator after harvesting to prevent fungi infection and ensure optimal regrowth (Photo Michael K Jakobsen).*

## Criteria 2: Nature protection

The Danish Biomass legislation requires a risk-based approach to **protection of high conservation nature values in connection with biomass production from nonforest area**.

The SH Knicks legislation aims to protect and maintain a wide range of functions that the Knicks provide (see the list below). This specifically includes functions such as protection of biodiversity and high conservation values.

Biodiversity and HCV's are also protected through other regulations and legislation including designation of Nature Conservation areas etc. Landowners and Biomass Producers can access maps of protected areas online:

<http://umweltdaten.landsh.de/atlas/script/index.php>

### List of functions that the SH Knicks legislation recognizes and protects (Section 1)

**Naturhaushalt und Landschaftsbild:** • Klima- und Bodenschutz (Deflation), • Sonnen-, Wind- und Wetterschutz, • Wasserrückhaltung und Ausgleich des Kleinklimas, • Standort u. a. für Pflanzen der Wärme liebenden Staudensäume, endemischer Brombeerarten und für die Farn- und Moosvegetation, • Lebensraum für eine zahl- und artenreiche Wirbellosenfauna, • Brut-, Rast- und Nahrungsbiotop für viele geschützte Vogelarten, • Lebensraum insbesondere für Kleinsäugetiere, • Biotopverbundelement in der freien Landschaft und im Siedlungsraum, • Element der historischen Kulturlandschaft und des charakteristischen Landschaftsbildes der Naturräume Geest und Östliches Hügelland, • Gliederung der Landschafts- und Siedlungsräume, • Dauerdeckungsfläche für das Niederwild und andere Wirbeltiere, • Leitlinien für Fledermäuse und Vögel, • Einbindung von Siedlungsflächen in die freie Landschaft, • Belebung des Ortsbildes.

**Landwirtschaft, Erholung und Tourismus:** • Rohstofflieferant für Energiegewinnung und Holzbedarf, • Schutz vor Bodenerosion, Schnee- und Sandverwehungen, • Witterungsschutz für Weidevieh, • Lebensraum für Nützlinge, die der biologischen Schädlingsbekämpfung und der Bestäubung landwirtschaftlicher Kulturen dienen, • Steigerung des Erholungswertes der Landschaft, • Zeugnis der Landschaftsentwicklung Schleswig-Holsteins von hoher kulturhistorischer Bedeutung, • Abgrenzung einzelner Felder und ganzer Besitzungen, • Lieferant für Beeren und Früchte zum Eigenbedarf.

The NGO, NABU, has published the guidelines below for proper management of knicks (*Richtige Knickpflege auf einen Blick*<sup>3</sup>). These guidelines are in line with the SH Knicks Legislation and this analysis has evaluated whether Knicks are managed and harvested in line with these guidelines:

Den Knick regelmäßig etwa alle 10 bis 15 Jahre Auf-den-Stock-setzen.

Gehölze eine Hand breit über dem Boden oder dicht über dem Stockausschlag abschneiden.

Baumstubben und Wall beim Einsatz von Großgeräten schonen.

Überhälter in 30 bis 50 Metern Abstand stehen lassen.

Knickpflagemassnahmen nur in den bundes- und landesrechtlich vorgeschriebenen Fristen vom 1. Oktober bis 28. Februar durchführen (Schutz der Brutvögel).

Schnittholz vom Knickwall entfernen.

Ausbessern (Aufsetzen) des Knickwalls nach dem Knicken, wo immer möglich.

Abschnittsweise knicken, kein großräumiger Kahlschlag.

Keine Bearbeitung mit dem Schlegler, also keine Umwandlung der Knicks in einfache Hecken.

Keine Ablagerungen (Feldsteine) auf dem Knick.

Bei Weidenutzung der angrenzenden Flächen den Knick in einem Meter Abstand einzäunen.

Mindestens ein, möglichst aber zwei bis vier Meter breite Saumstreifen anlegen und diese alle 3 bis 5 Jahre mähen.

*Photo 1:*

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<sup>3</sup> NABU, Schleswig-Holstein: Knickpflege, wie sie sein sollte. Regelmäßig auf den Stock (<https://schleswig-holstein.nabu.de/natur-und-landschaft/knicks/knickschutz-und-pflege/02788.html>)

The table below outlines how the SH Knick legislation and management practices comply with the Danish requirements.

<p><b>Criteria 2.1</b> The legislation classify Knicks as a protected biotope</p>
<p><b>Conclusion:</b> The criteria is met</p>
<p><b>Justification:</b> As outlined above, a primary purposes of the SH Knick Legislation is to protect the biodiversity and nature values of the knicks (section 1). Knicks (with and without tree growth) are strictly protected and can only be converted to other land uses under specific conditions (section 5).</p> <p>The law specifies detailed requirements for managing the knicks with the purpose to maintain the ecological functions of the knicks (section 3)</p>
<p><b>Criteria 2.2:</b> SH Knick Legislation and management practices ensure:</p> <ul style="list-style-type: none"> <li>- proper protection of high conservation nature values</li> <li>- that logging and replanting/regeneration of Knicks does not permanently negatively impact biodiversity/nature values?</li> </ul>
<p><b>Conclusion:</b> The criteria is met</p>
<p><b>Justification:</b> As mentioned above, protection of ecological functions, nature values and biodiversity is an explicit aim of the legislation. There is broad consensus among stakeholders that proper implementation of the <i>SH Knick Legislation</i> does ensure proper nature protection, e.g. ref. the above-mentioned guidelines published by NABU<sup>4</sup></p> <p>In addition to SH Knick Legislation there are other types of legislation and regulation that ensure protection of Nature values and Biodiversity. Areas protected and regulated are mapped and can be accessed here: <a href="http://umweltdaten.landsh.de/atlas/script/index.php">http://umweltdaten.landsh.de/atlas/script/index.php</a></p> <p>The responsibility to protect HCV and Biodiversity lies with several stakeholders, including:</p> <ul style="list-style-type: none"> <li>⇒ Local authorities identify and monitor HCV and rare/endangered species.</li> <li>⇒ Landowners: As mentioned above the Landowners are overall responsible for compliance with applicable legislation and ensure that nature values are protected according to applicable legislation and regulation. There are strong incentives for landowners to comply with applicable legislation and this analysis has not identified known cases of violation.</li> <li>⇒ Biomass producers: The SH Knicks legislation defines a management regime for Knicks which Biomass Producers shall follow when they harvest knicks.</li> </ul> <p>The analysis confirmed that there is strong awareness among Biomass Producers and landowners to comply with the legislation and that both legal requirements and the NABU guidelines are implemented for all projects evaluated during field visits. Several</p>

organizations, including agricultural associations, are playing an active role in keeping high level of awareness and compliance<sup>4</sup>.

Thus, by managing knicks in accordance with the *SH Knick Legislation* and other applicable legislation, the requirements of the *DK Biomass Legislation* related to nature protection are considered met as applicable nature values and functions are properly observed and protected.

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<sup>4</sup> Bauernblatt, Die Knicksaison hat begonnen - Vorschriften bei der Knickpflege beachten, 30. Oktober 2021 ([https://www.lksh.de/fileadmin/user\\_upload/32-33\\_Biernat.pdf](https://www.lksh.de/fileadmin/user_upload/32-33_Biernat.pdf))

<sup>6</sup> Verordnung über die Einhaltung von Grundanforderungen und Standards im Rahmen unionsrechtlicher Vorschriften über Agrarzahlungen (Agrarzahlungen-Verpflichtungenverordnung -AgrarZahlVerpflV), 17.12.2014

## 5. Legislation implementation and enforcement

The analysis shows strong awareness of applicable legislation and regulation among the established biomass producers and other stakeholders. There are clear roles and responsibilities related to the management and harvesting of knicks, and both authorities, associations and NGO are taking an active role to ensure awareness and proper implementation of the legislation, ref. list of resources above.

The general requirements for cross compliance (EU subsidies) apply specifically to Knicks and Hecken, ref. §8 Keine Beseitigung von Landschaftselementen of AgrarZahlVerpfIV<sup>5</sup>. Thus, landowners (farmers) have a strong incentive to ensure compliance with applicable legislation.

This analysis has not identified known cases of violation of SH Knick Legislation and it is considered likely that such cases rarely occur.



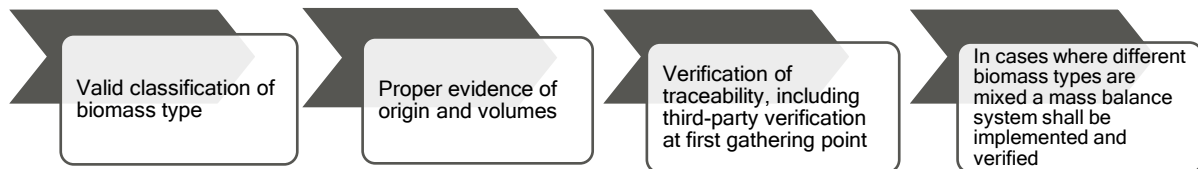
*Photo 2: Picture of a recently harvested Knick in Schleswig Holstein with retention of a group of trees, February 2022 (Photo Michael K Jakobsen)*

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<sup>5</sup> Verordnung über die Einhaltung von Grundanforderungen und Standards im Rahmen unionsrechtlicher Vorschriften über Agrarzahlungen (Agrarzahlungen-Verpflichtungsverordnung -AgrarZahlVerpfIV), 17.12.2014

## 6. Verification of Biomass type and traceability

The *DK Biomass legislation* requires that supply chains have implemented robust procedures to ensure:



The field evaluation showed that producers/traders of biomass from Knicks often:

- are specialized in activities related to knicks and in some cases also involved in felling and thinning along roads (infrastructure) and in parks, or receive such material from other operators (including municipalities).
- maintain storage facilities where wood chips from various projects are stored for shorter or longer periods.
- mix biomass (mainly in the form of wood chips) from different projects at storage sites.

In addition the field evaluation showed that:

- segregation of biomass from different knick projects, at storage facilities, is possible but that it is difficult to maintain and verify accurate volume records by project (harvest area). Thus, buyers sourcing from storage facilities should assume that volumes from different projects (harvest areas) are mixed.
- biomass from forest areas is generally not mixed with biomass from Knicks because it involves other regulations, producers, machinery, and supply chains that are usually not mixed.
- for Biomass producers specialized in harvesting Knicks the risk of mixing with Forest Biomass could generally be considered low.

### Classification of biomass types

Considering that the Knicks definition, in the SH Legislation, is broader than the nonforest (ikkeskov) definition in the Danish legislation, and therefore may cover biomass types have/park and roadside (infrastructure) a strict interpretation of the Danish Legislation would require local biomass producers to register and specify volumes to each of the categories. This could potentially be difficult as strict classification to the Danish biomass types is not implemented in current practices.

Since the *Danish biomass legislation* puts stronger requirements on nonforest biomass than on infrastructure or garden/park it is recommended that the Danish Energy Agency accepts that all biomass classified as knicks according to the SH Knick legislation can be classified as nonforest biomass and thereby live up to the stricter requirements that apply to this biomass type to avoid keeping accurate records and evidence of more detailed biomass types classification.

## Traceability and risk of mixing

As outlined above biomass from different projects (harvesting sites) are often mixed at storage facilities. Danish buyers of biomass from Knicks have the following options to ensure that traceability requirements are met:

### 1) Supply chain has implemented full segregation by project / harvesting area

The supplier shall declare for each shipment from which project/area the biomass originates.

The wood chips should be transported directly from harvest site to the buyer (Danish Energy producer). If biomass from several projects is stored at one or several storage sites, the buyer shall ensure, and verify, that biomass is segregated by project at the storage facility.

For this model the Danish buyers should:

- ⇒ Specify in purchase agreements:
  - What type(s) of biomass shall be supplied, ref. the Danish classification
  - That traceability to harvest sites shall be maintained both for direct deliveries (low risk) and deliveries via storage facilities (risk of mixing).
  - That harvesting site(s) shall be declared by the supplier for all shipments on request.
- ⇒ Require that suppliers have implemented procedures to trace all biomass by project both for direct deliveries and deliveries via storage facilities. In this connection it should be considered whether:
  - the supplier is a trader and/or biomass producer and to what extent the supplier control traceability.
  - whether the supply chain includes storage facilities and if so, what procedures are implemented to segregate.

The traceability should be checked and verified, at least annually, either by the Danish buyer or a third party on their behalf.

Alternatively, the Danish buyer should request the supplier to be certified to a scheme which provide assurance of traceability and biomass type.

### 2) Biomass from different harvesting area are mixed in the supply chains

For this model the Danish buyers should:

- ⇒ Specify in purchase agreement:
  - What type(s) of biomass shall be supplied, ref. the Danish classification
  - Which region (Bundesland) the biomass shall originate from
- ⇒ Require that suppliers:
  - keep records to document harvest sites for all biomass entering the supply chain and storage facilities. In this connection it should be considered whether the supplier is a trader and/or biomass producer and to what extent the supplier control traceability.



- Keep volume records sufficient to verify mass balance for each storage site.
- Ensure that unacceptable biomass types (e.g. biomass with unknown origin) are excluded from the supply chains.

The traceability and mass balance account should be checked and verified at least annually, either by the Danish buyer or a third party on their behalf.

Alternatively, the Danish buyer should request the supplier to be certified to a scheme which provide assurance of traceability, biomass type and mass balance system.