



Document type  
**REQUIREMENT SPECIFICATION**

Title  
**Requirement specification for Green Batteries**

File name  
**Requirement specification for Green Batteries – v 1.0**

Validation Date  
**2022-12-20**

Info class  
**External**

Issue  
**1**

Page  
**1(11)**

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# **REQUIREMENT SPECIFICATION FOR GREEN BATTERIES**

## **Change History**

<b>Issue</b>	<b>Issue date</b>	<b>Change from the previous issue</b>
1	2022-12-20	First issue of Requirement Specification for Green Batteries



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## 1. INTRODUCTION

This specification document describes Scania's requirements for purchasing of battery cells. Suppliers are to adhere to these requirements to secure the nomination in order to do business with Scania.

## 2. SCOPE

These specifications apply to all sourcings of battery cells of Scania.

## 3. BACKGROUND

### 3.1 Purpose

Scania aims to position itself as a leader in supply chain decarbonisation, i.e. driving the shift towards a sustainable transport system. In order to take our responsibility on our emissions and give our contribution to the joint global goal of the Paris Agreement, we urgently need to reduce our emissions over the entire life cycle of our products. In the supply chain, the emissions are going to be ever so important as the shift towards electrification significantly increases the emissions from the supply chain.

### 3.2 Scania's 2030 supply chain decarbonisation strategy

In order to reach our ambition, a 2030 Supply Chain Decarbonisation Strategy has been developed aiming to give us the tools to minimize our supply chain emissions from emission hotspots (batteries, steel, cast iron, and aluminum) by 2030. Suppliers supplying parts and/or components to Scania that contain one or more of the emission hotspots shall switch to lower emission production processes in line with our requirements to collectively contribute to the decarbonisation of these hotspots.

### 3.3. EU Battery Regulation

In addition to this requirement specification sheet, the requirements as defined by the *EU Battery Regulation* and the *PEFCR - Product Environmental Footprint Category Rules for High Specific Energy Rechargeable Batteries for Mobile Applications* shall apply. This applies especially to the requirements on electricity modelling, including the set of minimum criteria to ensure contractual instruments from suppliers.

## 4. REQUIREMENTS FOR GREEN BATTERIES

Scania's definition of Green Batteries is batteries that from 2025 onwards are produced using 100% renewable electricity in cell production, cathode active material and anode production, and from 2030 onwards also use 100% green thermal energy in cell and cathode active material production.

## 4.1 Requirement on renewable electricity in cell production, cathode active material, and anode production

Scania **requires all** battery cells produced to only **use renewable electricity in all the production steps of cell, cathode active material and anode production**. The requirement applies from start of production 2025 i.e. all sourcings that have a start of production from 2025 onwards would need to fulfill this requirement.

Renewable electricity include wind, solar, hydropower, geothermal, tidal and biofuels (we strongly recommend waste-based biofuels in comparison to crop-based biofuels). This does NOT include nuclear energy.

### 4.1.1 How to acquire renewable electricity and its verification

Supplier shall provide **evidence of using renewable electricity, its consumption figures, and certificates** to Scania applying to all the stages of the battery cell manufacturing, cathode active material and anode production.

Renewable electricity shall be obtained and verified in either of the following ways:

- i. **Purchase of renewable electricity from a renewable power supply contract**  
The Supplier signs a power supply contract for renewable electricity with an energy supplier (energy supply company, utility) to provide the required electrical energy. In partially or fully liberalized markets, energy suppliers often use a special renewable/green power product for which they purchase Green Energy Certificates (EAC) and cancel them in favor of the product. This ensures that the renewable energy that is supplied to the customer is correctly taken from the country's energy mix. In liberalized markets, the energy supplier also identifies the product in its own electricity labeling (fuel mix disclosure). As a rule, the energy suppliers have their renewable products certified by independent third parties or government agencies and have the appropriate product certificates. The renewable electricity production shall be sourced in the same electricity area with good transmission possibilities and connections as the consumption facilities are placed as a first priority. If this is not possible, then the electricity can be sourced from a different electricity area as long as it is from the same geographical region.

**Verification:** The supplier shall provide its and sub-suppliers' (when applicable) proof of its renewable electricity supply by specifying the renewable supply contract and a corresponding certificate of attestation from its energy supplier. In some markets, it is possible for the battery cell supplier to maintain their own registered accounts via GoO (Guarantees of Origin) and to validate GoO for themselves. In these cases, proof of renewable power supply is also possible via the cancellation reports.

In addition, the documents also need to specify the consumption figures of the electricity usage and the type of electricity source used. Consumption is

expressed in kWh or MWh in series production. If necessary, consumption in series production can be calculated on the basis of pre-series production.

Summary of all documents to be submitted to Scania:

- **Prior to nomination:** description of energy concept in the decarbonisation questionnaire (what energy sources will be used, which of the acquirement options will be applied). In addition, this requirement specifications sheet must be signed by the supplier.
  - **By C-samples:**
    - information on the electricity supplier and the procured quantities.
    - electricity consumption in MJ per kWh of nominal battery capacity
    - In case balancing approaches are applied: certification proving that allocation was conducted correctly, and that double-counting was excluded. Information about the time period for electricity production that is the basis for issuing the respective certificate must refer to the same year as the production of battery cells takes place.
    - The supplier shall prove the credibility of this information with an energy audit report issued by an independent third party. Any concept changes before and after Start-of-Production shall be communicated by the supplier in advance to Scania. If Scania considers the changes as significant, the supplier shall renew the energy audit.
  - **Subsequently every year (in February):** certificates, evidence of electricity contracts along with its consumption figures, declaration of self-consumption and proof of generation, if applicable. Scania may require the supplier to regularly renew the energy audit report
- ii. **Contractual solutions as Power Purchase Agreements (PPA), Renewable Energy Certificates (REC) or similar renewable contractual solutions.**  
Renewable electricity can be directly purchased from plant parks through long-term commitments. Such purchase contracts, which are usually multi-year contracts, are called Power Purchase Agreements (PPA). In these cases, the battery cell supplier often receives GoO or corresponding cancellation reports directly from the contractual partner. The renewable electricity production shall be sourced in the same electricity area with good transmission possibilities and connections as the consumption facilities are placed as a first priority. If this is not possible, then the electricity can be sourced from a different electricity area as long as it is from the same geographical region.

**Verification:** The supplier shall provide its and sub-suppliers' (when applicable) origin of renewable electricity through the PPA agreement contract document which is controlled by an officially independent authority or control unit for an actual geographic region. Examples of acceptable contractual standardized solutions are GoOs, RECs, I-RECs, etc. In addition, the documents also need to specify the consumption figures of the electricity usage and the type of electricity source used. Consumption is expressed in kWh or MWh in series production. If necessary, consumption in series production can be calculated on the basis of pre-series production.

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  - b. **By C-samples:**
    - i. information on the electricity supplier and the procured quantities.
    - ii. electricity consumption in MJ per kWh of nominal battery capacity.
    - iii. In case balancing approaches are applied: certification proving that allocation was conducted correctly, and that double-counting was excluded. Information about the time period for electricity production that is the basis for issuing the respective certificate must refer to the same year as the production of battery cells takes place.
    - iv. The supplier shall prove the credibility of this information with an energy audit report issued by an independent third party. Any concept changes before and after Start-of-Production shall be communicated by the supplier in advance to Scania. If Scania considers the changes as significant, the supplier shall renew the energy audit.
  - c. **Subsequently every year (in February):** certificates, evidence of electricity contracts along with its consumption figures, declaration of self-consumption and proof of generation, if applicable. Scania may require the supplier to regularly renew the energy audit report
- iii. **On-site generation and own consumption from renewable energy sources**  
Suppliers are permitted to generate and use their own renewable energy from sources such as photovoltaic panels, wind power, CHP assets, or similar renewable assets at the site.  
However, it must be ensured from the energy produced through these sources that:

- it receives no subsidies
- is not fed into the upstream power grid
- it does not receive feed-in tariffs.

Conversely, this means that it is only valid if the electricity generated is completely consumed by the supplier itself (own consumption).

**Verification:** The supplier shall provide its and sub-suppliers' (when applicable) a declaration of self-consumption and proof of generation (or any equivalent verification), issued by an independent third party (e.g. auditor). In addition, the documents also need to specify the consumption figures of the electricity usage and the type of electricity source used. Consumption is expressed in kWh or MWh in series production. If necessary, consumption in series production can be calculated on the basis of pre-series production.

Summary of all documents to be submitted to Scania:

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  - In case balancing approaches are applied: certification proving that allocation was conducted correctly, and that double-counting was excluded. Information about the time period for electricity production that is the basis for issuing the respective certificate must refer to the same year as the production of battery cells takes place.
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iv. **Special note for non-liberalized markets/ energy markets in transition**

There are countries that do not yet have deregulated markets or are in the middle of the process of restructuring the energy market (e.g. China). None or not all of the above-mentioned instruments for accounting and marketing of renewable energy are available or fully implemented in these countries. Here, individual case assessments will be carried out between Scania and the supplier.

The following information shall be present in the verification documentation for all the above options to acquire renewable electricity:

1. Electricity production source (e.g. wind, water, solar etc.)
2. Volume in kWh or MWh
3. Specific electricity production device/unit
4. Relevant production and consumption period
5. Supplier and counterparties
6. Verified by a third party
7. Documentation from EECS, RECS, IRECs or similar official standard system if applicable
8. Unique certificate number

Scania's suppliers are to **ensure compliance** with the requirement by cascading the requirement to sub-suppliers if applicable (Tier 2 and beyond).

## 4.2 Requirement on green thermal energy use in cell and cathode active material production

Scania **requires all** battery cells produced to only **use green thermal energy in all the production steps of cell and cathode active material production**. The requirement applies from start of production 2030 i.e. all sourcings that have a start of production from 2030 onwards would need to fulfill this requirement.

Green thermal energy can be produced either through renewable electricity (which includes wind, solar, hydropower, geothermal, tidal and biofuels) or through biogas.

### 4.2.1 Verification of green thermal energy requirement

There are 2 verification steps according to how green thermal energy is produced:

1. **Renewable electricity:** Green thermal energy produced through renewable electricity would follow the same verification steps as stated in the previous chapter 4.1.1
2. **Biogas:** Verification steps for green thermal energy produced through biogas are to be provided on the basis of a corresponding verification system. In case a batch of certain feed materials (e.g. biogas) is allocated to certain lots of products, e.g. more sustainable products (balancing approach), the concise exclusive allocation to specific products or product lot shall be ensured. The





supplier shall provide a certificate, issued by an independent third party, proving that the more sustainable feed material was correctly and exclusively allocated to the product batches claimed to be more sustainable. Especially double counting must be excluded.

### 4.3 Requirement on third-party verified cradle-to-gate LCA

Battery suppliers entering into a sourcing process for nominations at Scania are required to **provide a cradle-to-gate Life Cycle Assessment (LCA)** for the battery cells they are to supply. Cradle-to-gate refers to the life cycle of the product from its source of raw material extraction until the product is ready to be supplied to Scania.

#### 4.3.1 Verification of the requirement

The LCA shall follow the ISO 14040:2006 and ISO 14044:2006 standards which provide the baseline LCA framework and must be third-party verified. The LCA shall be provided to Scania before the start of production . In case of any significant changes in the production technique of the parts/components, an updated LCA shall be provided to Scania.

## 5. CONTACT

Suppliers are to get in touch with their regular contact point at Scania for any queries on these requirement specifications.

## 6. CONFIRMATION/ SIGNATURE

E-Signatures are valid through an online platform called “Scrive”. These shall be requested by the purchaser to the supplier to confirm the requirements stated in this document (Once the online signature goes through via “Scrive”, it appears at the end of the document).

By e-signing this document, the supplier confirms that they accept the requirements described in this document “Requirement specification for Green Batteries” and commit to fully complying with the requirements as they are stated in this specification.

## 7. GLOSSARY

### Green Batteries

Batteries that from 2025 onwards are produced using 100% renewable electricity in cell production, cathode active material and anode production, and from 2030 onwards use 100% green thermal energy in cell and cathode active material production.

## Renewable Electricity

Renewable electricity include wind, solar, hydropower, geothermal, tidal and biofuels (we strongly recommend waste-based biofuels in comparison to crop-based biofuels). This does NOT include nuclear energy.

## Green Thermal Energy

Thermal energy that can be produced either through renewable electricity (which includes wind, solar, hydropower, geothermal, tidal and biofuels) or through biogas.

## EAC – Energy Attribute Certificate

An Energy Attribute Certificate (EAC) is the official documentation to prove renewable energy generation. Each EAC represents proof that 1 MWh of renewable energy has been produced and added to the grid. Global EAC standards for renewable claims are primarily Guarantees of Origin in Europe, RECs in North America, and International RECs (I-RECs) in a growing number of countries in Asia, Africa, the Middle East, and Latin America. EAC is compliant with the Greenhouse Gas Protocol and is a recognised tool for companies to report reduced greenhouse gas emissions and improve sustainability rating.

## EECS – European Energy Certificate System

The EECS (European Energy Certificate System) is a standardization system for the European Guarantees of Origin (GO, GoO). Nations that are members of the AIB and adhere to the EECS system are easily able to trade GOs cross-border with no risk of double counting, claiming or attributing.

## Electrical Grid, Power Grid

An electrical grid, electric grid or power grid, is an interconnected network for delivering electricity from producers to consumers. In electrical power business, a TSO (Transmission Grid Operator) is an operator that transmits electrical power from generation plants over the electrical grid to regional or local electricity distribution operators. Transmission grids usually are at high voltage level 110-330 kV.

## GoO – Guarantee of Origin

A Guarantee of Origin (GO or GoO) is a tracking instrument defined in article 15 of the European Directive 2009/28/EC. A GO labels electricity from renewable sources to provide information to electricity customers on the source of their energy. Guarantees of origin are the only precisely defined instruments evidencing the origin of electricity generated from renewable energy sources.

## PPA – Power Purchase Agreement

A Power Purchase Agreement (PPA) is a long-term contract under which a business agrees to purchase electricity directly from a renewable energy generator. A corporate PPA is where the electricity buyer is a business or company, rather than a utility or the public sector.



In a direct PPA, a contract is established between a company and a power-producing facility to purchase the electricity generated by that facility. Companies with a large energy footprint in a single state or narrow geographic region are typically the best candidates for this type of PPA because the clean power is directly delivered to the account of the facility purchasing that energy. Direct PPAs can be structured in a variety of ways and may require additional parties, such as retail providers or local utilities.

### **REC – Renewable Energy Certificate**

An instrument for documenting and proving the generation of renewable energy similar to the European GoO. Commonly used in the United States of America, Japan, and Canada.

### **CHP – Combined Heat and Power**

Combined Heat and Power, also known as Cogeneration is the concurrent production of electricity or mechanical power and useful thermal energy (Heating and/or cooling) from a single source of energy.

### **LCA – Life Cycle Assessment**

Life cycle assessment is a cradle-to-grave or cradle-to-cradle/gate analysis technique to assess environmental impacts associated with the different stages of a product's life. A cradle-to-grave life cycle analysis would cover raw material extraction, material processing, manufacture, distribution, and use.