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Review 1st Round

MOOC content

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1 Environmental Footprint Guidelines for the Automotive Sector

Environmental Footprint (EFG) in Brief

1.1 Planetary Boundaries - Understanding the Environmental Pressures

1.1.1 Introduction: Why Planetary Boundaries Matter for the Automotive Sector

1.1.2 What Are Planetary Boundaries?

1.1.3 The State of the Planet in 2025

1.1.4 Key Planetary Pressures Relevant to Automotive

1.1.5 Why Planetary Boundaries Are the Scientific Basis for Environmental Footprint Policies

1.1.6 Why This Matters for you in the Automotive MOOC

1.2 Core Concepts of Environmental Footprint (EF)

1.2.1 Life Cycle Thinking (LCT)

1.2.2 What is Life Cycle Thinking?

1.2.3 Key processes

1.2.4 Why Life Cycle Thinking Matters in the Automotive Sector

1.2.5 Life Cycle Thinking Principles

1.2.6 Benefits and Applications of Life Cycle Thinking

1.3 Life Cycle Assessment (LCA)

1.3.1 What is Life Cycle Assessment?

1.3.2 Core Elements of LCA

1.3.3 Types of LCA

1.3.4 Limitations of LCA — Why Expertise Matters

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Environmental Footprint in Practice: Data, Tools, Approaches, Interpretation

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4. Communicating EF results: transparency, comparability, and reporting rules

4.1. Why transparent communication matters

4.2. What EF reports must include (minimum requirements)

4.3. Comparability rules: when EF results can (and cannot) be compared 4.4. How EF results are communicated in automotive organisations

A. Internal communication (R&D, manufacturing, strategy)

B. Supplier communication

C. Public communication

D. Consumer-facing communication

4.5. Common pitfalls & how to avoid them

4.6. Remember

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Regulatory and Industrial Perspectives

1. The role of EF in EU policies (Sustainable Products Initiative, CSRD, taxonomy, ecodesign)

1.1. Why the EU is strengthening environmental regulation

1.2. Key EU policies that rely on EF, LCT, or life cycle data

1.2.1. Sustainable Products Initiative (SPI)

1.2.2. Ecodesign for Sustainable Products Regulation (ESPR)

1.2.3. Corporate Sustainability Reporting Directive (CSRD)

1.2.4. EU Taxonomy

1.2.5. PEF/OEF (Product and Organisation Environmental Footprint)

1.2.6. Battery Regulation

1.3. Why this matters for automotive

1.4. REMEMBER

2. Industry commitments and best practices (OEM sustainability reports, supplier requirements)

2.1. Sustainability strategies and targets

2.2. Supplier requirements

2.3. Product design and engineering

2.4. Operations and manufacturing

2.5. Corporate reporting and communication

3. Alignment with circular economy: remanufacturing, recycling, end-of-life vehicles (ELV) directive

3.1. Why circularity matters

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2 Product Environmental Footprint methods

2.1 Guidelines and documents regarding PEF

2.1.1 Commission Recommendation (EU) 2021/2279 of 15 December 2021 on the use of the Environmental Footprint methods to measure and communicate the life cycle environmental performance of products and organisations

2.1.2 Recommendations of the European Commission regarding the Product Environmental Footprint (PEF): Product Environmental Footprint (PEF) Guide and Product Environmental Footprint Category Rules (PEFCR)

2.1.3 Product Environmental Footprint according to EU JRC Technical Report

2.1.4 PEF as a reporting and labelling tool and GHG Product Protocol - Product Life Cycle Accounting

2.2 Product Environmental Footprint assessment methodology

2.2.1 Types of Product Environmental Footprint

2.2.2 Principles for using Product Environmental Footprint

2.2.3 Comparison of environmental footprints: carbon footprint, water footprint, ecological footprint, etc.

2.2.4 BASF Methodology for Product Carbon Footprint Calculation

2.2.5 The role of EF in Environmental Product Declarations (EPD) and Digital Product Passport (DPP) (regulation (EU) 2024/1781)

2.3 Product Environmental Footprint for the automotive industry

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3 Organization environmental footprint methods

3.1 What Conducting an Organisational Environmental Footprint Means

3.1.1 Organisation EF: applying to automotive supply chains, OEMs, and Tier suppliers

3.2 Standards and Calculation Framework

3.2.1 Commission Recommendation (EU) 2021/2279

- Organisation Environmental Footprint (OEF)
- Overview of Organisation Environmental Footprint Sector Rules (OEFSR)

3.2.2 GHG Protocol Corporate

3.2.3 The Science-Based Target Initiative (SBTi)

3.3 From Environmental Footprint Assessment to Sustainability Reporting

3.3.1 ESG Reporting under the Corporate Sustainability Reporting Directive (CSRD)

- The concept of Double Materiality

3.3.2 ESRS Standards and Environmental Reporting Requirements:

- Detailed look at ESRS E1 - Climate Change: objectives and disclosure requirements

3.3.3 Interoperability between ESRS and GRI standards

3.3.4 GRI 102 (Climate Change) and GRI 305 (Emissions) as complementary frameworks for environmental reporting

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3.4 Comparative analysis of OEF and PEF

3.4.1 Scope of application of Product Environmental Footprint (PEF) and Organisation Environmental Footprint method (OEF)

3.4.2 PEF as a component of OEF in Environmental, Social, Governance (ESG) reporting

3.4.3 Differences between LCA, PEF and OEF

3.5 Conclusions and implications for the automotive industry

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4 Environmental Footprint in Transport Services and Mobility

4.1 Introduction to Environmental Footprint in Transport

4.1.1 Share of transport in total environmental impact (especially CO_2 emissions)

4.1.2 Specific characteristics of mobility (high variability, network systems, dependency on infrastructure)

4.1.3 Typical activities: personal mobility, public transport, freight transport, company logistics

4.2 Methodology of Calculating Environmental Footprint in Transport

4.2.1 LCA principles applied to transport services

4.2.2 System boundaries: “door-to-door” or “well-to-wheel”

4.2.3 Functional unit and reference flow: e.g., "grams CO_2 per passenger-kilometre" or "kg CO_2 per ton-kilometer"

4.2.4 Input data:

- Fuel/energy consumption
- Trip distance and vehicle type
- Occupancy/load factor
- Fuel type (fossil vs. renewable)

4.2.5 Tools and data sources (e.g. EcoTransIT, GLEC Framework, SIMAPRO, OpenLCA)

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4.3 Impact categories, Typical Indicators and Their Interpretation

4.3.1 Greenhouse gas emissions (CO_2, CH_4, N_2O)

4.3.2 Energy and fuel consumption

4.3.3 Air pollutants (PM, NOx, SOx)

4.3.4 Resource use (e.g. lithium, water)

4.3.5 Noise, land use (informative only)

4.4 Comparison of Transport Modes by EF

4.4.1 Car (internal combustion, hybrid, EV)

4.4.2 Bus (urban vs. intercity)

4.4.3 Train

4.4.4 Air transport (short vs. long distance), Cycling and walking (zero operational EF) Logistics: vans, trucks, intermodal transport

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4.5 Effective Strategies to Reduce EF in Mobility and Transport

4.5.1 Route optimization (planning, navigation)

4.5.2 Increasing occupancy (carpooling, ridesharing)- E-mobility and renewable energy

4.5.3 Alternative fuels (biofuels, hydrogen)- Intelligent transport systems (ITS)

4.5.4 Corporate mobility plans (e.g. for employees)- Mobility-as-a-Service (MaaS)

4.5.5 Carbon Footprint of Electric Vehicles

4.5.6 Determinants of LCA analysis for hydrogen fuel cell passenger vehicles

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