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Interim report

# Comparison of environmental reporting requirements from the European Sustainability Reporting Standards (ESRS) with selected environmental laws

Case studies from a large and mid-sized company

by:

Theresa Steyrer, Pia Elverich, Sarah Rittinger  
Arqum GmbH, Berlin

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On behalf of the German Environment Agency

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**Abstract: Comparison of environmental reporting requirements from the European Sustainability Reporting Standards (ESRS) with selected environmental laws**

The Corporate Sustainability Reporting Directive (CSRD) and the European Sustainability Reporting Standards (ESRS) require large companies to provide comprehensive information on their environmental performance, policies, targets and actions. At the same time, many of the affected companies are subject to other environmental regulations that require them to collect and disclose, among others, data on emissions, resource use and waste management.

This paper includes the results of two case studies from the manufacturing industry. It investigates the extent to which the companies can use information already collected to meet their environmental regulatory obligations for the purposes of reporting under the ESRS environmental standards and which synergies and challenges exist. The case studies find that some of the information required to be collected under environmental legislation can be used for ESRS reporting, or that processes, responsibilities and infrastructure (e.g. measurement equipment) may be in place due to existing environmental obligations that facilitate data collection for the ESRS. They also show that the usability of the data in the companies is of course highly dependent on whether companies are already covered by legislation to which the ESRS standards directly refer or not. For topics such as biodiversity and microplastics, the two companies that served as the case studies can barely draw on existing information from existing legal requirements. However, information collected for their voluntary sustainability reporting and as part of their environmental management system often is a good source for reporting against the ESRS. Overall, the availability of environmental data from legal requirements that can be used for ESRS reporting differs between topics and standards.

This paper is the English version of part of the final report “Weiterentwicklung europäischer Nachhaltigkeitsberichtsstandards für Unternehmen“ (Schöpflin et al. 2024) to be published by the German Environment Agency.

**Kurzbeschreibung: Vergleich der Umweltberichtsansforderungen nach den European Sustainability Reporting Standards (ESRS) mit ausgewählten Umweltgesetzen**

Die Richtlinie über die Nachhaltigkeitsberichterstattung von Unternehmen (Corporate Sustainability Reporting Directive – CSRD) und die Europäischen Nachhaltigkeitsberichtsstandards (European Sustainability Reporting Standards – ESRS) verlangen von großen Unternehmen umfassende Informationen über ihre Umweltleistung, Konzepte, Ziele und Maßnahmen. Zugleich unterliegen viele der berichtspflichtigen Unternehmen auch anderen Umweltrechtsvorschriften, die sie verpflichten, Daten zu sammeln und zu berichten, unter anderem zu Emissionen, Ressourcenverbrauch und zum Umgang mit Abfall.

Dieses Papier enthält die Ergebnisse von zwei Fallstudien aus dem verarbeitenden Gewerbe. Es wird untersucht, inwieweit die Unternehmen bereits gesammelte Informationen aus ihren umweltrechtlichen Verpflichtungen für die Berichterstattung nach den ESRS-Umweltstandards nutzen können und welche Synergieeffekte und Herausforderungen bestehen. Die Fallstudien zeigen, dass einige der Informationen, die gemäß der Umweltgesetzgebung gesammelt werden, für die ESRS-Berichterstattung verwendet werden können, oder dass Prozesse, Verantwortlichkeiten und Ausrüstung (z.B. Messgeräte) aufgrund bestehender Umweltrechtsvorschriften vorhanden sind, die die Datenerhebung für die Berichterstattung nach den ESRS erleichtern. Die Fallstudien zeigen auch, dass die Nutzbarkeit der Daten in den Unternehmen stark davon abhängt, ob die Unternehmen bereits von Rechtsvorschriften betroffen sind, auf die sich die ESRS beziehen. Für Themen wie Biodiversität und Mikroplastik

können die beiden Unternehmen beispielsweise kaum auf bestehende Informationen aus anderen gesetzlichen Vorgaben zurückgreifen. Allerdings können Informationen aus bislang freiwillig erstellten Nachhaltigkeitsberichten und aus Umweltmanagementsystemen eine gute Quelle für die Berichterstattung nach den ESRS sein. Insgesamt, die Verfügbarkeit von Umweltdaten aus gesetzlichen Verpflichtungen, die für ESRS-Berichterstattung verwendet werden können, je nach Berichtsthema und -standard unterschiedlich.

Dieses Papier ist die englische Version eines Teils des Abschlussberichts „Weiterentwicklung europäischer Nachhaltigkeitsberichtsstandards für Unternehmen“ (Schöpflin et al. 2024), der vom Umweltbundesamt veröffentlicht wird.

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## List of abbreviations

Abbreviation	Explanation
<b>AbwV</b>	Abwasserverordnung (Waste Water Ordinance)
<b>BATT 2</b>	EU Battery Regulation
<b>BEHG</b>	Gesetz über einen nationalen Zertifikatehandel für Brennstoffemissionen (Emissions Trading Scheme on Fuels)
<b>BImSchG</b>	Bundes-Immissionsschutzgesetz (Federal Immission Control Act)
<b>BImSchV</b>	Bundes-Immissionsschutzverordnung (Federal Immission Control Act)
<b>CHP plant</b>	Combined heat and power plant
<b>CLP</b>	CLP-Regulation
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>CSRD</b>	Corporate Sustainability Reporting Directive
<b>EDL-G</b>	Gesetz über Energiedienstleistungen und anderen Energieeffizienzmaßnahmen (Energy Services Act)
<b>EED</b>	Energy Efficiency Directive
<b>EMAS</b>	Eco-Management and Audit Scheme
<b>EnergieStG</b>	Energiesteuergesetz (Energy Duty Act)
<b>E-PRTR</b>	European Pollutant Release and Transfer Register
<b>ESRS</b>	European Sustainability Reporting Standards
<b>ETD</b>	Energy Taxation Directive
<b>EU</b>	European Union
<b>EU-ETS Directive</b>	Emissions Trading Directive
<b>GewAbfV</b>	Gewerbeabfallverordnung (Commercial Waste Ordinance)
<b>GHG</b>	Greenhouse gas
<b>GRI standards</b>	Standards of the Global Reporting Initiative
<b>HGB</b>	Handelsgesetzbuch (Commercial Code)
<b>IED</b>	Industrial Emissions Directive
<b>KrWG</b>	Kreislaufwirtschaftsgesetz
<b>kWh</b>	kilowatt hours (Unit of energy measurement)
<b>KWKG</b>	Gesetz für die Erhaltung, die Modernisierung und Ausbau der Kraft-Wärme-Kopplung (Act on the Retention, Modernisation and Extension of Combined Heat and Power Generation)
<b>MWh</b>	Megawatt hours (Unit of energy measurement)
<b>m<sup>3</sup></b>	cubic meter (Unit of volume measurement)
<b>NachwV</b>	Nachweisverordnung

Abbreviation	Explanation
<b>NFRD</b>	Non-Financial Reporting Direct
<b>PPWR</b>	Regulation on packaging and packaging waste
<b>REACH</b>	Registration, Evaluation, Authorisation and Restriction of Chemicals
<b>SchadRegProtAG</b>	Gesetz zur Ausführung des Protokolls über Schadstofffreisetzungs- und -verbringungsregister (Act on the Implementation of the Protocol on Pollutant Release and Transfer Registers)
<b>StromStG</b>	Stromsteuergesetz (Electricity Duty Act)
<b>TA-Luft</b>	Vorschrift über die Technische Anleitung zur Reinhaltung der Luft (Regulation on the Technical Instructions on Air Quality Control)
<b>TEHG</b>	Gesetz über den Handel mit Berechtigungen zur Emission von Treibhausgasen (Greenhouse Gas Emissions Trading Act)
<b>UStatG</b>	Umweltstatistikgesetz (Environmental Statistics Act)
<b>VerpackG</b>	Gesetz über das Inverkehrbringen, die Rücknahme und die hochwertige Verwertung von Verpackungen (Packaging Act)
<b>VOC</b>	Volatile Organic Compounds
<b>VOC Directive</b>	Solvents Directive
<b>WFD</b>	Water Framework Directive
<b>WFD</b>	Waste Framework Directive
<b>WHG</b>	Wasserhaushaltsgesetz (Federal Water Act)

# 1 Introduction

## 1.1 Background and objective

As a result of the CSRD and the ESRS coming into force, large companies will be required to disclose comprehensive information on their environmental performance and targets as well as the actions planned and taken to protect the environment. Some of these companies are subject to other environmental regulations that require them to collect data on emissions, resource use or waste and make it available to the public or environmental authorities.

This paper presents two specific case studies from the manufacturing industry. The case studies examine the extent to which the companies can use information already available from the fulfilment of their environmental obligations for reporting in accordance with the ESRS. Potential synergies as well as difficulties in the further utilisation of the information are identified.

The results of the case studies analysed below provide companies with similar activities and structures indications for an efficient implementation of the ESRS and line out potential pitfalls. The case studies can also be used in the further development of the ESRS in order to improve their compatibility with environmental law.

This paper is the english version of part of the final report “Weiterentwicklung europäischer Nachhaltigkeitsberichtsstandards für Unternehmen“ to be published by the German Environment Agency.

## 1.2 Methodology

Two companies from the manufacturing industry with different characteristics were selected for the case studies. Company 1 is a large international corporation with subsidiaries and several production and logistics sites across the European Union (EU) at which environmentally relevant facilities are being operated. Company 2 is a medium-sized company with two sites and smaller environmentally relevant facilities. Both companies fall within the scope of the CSRD and must prepare sustainability reports in accordance with the ESRS in the future. By considering companies of different sizes and complexities, the aim of this report is to identify potential differences in the use of existing environmental information for sustainability reporting.

The case studies only cover a part of the analyses required for ESRS-compliant reporting. Firstly, they are limited to the identification and assessment of environmental issues. Social and governance issues, which are part of the ESRS, are not considered. Secondly, the case studies are limited to the material impacts that the company has or may have on the environment. Financial risks and opportunities are not considered. Finally, the case studies only relate to the environmental aspects at the companies' sites located in Germany. The consideration of the value chains required by the ESRS are not part of the case studies. The limitations are justified by the objective of this paper to identify interfaces and compatibilities with existing environmental regulations, which primarily relate to the direct environmental impacts of the companies.

The case studies were conducted in four online workshops between March and October 2023. The first step was to conduct an inventory of the environmental information available in the respective company. This involved creating overviews of the environmental legal obligations. It was followed by a materiality assessment in accordance with the ESRS provisions, subject to the above-mentioned restrictions, in order to assess the companies' environmental impact and identify material topics for reporting. Potentially material environmental topics of the

companies in the areas of pollution (ESRS E2), water and marine resources (ESRS E3), biodiversity and ecosystems (ESRS E4) and resource use and circular economy (ESRS E5) were evaluated on the basis of a “long-list”. No materiality assessment was carried out for the topic of climate change (ESRS E1), as it was considered mandatory for all companies in the ESRS drafts available at the time. For both case study companies, however, it can be assumed that climate change is a material topic and that ESRS E1 is therefore applicable. The assessment considered both positive and negative impacts as well as existing and potential impacts. The assessment was based on the criteria specified in the ESRS in terms of scale, scope, irremediable character of the impact and, for potential impacts, the likelihood. This determined the relevant reporting requirements for the companies according to the ESRS.

Together with the participating companies, a comparison was then carried out to determine the environmental information which is already being recorded to fulfil their environmental legal obligations and to what extent there are interfaces or gaps with the relevant requirements of the ESRS. The focus was on comparing the metrics required in ESRS E1-E5. Qualitative information on policies, targets and measures was not specifically considered in this context. Information that was available due to the voluntary commitment of the companies (e.g. through environmental management systems such as ISO 14001 or the Eco-Management and Audit Scheme - EMAS) was recorded beyond the actual scope of the study.

In addition to the compatibility analysis, the practical obstacles in data collection and processing as well as the expected future challenges in connection with the ESRS were recorded in the meetings with the companies.

It must be noted that the information analysed is based exclusively on statements and information provided by the participating companies. The results of the case studies presented apply only to the company in question and are not directly transferable to other companies.

### **1.3 Structure of the case studies**

Chapters 2 and 3 present the case studies for companies 1 and 2. Both chapters are structured in the same way. Firstly, the companies are briefly introduced. This is followed by an overview of the relevant environmental regulations which apply for the respective company. These are organised according to the environmental topics of ESRS E1-E5. The next step briefly summarises the results of the materiality assessment and provides an overview of the topics identified as material for each company.

Based on the results of the materiality assessment, the relevant ESRS metrics are compared with the existing information that the company already collects due to its obligations under environmental law. The results are presented in tabular form.

Chapter 4 summarises the findings of the case studies. This includes an analysis of the extent to which the environmental legal obligations are in line with the required ESRS datapoints and how compatibility could be improved further.

## 2 Case study 1: Large, internationally active industrial company

### 2.1 Company profile

Company 1 is one of Europe's leading commercial vehicle manufacturers and offers comprehensive transport solutions with an annual turnover of around 11 billion euros (2022). Its wide-ranging product portfolio includes vans, trucks, buses, diesel and gas engines as well as passenger and freight transport services. Table 1 contains further characteristics of the company.

**Table 1: Company profile 1**

Category	Description
Industry	Commercial vehicles
Employees	> 35.000
Locations	<b>9 production and logistics locations</b> 3x Germany 6x worldwide Further sales locations
Products and services	Manufacture of commercial vehicles in all weight classes
Strategic focus	<ul style="list-style-type: none"> <li>▶ Embedding sustainability in business strategy</li> <li>▶ Greenhouse gas (GHG) neutrality by 2050 (including offsetting)</li> <li>▶ Commitment to science-based climate targets</li> <li>▶ Focus on electromobility</li> </ul>
Further information	<ul style="list-style-type: none"> <li>▶ Operating facilities subject to European Pollutant Release and Transfer Register (E-PRTR)</li> <li>▶ Subsidiary of a large corporation</li> <li>▶ Operator of installations that are in scope of the Industrial Emissions Directive (IED)</li> <li>▶ Appointment of company officers for water protection (Section 64 of the Federal Water Act and Section 59 of the Waste Management Act) at individual locations</li> <li>▶ EMAS/ ISO 14001</li> <li>▶ ISO 50001</li> </ul>

### 2.2 Existing environmental legal obligations

Relevant environmental legal obligations of company 1 are presented below. They are categorised according to the environmental topics covered by the ESRS. The information is based on the company's statements. No check for completeness was carried out by the authors.

Table 2 shows the relevant legal obligations of company 1 in the area of climate change and energy.

**Table 2: Relevant legal obligations - Climate change and energy (Company 1)**

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 1
<p><b>EU legislation:</b> Directive 2012/27/EU Energy Efficiency Directive (EED)</p> <p>National legislation Energy Services Act (Gesetz über Energiedienstleistungen und anderen Energieeffizienzmaßnahmen - EDL-G)</p>	<p>Energy audits must be carried out every four years, starting in 2015. Exemption from conducting energy audits can be granted by introducing a management system in accordance with ISO 50001 or EMAS.</p>	<p>Coverage of at least 90% of the company's total energy consumption, broken down into the individual energy sources.</p>
<p><b>National legislation:</b> Act on the Retention, Modernisation and Extension of Combined Heat and Power Generation (Gesetz für die Erhaltung, die Modernisierung und Ausbau der Kraft-Wärme-Kopplung - KWKG)</p>	<p>Obligation to provide the Federal Office of Economics and Export Control with billing-relevant information (combined heat and power plant (CHP plant)).</p>	<p>Including:</p> <ul style="list-style-type: none"> <li>▶ Type of fuel used in kWh</li> <li>▶ Amount of heat and electricity generated in kWh</li> <li>▶ Quantity not fed into the grid and quantity fed into the grid</li> <li>▶ Full utilisation hours</li> </ul>
<p><b>EU legislation:</b> Directive 2003/87/EC Emissions Trading Directive (EU-ETS Directive)</p> <p><b>National legislation:</b> Greenhouse Gas Emissions Trading Act (Gesetz über den Handel mit Berechtigungen zur Emission von Treibhausgasen - TEHG)</p>	<p>Obligation to create an emissions report.</p>	<p>Heating installation: fuel quantities from which the CO<sub>2</sub> emissions are automatically calculated.</p>
<p><b>EU legislation:</b> Directive 2003/96/EC Energy Taxation Directive (ETD)</p> <p><b>National legislation:</b> Energy Duty Act (Energiesteuerengesetz - EnergieStG) Electricity Duty Act (Stromsteuerengesetz - StromStG)</p>	<p>Tax refunds by reporting energy consumption and providing further evidence.</p>	<p>Total electricity consumption and natural gas volumes per location.</p>
<p><b>EU legislation:</b> Directive 2014/95/EU Non-Financial Reporting Directive (NFRD)</p> <p><b>National legislation:</b> Commercial Code (Handelsgesetzbuch - HGB)</p>	<p>Existing non-financial reporting obligation</p>	<p>Voluntarily reported performance indicators in accordance with the standards of the Global Reporting Initiative (GRI standards):</p> <ul style="list-style-type: none"> <li>▶ Total energy consumption</li> <li>▶ Consumption of the individual energy sources</li> <li>▶ Differentiation between energy consumption from</li> </ul>

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 1
		renewable and fossil energy sources ► Fuel utilisation ► Direct and indirect GHG emissions (Scope 1 and 2)

Table 3 shows the relevant legal obligations of company 1 in the area of pollution.

**Table 3: Relevant legal obligations - Pollution (Company 1)**

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 1
<p><b>EU legislation:</b> Regulation (EC) No 166/2006 European Pollutant Release and Transfer Register (E-PRTR)</p> <p><b>National legislation:</b> Act on the Implementation of the Protocol on Pollutant Release and Transfer Registers (Gesetz zur Ausführung des Protokolls über Schadstofffreisetzung- und -verbringungsregister - SchadRegProtAG)</p>	<p>Emissions report: Reporting obligations for operators of facilities where one or more of the activities described in Annex I are carried out and where the capacity thresholds set out in Annex I are exceeded.</p>	<p>Releases to air, water and land of the pollutants listed in Annex II of the regulation for which the relevant threshold value set out in Annex II is exceeded.</p>
<p><b>EU legislation:</b> Directive 2010/75/EU Industrial Emissions Directive (IED)</p> <p><b>National legislation:</b> Federal Immission Control Act (Bundes-Immissionsschutzgesetz – BImSchG) in conjunction with 4th &amp; 11th Ordinance on the Implementation of the Federal Immission Control Act (Bundes-Immissionsschutzverordnung – BImSchV)</p>	<p>Results of emission monitoring of IED installations</p> <p>Emissions report (reporting period currently every 4 years)</p>	<p>Regular measurement of emissions into the air from registered IED installations or installations that require authorisation in accordance with the 4th BImSchV.</p>

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 1
<p><b>EU legislation:</b> Directive 1999/13/EC Solvents Directive (VOC Directive)</p> <p><b>National legislation:</b> BImSchG in conjunction with 31. BImSchV</p>	Annual solvent balance	Volatile Organic Compounds (VOC) - Input and output quantities of installations covered by the regulation according to Annex I and II.
<p><b>EU legislation:</b> Directive 2000/60/EU Water Framework Directive (WFD)</p> <p><b>National legislation:</b> Federal Water Act (Wasserhaushaltsgesetz - WHG)</p>	Annual Report of the Water Protection Officer	Overview of systems relevant to water protection (wastewater system, light liquid separator, grease separator), faults that have occurred
<p><b>EU legislation:</b> WFD</p> <p><b>National legislation:</b> WHG</p>	Annual report of the expert on groundwater sampling	Testing obligations for contaminated soil, mandatory sampling during construction work
<p><b>National legislation:</b> Waste Water Ordinance (Abwasserverordnung - AbwV-VO)</p>	Annual report on the wastewater treatment installation Compliance with limits for wastewater discharge into water bodies	Wastewater treatment installation; paint shop water, flow rates and days of operation; concentration of wastewater constituents (including nickel, zinc, tin, nitrite, AOX, phosphorus), emission limits
<p><b>EU legislation:</b> CLP-Regulation (EC) No 1272/2008 (CLP)</p>	Obligation for manufacturers, importers and downstream users to properly classify and label substances and mixtures before placing them on the market.	Information on manufactured and used substances of concern under the CLP-VO
<p><b>EU legislation:</b> REACH - Regulation (EC) 1907/2006 (Registration, Evaluation, Authorisation and Restriction of Chemicals - REACH)</p>	Manufacturers, importers: Obligation to register substances/mixtures <ul style="list-style-type: none"> <li>▶ Check whether substances, mixtures or articles are covered by REACH legislation</li> <li>▶ Preparation or possession of data sheets for substances, mixtures and articles</li> <li>▶ Registration</li> </ul>	Information on manufactured and used substances of very high concern under REACH



Table 4 shows the relevant legal obligations of company 1 in the area of water.

**Table 4: Relevant legal obligations – Water and marine resources (Company 1)**

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 1
<p><b>EU legislation:</b> WFD</p> <p><b>National legislation:</b> WHG</p>	Information on the quantities of water pumped (proof of authorisation)	Volume of water pumped, e.g. from wells, in m3
<p><b>EU legislation:</b> WFD</p> <p><b>National legislation:</b> WHG</p>	Annual Report Water Protection Officer	<p>Overview of installations relevant to water protection (wastewater system, light liquid separator, grease separator), malfunctions that have occurred</p> <ul style="list-style-type: none"> <li>▶ Annual water discharge</li> </ul>
<p><b>EU legislation:</b> NFRD</p> <p><b>National legislation:</b> HGB</p>	Existing non-financial reporting obligation	<p>Voluntarily reported performance indicators for production sites according to GRI standards:</p> <ul style="list-style-type: none"> <li>▶ Total water consumption</li> <li>▶ Amount of water recycled</li> <li>▶ Amount of water discharged</li> </ul>

Company 1 has not identified any relevant legal requirements in the area of biodiversity.

Table 5 shows the relevant legal obligations of company 1 in the area of resource use and circular economy.

**Table 5: Relevant legal obligations - Resource use and circular economy (Company 1)**

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 1
<p><b>EU legislation:</b> Directive 94/62/EC on packaging and packaging waste (PPWD)</p> <p><b>National legislation:</b> Packaging Act (Gesetz über das Inverkehrbringen, die Rücknahme und die hochwertige Verwertung von Verpackungen - VerpackG)</p>	Registration and tracking of packaging	Quantities of packaging purchased (determinable)
<p><b>EU legislation:</b> Draft regulation on packaging and packaging waste (PPWR)</p>	Including requirements for the proportion of recycled material in plastic packaging	Recycled content of packaging
<p><b>EU legislation:</b> Regulation (EU) 2023/1542 EU Battery Regulation</p>	Including requirements for minimum recyclable content of batteries	Value of recyclable fraction of batteries (part of own product)
<p><b>EU legislation:</b> Directive 2008/98/EC Waste Framework Directive (WFD)</p> <p><b>National legislation:</b> Commercial Waste Ordinance (Gewerbeabfallverordnung - GewAbfV), Waste Management Act (Kreislaufwirtschaftsgesetz - KrWG), Ordinance on Waste Recovery and Disposal Records (Nachweisverordnung - NachwV)</p>	Hazardous waste register (collection of all waste records), documented evidence of separate collection of commercial waste	Proof of collection and separate collection of various types of waste with quantities
<p><b>EU legislation:</b> NFRD</p> <p><b>National legislation:</b> HGB</p>	Existing non-financial reporting obligation	Voluntarily reported GRI performance indicator

## 2.3 Material environmental topics

Table 6 illustrates the material environmental topics identified for company 1 and their relevant divisions. These were assessed based on the company's site-specific impacts on the environment. Financial risks and opportunities were not considered. Impacts along the value chain were also not taken into account in the assessment.

Climate change mitigation and energy are material issues for company 1.

Company 1 has identified the issues of air and water pollution as material for ESRS E2 "Pollution". Particularly in the production processes, substances such as VOCs are released into the air, which contribute to air pollution. In addition, paint, among other things, is used in the

production processes which are discharged into municipal sewage treatment installations via wastewater and can therefore contribute to water pollution.

The utilisation and use of substances of concern in production and resale are also considered material. The issue of microplastics was new to the company, so it was not yet possible to provide an assessment of its materiality, as, among other things, no information on the amount used or released is currently available. However, it can be assumed that microplastic release is a material issue in the downstream value chain due to the company's business activities. The impact on living organisms relates to the disturbance caused by noise and light pollution at the production sites.

The company identifies water withdrawal and water consumption as material environmental impacts for ESRS E3 "Water and marine resources". In particular, the water withdrawal for production in areas with high-water stress and the generally high consumption of water during the production process are of great relevance.

For ESRS E4 "Biodiversity and ecosystems", direct impacts in particular on the loss of biodiversity are assessed as material. Climate change and the global impact it has on biodiversity are driven by GHG emissions during transport and production processes. Another material activity is the potential expansion of production facilities, which can affect the status of local species and habitats.

In the context of ESRS E5 "Resource use and circular economy", material impacts are primarily seen in the area of resource inflows including resource use and waste.

**Table 6: Material environmental topics (Company 1)**

ESRS	Material topics for company 1
E1- Climate change	<p><b>Climate change mitigation</b></p> <ul style="list-style-type: none"> <li>▶ from Production processes and products</li> </ul> <p><b>Energy</b></p> <ul style="list-style-type: none"> <li>▶ from production processes</li> </ul>
E2 - Pollution	<p><b>Pollution of air and water</b></p> <ul style="list-style-type: none"> <li>▶ from production processes</li> </ul> <p><b>Pollution of living organisms</b></p> <ul style="list-style-type: none"> <li>▶ from production facilities</li> </ul> <p><b>Substances of (very) high concern</b></p> <ul style="list-style-type: none"> <li>▶ from production processes and sales</li> </ul>
E3 - Water and marine resources	<p><b>Water consumption</b></p> <ul style="list-style-type: none"> <li>▶ from production processes</li> </ul> <p><b>Water withdrawals</b></p> <ul style="list-style-type: none"> <li>▶ from production processes</li> </ul>
E4 - Biodiversity and ecosystems	<p><b>Direct impact drivers of biodiversity loss</b></p> <ul style="list-style-type: none"> <li>▶ from production processes and transport</li> <li>▶ Expansion of sites</li> </ul>
E5 – Resource use and circular economy	<p><b>Resource inflows</b></p> <ul style="list-style-type: none"> <li>▶ from production processes</li> </ul> <p><b>Resource use</b></p> <ul style="list-style-type: none"> <li>▶ from production processes</li> </ul> <p><b>Waste</b></p> <ul style="list-style-type: none"> <li>▶ from production processes</li> </ul>

## 2.4 Comparison of ESRS metrics with information from environmental legal obligations

In the following, the ESRS metrics to be reported by company 1 based on the materiality assessment are compared with the existing information from the environmental obligations. The first column of the respective table shows the material environmental topics. The second column shows the specific datapoint from the ESRS. In the other columns, the relevant legal obligations and environmental information collected are listed and compared with the ESRS datapoints.

Table 7 compares relevant environmental legal obligations of company 1 in the field of climate change and energy with the requirements of ESRS E1.

**Table 7: Comparison ESRS E1 – Climate change and energy (Company 1)**

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
Climate change Energy	ESRS E1-5: Total energy consumption of the company in MWh, broken down by fossil, nuclear and renewable sources	EU legislation: EED	Energy audits have been carried out every four years since 2015. Exemption from energy audits can be granted by introducing a management system in accordance with ISO 50001 or EMAS.	Determination of at least 90% of the company's total energy consumption, broken down into the individual energy sources	In Germany, among other countries, all production sites of company 1 have management systems in accordance with EMAS and ISO 50001 in place and are therefore exempt from the energy audit obligation. The total energy consumption of these production sites is recorded as part of the management systems. Service locations still must be recorded in order to generate the output for the total energy consumption of the company as a whole.
		National legislation: EDL-G			
		National legislation: KWKG	Obligation to provide the Federal Office of Economics and Export Control with billing-relevant information (CHP plant)	These include: <ul style="list-style-type: none"> <li>▶ Type of fuel used in kWh</li> <li>▶ Amount of heat and electricity generated in kWh</li> <li>▶ Quantity not fed into the grid and quantity fed into the grid</li> <li>▶ Full utilisation hours</li> </ul>	Data on the CHP plant is available to the company. The data represents a proportion of the company's total energy consumption. For the output of the total energy consumption, the consumption quantities of all energy sources must be aggregated across the board.

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
		EU legislation: ETD  National legislation: EnergieStG StromStG	Reporting of energy consumption	Total electricity consumption and natural gas volumes per location	Total electricity and natural gas consumption are reported for all German sites of the company to receive tax refunds. The data represents a proportion of the company's total energy consumption. For the output of the total energy consumption, the consumption quantities of all energy sources must be aggregated across the board.
		EU legislation: NFRD  National legislation: HGB	Existing non-financial reporting obligation	Voluntarily reported performance indicators according to GRI standards: <ul style="list-style-type: none"> <li>▶ Total energy consumption</li> <li>▶ Consumption of the individual energy sources</li> <li>▶ Differentiation between energy consumption from renewable and fossil energy sources</li> <li>▶ Fuel utilisation</li> </ul>	Due to the previous reporting obligation under NFRD, the data required by ESRS E1-5 is available for the locations. In future, however, further locations will have to be included from which data still must be collected.
	<b>ESRS E1-6:</b> Gross GHG emissions Scope 1, 2 and 3	EU legislation: EU-ETS Directive  National legislation: TEHG	Emissions report	Heating installation: fuel quantities and CO <sub>2</sub> emissions	The company reports the CO <sub>2</sub> emissions for the heating installation at one location. The data represents a proportion of the company's total emissions. For the output of total emissions, all emission sources must be aggregated across the board.
		EU legislation: NFRD	Existing non-financial reporting obligation	Voluntarily reported performance indicators according to GRI standards:	Due to the previous reporting obligation under NFRD, data is available for locations. Additional locations are included for ESRS reporting. The data

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
		National legislation: HGB		Direct and indirect atmospheric emissions in scope 1 and 2	for the additional locations must therefore still be collected. Scope 3 data is not available.

Table 8 compares relevant environmental legal obligations of company 1 in the field of pollution with the requirements of ESRS E2.

**Table 8: Comparison ESRS E2 - Pollution (Company 1)**

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
<b>Air and water pollution (Production)</b>	<p><b>ESRS 2-4:</b> E-PRTR Pollutant emissions Information on (consolidated) amounts of all pollutants listed in Annex II of the Regulation that are released into air, water and soil. Only includes emissions from installations that exceed the threshold values specified in Annex II of the regulation.</p>	<p>EU legislation: E-PRTR</p> <p>National legislation: SchadRegProtAG</p>	<p>Emissions report: Reporting requirements for operators of facilities carrying out one or more of the activities specified in Annex I and exceeding the capacity thresholds specified in Annex I.</p>	<p>Releases to air, water and land of pollutants listed in Annex II of the Regulation exceeding the relevant threshold value set out in Annex II.</p>	<p>The required E-PRTR data is available through the annual reporting requirement. The data is available within the company on a facility- and site-specific basis. In order to report the total amount, the quantities still need to be aggregated across sites.</p>
		<p>National legislation: BImSchG in conjunction with the 4th &amp; 11th BImSchV</p>	<p>Emissions declaration (reporting period currently every 4 years)</p>	<p>Regular measurement of emissions from IED installations or installations that require authorisation in accordance with the 4th BImSchV</p>	<p>Due to the legal obligations arising from the listed laws, the emission values to be reported for air and water can contribute in part to reporting under E2-4 if they are pollutants in accordance with Annex II of E-PRTR Regulation. As the values are issued on an installation-specific basis, they only represent part of the pollutant quantities released and to be reported.</p>
		<p>EU legislation: VOC Directive</p> <p>National legislation: BImSchG in conjunction with 31st BImSchV</p>	<p>Preparation of an annual solvent balance sheet</p>	<p>VOC input and output quantities of the installations covered by the Regulation in accordance with Annexes I and II</p>	<p>Due to the legal obligations arising from the listed laws, the data on emissions to air and water can contribute in part to reporting under E2-4. As the values are reported on an installation-specific basis, they only represent part of the pollutant quantities released and to be reported.</p>

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
		EU legislation: WFD  National legislation: WHG	Annual Report Water Protection Officer	Overview of installations relevant to water protection (wastewater treatment installation, light liquid separator, grease separator), incidents that have occurred	Due to the legal obligations arising from the listed laws, the data on emissions to water can contribute in part to reporting under E2-4. As the values are reported on an installation-specific basis, they only represent part of the pollutant quantities released and to be reported.
			Annual report of the expert on groundwater sampling	Testing obligations for contaminated soil, mandatory sampling during construction work Hydrocarbon content, suspected underground contamination	Due to the legal obligations arising from the listed laws, the data on emissions to water can contribute in part to reporting under E2-4. As the values are reported on an installation-specific basis, they only represent part of the pollutant quantities released and to be reported.
		National legislation: AbwV	Compliance with limit values for the discharge of wastewater into water bodies	Emission limits	Due to the legal obligations arising from the listed laws, the data on emissions to water can contribute in part to reporting under E2-4. As the values are reported on an installation-specific basis, they only represent part of the pollutant quantities released and to be reported.
			Annual report on the wastewater treatment installation	Wastewater treatment installation; water from cab painting; water flow rates and operating days; concentration of wastewater constituents (nickel, zinc, tin, nitrite, AOX, phosphorus)	Due to the legal obligations arising from the listed laws, the data on emissions to water can contribute in part to reporting under E2-4. As the values are reported on an installation-specific basis, they only represent part of the pollutant quantities released and to be reported.



Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
<b>Substances of very high concern (production and sales)</b>	<p><b>ESRS 2-5:</b> Substances of concern (CLP Regulation, which fall under the categories listed in Annex II of the ESRS definition of "Substances of Concern")</p> <ul style="list-style-type: none"> <li>▶ Total amounts of substances of concern generated, used or procured during production</li> <li>▶ Total amounts of substances of concern leaving the organisation's facilities in the form of emissions, products or as part of products or services</li> </ul>	EU legislation: CLP	Obligation for manufacturers, importers and downstream users to properly classify and label substances and mixtures before placing them on the market.	Information on manufactured and used substances of concern under the CLP-VO	The company does not analyse and aggregate the quantities of substances of concern in purchasing and marketing. There is no standardised data collection in the production processes.
	<p><b>ESRS 2-5:</b> Substances of Very High Concern (REACH)</p> <ul style="list-style-type: none"> <li>▶ Total amounts of substances of very high concern generated, used or</li> </ul>	EU legislation: REACH	Manufacturers, importers: Obligation to register substances/mixtures <ul style="list-style-type: none"> <li>▶ Check whether substances, mixtures or</li> </ul>	Information on manufactured and used substances of very high concern according to REACH	Data sheets are available for products that indicate the quantities of the substances they contain. These quantities have not yet been summarised or aggregated.

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
	<p>procured during production</p> <ul style="list-style-type: none"> <li>▶ Total amount of substances of very high concern leaving the company's facilities in the form of emissions, products or as part of products or services</li> </ul>		<p>articles are present in accordance with REACH</p> <ul style="list-style-type: none"> <li>▶ Preparation or possession of data sheets for substances, mixtures and articles</li> <li>▶ Registration process</li> </ul>		

Table 9 compares relevant environmental legal obligations of company 1 in the field of water with the requirements of ESRS E3.

**Table 9: Comparison ESRS E3 - Water (Company 1)**

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
<b>Water consumption/ withdrawal (production)</b>	<b>ESRS 3-4:</b> Total water consumption in m <sup>3</sup>	EU legislation: WFD  National legislation: WHG	Information on water withdrawal quantities (proof for authorisation)  Annual Report Water Protection Officer	Volume of water withdrawn from e.g. wells in m <sup>3</sup>	The data collected due to legal obligations can contribute to reporting in accordance with E3-4, but only represent part of the information required to calculate the ESRS metrics for total water consumption. The reason for this is that total consumption is calculated from the volume of total water withdrawal minus water discharge.  Furthermore, the company only records data on water withdrawal at site level and does not automatically merge it with the data from other sites. Therefore, it is necessary to aggregate the water volumes across sites to determine the total water withdrawal volumes.
		EU legislation: NFRD  National legislation: HGB	Existing non-financial reporting obligation	Voluntarily reported performance indicators according to GRI standards: ▶ Total fresh water consumption: Divided into: ▶ From external procurement and own production ▶ Surface water	Due to the company's existing sustainability reporting, there are numerous, easily usable and aggregated metrics on total water consumption that can be utilised for ESRS reporting.

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
	<b>ESRS 3-4:</b> -Total volume of recycled and reused water in m <sup>3</sup>	EU legislation: NFRD  National legislation: HGB	Existing non-financial reporting obligation	Voluntarily reported performance indicators according to GRI standards: Amount of reused water	Due to the company's existing sustainability reporting, there are numerous, easily usable and aggregated metrics on the amount of reused water that can be further utilised for ESRS reporting.
	<b>ESRS 3-4:</b> Total water consumption in m3 in areas at water risks, including areas of high water stress				No relevant legal requirements
	<b>ESRS 3-4:</b> Total volume of stored water and changes in storage in m3				No relevant legal requirements
<b>Water discharges</b>	<b>ESRS 3-4 AR 32 (voluntary):</b> Information on water withdrawals and discharges	EU legislation: NFRD  National legislation: HGB	Existing non-financial reporting obligation	Voluntarily reported performance indicators according to GRI standards: Amount of water discharges	Due to the company's existing sustainability reporting, there are numerous readily usable aggregated metrics on the volume of water withdrawals and discharges that can be used for the voluntary ESRS datapoint.

Table 10 shows that there are no legal obligations of company 1 in the field of biodiversity.

**Table 10: Comparison ESRS E4 – Biodiversity and ecosystems (Company 1)**

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
<b>Direct impacts on biodiversity loss (production and transport, expansion)</b>					No relevant legal requirements

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
of business activities, international trade)					

Table 11 compares relevant environmental legal obligations of company 1 in the field of resource use and circular economy with the requirements of ESRS E5.

**Table 11: Comparison ESRS E5 – Resource use and circular economy (Company 1)**

Material topics	Datapoint ESRS	Relevant source of environmental law	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
<b>Resource inflow</b> ► Production materials ► Packaging materials	<b>ESRS E5-4:</b> Overall total weight of products and technical and biological materials used during the reporting period				The company is not aware of any legal obligations to record the products and materials used on a weight basis. The weight of the resource inflows can be recorded by the company. However, it is very unclear which resource inflows must be recorded in accordance with ESRS E5-4.
	<b>ESRS E5-4:</b> Percentage of biological materials (and biofuels used for non-energy purposes) used to manufacture the undertaking's products and services				The company is not aware of any legal obligations to record the proportion of biological materials. It is unclear which materials can be defined as biological.

Material topics	Datapoint ESRS	Relevant source of environmental law	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
	(including packaging) that is sustainably sourced, with the information on the certification scheme used and on the application of the cascading principle				
	<b>ESRS E5-4:</b> The weight in both absolute value and percentage, of secondary reused or recycled components, secondary intermediary products and secondary materials used to manufacture the undertaking's products and services (including packaging)	EU legislation: PPWR	These include requirements for the proportion of recycled material in plastic packaging	Recycled content of packaging	Information on the recycled content of the packaging used is available. The company is not aware of any other legal obligations that require the company to collect information in this area. This ESRS disclosure obligation therefore requires further research by the company.
<b>Resource outflows</b> ▶ Products ▶ Waste quantities	<b>ESRS E5-5:</b> The expected durability of the products placed on the market by the undertaking, in relation to the industry average for each product group				The company is not aware of any legal obligations to determine the durability of the commercial vehicles placed on the market by the company. No system has been established in the company to date.

Material topics	Datapoint ESRS	Relevant source of environmental law	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
	<b>ESRS E5-5:</b> The reparability of products, using an established rating system, where possible				The company is not aware of any legal obligations to determine the reparability of commercial vehicles placed on the market by the company. No system has been established in the company to date.
	<b>ESRS E5-5:</b> The rates of recyclable content in products and their packaging	EU legislation: EU Battery Regulation	These include requirements for minimum recyclable content of batteries	Calculated value for the recyclable content of batteries (component of own product)	The BATT2 has prompted the company to calculate the recyclable proportion in batteries in the commercial vehicles it produces. Otherwise, the company is not aware of any legal obligations that have required the collection of information on the recyclable content in products and their packaging to date.
	<b>ESRS E5-5:</b> Total amount by weight diverted from disposal, with a breakdown between hazardous and non-hazardous waste and the recovery operation types or	EU legislation: WFD  National legislation: GewAbfV KrWG NachwV	These include: Register for hazardous waste (collection of all waste records) (§ 49 KrwG, § 24 NachwV), documented evidence of separate	Proof of pick up and separate collection of various types of waste	A waste balance sheet is available across all sites in the company. The level of detail required in accordance with ESRS E5-5 in relation to the recycling and disposal processes has not yet been required.

Material topics	Datapoint ESRS	Relevant source of environmental law	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
	the waste treatment types		collection of commercial waste (§ 3 (3) GewAbfV)		
		EU legislation: NFRD  National legislation: HGB	Existing non-financial reporting obligation	Voluntarily reported performance indicator in accordance with GRI standards: Disposal management (e.g. waste recycling rate)	As part of the previous obligation to prepare a non-financial statement, the company reported the significant waste metrics described above.



## 3 Case study 2: Medium-sized manufacturing company

### 3.1 Company profile

Company 2 is a German manufacturer of mineral wool panels and is one of the leading manufacturers of acoustic and insulation panels with international operations. The company has its own production sites in Germany. It places particular emphasis on the sustainable use of resources, which is reflected both in its production methods and in its use of recycled raw materials and support for a circular economy.

**Table 12: Company profile 2**

Category	Description of the
Industry	Building materials industry
Employees	>500
Locations in Germany	2
Products and services	Production of mineral wool panels
Further information	<ul style="list-style-type: none"> <li>▶ Four installations requiring authorisation under the BImSchG</li> <li>▶ ISO 14001</li> <li>▶ ISO 50001</li> </ul>

### 3.2 Existing environmental legal obligations

In the following section, relevant environmental obligations of company 2 are presented. They are categorised according to the environmental topics covered by the ESRS. The information is based on the company's statements. No completeness check was carried out by the authors.

Table 13 shows the relevant legal obligations in the area of climate change and energy for company 2.

**Table 13: Relevant legal obligations - Climate change and energy (Company 2)**

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 2
<p><b>EU legislation:</b> Energy Efficiency Directive 2012/27/EU (EED)</p> <p><b>National legislation:</b> Law on energy services and other energy efficiency measures (Gesetz über Energiedienstleistungen und andere Energieeffizienzmaßnahmen - EDL-G)</p>	<p>Energy audits must be carried out every four years, starting in 2015. Exemption from energy audits can be granted by introducing a management system in accordance with ISO 50001 or EMAS.</p>	<p>Determination of at least 90% of the company's total energy consumption, broken down into the individual energy sources.</p>
<p><b>EU legislation:</b> Directive 2003/87/EC</p>	<p>Preparation of emissions report</p>	<p>▶ Emission values (installations-related)</p>

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 2
<p>Emissions Trading Directive (EU-ETS Directive)</p> <p><b>National legislation:</b> Greenhouse Gas Emissions Trading Act (Gesetz über den Handel mit Berechtigungen zur Emission von Treibhausgasen - TEHG)</p>		<ul style="list-style-type: none"> <li>▶ Consumption volume of the energy sources used and their emission values</li> <li>▶ Fuel quantities delivered</li> <li>▶ emission-relevant raw materials consumed for these systems</li> </ul>
<p><b>National legislation:</b> Emissions Trading Scheme on Fuels (Gesetz über einen nationalen Zertifikatehandel für Brennstoffemissionen - BEHG)</p>	Preparation of emissions report	Installation-related natural gas consumption and emissions from natural gas

Table 14 shows the relevant legal obligations of company 2 in the area of pollution.

**Table 14: Relevant legal obligations - Pollution (Company 2)**

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 2
<p><b>EU legislation:</b> Regulation (EC) No 166/2006 European Pollutant Release and Transfer Register (E-PRTR)</p> <p><b>National legislation:</b> Act on the Implementation of the Protocol on Pollutant Release and Transfer Registers (Gesetz zur Ausführung des Protokolls über Schadstofffreisetzung- und -verbringungsregister - SchadRegProtAG)</p>	Emissions report - Reporting obligations for operators of facilities where one or more of the activities described in Annex I are carried out and where the capacity thresholds set out in Annex I are exceeded.	Releases to air, water and land of the pollutants listed in Annex II to the Regulation for which the relevant threshold value set out in Annex II is exceeded.
<p><b>EU legislation:</b> Directive 2010/75/EU Industrial Emissions Directive (IED)</p> <p><b>National legislation:</b> Federal Immission Control Act (Bundes-Immissionsschutzgesetz – BImSchG) in conjunction with 4th &amp; 11th Ordinance on the Implementation of the Federal Immission Control Act (Bundes-Immissionsschutzverordnung – BImSchV)</p>	<p>Results of emission monitoring of IED installations</p> <p>Emissions statement (reporting period currently every 4 years)</p>	Regular measurement of emissions from registered IED installations or installations requiring authorisation in accordance with the 4th BImSchV
Administrative regulation „Vorschrift über die Technische	Measurement report (every 3 years)	Requirement of the authority based on TA-Luft: Measured

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 2
Anleitung zur Reinhaltung der Luft“ (TA-Luft) in conjunction with the BImSchG		emission values for various parts of the installation must be reported to the authority.
<b>EU legislation:</b> CLP Regulation (EC) No 1272/2008 (CLP)	Obligation for manufacturers, importers and downstream users to properly classify and label substances and mixtures before placing them on the market	Information on manufactured and used substances of concern under the CLP-VO
<b>EU legislation:</b> REACH - Regulation (EC) 1907/2006 (Registration, Evaluation, Authorisation and Restriction of Chemicals - REACH)	Manufacturers, importers: Obligation to register substances/mixtures <ul style="list-style-type: none"> <li>▶ Check whether substances, mixtures or articles are covered by REACH legislation</li> <li>▶ Preparation or possession of data sheets for substances, mixtures and articles</li> <li>▶ Registration</li> </ul>	Information on manufactured and used substances of very high concern under REACH

Table 15 shows the relevant legal obligations of company 2 in the area of water.

**Table 15: Relevant legal obligations – Water and marine resources (Company 2)**

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 2
<b>EU legislation:</b> Directive 2000/60/EU Water Framework Directive (WFD)  <b>National legislation:</b> Federal Water Act (Wasserhaushaltsgesetz - WHG)	Information on water withdrawal quantities (proof for authorisation)	Volume of water withdrawn, e.g. from wells, in m <sup>3</sup>
<b>National legislation:</b> Environmental Statistics Act (Umweltstatistikgesetz - UstaG)	Reporting obligations every 3 years	<ul style="list-style-type: none"> <li>▶ Water withdrawal by type of water and purchase and sale of water by volume</li> <li>▶ Water use, broken down by area of application, by amount and by single, multiple and recirculating use</li> <li>▶ Origin and whereabouts of unused water and wastewater by amount and location of discharge point with geocoordinates</li> <li>▶ Type of treatment of the discharged water</li> <li>▶ Volume of wastewater discharged to wastewater</li> </ul>

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 2
		treatment installations after treatment/untreated discharged wastewater as well as concentrations and loads of pollutants and pollutant groups, by location of discharge point with geocoordinates

Sub caption of table – for example source, additional information.

Company 2 has not identified any relevant legal requirements in the area of biodiversity.

Table 16 shows the relevant legal obligations of company 2 in the area of resource use and the circular economy.

**Table 16: Relevant legal obligations - Resource use and circular economy (Company 2)**

Source of environmental legislation	Relevant legal obligations	Environmental information collected by company 2
<p><b>EU legislation:</b> Waste Framework Directive (WFD)</p> <p><b>National legislation:</b> Commercial Waste Ordinance (Gewerbeabfallverordnung - GewAbfV), Waste Management Act (Kreislaufwirtschaftsgesetz - KrWG), Ordinance on Waste Recovery and Disposal Records (Nachweisverordnung - NachwV)</p>	Register for hazardous waste (collection of all waste records) (§ 49 KrwG, § 24 NachwV), documented evidence of separate collection of commercial waste (§ 3 (3) GewAbfV)	Proof of pick up and separate collection of various types of waste

### 3.3 Material environmental topics

Table 17 illustrates the material environmental topics identified for company 2 and their relevant divisions. These were assessed on the basis of the company's site-specific impacts on the environment. Financial risks and opportunities were not considered. Impacts along the value chain were also not taken into account in the assessment.

Climate change mitigation and energy are material issues for company 2.

In the area of pollution (ESRS E2), company 2 has identified the contribution to air pollution from the release of NO<sub>x</sub> and SO<sub>x</sub> in the production processes, among other things, as material.

In ESRS E3 "Water and marine resources", water withdrawal (including from groundwater), water consumption and water discharges in production are identified as important environmental impacts of the company and categorised as material.

In connection with ESRS E4 "Biodiversity and ecosystems", the company has not identified any material impacts for the company sites in Germany.

In the context of ESRS E5 "Resource use and circular economy", material impacts are primarily seen in the area of resource inflows including resource use and waste, both in production and in the form of packaging materials.

**Table 17: Material environmental topics (Company 2)**

ESRS	Material topics for companies 2
E1- Climate change	<b>Climate change mitigation</b> ► from production processes <b>Energy</b> ► from production processes
E2 -Pollution	<b>Pollution of air</b> ► from production processes
E3 - Water and marine resources	<b>Water consumption</b> ► from production processes <b>Water withdrawals</b> ► from production processes <b>Water discharges</b> ► from production processes
E4 - Biodiversity and ecosystems	<b>None</b>
E5 – Resource use and circular economy	<b>Resource inflows</b> ► Means of production <b>Resource use</b> ► Means of production <b>Waste</b> ► from production processes

### 3.4 Comparison of ESRS metrics with information from environmental legal obligations

In the following, the ESRS metrics to be reported by company 2 based on the materiality assessment are compared with the existing information from environmental obligations. The first column of the respective table shows the material environmental topics. The second column shows the specific datapoint from the ESRS. In the other columns, the relevant legal obligations of the company and the environmental information collected are listed and compared with the ESRS datapoints.

Table 18 compares relevant environmental legal obligations of company 2 in the field of climate change and energy with the requirements of ESRS E1.

**Table 18: Comparison ESRS E1 – Climate change (Company 2)**

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
Climate change Energy	<b>ESRS E1-5:</b> Total energy consumption of the company in MWh, broken down into fossil, nuclear and renewable sources  <b>ESRS E1-6:</b> Gross GHG emissions of categories Scope 1, 2 and 3	EU legislation: EED	Execution of energy audits every four years starting from 2015. Exemption from energy audits can be granted by introducing a management system in accordance with ISO 50001 or EMAS.	Determination of at least 90% of the company's total energy consumption, broken down into the individual energy sources	By maintaining an energy management system in accordance with ISO 50001, the company is exempt from the energy audit obligation. The company's total energy consumption is recorded as part of the management system.
		National legislation: EDL-G			
		National legislation: BEHG	Preparation of emissions report	Installation-related natural gas consumption and GHG emissions from natural gas	Through the national emissions trading scheme, the company collects installation-related natural gas consumption and calculates the emissions from this. This covers part of the energy consumption and emissions in scope 1 for the main site.
		EU legislation: EU-ETS Directive	Emissions report	Energy consumption and emission values by installation	As a result of European emissions trading scheme, installation-specific energy consumption and

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
		National legislation: TEHG			emissions are available for energy consumption and Scope 1 emission reporting. This represents a share of the company's total energy consumption and total emissions.

Table 19 compares relevant environmental legal obligations of company 2 in the field of pollution with the requirements of ESRS E2.

**Table 19: Comparison ESRS E2 - Pollution (Company 2)**

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
<b>Air pollution (production)</b>	<p><b>ESRS 2-4:</b> E-PRTR Pollutant emissions information on (consolidated) amounts of all pollutants listed in Annex II of the regulation that are released into air, water and soil. Only includes emissions from installations that exceed the threshold values specified in Annex II of the regulation.</p>	<p>EU legislation: E-PRTR</p> <p>National legislation: SchadRegProtAG</p>	<p>Emissions report: Reporting requirements for operators of facilities carrying out one or more of the activities specified in Annex I and exceeding the capacity thresholds specified in Annex I</p>	<p>Releases to air, water and land of pollutants listed in Annex II of the Regulation exceeding the relevant threshold value set out in Annex II.</p>	<p>The required E-PRTR data is available through the annual reporting requirement. The data is available within the company on a facility- and site-specific basis. In order to report the total amount, the quantities still need to be aggregated across sites.</p>
		<p>National legislation: BImSchG in conjunction with the 4th &amp; 11th BImSchV</p>	<p>Emissions declaration (reporting period currently every 4 years)</p>	<p>Regular measurement of emissions from registered IED installations or installations that require authorisation in accordance with the 4th BImSchV</p>	<p>Due to the legal obligations arising from the listed laws, the emission values for air to be reported can contribute in part to reporting under E2-4 if they are pollutants according to Annex II of E-PRTR. As the values are compiled on a facility-specific basis, they only represent part of the pollutant quantities released and to be reported.</p>
		<p>National legislation: BImSchG in conjunction with administrative regulation TA-Luft</p>	<p>Measurement report (every 3 years)</p>	<p>Requirement of the authority on the basis of TA-Luft: Measured emission values for various parts of the installation must be reported to the authority.</p>	



Table 20 compares relevant environmental legal obligations of company 2 in the field of water with the requirements of ESRS E3.

**Table 20: Comparison ESRS E3 -Water and marine resources (Company 2)**

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
<b>Water consumption/ withdrawals (production)</b>	<b>ESRS 3-4:</b> Total water consumption in m <sup>3</sup>	EU legislation: WFD  National legislation: WHG	Information on water withdrawal quantities (proof for authorisation)	Volume of water withdrawn from e.g. wells in m <sup>3</sup>	<p>The data collected due to legal obligations can contribute to reporting in accordance with E3-4, but only represent part of the information required to calculate the ESRS metrics for total water consumption. The reason for this is that total consumption is calculated from the volume of total water withdrawal minus water discharge.</p> <p>Furthermore, the data on water withdrawal is only recorded at site level and is not automatically merged with the data from other sites. It is therefore necessary to aggregate the water volumes across locations in order to determine the total water withdrawal volumes.</p> <p>The data for non-production sites is not yet available across all sites.</p>
	<b>ESRS 3-4:</b> Total volume of recycled and reused water in m <sup>3</sup>	National legislation: UStatG	Reporting obligations every 3 years	Water use by application, by volume and by single, multiple and reuse	Some of the data required according to the UStatG can also be used for ESRS E3-4 reporting. There is an inconsistency in the three-year reporting cycle compared to the annual reporting requirement according to the CSRD.
	<b>ESRS 3-4:</b> Total volume of stored water and				No relevant regulatory requirements. In addition, the company had difficulties with the definition of "stored water".

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
	changes in storage in m3  <b>ESRS 3-4: AR 30 (voluntary)</b> Water consumption data by sector/segment	National legislation: UStatG	Reporting obligations every 3 years	Water use by application, by volume and by single, multiple and reuse	Some of the data required according to the UStatG can also be used for ESRS E3-4 reporting. There is an inconsistency in the three-year reporting cycle compared to the annual reporting requirement according to the CSRD.
<b>Water discharges</b>	<b>ESRS 3-4 AR 32 (voluntary):</b> Information on water withdrawals and discharges	National legislation: UStatG	Reporting obligations every 3 years	Origin and destination of unused water and water discharges by volume and location of discharge point with geocoordinates	Some of the data required according to the UStatG can also be used for ESRS E3-4 reporting. There is an inconsistency in the three-year reporting cycle compared to the annual reporting requirement according to the CSRD.

Table 21 compares relevant environmental legal obligations of company 2 in the field of resource and circular economy with the requirements of ESRS E5.

**Table 21: Comparison ESRS E5- Resource use and circular economy (Company 2)**

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
Resource inflow  Packaging materials	<b>ESRS E5-4:</b> Overall total weight of products and technical and biological materials used during the reporting period				The company is not aware of any legal obligations to record the products and materials used on a weight basis. The weight of the products and materials used is monitored by the company on a monthly basis. However, there is considerable uncertainty as to which resource inflows must be recorded in accordance with ESRS E5-4.
	<b>ESRS E5-4:</b> Percentage of biological materials (and biofuels used for non-energy purposes) used to manufacture the undertaking's products and services (including packaging) that is sustainably sourced, with the information on the certification scheme used and on the application of the cascading principle				The company is not aware of any legal obligations to record the proportion of biological materials. The company uses various biological materials for which information is available.
	<b>ESRS E5-4:</b> The weight in both absolute value and percentage, of secondary reused or recycled components, secondary intermediary products and secondary materials used to manufacture the undertaking's				The company is not aware of any legal obligations that have required the collection of information to date. However, the company does have information on the quantities of reused materials (including packaging).

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
	products and services (including packaging)				
<b>Waste quantities</b>  <b>Resource outflows (products)</b>	<b>ESRS E5-5:</b> The expected durability of the products placed on the market by the undertaking, in relation to the industry average for each product group				The company is not aware of any legal obligations to determine the durability of the mineral sheets placed on the market by the company. However, information on product durability is available as part of the company's strategy and as a service to customers.
	<b>ESRS E5-5:</b> The reparability of products, using an established rating system, where possible				The company is not aware of any legal obligations to determine the reparability of the mineral tiles placed on the market by the company. However, according to the company, a qualitative description of the reparability of the products could be created quickly. An established rating system is not known here.
	<b>ESRS E5-5:</b> The rates of recyclable content in products and their packaging				The company is not aware of any legal obligations to determine the recyclable content in products and their packaging. However, the information is available to the company.
	<b>ESRS E5-5:</b> Total amount by weight diverted from disposal, with a breakdown between hazardous and non-hazardous waste and the recovery	EU legislation: WFD  National legislation: GewAbfV, KrWG, NachwV	These include: Register for hazardous waste (collection of all waste records) (§ 49)	Proof of pick up and separate collection of various types of waste	A waste balance sheet is prepared. The level of detail required in accordance with ESRS E5-5 in relation to the recovery operation types or waste treatment types has not been

Material topics	Datapoint ESRS	Relevant source of environmental legislation	Legal obligations	Environmental information	Comparison of ESRS/ environmental obligations
	operation types or the waste treatment types		KrwG, § 24 NachwV), documented evidence of separate collection of commercial waste (§ 3 (3) GewAbfV)		required to date. The company assumes that this information can be read out using the waste recording system established for all sites.

## 4 Summary of findings

The findings from both case studies are summarised below for each reporting standard.

### 4.1 ESRS E1 Climate change

#### Energy consumption

As part of the energy audit obligation under the EDL-G, companies must record 90% of their total energy consumption. Both companies are exempt from the energy audit obligation by maintaining management systems in accordance with EMAS or ISO 50001. The total energy consumption of the certified sites is recorded as part of the management systems. For company 1, this includes the production sites, but not the service sites. Due to the implementation of the NFRD in company 1, the energy consumption of the production sites without the service sites was already reported on the basis of the GRI standards.

Due to further legal requirements, the companies have recorded system-specific energy consumption. These requirements include European and national emissions trading, the KWKG and energy taxation laws.

#### GHG emissions Scope 1 and 2

Due to the legal requirements for European and national emissions trading, the companies largely record scope 1 emissions at installation level. Due to the energy audit obligation in accordance with the EDL-G, the energy consumption is available as described above so that the energy-related scope 1 and 2 emissions can be calculated for sites which are included in the management system certification.

In order to fully record scope 1 emissions, companies lack information on fugitive gases from refrigerant losses, for example. These have not been systematically recorded to date, as companies were not legally obliged to do so.

The companies have not yet compiled a complete GHG inventory in accordance with ISO 14064-1 or the GHG Protocol, which also require the presentation of location-based and market-based scope 2 emissions.

#### GHG emissions Scope 3

Up to now, there was no legal obligation to compile a scope 3 emissions inventory. The assessment and recording of scope 3 emissions are perceived as one of the greatest challenges in the context of the ESRS for both companies. However, individual scope 3 emission sources are recorded via voluntary commitments.

#### Conclusion

For reporting in accordance with ESRS E1, companies can draw on a range of data that they collect on the basis of existing legal obligations, in particular energy consumption and scope 1 emissions. Scope 2 emissions are typically easy to calculate based on energy consumption. Companies identify scope 3 reporting as their biggest challenge.

### 4.2 ESRS E2 Pollution

#### Pollutant emissions

Companies that are already subject to the E-PRTR Regulation and are required to report releases of pollutants to air, water and soil can use the data collected directly for reporting under ESRS E2. The compatibility of the required data is very high. Where relevant, only the values for the

company as a whole need to be aggregated, as the emission quantities collected under the E-PRTR are collected for facilities.

Within the framework of the BImSchG, the TA-Luft and the WHG, the companies collect and exchange further pollutant emission data with environmental authorities. The values are largely installation-specific, as their purpose is the monitoring of the industrial installations by the enforcement authority. As part of reporting in accordance with ESRS E2, this data can be used as subsets for the formation of the metrics to be reported in accordance with the ESRS. The reporting periods are generally three or four years and therefore do not correspond to the annual reporting interval of the CSRD.

### **Substances of (very) high concern**

The companies analysed already have data on reporting in the area of substances of concern and substances of very high concern, based on requirements from the CLP and/or REACH regulations. The information is mostly available at product level. This means that quantities of substances of very high concern in products are already collected and reported, for example on product data sheets. Aggregation of this data across different products, processes or sites has not yet taken place in the companies. For reporting in accordance with ESRS E2, the data must therefore be further processed or broken down – according to the quantities of substances produced or used during production and the proportion of substances that leave the company as emissions, products or services.

The companies consider the merging of data to be initially very time-consuming, but feasible.

### **Microplastics**

The release of microplastics is a new issue for companies that they have not yet addressed. Sources for the release and possible quantities are therefore unknown. Accordingly, a basis must be created for assessing the significance of the issue and, if necessary, for data collection, processing and reporting by the companies concerned.

The companies have no existing processes for assessing and collecting data on microplastics. There was a lack of clarity and a desire for guidelines for the assessment of significance for the topic of microplastics and a comparable approach to data collection on microplastic quantities. In light of new requirements under REACH and a regulation proposed by the European Commission to prevent the loss of plastic pellets, companies will probably have to focus more on this topic beyond the disclosure requirements of ESRS E2.

### **Conclusion**

ESRS E2 is closely aligned with existing EU environmental regulations in terms of the datapoints to be reported. Overall, this ensures a relatively high level of compatibility between the reporting standard and existing environmental law.

However, the data basis from existing environmental legal obligations for reporting in accordance with the ESRS E2 standard is distributed heterogeneously across the various sub-topics of the standard. While a solid basis of data already exists for some sub-topics (e.g. pollutant emissions or substances of very high concern), no or only limited data is available for others, such as microplastics.

## 4.3 ESRS E3 Water and marine resources

### Water-related metrics

The required datapoints in ESRS E3-4 range from information on total water consumption, total volume of reclaimed and reused water and total volume of stored and discharged water (voluntary).

Companies that were already subject to the reporting requirements of the NFRD may be able to use existing data bases for reporting the required metrics in ESRS E3, especially if they have already reported in accordance with the GRI Standards or EMAS. As the previous non-financial reporting obligation places significantly fewer requirements on the reporting of metrics compared to the CSRD, companies must compare the metrics they have already reported with the reporting requirements from the ESRS. As the NFRD leaves extensive scope for the use of reporting standards, it cannot be assumed that all companies subject to the NFRD will collect and report corresponding indicators.

Data that companies are already required to report under the UStatG, e.g. total water consumption, distribution of water types used, amount of water recovered and amount of wastewater for affected sites, can also serve as a basis for reporting the metrics in ESRS E3. However, the three-year reporting cycle of the UStatG is not compatible with the annual reporting period under the CSRD but provides a good data basis and ensures that the relevant companies already have appropriate data collection procedures in place. Hence, companies can increase the data collection cycle and extend the survey to all locations.

For reporting on total water consumption, companies can already obtain important partial information from the annual report of the water protection officer (§ 65 WHG). The availability of specific, aggregated water consumption data from existing regulations for company sites therefore largely depends on whether water-intensive facilities or production steps are part of the company's activities at the site or whether large quantities of groundwater are used. Data in accordance with the WHG does not necessarily have to reflect the total water consumption at the site if water from the public water supply for e.g. sanitary purpose is used additionally.

No data was available for the reporting of the indicator "Total volume of stored water and changes in storage volume" for either company – neither from existing reporting obligations nor from voluntary reporting. The definition of "stored water" raised questions and led to conflicting views in the materiality assessment.

Overall, data resulting from the duties of water protection officers in accordance with §§ 64-66 WHG can be used as part of the ESRS E3-4 disclosure requirement. However, further data and data collection processes are required to provide the total across all sites.

### Total water consumption in areas with water risk, including areas with high water stress

Where material, companies must provide information on total water consumption in water risk areas, including areas of high water stress. The information relates to the company's own business activities.

The case study company in question is not aware of any legal obligations that already require the disclosure of this data. However, company 1 has already voluntarily developed both a policy and measures for water management at its own sites and along the value chain and is in the process of implementing them. Due to the early engagement with the topic and the company's strategic orientation, data on total water consumption is available in the areas described.

However, the definitions of water stress and water risk provided in the ESRS were not used by the company and must be compared and, if necessary, adjusted for full reporting in accordance



with CSRD. The environmental conditions at the company's individual locations worldwide have not yet been analysed comprehensively. Companies should therefore analyse local conditions with regard to water stress at an early stage in order to set up data collection processes where necessary.

### **Conclusion**

The existing reporting in accordance with NFRD can form a very good basis for reporting in accordance with ESRS E3, depending on the company and the standards it has used before for sustainability reporting (e.g. GRI). The compatibility of the data must be checked individually by the company. If there is a high level of compatibility, existing data collection processes can be used and, if necessary, be adapted or expanded in scope. Companies that were not previously required to report are correspondingly less well prepared for the new requirements, unless they have already voluntarily addressed these issues.

The companies in the case studies are not yet aware of any legal obligations to analyse their sites in relation to areas of water stress or water risk. Therefore, it must be assumed that potentially affected companies do not yet have an analysis and data basis for reporting. To support these companies, a practice-oriented explanation of the definition of areas with water risk and the procedure for the subsequent data collection can be helpful.

Companies can use existing data collection processes, e.g. in accordance with the UStatG, to fulfil the requirements of the ESRS. In addition, extending data collection to company locations not previously affected by the UStatG does not appear to be a problem.

## **4.4 ESRS E4 Biodiversity and ecosystems**

There was no comparison of environmental legal obligations with ESRS E4. The reason for this is that the companies in the case studies did not identify relevant legal requirements.

### **Conclusion**

The case studies have shown that the topic of biodiversity and ecosystems as required by ESRS E4 is still difficult to grasp for companies.

Both companies have focussed on the topic of biodiversity primarily at their own company locations in Germany so far. Existing activities and measures on biodiversity originate from the environmental management systems. With regard to the value chain, neither of the case study companies has yet made any (voluntary) considerations that could be used for reporting under ESRS E4.

The lack of basic principles and information on the topic is already an obstacle for companies when analysing significance. Therefore, there is a clear need for overall guidance and other assistance on the part of the case study companies.

## **4.5 ESRS E5 Resource use and circular economy**

### **Waste generation/volumes**

Existing national legislation (KrWG, GewAbfV, NachwV) requires companies to document the separate collection of waste and keep records of their hazardous waste. The two companies already possess waste inventories for their sites due to the legal obligations. This ensures a high level of compatibility with the required datapoints from E5-5 on waste volumes. In order to fulfil the reporting obligations, additional information on the type of recovery (preparation for reuse, recycling, other recovery operations) or waste treatment type (incineration, landfill, other

disposal operations) must now be recorded for the first time, which was not yet available to both case study companies.

### **Resource inflows and outflows**

In connection with the reporting information on resource inflows (raw materials, materials, water, etc.) and resource outflows (products and materials) of the ESRS E5 standard, there is no relevant legal obligation for the two case study companies to date that would lead to the corresponding collection of information. In some cases, the companies can fall back on established processes for this purpose, e.g. relevant resource inflows are already recorded as part of EMAS.

There are uncertainties regarding the required data from ESRS E5. It is not clear from the standard which, and based on which quantities, resource inflows must be recorded and which materials count as technical and biological materials. With regard to the reparability of products, it is not clear to companies which "established rating systems" are relevant here.

Apart from the points mentioned above, the companies assessed in the case studies consider the fulfilment of reporting obligations to be feasible, even if it involves a great deal of effort. A well-organised inventory control system with information on the inflow and outflow of raw materials and products is helpful here.

### **Conclusion**

A clearer definition of the terms and thresholds in ESRS E5 would help companies. In turn, companies should check whether information is already available from voluntary commitments, e.g. through customer requirements or environmental management systems, and whether data from purchasing and logistics can be utilised. For example, data on durability and reparability as well as the recyclable content in products may be available and can be used accordingly for reporting in accordance with ESRS E5.

## 5 List of references

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