Discussion Paper
OVERCOMING BARRIERS FOR CORPORATE SCOPE 3 ACTION IN THE SUPPLY CHAIN
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EXECUTIVE SUMMARY

GHG emissions from upstream and downstream activities (scope 3) exceed in most economic sectors direct emissions (scope 1) from fuel combustion, leakage of gases, industrial gases and scope 2 emissions, which result from the generation of purchased electricity, heat, cooling or steam.

Upstream GHG emissions originating from global supply chains of purchased goods and services (scope 3.1) are the most important single emission category in the majority of economic sectors. Collaborating with other actors in the supply chain to successfully address these GHG emissions is key, if companies want to contribute adequately to solving the global climate crisis. With tightening requirements by stakeholder- and investor-driven initiatives like the CDP rating and the Science Based Targets initiative, more and more companies are looking into ways to take action along their supply chain.

WWF Germany aims to support these developments by identifying the barriers that need to be overcome to facilitate and accelerate corporate scope 3 action in global supply chains and the ways in which this could be achieved. This paper identifies four general barriers for corporate scope 3 action:

- Lack of transparency regarding scope 3 activity and emission data
- Lack of personnel resources and know-how in the management of scope 3
- Lack of relevance and benefits especially in non-listed companies
- Lack of ability to influence third-party actors and cooperation along the value chain

The main part of the paper is structured around the description of four specific challenges to corporate scope 3 action in the upstream supply chain and general solutions for addressing these:

1. Accounting challenge
   How to calculate scope 3.1 emissions and create the transparency required for scope 3 management? Different calculation approaches need to be chosen and applied to the 15 scope 3 categories and there is a dilemma between the very high effort involved in primary-data collection in the supply chain and the lower quality of data collected through more pragmatic secondary-data (especially spend-based) calculations.

2. Impact measurement challenge
   How to calculate the benefits of supply chain action, especially if scope 3 emissions are only roughly approximated with secondary data? If the effects of an intervention in the supply chain are to be measured, granular product carbon footprint data is required that enables a break up of cradle-to-gate emission factors into singular processes. Secondary data usually does not allow for that and processes modelled in secondary-data emission factors might differ from the real processes in a company’s supply chain.
3. Scope 3.1 action challenge
How to find the most effective approach to reduce emissions in the supply chain? Supply chain cooperation, choice of lower-emission suppliers, product innovation and a change in product portfolio and supplier engagement (e.g., the obligation for suppliers to set Science Based Targets) are central approaches for scope 3 supply chain action. Identifying emissions hotspots, choosing the right approach, initiating real cooperation in the supply chain and creating significant, measurable impact can be demanding.

4. Renewable electricity (RE) supply chain challenge
How to push RE procurement in the supply chain effectively? Pushing RE procurement in the supply chain requires RE sourcing by the own company first. Lack of knowledge and transparency regarding RE options in different countries, a lack of availability of these options and high transaction costs especially for the set-up of Power Purchase Agreements can complicate a push for RE sourcing along the global supply chains.

A simple theory of change would be to establish advanced supply chain transparency first, before GHG emissions can be managed. In the light of the climate crisis, this paper argues both for a further development of accounting and impact measurement in the area of scope 3 and for approaches like supplier engagement for Science Based Targets that lead to emission reductions even if a perfect data base is not available yet.

The maturity level of German companies in effectively managing Scope 3.1 emissions is still estimated to be mostly low. So far, the focus has been on accounting for scope 3 emissions – driven especially by CDP. Even the CDP A-List companies calculate their scope 3.1 emissions almost exclusively by means of the spend-based and average-data method. At the same time, most purchasing departments have not yet integrated the carbon intensity and sustainability of products as a criterion in their sourcing decisions and most supply chain climate action projects are still very limited in scope.

The tightened requirements of the Science Based Targets Initiative have recently sparked discussions about whether and how an absolute reduction of scope 3 emissions in the supply chain can be achieved. Companies should bundle forces and collaborate with peers and suppliers to standardize supply chain approaches to accounting and impact measurement and find effective scope 3 supply chain action measures.
In the light of growing national as well as international policy and ecological relevance, many companies are working on the reduction of their carbon footprints. While the focus of corporate climate strategies used to lie on direct emissions occurring inside the system boundaries of the companies (scope 1) and emissions resulting from the use of secondary energy sources such as electricity (scope 2) in the past, awareness for emissions originated in corporate value chains (scope 3) is rising. This development is supported by tightening requirements of corporate climate strategy certification initiatives like the Science Based Targets initiative (SBTi), investor requests such as CDP and methodological standards like the GHG Protocol.

For many sectors scope 3.1 emissions are particularly relevant. This category covers upstream emissions associated with value chain processes of purchased goods and services from the cradle to the outbound gate of the tier 1 supplier. Image 1 shows the relative relevance of the 15 scope 3 categories in 15 different sector groups – with scope 3.1 being the most relevant scope 3 category in the majority of the sectors.

However, scope 3 action in the value chain and guidance on how to address emissions occurring in the supply chain is rather scarce. Therefore, the aim of this paper is to point out the most relevant barriers for corporate scope 3.1 action as well as to define trajectories for companies to overcome these obstacles. The main focus will be on scope 3.1 action and here, special attention is given to the approach of pushing renewable electricity (RE) procurement in the supply chain.

It is worth noting that a scope 3.1 action approach should always address the emission hotspots of the respective value chain to be effective in reducing absolute emissions. Renewable electricity sourcing may be a particularly effective lever in some value chains, but certainly not in all value chains. Further, credibly using renewable electricity sourcing as a scope 3.1 approach requires the company itself to be advanced in sourcing renewable electricity internationally.

Chapter 2 of the paper focuses on a description of the general and specific barriers to corporate scope 3 action. Chapter 3 specifies possible general approaches to overcome the barriers.
Image 1: Relevance of scope 3 categories in different sectors³
The findings in the paper result from the experience of WWF Germany and sustainable AG in working with companies on climate action in a national and international context. They have been validated through a series of eight stakeholder interviews with company representatives from the apparel and footwear, retailing, pharmaceutical, consumer goods, automotive as well as engineering and technology sector.

2 BARRIERS TO CORPORATE SCOPE 3 ACTION

This chapter describes general barriers to corporate scope 3 action as well as specific challenges in managing GHG emissions and pushing renewable energy procurement in the upstream supply chain.

2.1 General barriers to corporate scope 3 action

The lack of transparency regarding the relevance of scope 3 emissions is one core challenge for many companies. The saying “you cannot manage what you do not measure” definitely holds true for corporate GHG emissions along the value chain. Even if typical GHG emission profiles for different sectors are available, getting an idea of the relative importance of the 15 scope 3 categories in relation to corporate scope 1 and 2 emissions is a key precondition for a more detailed accounting and management of scope 3 emissions. The usual lack of high-quality data requires different management approaches in comparison to scope 1 and 2 and the staff responsible for GHG emissions management need to be encouraged not to wait with supply chain action until the data quality is perfect.

Often, a lack of personnel resources and know-how hinders companies with their analysis and management of scope 3 emissions. The more complex the organizational structure is, the more challenging the data collection and calculation of GHG emissions arising from the 15 scope 3 categories becomes. Every single one of the 15 categories has its own logic and calculation approach and scope 3 data collection always involves interaction with different departments and external suppliers to gather activity data and find suitable emission factors.
The GHG Protocol standards and calculation guidance provide orientation and support, but still leave many practical questions unanswered. Managing scope 3 emissions is evenly complex as emissions arise generally from a large variety of emission sources and need to be tackled in cooperation with external actors along the supply chain. The task often appears to be too big, as easy management approaches and examples to help get responsible staff started, are missing.

Especially if companies perceive the relevance and benefits of scope 3 action, they will invest resources in setting up scope 3 accounting, reporting and management. Experiences from the German context show that large listed companies are most likely to address scope 3 emissions as they have the required resources and are increasingly challenged by investor requests such as CDP, reporting standards like GRI and ratings like ISS-Oekom. Even if public pressure on companies regarding an adequate contribution to solving the climate crisis is growing, the relevance and benefits of going beyond a management of scope 1 and 2 emissions is still unclear to many, particularly non-listed companies. A 2018 analysis of 73 members of the German Global Compact Network by sustainable AG showed that there is hardly any accounting of scope 3 emissions in companies with less than 1,000 employees and only roughly half of the large non-listed German companies engage in accounting and reporting of scope 3 emissions – a perceived lack of relevance might be an explanation.

A lack of possibility to influence and lack of cooperation along the value chain hinders companies from successfully managing scope 3 emissions. In general, successful management of scope 3 always requires a certain extent of collaboration with third parties like suppliers, employees, lessors/lessees or customers. If a company is for example reliant on purchasing from a specific supplier or group of suppliers and does not have sufficient market power to challenge them on GHG emission reductions, reducing scope 3 emissions from purchased goods and services will be difficult. Equally the market penetration of a low-carbon product with lower use phase emissions, may require customer demand and an adequate policy environment in order to effectively reduce scope 3 emissions. In contrast to scope 1 and 2, different management approaches and a stronger cross-department collaboration are required for scope 3 management within companies and are often missing at the start of dealing with scope 3.

### 2.2 Specific barriers for scope 3.1 action and procurement of renewable energies in the supply chain

Specific challenges arise with regard to the accounting and management of GHG emissions in scope 3 category 1 “Purchased goods and services” and the procurement of renewable energies along the supply chain. Table 2 summarizes four key challenges which are further elaborated on in the following.

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<td>How to account for the benefits of supply chain action?</td>
<td>How to find the most effective approach to reduce emissions in the scope 3.1 supply chain?</td>
<td>How to push renewable electricity procurement in the supply chain effectively?</td>
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**Successful management of scope 3 always requires a certain extent of collaboration with third parties.**
2.2.1 Accounting challenge

The first challenge refers to the collection of activity data and the calculation of scope 3.1 emissions. GHG Protocol specifies four different approaches for calculating supply chain emissions, which all come with different challenges:

**Supplier-specific method:** Using this method, product-level cradle-to-gate GHG inventory data is requested from direct goods and services suppliers, covering emissions from manufacturing or extraction of raw materials, processing and transportation to the tier 1 suppliers; also required is information concerning the context, such as the calculation methods used and the quality of the data.

Potentially, primary supplier emission data from specific processes in the supply chain provides the best granularity and a “real” picture of emissions in the supply chain. In reality, however, requesting and collecting primary data from supply chain actors, beyond the tier 1 supplier’s scope 1 and 2 data, requires a lot of effort and often does not deliver the desired data quality. Despite years of sending CO2 data requests to suppliers, the BMW Group, for example, still calculates and reports their scope 3.1 emissions using secondary emission factors. One of the reasons is insufficient transparency by suppliers regarding their own scope 1 and 2 emissions and even less transparency regarding their respective suppliers’ emissions.

In addition, many suppliers require training on GHG emission accounting and reporting in line with the requirements of the Greenhouse Gas Protocol Standard, before primary data can be demanded. Only if a certain standardization of calculation procedures in carbon accounting is achieved can carbon intensities of different suppliers be compared.

**Average-data method:** Emissions are estimated by collecting data on the quantity, weight or other unit of purchased goods and services and multiplying this with cradle-to-gate emission factors (e.g., tonnes CO2e per tonnes of product) from industry average data.

The average-data method is a very popular method for calculating scope 3.1 emissions. Usually, weight-based emission factors are derived from lifecycle databases, which cover a large variety of products and materials and differentiate between sourcing regions. The handling of large amounts of data from the purchasing department and the choice of suitable emission factors from lifecycle databases requires time, money and expertise. Still, the GHG emissions calculated with average-data present only an approximation of the “real” upstream emissions situation in the supply chain and has limitations, if impacts of supply chain actions are to be accounted for (see chapter 2.2.2).

**Spend-based method:** Emissions are estimated by multiplying the economic value of purchased goods and services with relevant cradle-to-gate emission factors (e.g., kg CO2e per euro purchase value) from environmentally-extended input output models (EEIO).

A spend-based calculation of scope 3.1 emissions is relatively easy if purchasing volumes are clustered in purchasing groups which are covered by EEIO emission factors. At the same time, the results present only a very rough approximation of supply chain emissions, far from the “real” picture in the supply chain. Furthermore, results are distorted by changing prices of purchased goods and services. This presents a major barrier for supply chain action (see chapter 2.2.2).
Hybrid method: Combining the supplier-specific method (where data is available or has been requested, usually scope 1 and 2 of direct suppliers) with the average-data or spend-based methods to fill the data gap.

Calculating scope 3.1 emissions with the hybrid method can provide a solid primary data base at least for scope 1 and 2 emissions of key direct suppliers, while the rest of the supply chain emissions are to be modelled with secondary emission data. The approach faces the same challenges as the other three methods, but it can provide an improved data base for scope 3 action with direct suppliers.

A more detailed discussion of typical challenges (and solutions) in the context of the accounting for scope 3.1 emissions can be found in the 2017 discussion paper “Scope 3.1 - Practical guidelines for data collection and calculation of greenhouse gas emissions from purchased goods and services” by the Global Compact Network Germany.6

2.2.2 Impact measurement challenge

Company purchases and hence the activity data underlying scope 3.1 emission calculations can fluctuate for different reasons, such as economic development. This leads to fluctuating scope 3.1 emissions, which complicates the measurement of own contributions to reducing scope 3.1 emissions.

Another barrier is related to the calculation methods for scope 3 emissions: As hardly any company calculates scope 3 value chain emissions based on primary supplier emission data, there are significant limitations with regard to the accounting of GHG emission reductions through supply chain action. Secondary emission factors do not reflect interventions in the supply chain that result in reduced GHG emissions in one or several of the processes of a purchased good (or service) in the supply chain.

This challenge and some potential solutions are described in the 2018 paper “Value chain (scope 3) interventions – greenhouse gas accounting & reporting guidance”.7 The paper proposes an approach where a company can – under certain conditions – remodel a secondary emission factor to account for the GHG
emission reduction achieved through own supply chain action. Accounting for a company’s supply chain intervention, on the basis of a secondary emission factor is only possible, if a range of conditions is given, including:

- sourcing from the same supply shed (group of suppliers) the secondary emission factor refers to
- ability to break up the secondary emission factor in single processes with their individual emission factors
- ability to quantify the reduction achieved through the supply chain intervention at the respective stage of the lifecycle
- ability to define the scope (share of purchase volume affected) of the supply chain intervention and allocation of reduction impact in case of several project partners (to avoid double-counting)
- calculation of the remodelled post-intervention overall emission factor of the purchased good.

This approach involves a lot of effort analysing the lifecycle of each product affected by an intervention, while the overall reductions achieved by an intervention may be low. In conclusion, the high complexity and accounting effort present a major barrier in tracking whether annual emission reductions in the supply chain as required by the Science Based Targets Initiative’s (SBTi) criteria for compliance with a <2°C pathway for scope 3 have been achieved.8

Another barrier results from the composition of average-data from many lifecycle assessment databases: While a description of the processes covered by the emission factor is commonly available, a detailed break-down of GHG emissions resulting from the singular steps along the value chain is often not accessible.

2.2.3 Supply chain action challenge

Companies striving for the development of a best practice climate strategy increasingly use the criteria and methods of the Science Based Targets Initiative (SBTi) as a point of reference: According to the criteria, 66% of overall scope 3 emissions are to be covered by a scope 3 target and at least 1.23% of annual absolute emission reductions are the minimum level of ambition for a scope 3 target in line with the goal of keeping global warming below 2°C. A supplier engagement target to oblige direct suppliers to set themselves Science Based Targets within the next five years is also acceptable.9

Following on from this, there are four key approaches to supply chain action, each with specific challenges:

**Supply chain cooperation:** Based on the scope 3 GHG inventory the company addresses emission hotspots in its supply chain in cooperation with suppliers.

One key prerequisite for this approach is a detailed knowledge of the emissions hotspots in the supply chain. The further down the supply chain the hotspots lie, the more difficult it becomes for the own company to engage in cooperation.
As described in chapter 2.2.2., measuring the impacts from supply chain intervention can be complex and challenging.

**Choice of lower-emission supplier:** The company sources the same goods and services, but from suppliers with lower emissions per product.

This approach needs transparency and comparability with regard to emission intensity of different suppliers of a product or service, which is usually not given. However, sourcing from a different region, e.g., with a lower electricity emission factor can be an option. Nevertheless, this requires the KPI “emission intensity” to be integrated into purchasing decisions. In most sectors and companies, however, supplier climate action is not taken into consideration as a purchasing criterion yet.

**Product innovation & change in product portfolio:** A switch in the product portfolio or the material composition of products in favour of lower carbon alternatives is another effective way for a company to reduce GHG emission from purchased goods and services.

However, in order to quantify the effects of product-related changes, comparative lifecycle assessments of affected goods and services with a high data quality are required. This demands significant effort.

**Supplier engagement:** Engaging suppliers to set themselves Science Based Targets and thus pushing them to mitigate GHG emissions in the upstream value chain reduces the complexity and accounting efforts for the own company. Responsibility for achieving emission reductions is thereby shifted to the suppliers.

To be credible, this approach requires an obligation by suppliers, for example via a code of conduct, and assessments of whether science-based targets have been really been set by suppliers.

Companies with the largest share of their overall emissions resulting from upstream supply chain processes are faced with the overarching challenge to choose a supply chain action approach that leads to the required reductions. This holds especially true for companies from sectors like retail with a very broad variety of purchased goods and services. These companies will only comply with the SBTi criteria if their supply chain action approach is very widely applied to cover 66% of emissions and achieve the required overall reductions. This can result in a very high number of individual supply chain projects and high coordination costs.

### 2.2.4 RE supply chain challenge

Self-generating or purchasing renewable electricity is an effective measure to reduce corporate scope 2 emissions. While companies can themselves reduce their scope 2 emissions by switching to renewable electricity (see Table 2 for available options), pushing renewable electricity in the supply chain can be also an effective means to reduce scope 3 emissions from purchased goods and services.

This is challenging for companies in different regards:

**Own sourcing of renewable electricity:** Only if companies themselves produce or source renewable electricity will they credibly and effectively be able to push a switch to renewable electricity in their supply chains. Many large German
companies are currently at the stage of analysing own options of switching to renewable electricity internationally. Engaging a supplier of renewable electricity is the consistent (logical) next step.

**Lack of knowledge and transparency:** There is a lack of transparency and knowledge in many companies on how to switch to renewable electricity internationally as electricity purchasing responsibility usually lies in the purchasing department (cost-driven), whereas the impulse to switch to renewable electricity sourcing comes from the sustainability department (impact-driven). In many markets RE options are economically viable.

**Availability of RE products and certificates:** Electricity markets are nationally regulated and both the availability of RE options and prices differ significantly from country to country. It takes significant effort to understand and evaluate RE options in supplier (or own company site) countries. While established certification systems like GOs and RECs provide easier access to price information (at least for energy attribute certificate purchases) in the EU and North America, information about available RE options is hard to get in countries like China, Turkey or Malaysia. Access to renewable energy is particularly challenging in countries where there is no free choice of energy supplier.

**Credibility of climate protection impact by RE products and certificates:** Renewable electricity options, as listed in Table 3, do not automatically bring an added value to climate protection and sustainability. The criterion of additionality is key, when assessing the impact of renewable electricity projects. Only if additional capacities of renewable electricity are generated or a contribution to an improved integration of fluctuating sources of renewable electricity is made, do renewable electricity projects result in the GHG emission reductions which companies claim in their GHG inventories once they have switched to renewable electricity. Additionally, renewable electricity projects (e.g., hydropower) can come with significant negative ecological and social externalities. The evaluation of the sustainability impact of renewable electricity options strongly depends on the specific product and policy context and can be very challenging. In some markets, continued operation of assets leaving support schemes can provide additionality.

**High transaction costs:** In countries where sourcing renewable electricity products or certificates is not an option, setting up Power Purchase Agreements or self-generation of renewable energy may be the only option for switching to renewable electricity. Often this leads to significant transaction costs depending on local regulations, corporate procedures and availability of projects for Power Purchase Agreements. High capital costs can be another challenge.

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Table 3: Options to switch to renewable electricity

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<td>1. Generation from installations owned by the company</td>
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<th>Purchased electricity</th>
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<td>2. Purchase from on-site installations owned by a supplier (Power Purchase Agreement)</td>
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<td>3. Direct line to an off-site generator with no grid transfers (Power Purchase Agreement)</td>
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<td>4. Direct procurement from offsite grid-connected generators</td>
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<td>» Physical Power Purchase Agreement</td>
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<td>» Virtual Power Purchase Agreement</td>
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<tr>
<td>5. Contract with suppliers (green electricity products)</td>
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<tr>
<td>6. Unbundled energy attribute certificate purchase (GOs, RECs, IRECs, etc.)</td>
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<td>7. Other options</td>
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3 HOW TO ADDRESS THE CHALLENGES

3.1 Overcoming the accounting challenge

“Translating” the rather generic guidelines by the GHG Protocol Corporate Value Chain Standard and Calculation guidance to the individual corporate context is absolutely key for an increase of the overall number of companies with scope 3 GHG inventories as a database for scope 3 action.

Corporate peer learning groups provide a valuable basis for an exchange of experiences and coming together to find solutions. The Global Compact Network Germany has convened peer learning groups nationally and internationally since 2015 and has documented central findings with regard to the scope 3.1 accounting challenge in its discussion paper “Practical guidelines for data collection and calculation of greenhouse gas emissions from purchased goods and services.”

Besides cross-sectoral peer learning groups, more specific, individual sector working groups or a series of workshops can help to bring together companies with similar emission hotspots along the value chain or even companies sourcing from the same supplier. A joint approach in supplier engagement on carbon accounting and GHG emission reductions can significantly increase the leverage of individual companies.

As the focus is gradually shifting from mere scope 3 accounting to scope 3 action, a higher quality and granularity of emission data along the supply chain is required:

Improving primary data availability and quality: One option is coupling data requests to supply chain partners (via own formats or programs like CDP Supply Chain Program or ECOVADIS) with supportive formats like supplier trainings or guidelines on the required data. The establishment of a primary database should focus on key suppliers of products that are particularly relevant for the scope 3.1 GHG inventory and management.

Using higher quality secondary data: If primary data from suppliers is not available, high-quality and up-to-date data from lifecycle analysis databases is the second-best option. To present a suitable basis for scope 3 supply chain action, average-data emission factors should have the same system boundary as the purchased product or service which emissions are calculated for. Furthermore, the emission factor should apply to the same region as the company is sourcing from and allow for an analysis of different processes to be included. If a large quantity of the GHG emissions from purchased goods and services stem from one product group, then running own or commissioning external lifecycle analyses should be considered.

Focus on emission hotspots in the supply chain: Instead of working on improving the data quality in the whole supply chain, a focus on major hotspots is recommendable. Based on an emission profile created with secondary (e.g., spend-based) data, emission hot spots can be identified, and data quality as well as reliability of the data can be improved continuously for these hotspots, e.g., by running own LCA analyses. These hotspots can also be connected with management approaches described in chapter 3.2 and 3.3.
External guidance on how to engage suppliers and how to create a data basis that presents a suitable foundation for corporate scope 3 action presents a valuable contribution to solving the accounting challenge. A selection of best practice approaches for data-related supplier engagement in different industries could help companies identify trajectories for cooperation with their suppliers.

The overall objective is to reduce GHG emissions and not to create perfect emission inventories. At the same time, resources are limited. It can therefore be necessary to accept lower data quality in comparison to the data quality of scope 1 and 2 emissions. This holds especially true for companies with complex supply chains and limited resources. The minimum requirement should be an emissions profile calculated with secondary data. Based on this knowledge, different approaches can be applied to reduce emissions that are described later in this document. Data quality can be gradually improved over the years.

3.2 Overcoming the measurement challenge

In the worst case, the measurement challenge leads to companies not engaging in scope 3 action, as their supply chain intervention is not reflected in lower emissions in the GHG inventory. A situation where companies only focus on approving their accounting of scope 3 emissions for another couple of years without actively reducing scope 3 emissions is to be prevented in the light of the climate crisis.

On the one hand, overcoming these barriers requires a further elaboration of the “value chain intervention approach” by Gold Standard and partners described in chapter 2.2.2. The approach should be supported, widely spread and further refined based on the feedback from companies. The application of the approach is closely interlinked with the measurement challenge, as at least high-quality secondary data is needed to quantify emission reductions. Some of the conditions mentioned are rather difficult to fulfil, such as the ability to break down the secondary emission factor into single processes with their individual emission shares. This information is necessary in order to measure the impact of the intervention, but it is often difficult to generate. Therefore, the availability of secondary emission factors and the breakdown in their respective components has to be guaranteed in exchange with providers of LCA data.

On the other hand, a “plan B” is required on how to motivate companies to engage in scope 3 action if the “value chain intervention approach” cannot be applied, due to poor data quality or spend-based calculations of scope 3 emissions:

Supplier engagement: Obliging suppliers to set Science Based Targets shifts the responsibility from the company itself to actors along the supply chain without having to account for emission reductions oneself. This only works, however, if a solid supply chain management is in place that specifies a code of conduct for suppliers and includes the management structures for monitoring compliance.

Product/material substitution: The effect of substituting purchased products or materials with lower-emission alternatives is easier to measure, but requires knowledge about the carbon footprint of the alternative products.

Creating an (opportunity) database: A more general idea to simplify the usage of value chain interventions in the longer run could be the implementation of a database by a third party providing typical compositions of product or mate-
related emission factors, e.g., with shares of electricity consumption along the value chain. These values could serve as a proxy and point of orientation when quantifying emission reductions, e.g., through renewable electricity procurement in the supply chain. Besides functioning as a mere source of emission data, the opportunity database could highlight emission hotspots in global supply chains of selected products in combination with best-practice approaches to tackle these.

In general, guidance for companies on the strong link and interdependencies between data quality and management of scope 3 emissions would be very helpful.

3.3 Overcoming the supply chain action challenge

Finding the right approach to effectively reducing GHG emissions in the upstream value chain is a highly sector and company specific endeavour, as supply chains, relations between companies, emission hotspots and internal processes differ.

As many companies from one sector source from the same suppliers, sector-specific supplier action programs, where several companies collaborate with a group of tier 1 suppliers make a lot of sense and help save personnel resources and increase the leverage of projects. The 2018 Supplier Action Training for Vietnam fashion suppliers, a project by Global Compact, WWF and Vietnam Chamber of Commerce and Industry with five German fashion brands is one example in this regard11. The Save Project, a public private partnership (PPP) project by PUMA and H&M co-financed by DEG for supply chain water, CO₂ and waste resource efficiency, is another example and achieved a reduction of 44,500 t CO₂e. Workshops that are tailored to the specific circumstances of suppliers and are held in the respective local language have the greatest prospects of success.

Product substitution could be pushed, especially in the retail sector as retailers can quickly adapt their product portfolio in favour of more sustainable product substitutes like organic textiles, meat and dairy substitutes or certified products (e.g., deforestation-free).

Comparing suppliers based on their emission intensity requires comparability of lifecycle emission assessments. Supporting standardization in GHG emission calculations is a very challenging and probably rather long-term endeavour which could be supported, e.g., by industrial associations.

**Pushing supplier engagement targets** is an effective way for the Science Based Targets Initiative to speed up GHG emission reduction activities along value chains and could create a “domino effect” where suppliers oblige their suppliers, who then turn to their suppliers with regard to upstream emissions. A mere obligation of suppliers can also be combined with cooperative approaches, where suppliers are supported by training and/or incentivized by competitions or certification schemes. Marks & Spencer, for example, performs a benchmarking with regard to energy efficiency improvements of suppliers, supports suppliers and ranks them in the categories “gold”, “silver” and “provisional”. This is how the company achieved the fact that today it sources 56% of the food it serves from sites that have reduced their energy use by at least 20%.12

**Showcasing best practice examples** of effective supply chain action can be very helpful to motivate other companies to engage in scope 3 action, especially if it is linked to insights on how the measurement challenge was bridged: Useful
examples range from successful supply chain cooperation projects addressing emissions hotspots in the supply chain to examples of impact of material substitution (e.g., recycled or bio-based materials) and examples of successful supplier engagement, leading to science-based target-setting in the supply chain. The paper “Best Practices in Scope 3 Greenhouse Gas Management” by the Science Based Targets Initiative is a first useful step in this regard, although it has a rather broad focus on all scope 3 categories.13

3.4 Overcoming the RE supply chain challenge

Overcoming the RE supply chain challenge with regard to self-generated renewable electricity can be supported by providing country specific information on typical business cases, especially for PV projects. This helps companies to reduce their scope 2 emissions and information can also be spread to their suppliers.

The RE supply chain challenge for purchased electricity is predominantly shaped by a lack of information and the respective national policy environment. Information about the availability and price of RE products and energy attribute certificates for typical sourcing countries would be valuable to a broad range of companies. This information should be coupled with information about the (sustainability) credibility of available options. Best practice examples of how a switch to 100% renewable electricity is possible in challenging markets would also be a useful support.

There is a lot of necessity and potential for cooperation between companies and also with other actors to bundle power sourcing, engage in lobbying for easier access to renewable electricity and reduce information asymmetries. The US-focused Renewable Energies Buyers Alliance (REBA) is a successful example in this regard. Generally, it makes sense for companies to form alliances in renewable energy purchasing. In Munich, for example, the Alliance Indirect Material (AIM) is a platform which is used by eight large companies to bundle their purchasing activities. Currently, AIM is looking into the possibilities of coordinating their members’ efforts in sourcing renewable energies nationally and internationally.

Cooperation makes particularly good sense in countries where the policy environment does not allow for the choice of RE products. Here, companies with production sites or suppliers can jointly engage in lobbying for innovation in policy and electricity markets or enable renewable energy projects via Power Purchase Agreements to decrease the individual transaction costs.

Particularly in electricity-intensive supply chains companies can request or incentivize suppliers to switch to renewable electricity as this presents an effective means of reducing upstream emissions in a short space of time. To be effective, supplier engagement on renewable electricity should be embedded in a cooperative approach.
FOOTNOTES


2) Transportation from tier 1 suppliers to the own company is covered by category 3.4.


5) See BMW Group CDP questionnaire 2018.


11) http://wwf.panda.org/wwf_news/?338950/Climate-Action-Training-for-German-Brand-Suppliers-in-Vietnam#


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To stop the degradation of the planet’s natural environment and to build a future in which humans live in harmony with nature.