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A Supplier Guide to Carbon Reduction Management

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We pioneer motion

1 Introduction to climate change

2 How to develop a climate strategy

3 Overview of reduction levers

4 Glossary and definitions

AGENDA

1 Introduction to climate change

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The Paris Agreement is considered a milestone in global climate protection

Limiting the temperature rise to below 2°C (ideally: below 1.5°C)

Commitment to national reduction targets

Extension through the EU Green Deal (2022): climate neutrality by 2050

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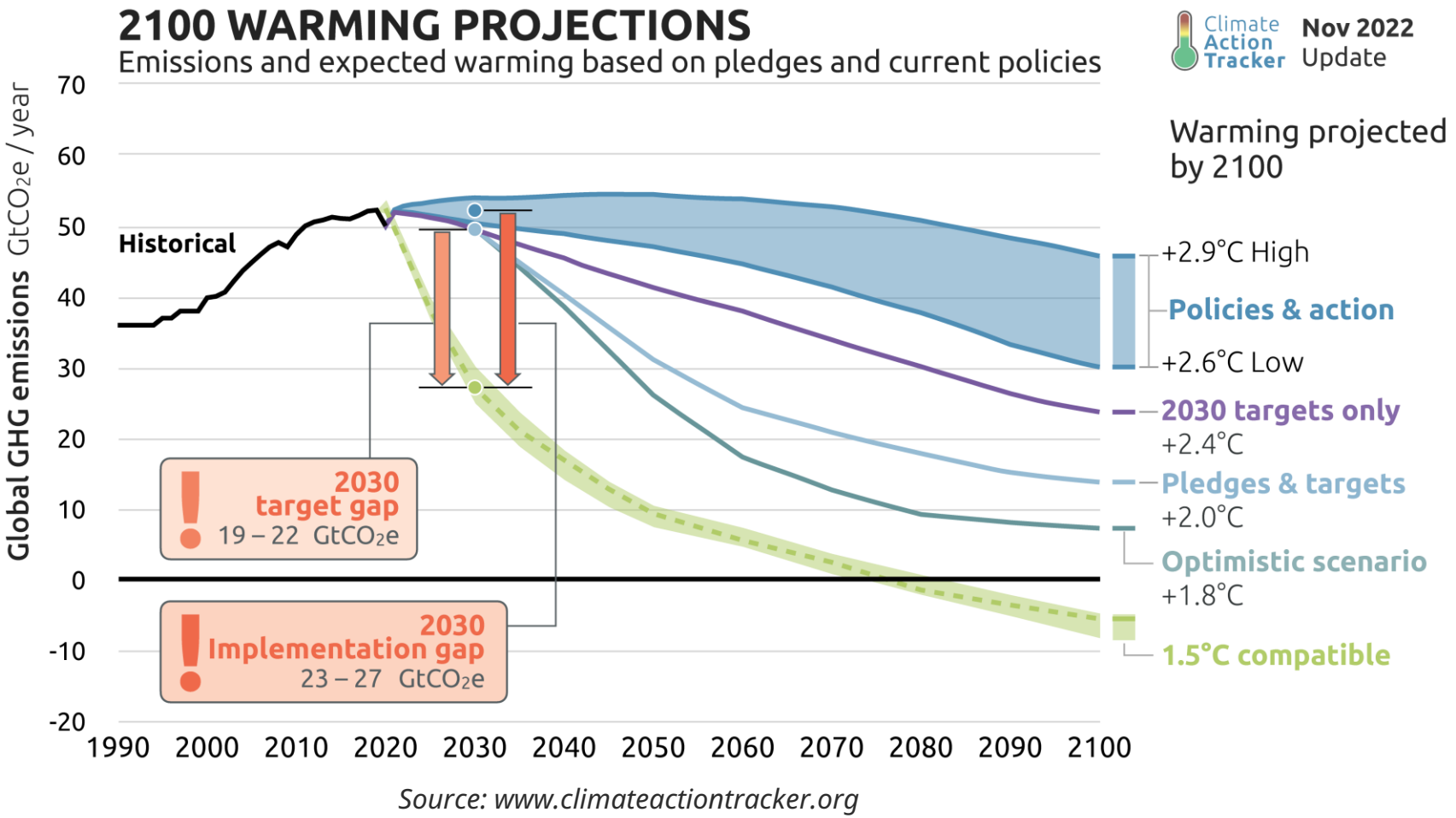
However, current ambitions and reduction targets are far from sufficient



Source: www.climateactiontracker.org

Key aspects:

- In order to achieve the Paris climate goals, a massive acceleration in the reduction of absolute emissions is essential
- The remaining global CO_2e budget to reach a temperature increase of below 1.5°C will be used up in less than 7 years

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It is imperative to implement effective climate protection now

96% of the companies have set reduction targets in at least one scope.

11% have reduced their emissions in line with their targets in the last 5 years.

9% comprehensively measure their emissions.

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The Schaeffler sustainability strategy consists of five action fields

ENVIRONMENT

Driving Climate Action towards Net-Zero

Reducing greenhouse gas emissions in own operations and along the value chain by pursuing actionable levers, esp. in purchasing, energy use, and product design.

Transitioning towards a Circular Economy

Reducing the impact on the environment by embedding circularity principles across the value chain and realizing opportunities from circular business models.

SOCIAL

Protecting Human Rights and Work Conditions

Ensuring and promoting human rights and fair work conditions (especially health and safety) in own operations and in the supply chain.

Empowering People for a Sustainable Future

Enhancing the capabilities of own workforce and workers in the value chain, focusing on Diversity, Equity and Inclusion, and retaining talent.

GOVERNANCE

Ensuring Integrity in Decision Making

Ensuring Schaeffler's decisions are guided by standards of integrity and stakeholder exchange, with reliable data and transparent reporting.

2 How to develop a climate strategy

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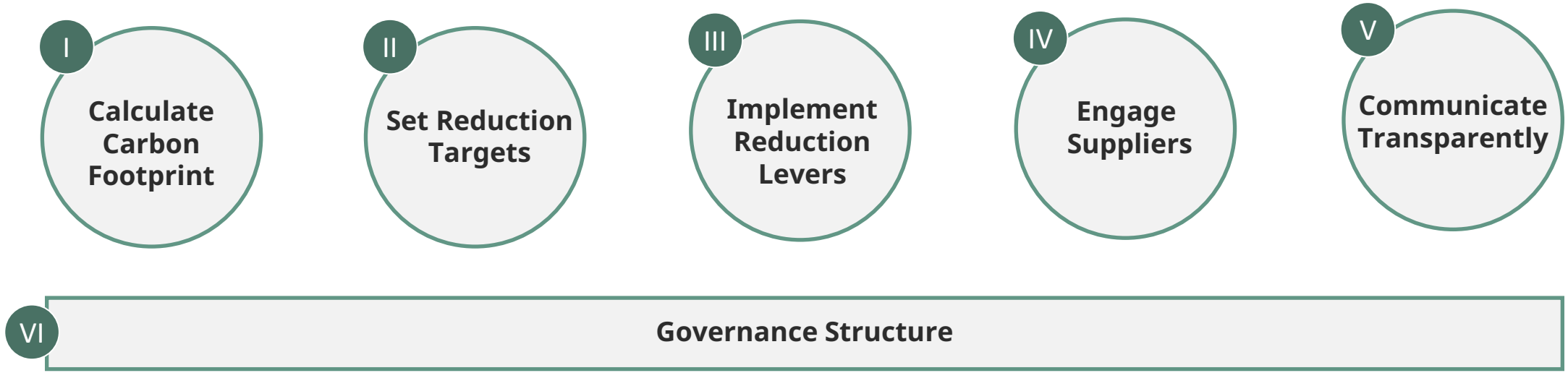
Approach towards a low carbon intense company and supply chain



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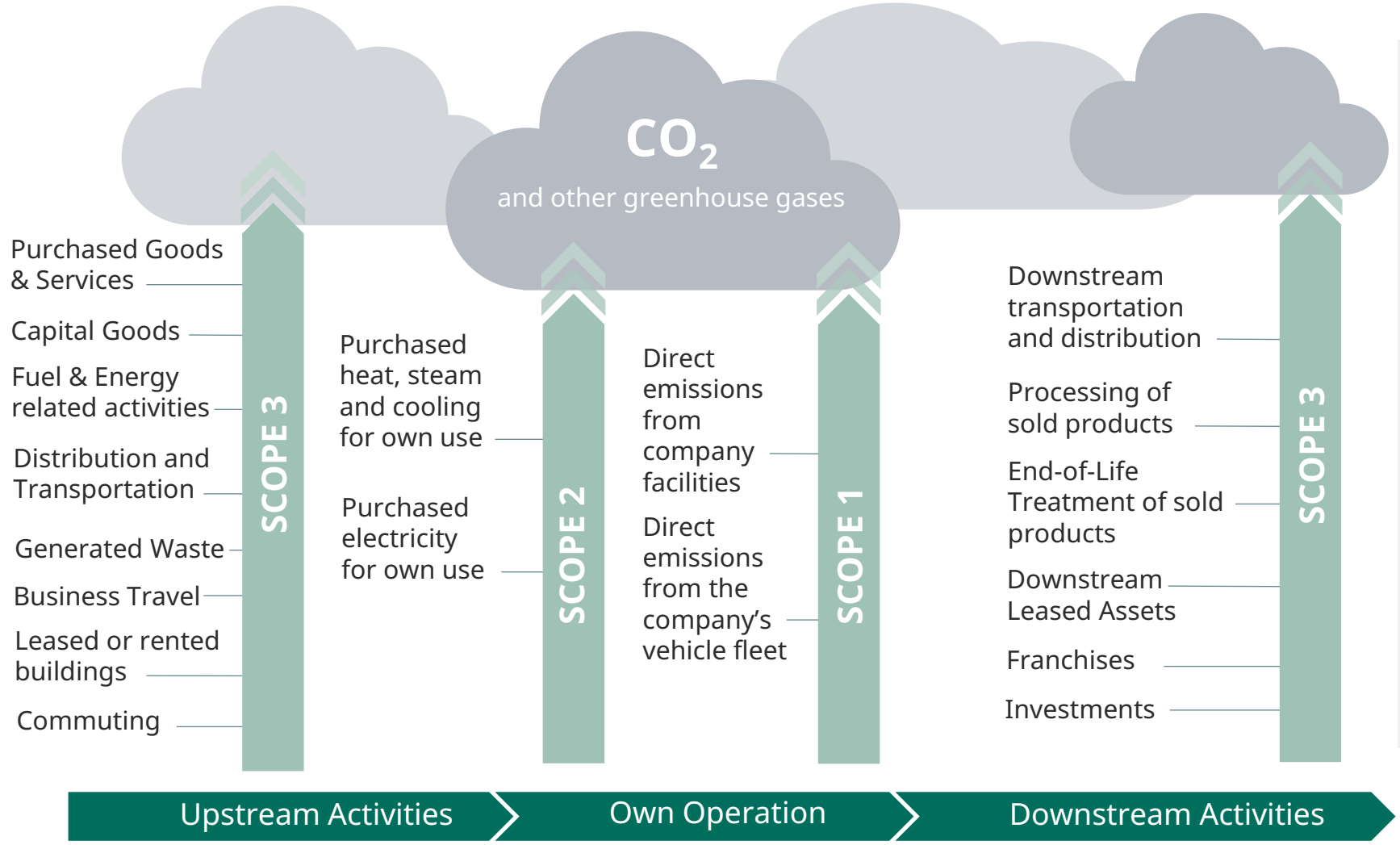
I. Carbon Footprint Calculation: Operational boundaries



Key aspects:

- According to the Greenhouse Gas Protocol (GHG), CO_2e emissions are divided into *scopes*
- Scope 1: Self-controlled emissions (direct)
- Scope 2: Purchased energy (indirect)
- Scope 3: Upstream and downstream emissions (indirect)

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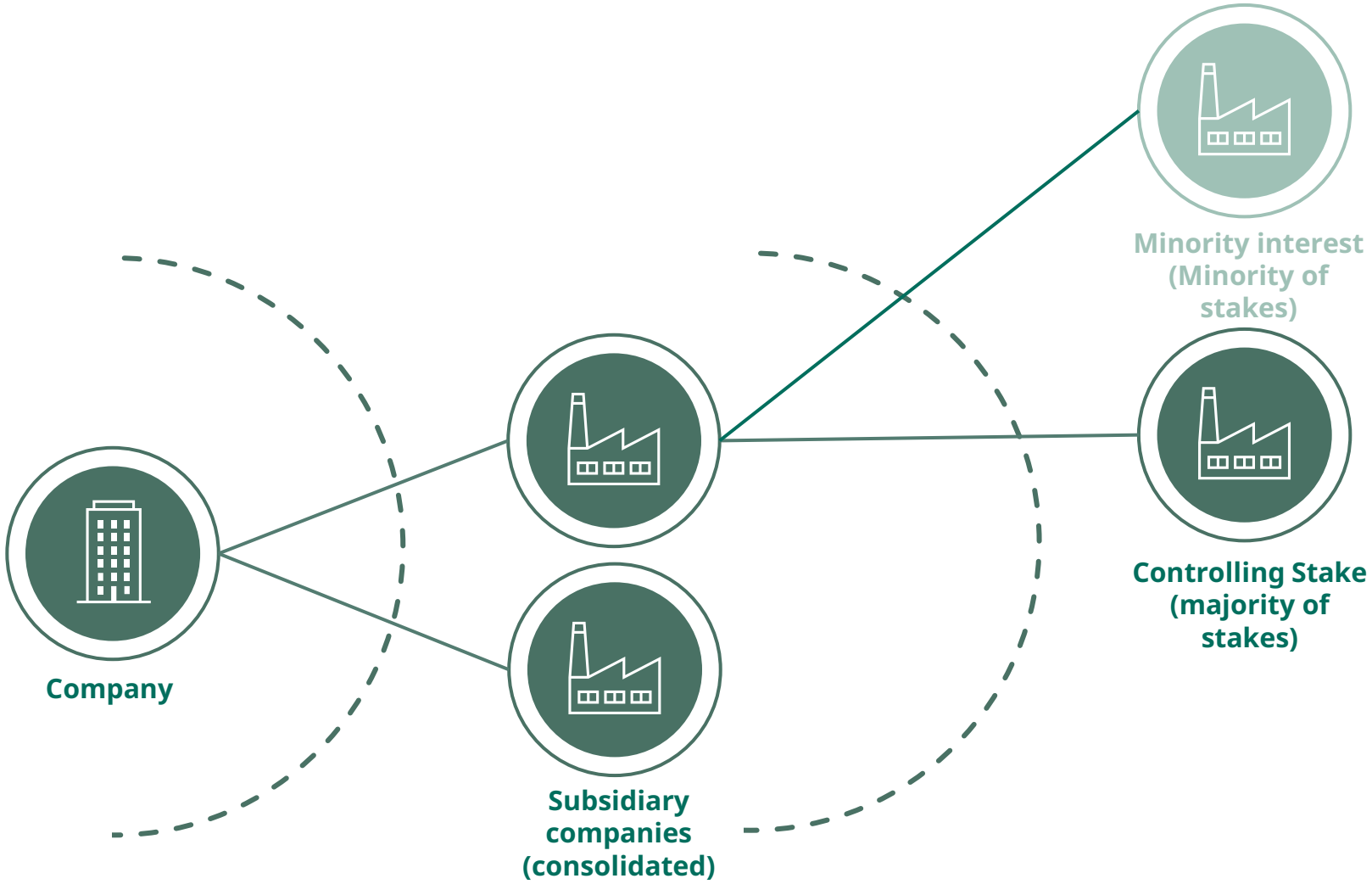
I. Carbon Footprint Calculation: Organizational boundaries



Key aspects:

- Own operation and subsidiaries with a controlling stake (majority of stakes) must be included in the corporate carbon accounting
- In case of M&A activities, a restatement of the base year might be necessary

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II. Carbon Footprint Calculation: Status quo and hotspot identification

Physical Unit

Aggregate supplier-specific volume (e.g. weight for physical goods, liters for liquids, ton-kilometer in logistics) data

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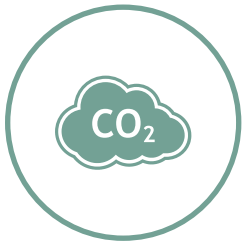

Emission Factors

Use case-specific emission factors per physical unit that can be weighted-averaged by region, industry or, in case of logistics, transportation mode

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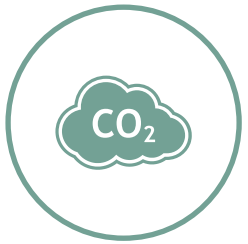

Emissions

Obtain case-specific emissions that can be aggregated by region, purchasing category, or transportation mode for example

Having transparency across a company's Scope 1 (direct from own operation), Scope 2 (indirect from own operation) and Scope 3 (up- and downstream) emissions is the first step towards a climate-neutral operation.

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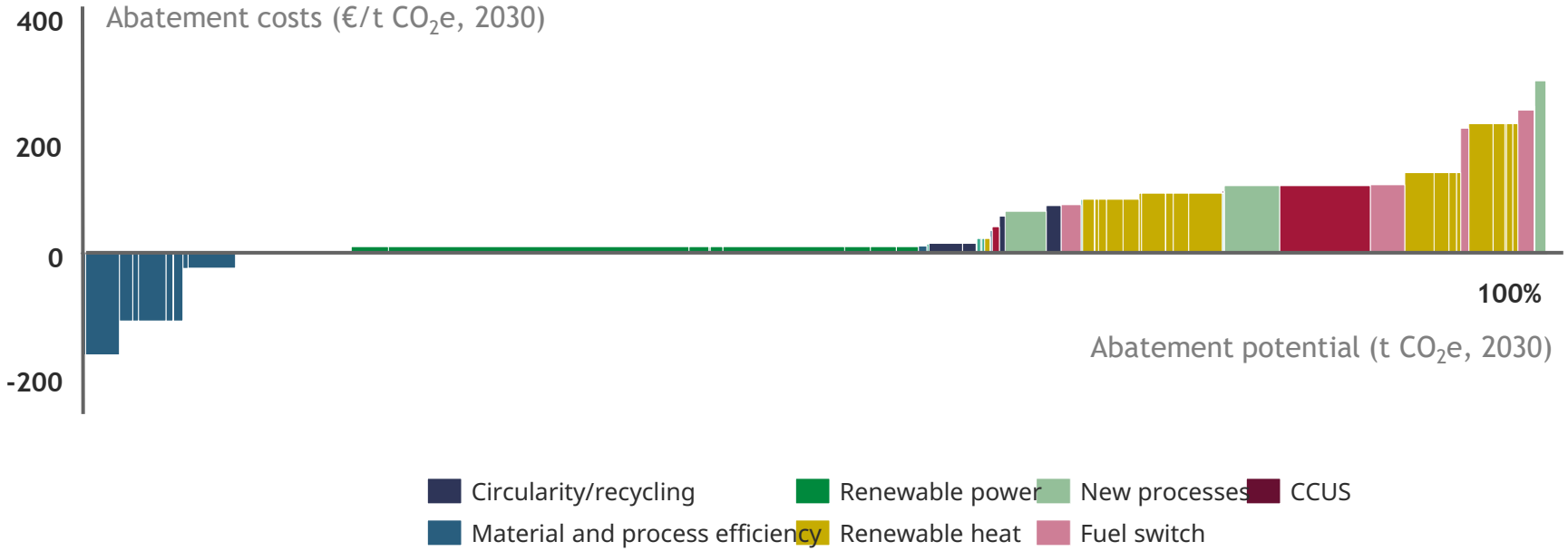
III. Implement Reduction Levers: Identify and analyze hotspots

Example of typical OEM Scope 1-3U levers:



Key aspects:

- A majority of levers can be implemented at a relatively low cost (e.g. switch to renewable power).
- Some carbon reduction levers even hold the potential for additional cost savings (e.g. increase process efficiency)

Note: Few very minor levers not explicitly shown
Source: World Economic Forum & BCG report 'The Supply Chain Opportunity' (Jan 2021)

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IV. Supplier Engagement: Carbon reduction as a joint effort

Fulfillment of basic requirements

- **Consideration** of Schaeffler Sustainability Policies
- **Acceptance** of Business Partner Code of Conduct
- **Conflict Minerals /Critical Raw Materials Compliance**
- **Support of addressed measures** based on Sustainability risk assessment according **German Act on Corporate Due Diligence Obligations in Supply Chains**
- **Support of requests** based on legal requirements such as EU Carbon Border Adjustment Mechanism, Battery Regulation or Deforestation Regulation
- **Completion** of requested PCF as well as Renewable Electricity disclosures (i.e., mandatory criteria in sourcing process)

Further Development

- **Implementation of risk mitigation measures** based on Sustainability risk assessment
- Commitment on further steps via **Sustainability Target Agreement**
- **Continuous** improvement of sustainability performance via SAQ Score on NQC
- **Improving transparency towards carbon emissions / decarbonization strategies**
- **Product carbon footprint calculation** based on recognized standards e.g., ISO 14067 as well as Schaeffer framework for supplier PCFs

Continuous sustainable business relationship

- **100% usage of renewable electricity sources @ suppliers latest till 2030**
- **Continuous development** of carbon-reduced product portfolio
- **3rd party verification** of product carbon footprint values
- **Circular economy** strategy support
- **Transparent and risk-free** conflict minerals and critical raw materials supply chain
- **Respect for human rights** in the supply chain

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Schaeffler Supplier Landing Page Sustainability

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V. Transparent Communication and Trainings

Communication:

- A sustainability report can help increase transparency and foster credibility of the company
- Internal communication regarding sustainable activities will increase awareness and results in a change in mindset
- The continuous presence of sustainability and the resulting need to act helps in facilitation the transformation towards a climate-neutral entity

Trainings:

- General sustainability trainings increase awareness and nurtures understanding for the required changes
- Topic-specific trainings will provide employees in the respective departments with relevant and applicable know-how
- It is important to keep the focus group in mind: team members might need different information and degree of detail than managers

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VI. Governance Structure

IMPORTANT: **The sustainability governance structure might look different for each company depending on its overall organizational setup and priorities.**

However, a few general characteristics and criteria should be considered when implementing a sustainability organization, among others:

- ❑ Having a central steering body for decision-making, target setting and overall sustainability strategy
- ❑ Identifying relevant action fields along the ESG framework will help to set the focus
- ❑ Implement sustainability in the general decision-making process
- ❑ Establish experts and coordinators within relevant departments / regions / divisions / functions

KEY CHALLENGE: Establishing a sustainability network that is embedded in the organization to ensure knowledge building, lever implementation, and target achievement.

3 Overview of reduction levers

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AVOID and REDUCE carbon emissions

This section is meant to provide a universal overview of the most common levers. The different stages along the supply chain, from mining raw materials to assembling the end-product, might require varying reduction levers.

3 Overview of reduction levers

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Optimize energy & process efficiency

Implement energy management system:

1. Identify and focus on most relevant energy hotspots and consumers
2. Reduce base load (e.g. turnoff equipment/illumination during weekends and times of shut down)
3. Integrate energy efficiency as purchasing criteria for new equipment
4. Perform life cycle cost evaluation (invest + operating costs)
5. Regular internal audits and checks can help to control energy consumption

Examples of levers to improve energy efficiency can be:

Ventilation	demand-oriented deployment, install heat recovery systems
Heating and Cooling	central temperature control system, improvement of insulation
Lighting	switch to LEDs, use of motion/time switch for rarely used areas, install central lighting control system
Compressed Air	leakage control

Optimizing energy and process efficiency does not only reduce carbon emission, but it also has a major impact on cost savings.

3 Overview of reduction levers

3.1 Optimize energy & process efficiency
3.2 Purchase and generate renewable electricity
3.3 Increase share of recycled and screap material
3.4 Optimize logistics
3.5 Further reduction levers

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Purchase and generate renewable electricity

Purchasing renewable electricity:

- Electricity consumption can often be the biggest source of CO_2e emissions and thus the most (cost) effective opportunity to reduce carbon emissions
- It is important to purchase green electricity from renewable sources (wind-power, solar, hydropower) and the corresponding certificates of origin in deregulated markets (i.e. Guarantees of Origin – GoO)
- Electricity from nuclear power sources are NOT renewable due to its hazardous output waste. However, it has a very low carbon footprint
- Power Purchase Agreement (PPA) can help to secure renewable electricity in the long-term including a price guarantee

Generating own renewable energy:

Electricity by solar power:

- Using photovoltaic panels to convert sunlight into electricity
- 6-8 m^2 solar panels can generate up to 700-1000 kWh annually
- National tax incentives can increase economic feasibility

Heating with biomass boilers:

- Biomass boilers are operated with wood chips, wood pellets or biogas
- Operate fully automated and can be implemented as contracting
- Consider space requirements (fuel storage), legal requirement (e.g. fire safety)

Cooling with geothermal energy:

- Use energy piles as a geo-cooling source, e.g. for cooling buildings and offices
- High-performance energy piles can be installed in open areas

Solar heat:

- Solar hear installation consists of solar collectors, a heat exchanger, pipes, a pump, a control unit and a hot water tank, and can support hot water

Nuclear electricity is not referred to as renewable electricity due to its hazardous output waste. It is also not accepted by OEMs of our joint supply chain. However, it does have a lower carbon footprint compared to fossil-based electricity generation.

3 Overview of reduction levers

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Increase share of secondary material share

Using secondary material:

- Increase proportion of secondary materials whenever possible
- For Example, in case of aluminum, savings of up to 80% CO_2e reduction can be achieved
  - 1 ton of primary aluminum: ca. 13 tCO_2e
  - 1 ton of secondary aluminum: ca. 1.5 tCO_2e

Secondary material can come from three different sources:

- Internal Scrap: Own production (Cutouts and other scrap leftover)
- Pre-Consumer Recycling Material: Externally from upstream suppliers (Cutouts and other scrap leftover)
- Post-Consumer Recycling Material: Extracting new resources from recycled finished products

Benefits:

- Besides saving resources, a closed loop approach can also decrease cost of materials substantially.

3 Overview of reduction levers

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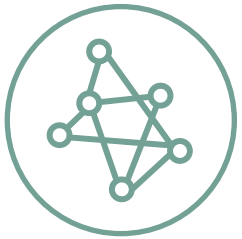
Potential measures to reduce logistics emission

Optimize Transportation Network



- Increase and optimize utility rate, especially for truck loads
- Efficiency trainings for fleet managers and truck drivers as how you drive has a major impact on fuel consumption.
- Setup an internal awards scheme for efficient drivers
- Aerodynamic truck kits might lower your trucks fuel consumption
- Vehicles with GPS cruise control make use of peak momentum based on digital maps and GPS on gradients

Modal Shift

- Avoid air transportation whenever possible
- Switch from road transport to inland waterways or rail
- Compare CO_2e emissions when selecting carriers as a criterion for awarding transport contracts

Alternative Drives

- Favor contractors with alternative drivers especially truck vehicles based on electricity, hydrogen or e-/biofuels such as HVO or Bio-Diesel; ships with BAF; and air freight based on SAF

Warehouse Optimization

- Switch to LED lighting
- Radiant heating systems to target heat supply for parts of warehouse where staff are working
- No need to heat warehouse areas where staff are not working (or minimal heating only)
- Use electric radiators and green energy wherever possible

3 Overview of reduction levers

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Further reduction levers

Business Travel

Options to reduce travel emissions:

- MS-Team meeting an alternative
- Use train and public transportation whenever possible
- Check for car sharing possibilities
- Switch company car fleet to electric vehicles
- Fly economy (better space utilization compared to business/first class, hence, less emissions per person)
- Use direct flights (shorter distance and less take-off and landing, which is energy intense)

IT Usage

General and server specific measures:

- Use green energy to operate computers and servers
- Optimize cooling and ventilation systems

Office-related measures:

- Turn off equipment when not used (not stand-by) especially for weekends and holidays
- Decrease data usage by deleting files no longer needed and/or reducing data send via email

Carbon Compensation

Carbon compensation is not accepted:

- Carbon investments should be focused on actual reduction and avoidance measures
- Actual emissions that have been emitted must be stated when reporting PCF/CCF
- Carbon compensation cannot be accepted as it will not be included in carbon accounting
  - Avoidance projects hold no longer the quality standards compared to carbon capture and storage
  - SBTi refers to carbon neutralization and only accepts carbon removal and permanent storage of residual emissions*
  - Customers do not accept compensation

*Net-Zero-Standard.pdf (sciencebasedtargets.org) (Page 20, Chapter 2.3)

4 Glossary and definitions

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Glossary and definitions (1/4)

Abatement cost:

The abatement cost is the cost of an intervention (e.g. carbon reduction measure) that will reduce greenhouse gas emissions by one ton.

Climate-neutrality:

Climate neutrality refers to the idea of achieving net zero greenhouse gas emissions by balancing those emissions, so they are equal (or less than) the emissions that get removed through the planet's natural absorption. In basic terms it means we reduce our emissions through climate action. Actual carbon avoidance and reduction is priorities over carbon compensation.

CO_2 Equivalents (CO2e):

A carbon dioxide equivalent or CO_2 equivalent, abbreviated bas CO_2e, is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.

Corporate Carbon Footprint (CCF):

A corporate carbon footprint balances a company's own and all relevant greenhouse gas emissions that are caused along the value chain in which the company under consideration is located. This applies a top-down approach.

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Glossary and definitions (2/4)

ESG (Environment, Social, Governance):

The abbreviation “ESG” stands for Environmental, Social and Governance and describes a comprehensive set of rules for evaluating the sustainable and ethical practices of companies.

Emission factor:

The release of greenhouse gas emissions into the atmosphere depends mainly on the activity and the product. In order to estimate greenhouse gas emissions per unit of available activity, a specific emission factor per unit is used. Applicable emission factors can be found in established databases (e.g. GaBi, DEFRA, EcoInvent).

Greenhouse Gas Protocol:

The Greenhouse Gas Protocol (GHG Protocol) provides standards and tools that help countries, cities and companies progress toward climate goals and account appropriately for their carbon emissions they have caused.

Guarantee of Origin (GoO):

A Guarantee of Origin is an EU guarantee that a given amount of power is produced at a particular power plant. It is a voluntary certification scheme allowing consumers to choose a source of production, typically the choice between renewable and non-renewable electricity.

NQC:

NQC is a leader in supply chain risk management with over ten years experience providing technology and insight to global industry and governments.

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Glossary and definitions (3/4)

Product Carbon Footprint (PCF):

A product carbon footprint balances all greenhouse gas emissions – based on a defined unit of benefit – that occur during the life cycle of a product. This applies a bottom-up approach.

Power Purchase Agreement (PPA):

A power purchase agreement (PPA), or electricity power agreement, is a long-term contract between an electricity generator and a customer, usually a utility, government of company. PPAs may last anywhere between 5 and 20 years, during which time the power purchaser buys energy at a pre-negotiated price.

Renewable electricity:

Electricity from renewable non-fossil sources, namely wind, solar (solar thermal and solar photovoltaic) and geothermal energy, ambient energy, tide, wave and other ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas, and biogas. Electricity generated from nuclear power and other non-renewable sources is not considered as renewable.

SAQ (Sustainability Assessment Questionnaire):

The SAQ is a tool by NQC to measure and enhance a companies sustainability performance in the supply chain.

SBTi (Science based target initiative):

The SBTi defines and promotes best practice in science-based carbon target setting, offering a range of target-setting resources, guidance, and verification of climate targets to align with the global effort to prevent the worst effects of climate change.

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Glossary and definitions (4/4)

Scope 1:

Scope 1 includes all direct greenhouse gas emissions, such as primary energy sources used directly in company real estate. Examples include natural gas, heating oil, petrol or diesel.

Scope 2:

Scope 2 includes the indirect greenhouse gas emissions resulting from the generation of the energy procured. The CO2 emissions result from the consumption of secondary energy sources such as electricity, district heating, steam or cooling energy in buildings and in electric vehicles.

Scope 3 upstream:

Scope 3 upstream emissions are the indirect emissions related to a reporting company's suppliers, from the purchased materials that flow into the company to the products and services the company utilizes. This includes purchased goods and services, capital goods, fuel and energy-related activities, upstream transportation and distribution, waste generated in operations, business travel, employee commuting, and upstream leased assets.

Scope 3 downstream:

Scope 3 downstream emissions are the emissions related to customers, from selling goods and services to their distribution, use, and end-of-life stages. This includes downstream transportation and distribution, processing of sold products, use of sold products, end-of-life treatment of sold products, downstream leased assets, franchises, and investments.

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