

Climate Action Training for textile suppliers in Vietnam – DAY 1

Date: 29th - 31st October 2018

Location: HoChiMinh City

Conducted by:



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Day 1 – Introduction & Management

Agenda Item	Content	Presenter	Time
Registration and coffee			8:30 – 9:00
Welcome & Introduction: Climate Change in the textile industry	<ul style="list-style-type: none"> Overview about agenda of the 3 workshop days Welcome notes What is climate change and why is it an important topic? Climate change is a business issue for textile companies 	VCCI, DGCN, WWF, Systain, Presentation WWF	9:00 – 9:55
Input from brands	<ul style="list-style-type: none"> Statements from brands about their climate strategy, activities and achievements Involvement of factories in climate action 	Presentation Brand representatives, video statements	9:55 – 10:15
Climate Strategy Vietnam	<ul style="list-style-type: none"> Presentation of climate strategy for Vietnam's textile industry 	GIZ Vietnam	10:15 – 11:00
Coffee Break	<ul style="list-style-type: none"> Group Photo 		11:00– 11:30
Intro GHG accounting & Energy Costs	<ul style="list-style-type: none"> Introduction GHG-accounting and reporting Energy costs KPI's 	Presentation Systain	11:30 – 12:15
Lunch Break			12:15 – 13:30
GHG-Management	<ul style="list-style-type: none"> Setting-up a policy Investment decisions – Total-Cost approach <i>Activity: implementing a policy</i> <i>Activity: Exercise on considering total costs for an investment</i> 	Presentation Systain	13:30 – 15:15
Break			15:15 – 15:30
Renewable Energies	<ul style="list-style-type: none"> Overview and trends on renewable energies Framework (legislation, programs, funds etc.) Opportunities for factories 	Input Evan Scandling	15:30 – 16:30
Wrap-Up	<ul style="list-style-type: none"> Wrap-Up of the day and outlook 	Systain	16:30 – 17:15

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Day 2 – GHG-Accounting and Reduction

Agenda Item45	Content	Presenter	Time
Welcome	<ul style="list-style-type: none"> Welcome and overview about the day 	Systain	9:00 – 9:05
GHG Accounting	<ul style="list-style-type: none"> Principles of GHG-Accounting Steps towards a GHG-inventory GHG-Reporting at the Facility Environmental Module (FEM) of the Higg Index from the Sustainable Apparel Coalition (SAC) <i>Activity: Creating a GHG-inventory (first steps)</i> 	Presentation Systain Participants create an GHG-inventory (interactive)	9:05 – 11:00
Coffee Break			11:00– 11:15
Energy Saving Measures	<ul style="list-style-type: none"> Areas of energy consumption in a textile factory Reduction measures in textile factories incl. benefits, efforts and pay-back Best-Practice Presentation from a textile factory and their lessons learnt 	Presentation Systain	11:15 – 12:45
Lunch Break			12:45 – 13:30
Examples from factories in Vietnam	<ul style="list-style-type: none"> Potential of energy efficiency and renewable energies for textile factories in Vietnam Examples from factories 	Ma Khai Hien, Enerteam	13:30 – 14:15
Peer Group Learning	<ul style="list-style-type: none"> <i>Activity: Exercise on a walk around to identify areas for improvement</i> 	Systain, case of a fictionary textile factory	14:15 – 15:15
Break	<ul style="list-style-type: none"> After completion of exercise, before presentation of results 		14:30 – 14:45
Target Setting and Science Based Targets	<ul style="list-style-type: none"> Target setting bottom up and top down Monitoring effectiveness Example from a factory Science Based Targets 	Presentation Systain, Factory, WWF	15:15 – 16:00
Wrap-Up	<ul style="list-style-type: none"> Wrap-Up of the day 	Systain	16:00 – 16:15

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Day 3 – Finance and next steps

Agenda Item	Content	Presenter	Time
Welcome	<ul style="list-style-type: none"> Welcome and overview about the day 	Systain	9:00 – 9:05
Wrap-Up and Examples from Factories	<ul style="list-style-type: none"> Activity: Quiz for clustering measures (immediate – medium – long term measures) Example from factories 	Systain, Presentation factory	9:05 – 10:15
Coffee Break			10:15 – 10:30
Financing of energy efficiency and renewable energy	<ul style="list-style-type: none"> Overview about investment and financing options of renewable energies for textile factories, benefits and requirements 	IFC, Tuong Anh	10:30– 11:15
Next steps for factories	<ul style="list-style-type: none"> How to start at the own factory after the workshop Peer-network of participating factories Offer for helpline 	Discussion moderation by Systain	11:15 – 12:15
Lunch			12:15 – 13:00
Next steps for brands (only brands; no factory participation)	<ul style="list-style-type: none"> Follow-up with factories by brands Involvement of local sourcing offices Networking 	Discussion moderation by Systain	13:00 – 13:45

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Greenhouse-Effect

Grafik G1-1 *Der Treibhauseffekt*



SOURCE: LEITFADEN KLIMAMANAGEMENT BY KLIMAREPORTING.DE

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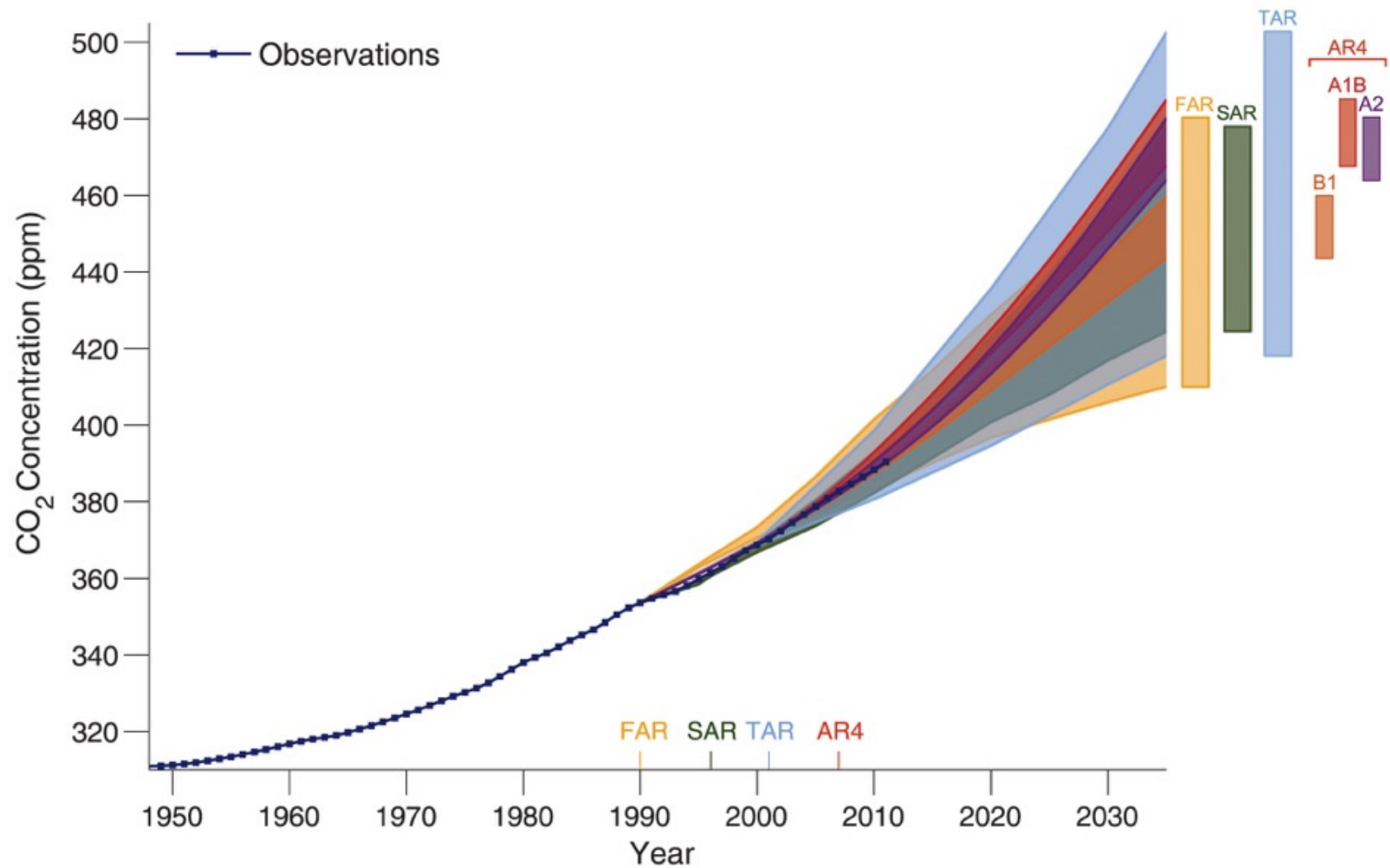
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Increase in atmospheric concentration of greenhouse-gases



SOURCE: IPCC 5TH ASSESSMENT REPORT 2014, WORKING GROUP 2, [HTTP://WWW.IPCC.CH/REPORT/GRAPHICS/IMAGES/ASSESSMENT%20REPORTS/AR5%20-%20WG1/CHAPTER%2001/FIG1-05.JPG](http://www.ipcc.ch/report/graphics/images/assessment%20reports/ar5%20-%20wg1/chapter%2001/fig1-05.jpg)

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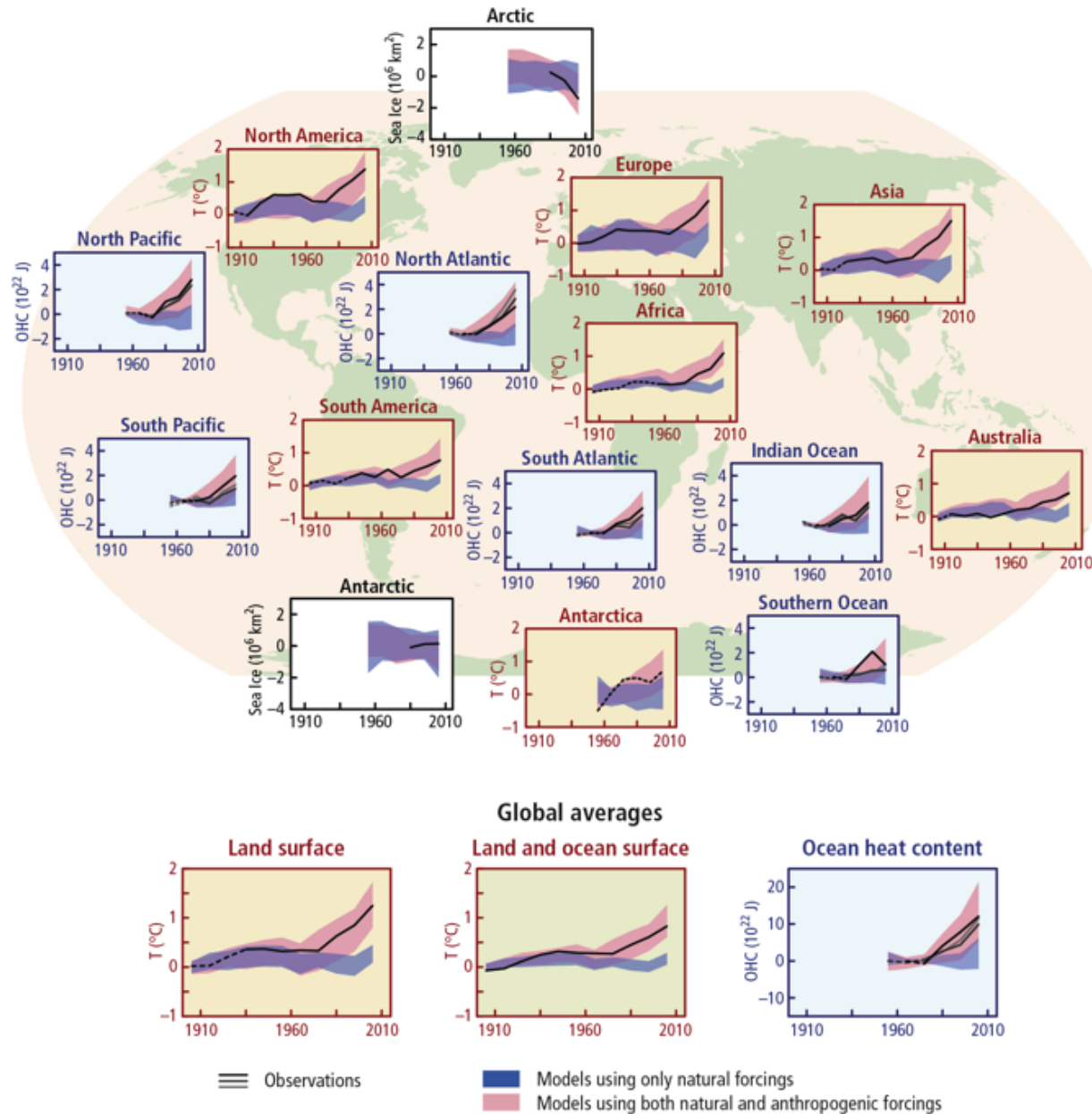
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Increase in regional average temperatures



Source: IPCC 5th Assessment Report 2014, Synthesis report
<http://www.ipcc.ch/report/graphics/images/Assessment%20Reports/AR5%20-%20Synthesis%20Report/Topic%201/Fig%201.10-01.png>

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CLIMATE RISKS: 1.5°C VS 2°C GLOBAL WARMING

EXTREME WEATHER

100% increase in flood risk. vs 170% increase in flood risk.

SPECIES

6% of insects, 8% of plants and 4% of vertebrates will be affected. vs 18% of insects, 16% of plants and 8% of vertebrates will be affected.

WATER AVAILABILITY

350 million urban residents exposed to severe drought by 2100. vs 410 million urban residents exposed to severe drought by 2100.

ARCTIC SEA ICE

Ice-free summers in the Arctic at least once every 100 years. vs Ice-free summers in the Arctic at least once every 10 years.

PEOPLE

9% of the world's population (700 million people) will be exposed to extreme heat waves at least once every 20 years. vs 28% of the world's population (2 billion people) will be exposed to extreme heat waves at least once every 20 years.

SEA-LEVEL RISE

46 million people impacted by sea-level rise of 48cm by 2100. vs 49 million people impacted by sea-level rise of 56cm by 2100.

OCEANS

Lower risks to marine biodiversity, ecosystems and their ecological functions and services at 1.5°C compared to 2°C.

CORAL BLEACHING

70% of world's coral reefs are lost by 2100. vs Virtually all coral reefs are lost by 2100.

COSTS

Lower economic growth at 2°C than at 1.5°C for many countries, particularly low-income countries.

FOOD

Every half degree warming will consistently lead to lower yields and lower nutritional content in tropical regions.

Climate Change causes risks for business – 3 examples

Production stop due to flooding

“flooding in Thailand in 2011 harmed more than 160 companies in the textile industry and stopped about a quarter of the country’s garment production;

Thong Thai Textile expected to lose \$1.3 to \$1.6 million, or about one month of sales, from the flood.²⁶”



© Greenpeace / Sataporn Thongma

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Source:: PHYSICAL RISKS FROM CLIMATE CHANGE - A guide for companies and investors on disclosure and management of climate impacts. Oxfam Americas, Calvert Investments, Ceres, prepared by David Gardiner & associates LCC <https://www.oxfamamerica.org/static/media/files/physical-risks-from-climate-change.pdf>

Climate Change causes risks for business – 3 examples

Price of raw materials

“VF Corporation noted that the 2010 once-in-a-century floods in Pakistan and Australia, coupled with wet weather and freezes, “ravaged cotton crops resulting in drastic increases in the price of cotton,” which had “a material effect on our business as we sought a balance between absorbing the cost and raising prices on our cotton goods.””



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Source: PHYSICAL RISKS FROM CLIMATE CHANGE - A guide for companies and investors on disclosure and management of climate impacts. Oxfam Americas, Calvert Investments, Ceres, prepared by David Gardiner & Associates LLC <https://www.oxfamamerica.org/static/media/files/physical-risks-from-climate-change.pdf>

Climate Change causes risks for business – 3 examples

elevated retail inventory levels

“Under Armour has seen elevated retail inventory levels for the 2011-2012 winter due to “the impact of unseasonably warm weather,” accounting for about two percentage points of growth coming out of the fourth quarter 2011 into 2012”



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Source:: PHYSICAL RISKS FROM CLIMATE CHANGE - A guide for companies and investors on disclosure and management of climate impacts. Oxfam Americas, Calvert Investments, Ceres, prepared by David Gardiner & Associates LLC
<https://www.oxfamamerica.org/static/media/files/physical-risks-from-climate-change.pdf>



During COP 21 in Paris, 195 countries adopted the **Paris Agreement** aiming to enhance the implementation of the UNFCCC through:

mitigation

“Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.”

adaptation

“Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production”

finance

“Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.”

Viet Nam's INDC identifies the GHG reduction pathway in the 2021-2030 period

“With domestic resources GHG emissions will be reduced by 8% by 2030 compared to the Business as Usual scenario. The above - mentioned contribution could be increased up to 25% with international support”

There are 9 measures, e.g.

- Strengthen the leading role of the State in responding to climate change
- Improve effectiveness and efficiency of energy use; reducing energy consumption
- Change the fuel structure in industry and transportation
- Promote effective exploitation and increase the proportion of new and renewable energy sources in energy production and consumption

Source:: <http://www4.unfccc.int/ndcregistry/PublishedDocuments/Viet%20Nam%20First/VIETNAM%27S%20INDC.pdf>

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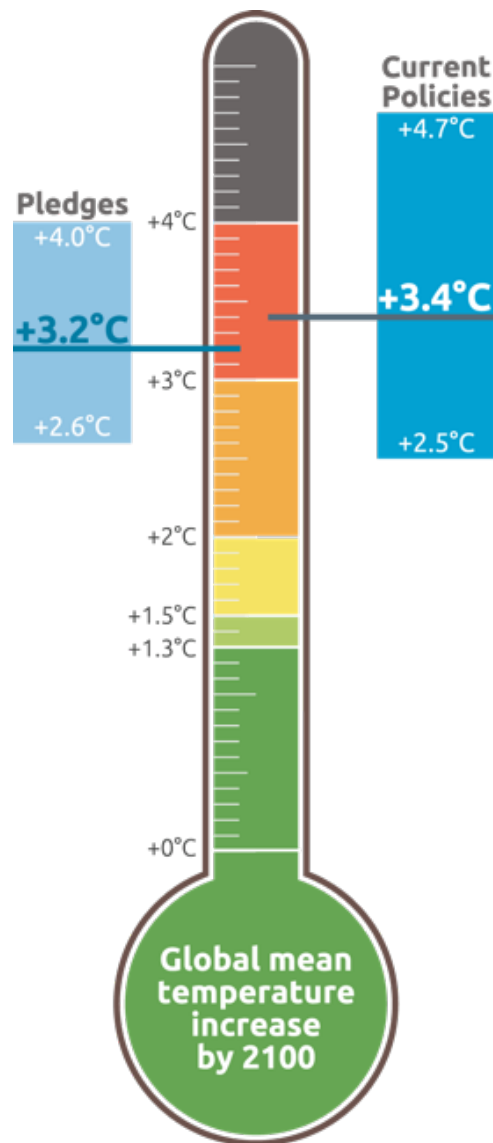
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The ambition level of national pledges and current policies is not sufficient to achieve the Paris agreement



CAT warming projections Global temperature increase by 2100

November 2017 Update

Source: Climate Action Tracker provided by the Ecofys / Climate Analytics / NewClimate team
<https://climateactiontracker.org/media/images/CAT-GlobalTempUpdate-2017.11-GlobalPage.original.png>

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Overview climate impact fashion industry

Significant share of emissions

- apparel and footwear industries account for 5% of global GHG emissions, with an expected growth in emissions of 49% from the sector by 2030 ₁
- Textiles industry accounted for 2% of the world's carbon budget in 2015, and this could increase to 26% by 2050 ₂
- Up to 90% of greenhouse gas emissions originate from the supply chain

Ambitious targets

- Net zero emissions by the industry in the second half of the century (rather sooner than later)

Increase in demand

- Global apparel production doubled between 2000 and 2014, and consumers keep most types of apparel only half as long as they did 15 years ago ₃

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Why consider to take climate action

- Build business resilience and increase competitiveness
- Drive innovation and transform business practices
- Guarantee long term compliance
- Satisfy customer and investor's requests
- Identify long term energy and raw material reduction potentials
- Find new business opportunities
- Get ready for future and prepare for upcoming challenges

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VCCI
Liên kết doanh nhân Việt



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Science Based Targets



An important step to take action: Set climate targets

Science Based Targets “GHG emissions reduction targets that are consistent with the level of decarbonization that, according to climate science, is required to keep global temperature increase within 1.5 to 2°C compared to pre-industrial temperature levels”

Many brands are committed to set science based targets within the Science Based Target Initiative

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Examples for emission reductions

AGGRESSIVELY DEPLOY EFFICIENCY & RENEWABLE ENERGY IN SUPPLY CHAIN



TIER 1

FINISHED PRODUCTION ASSEMBLY

Assembly and manufacturing of final products.



TIER 2

MATERIAL PRODUCTION

Production and finishing of materials (e.g. fabric, trims) that go directly into finished product.

TRANSFORM MATERIALS PALETTE



TIER 3

RAW MATERIAL PROCESSING

Processing of raw materials into yarn and other intermediate products.



TIER 4

RAW MATERIAL EXTRACTION

Cultivation and extraction of raw materials from the earth, plants, or animals.

KEY ELEMENTS

- Identify, reward and incentivize top performing suppliers
- Divest from poorly performing suppliers
- Invest in energy efficiency and improvement measures in middle and top performing suppliers
- Leverage and scale existing tools and programs (e.g. NRDC, IFC)
- Invest in renewable energy across tiers 1 and 2

- Accelerate and scale use of environmentally-preferable materials (EPMs)
- Deploy efficiency and renewable energy for processes (e.g. polymerization)
- Engage in farm / ranch level interventions (e.g. regenerative agriculture)
- Invest in R&D to deliver 'zero impact' materials

Fashion Industry Charter for Climate Action I

We, the Signatories to this Fashion Industry Charter on Climate Action, affirm our commitment on behalf of our companies/organizations to:

1. Support the goals of the Paris Agreement in limiting global temperature rise to well below two degrees Celsius above pre-industrial levels;

2. **Commit to 30 per cent aggregate GHG emission reductions in scope 1, 2 and 3** of the Greenhouse Gas Protocol Corporate Standard,² by 2030 against a baseline of no earlier than 2015;³

3. **Commit to analyzing and setting a decarbonization pathway for the fashion industry** drawing on methodologies from the Science-Based Targets Initiative;

4. Quantify, track and publicly report our GHG emissions, consistent with standards and best practices of measurement and transparency;⁴

environmental advocates and other stakeholders to develop and implement a decarbonization strategy for the fashion industry, including by developing a work programme and tools necessary to achieve the GHG emission reduction targets;

6. Commit to prioritizing materials with low-climate⁵ impact without affecting negatively other sustainability aspects;

7. Commit to continuously pursue energy efficiency measures and renewable energy in our value chain;

8. As soon as possible and latest by 2025, commit to not installing new coal-fired boilers or other sources of coal-fired heat and power generation, on sites within Tier one⁶ and Tier two;⁷

9. Support global transition to low-carbon transport by giving preference to low-carbon logistics;

Fashion Industry Charter for Climate Action II

10. Support the movement towards circular business models and acknowledge the positive impact this will have towards reducing GHG emissions within the fashion sector;
11. Establish a closer dialogue with consumers to increase awareness about the GHG emissions caused in the use and end-of-life phases of products, building towards changed consumer behaviors that reduce environmental impacts and extend the useful life of products;
12. Partner with the finance community and policymakers to catalyse scalable solutions for a low-carbon economy throughout the sector;
13. Together with other stakeholders, develop a strategy including targets and plans to advocate for the development of policies and laws to empower climate action in the fashion industry, especially in supply chains; and the necessary infrastructure for a systemic change beyond the fashion industry;
15. Communicate a shared vision and understanding through the development of a common strategy and messaging, including by championing climate action within the fashion industry through an enhanced and trust-building dialogue with relevant stakeholders;
16. Support the UN Climate Change secretariat in its efforts to manage the tracking and recognition of progress of the commitments outlined in the Fashion Industry Charter for Climate Action.

Agenda Day 1 – Introduction & Management

8:30 – 9:00	Registration and coffee
9:00 - 9:55	Welcome & Introduction
9:55 – 10:15	Climate action strategy of brands and retailers
10:15 – 11:00	Climate action strategy Vietnam
11:00 – 11:30	Coffee break & photo
11:30 – 12:15	Intro GHG-accounting
12:15 – 13:30	Lunch
13:30 - 15:15	GHG-management
15:15 – 15.30	Break
15:30 – 16:30	Renewable energies
16:30 – 17:15	Wrap up
17:45	Welcome Dinner

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Please refer to:

- Adidas group website
<https://www.adidas-group.com/en/sustainability/compliance/environmental-approach/>
- Adidas 2017 integrated annual report
https://report.adidas-group.com/media/pdf/EN/adidas_AR_2017_EN.pdf

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Hugo Boss

- The global fashion industry contributes to about 10% of global greenhouse gas emissions.
- Sustainable procurement is of **high importance for Hugo Boss**. Therefore, Hugo Boss will reduce the ecological impact beyond environmental compliance which includes **reducing the impact on climate change**.
- There are already encouraging activities throughout the sector, however we **need a radical change on energy efficiency and renewable energies**.
- Therefore, **we will strengthen our environmental strategy on greenhouse gas emissions in the supply chain**. It will be key to enforce the long-term partnership.
- The training will support factories to integrate greenhouse gas reductions in daily business. It contribute to develop a greenhouse gas-accounting, policies, Key Performance Indicators (KPI's), and targets.
- For factories, it will represent reduction of costs, saving energy, improve operations and save the planet.
- Hugo Boss will follow-up with suppliers after the training.

BOSS
HUGO BOSS



Daniele Massetti
Sustainability Reporting &
Environmental Senior Specialist
Global Sustainability

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Climate strategy of Otto Group:

- In its Climate Strategy, the Otto Group pursues the goal of cutting in **half the adjusted CO₂ emissions** from its own sites, procurement and distribution transport and business travel **by 2020**, using 2006 as the benchmark year. In 2017, emissions were reduced to 171,000 tonnes from 189,000 in the previous year. Compared to the benchmark year, this represents a reduction of 42%.
- The SBTs have not yet played a role in the current climate strategy. However, the Otto Group is already **working on an SBTs approach** with a view to the climate protection activities beyond 2020.



Alexander Gege
Manager Sustainable Business
Development

Results:

- The improvements are due to **increased energy efficiency** and the shift from air cargo to lower-emission sea, road and rail transport of goods procured from producing countries. Moreover, **purchases of high-quality certified green electricity** by Group companies in Germany (approximately 25% of the overall power need at these sites) also contributed to reducing CO₂ emissions.
- Moreover use of **own renewable energies** at the German sites (e.g. biomass, photovoltaics, block heat and power plant).

Activities with suppliers:

- Not defined yet. Otto Group is developing the **new CR strategy 2030** right now. Within this future holistic approach climate action on supplier level will definitely play a role.

Information from PUMA is provided in a seperate slide deck

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Climate strategy of VAUDE:

- VAUDE's strategy is directly linked with the German Low Carbon Plan 2050:
 - *focus on an explicit climate target at the upper end of the current target corridor of an **80 to 95 per cent greenhouse gases reduction by 2050.***
 - ***set targets** for all economic sectors for **2030.***
 - ***chart a path** towards significantly more **energy efficiency** and a **transition to 100 per cent renewable energy** as soon as possible*



Bettina Roth
Head Quality Management

Results:

- VAUDE's entire headquarters are climate-neutral. This includes our administration, production, all material and energy consumption, waste, logistics and all goods transport originating from the production site, the daily commute of its employees, the maintenance department and the childcare center.
- VAUDE Environmental Stewardship Project: project with 8 pilot suppliers:
- Achievements: Reduction of 5.00 t CO₂, 18 Mio. kWh energy, 5.500m³ water, 550t waste

Activities with suppliers

- **VAUDE Environmental Stewardship Club**
- **Sustainable Supply Chain Network** (cooperation VAUDE, Orthovox, Fond of, Salewa, Arqum) start End of 2018

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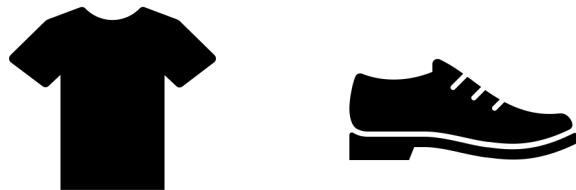


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GHG-emissions can be determined on product and on company level

Carbon Footprint of a Product



- All GHG-emissions that are related to a **specific product**, for example a shirt or a pair of shoes
- It includes emissions from raw material, production and logistic chain, packaging, retail, use-phase and disposal (along the **life-cycle**)
- Objective: **comparing** products and alternatives and creating **awareness among consumers**

Carbon Footprint of a Company



- All GHG-emissions that are related to the **business of a company**
- It includes all **business processes and sites of the company** (production sites, shops, head quarter, warehouses etc.) as well as indirect emissions e.g. from purchased goods
- Objective: creating **transparency** about hot-spots, potentials and risks and **managing** GHG-emissions

A GHG-accounting is the basis for reducing emissions

GHG- Accounting



A corporate GHG inventory can serve several **business goals**, including:

- Understanding hot-spots
- Basis for target-setting
- Identifying potential reduction measures
- Monitoring progress
- Public reporting
- Meeting increasing market requirements

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A company causes direct GHG emissions through fuel consumption

Scope 1

Example:
combustion of 1
liter diesel causes
2.677 kg CO₂-eq
direct emissions

Direct Sources

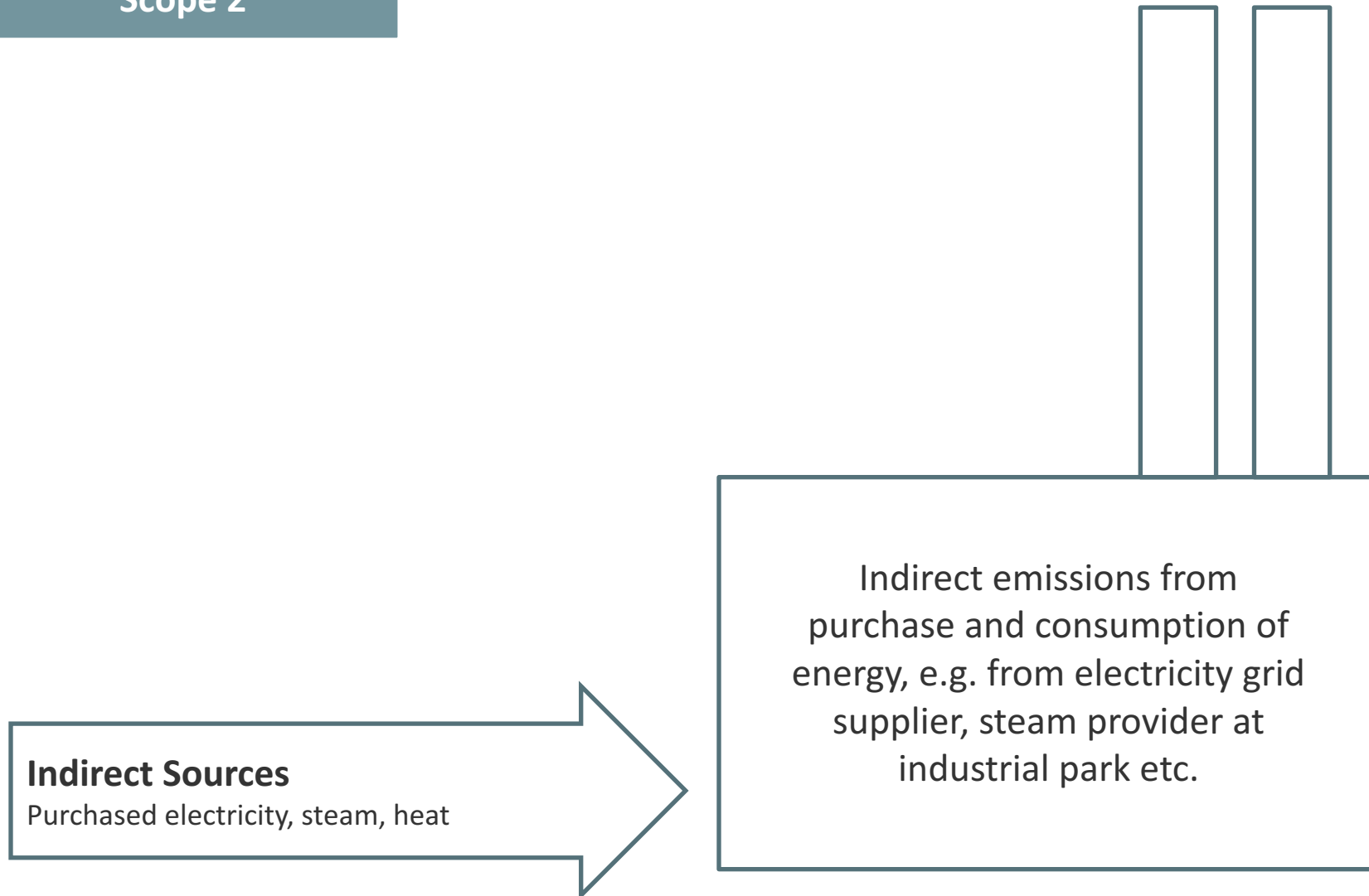
Natural Gas, Petrol (diesel, gasoline, LPG,
etc.) Coal, Wood etc.

Direct emissions from combustion
and from leakages in a textile factory:

- Boiler
- Stenter
- Generator
- Vehicles
- Refrigerants (AC)

GHG-emissions result also from the purchase of energy

Scope 2



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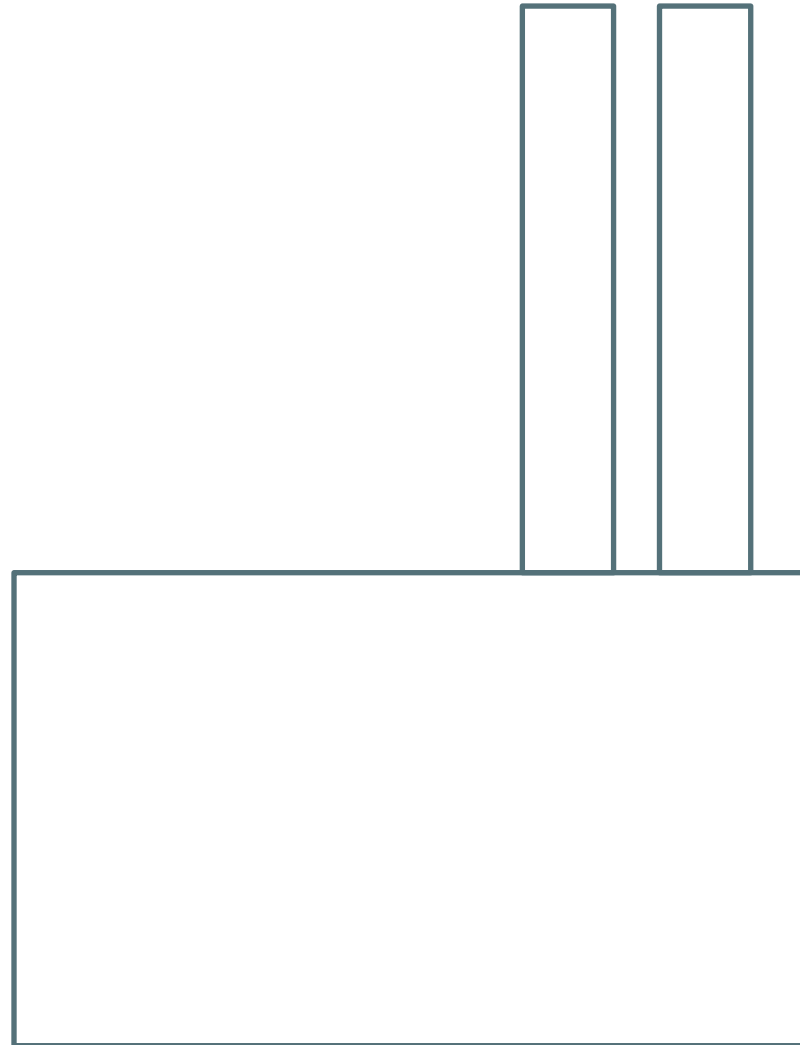


Further indirect emissions result from business activities

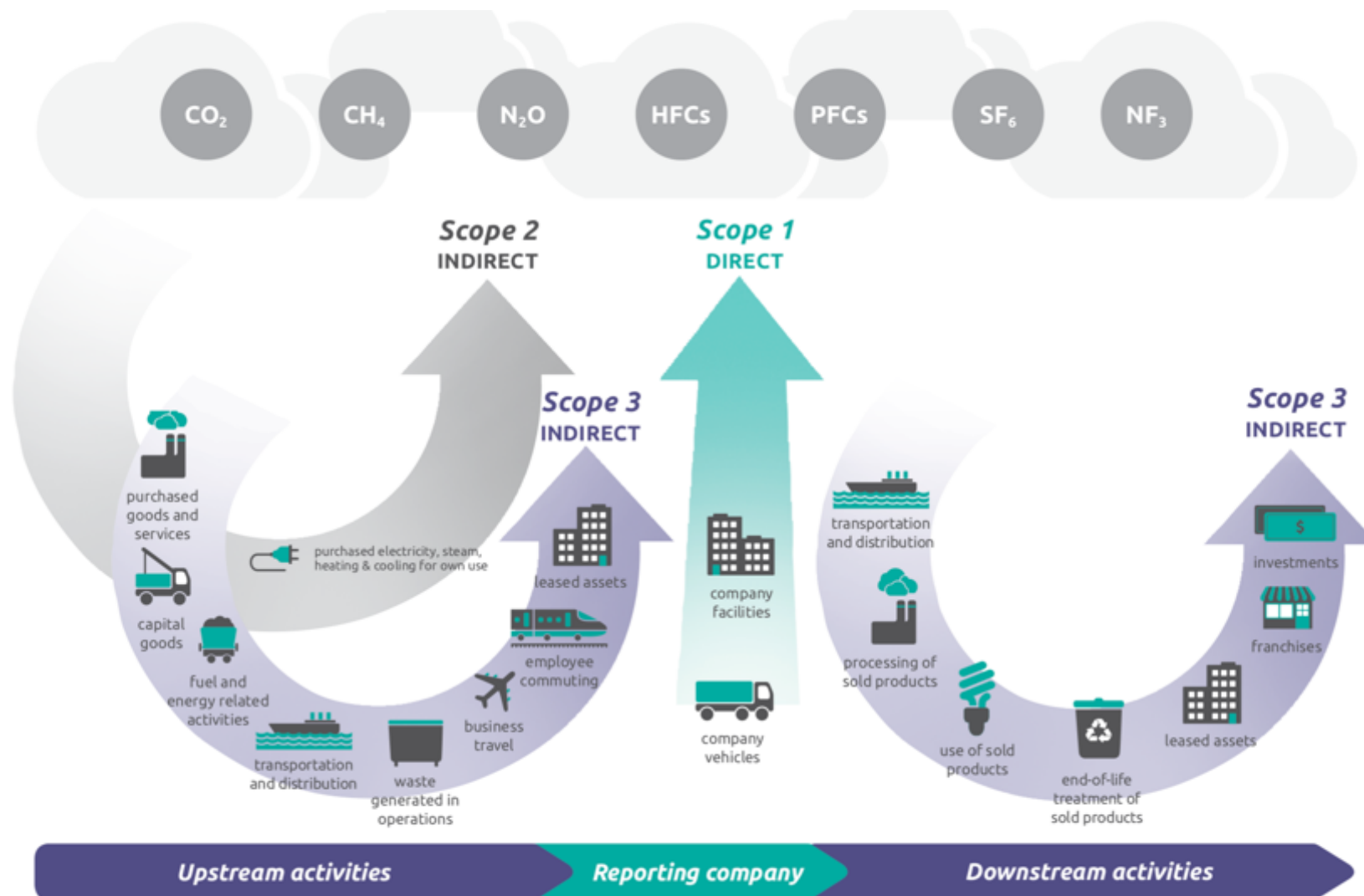
Scope 3

Further indirect emissions result from processes that are directly or indirectly caused by the company:

1. Purchased goods and services
2. Capital goods
3. Fuel- and energy-related activities
4. Transportation and distribution (upstream)
5. Waste generated through operations
6. Business travel
7. Employee commuting
8. Assets the company has rented or leased
9. Transportation and distribution (downstream)
10. Processing of sold products
11. Use of sold products
12. End-of-life treatment of sold products
13. Assets rented out or leased by the company
14. Franchises
15. Investments



Further indirect emissions result from business activities



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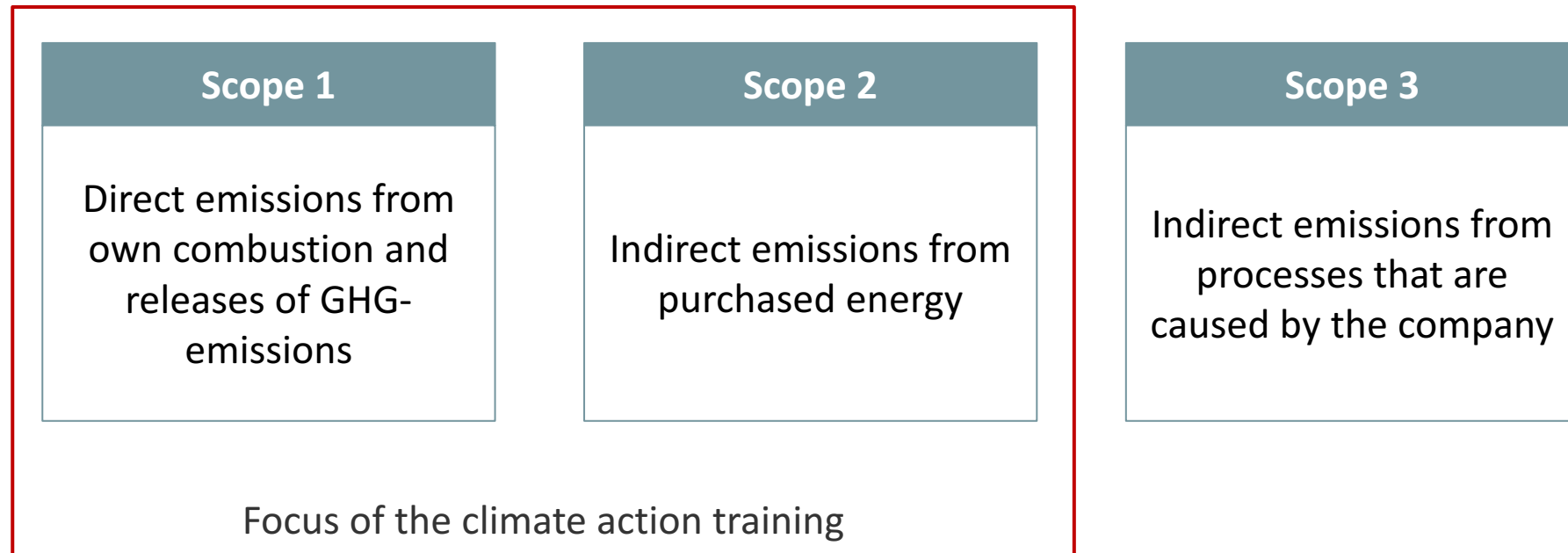


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Source: Greenhouse Gas Protocol: Technical Guidance for Calculating Scope 3 Emissions
(http://www.ghgprotocol.org/sites/default/files/ghgp/standards/Scope3_Calculation_Guidance_0.pdf)

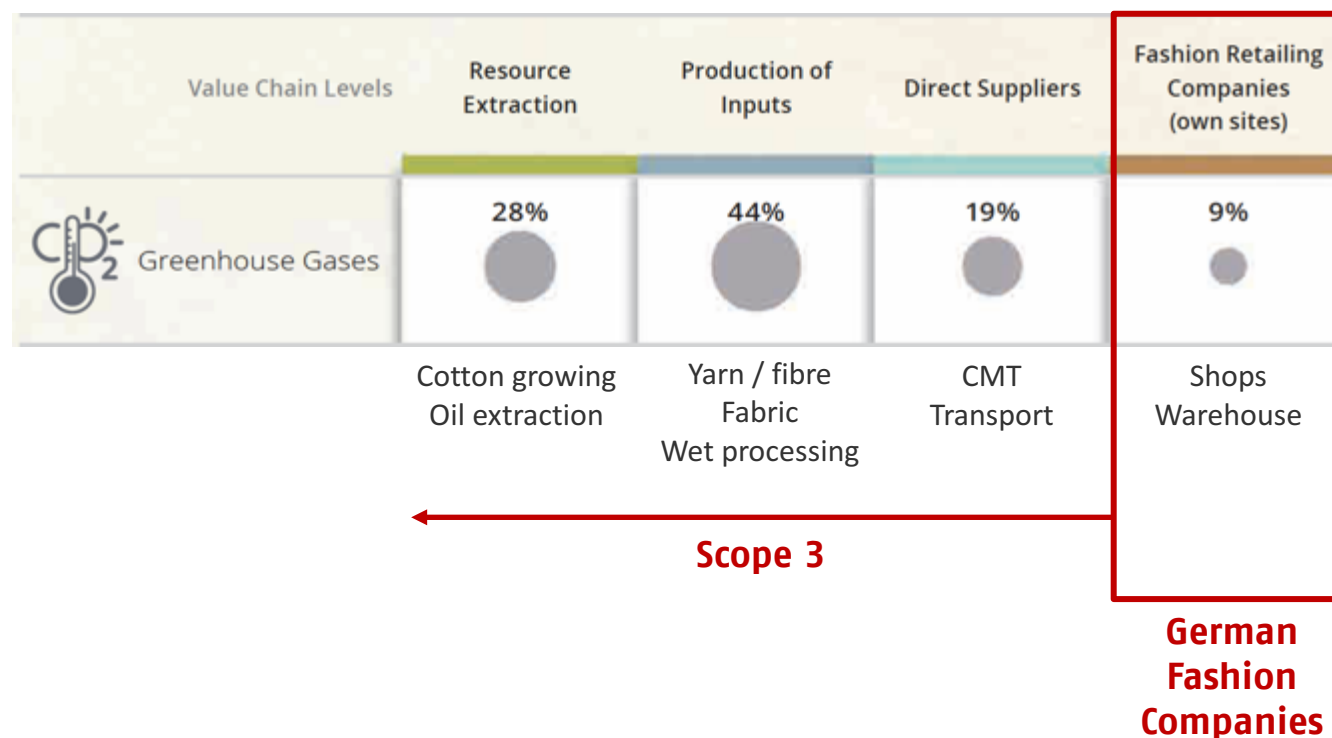
Focus of the climate action training for textile factories are scope 1 + 2 emissions



Note: you are in the supply chain of your client → scope 1+2 emissions of your company are part of your client's scope 3 emissions!

The average downstream emissions of a fashion retailer in Germany are 11 times higher than scope 1+2 emissions of the retailer

Distribution of GHG-emissions along the value chain of German fashion retail sector



Source: Atlas on Environmental Impacts – Supply Chains, Systain / adelphi

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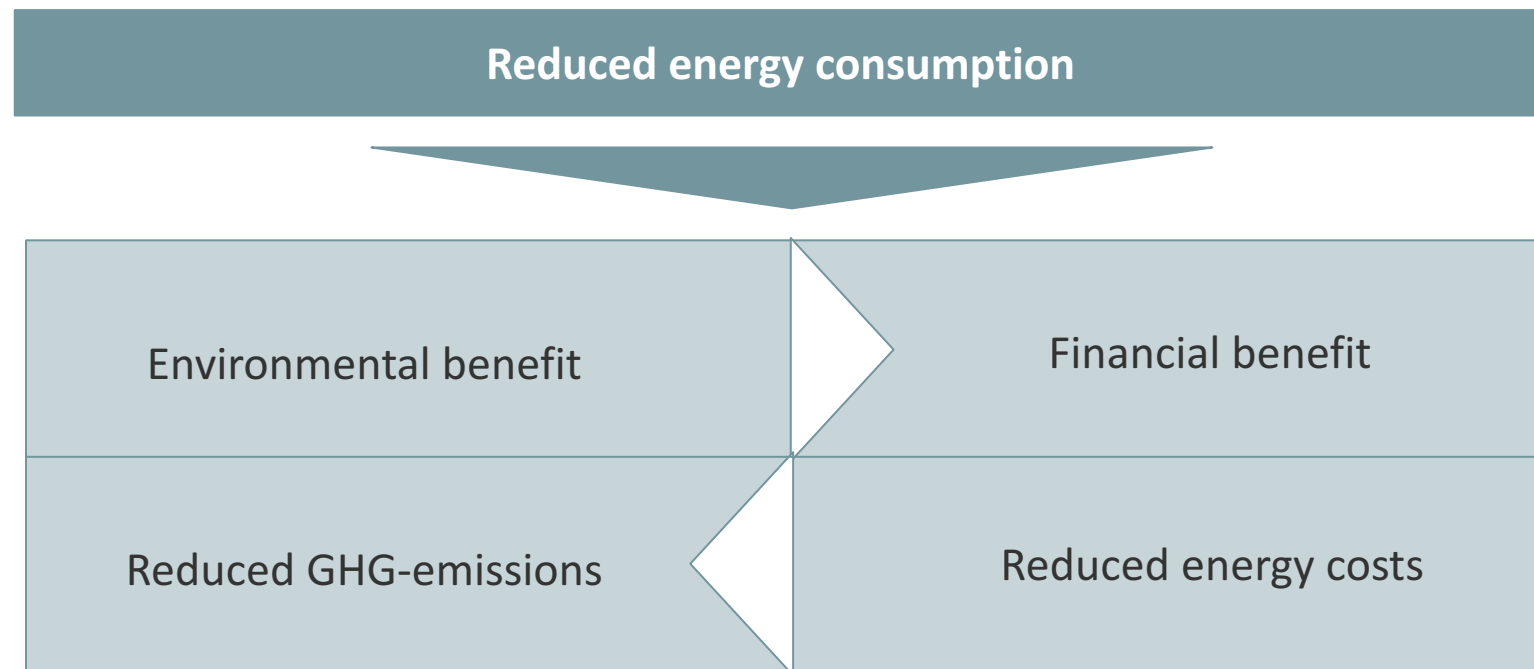
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Reducing GHG-emissions also means a financial benefit



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Where is the financial benefit?

	2016	2017	2018
Consumption diesel (in litre)	8,100	8,000	7,800
Emissions (in tons CO ₂ -eq)	21.700	21.400	20.900
Energy costs (in VND)	15,400,000	16,000,000	16,400,000

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Extra costs because of increased diesel prices have been avoided

	2016	2017	2018
Consumption diesel (in litre)	8,100	8,000	7,800
Emissions (in tons CO ₂ -eq)	21.700	21.400	20.900
Energy costs (in VND)	15,400,000	16,000,000	16,400,000
Price for Diesel (in VND / litre)	1,900	2,000	2,100

If factory would not have recuded diesel consumption, energy costs in 2018 would have been 17,000,000 VND (8,100 litres * 2,100 VND = 17,00,000 VND → compared to actually Only 16,400,000 VND in 2018)

A KPI is an essential management instrument for reducing GHG-emissions

A Key Performance Indicator (KPI)
is a management instrument for performance measurement

Objective of a GHG-KPI:
measure and control the achievement of climate targets over time

Absolute KPI's

Referring to absolute emissions:

- Total / accumulated tons CO₂eq over time (e.g. annually)

Specific KPI's

Referring to a second parameter, e.g.:

- kg CO₂eq per piece (CMT unit)
- kg CO₂eq per kg fabric (dyeing unit)
- kg CO₂eq per FTE (=full-time equivalent; office)
- kg CO₂eq per m³ (office)
- kg CO₂eq per turnover (as overall KPI for a conglomerate)

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17:45	Welcome Dinner

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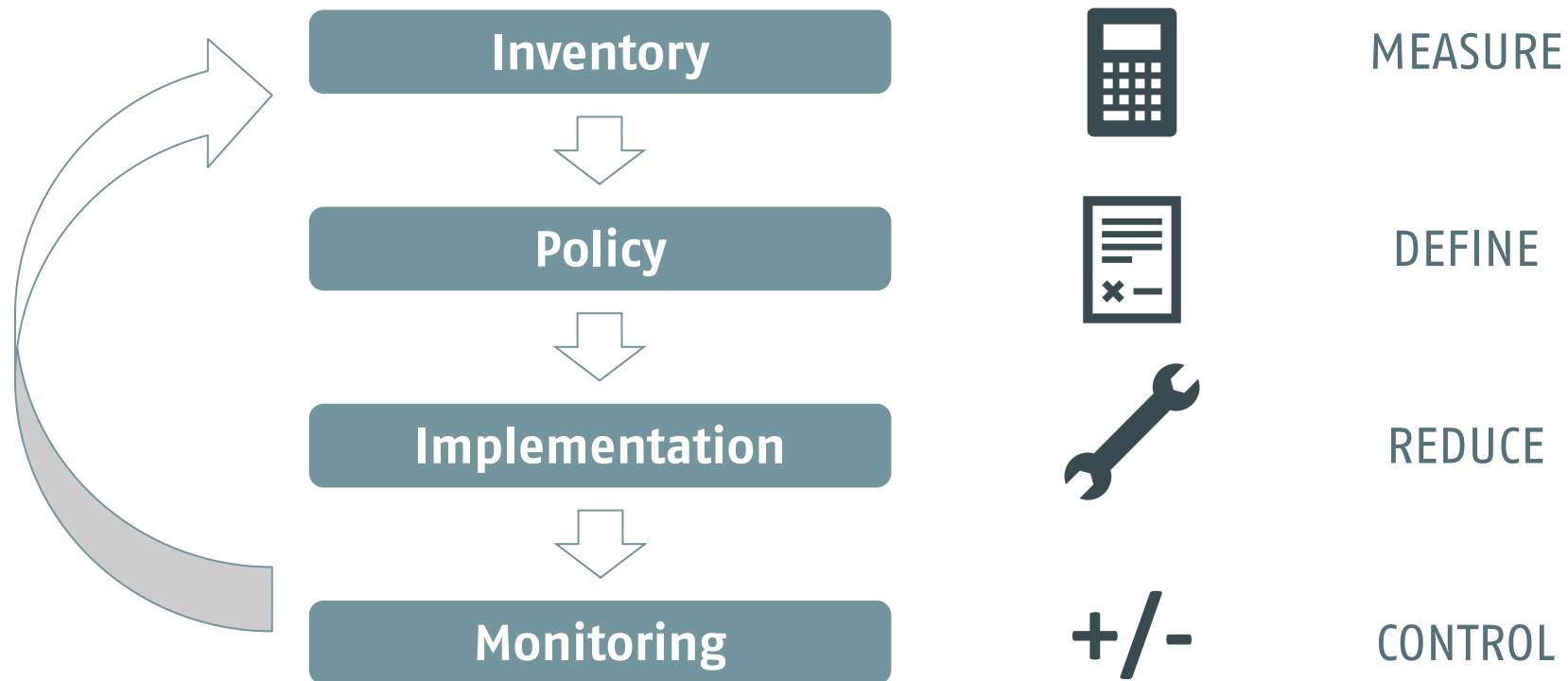
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After creating a GHG-inventory, a policy needs to be set-up



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After creating a GHG-inventory, set-up a clear policy!

A climate-action policy describes clearly

Commitment

WHAT IS THE PURPOSE OF THE POLICY?

Goal

HOW MUCH SHALL BE ACHIEVED AND WHEN?

Responsibilities

WHO NEEDS TO BE INVOLVED?

Review

HOW IS THE POLICY IMPLEMENTED?

The policy must be approved by top-management / owner and announced officially!

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Lessons Learnt from textile factories, why progress has not been achieved

"Due to daily business we were not able to keep up with our action plan."



- Define clear responsibilities
- Provide capacity for the persons in charge
- Include improvement measures in budget plan
- Get approval by top-management level / owner
- Monitor progress regularly and ensure regular reporting cycle to top-management / owner

"Actually it is too much work and only little benefit for us."



- Demonstrate benefits, esp. increasing requirements from clients
- Document progress and determine cost & benefits
- Start stepwise and focus on capable action
- Provide capacity for the persons in charge

"The responsible person has left our factory."



- Include responsibilities clearly in job descriptions
- Document progress regularly
- Involve staff, e.g. by trainings
- Involve management, e.g. by regular management meetings

Exercise: investment decisions

EXERCISE

Vietnam Stitching has a tumble dryer which is now 10 years old. The dryer still works good, maintenance department says, it still can be used for another 4 years.

You factory also has 2 proposals for a new tumble dryer

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Exercise: investment decisions

	Existing tumble dryer	New tumble dryer Alpha	New tumble dryer Beta
Steam consumption per hour	24 kWh	12 kWh	6 kWh
Investment Costs	not applicable	15 000 000 VND	30 000 000 VND
Annual costs (2 000 VND / kWh)	19 000 000 VND	10 000 000 VND	4 000 000 VND

How do decide about the 3 options?

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Exercise: investment decisions

	Existing tumble dryer	New tumble dryer Alpha	New tumble dryer Beta
Steam consumption per hour	24 kWh	12 kWh	6 kWh
Investment Costs	not applicable	15 000 000 VND	30 000 000 VND
Annual costs (2,000 VND / kWh)	19 000 000 VND	10 000 000 VND	4 000 000 VND
Total costs after 10 years	190 000 000 VND	115 000 000 VND	

Calculation of simplified total costs of tumble dryer 'Alpha' =

Investment costs + Annual costs * Estimated running time (years)

$$15\,000\,000 \text{ VND} + 10\,000\,000 \text{ VND} * 10 \text{ years} = 115\,000\,000 \text{ VND}$$

*Simplified 'Total Costs of Ownership' (TCO) =
Investment Costs + Operating Costs*

Exercise: investment decisions

	Existing tumble dryer	New tumble dryer Alpha	New tumble dryer Beta
Steam consumption per hour	24 kWh	12 kWh	6 kWh
Investment Costs	not applicable	15 000 000 VND	30 000 000 VND
Annual costs (2,000 VND / kWh)	19 000 000 VND	10 000 000 VND	4 000 000 VND
Total costs after 10 years	190 000 000 VND	115 000 000 VND	70 000 000 VND

Calculation of simplified total costs of tumble dryer 'Beta' =

Investment costs + Annual costs * Estimated running time (years)

$$30\,000\,000\text{ VND} + 4\,000\,000\text{ VND} * 10\text{ years} = 70\,000\,000\text{ VND}$$

*Simplified 'Total Costs of Ownership' (TCO) =
Investment Costs + Operating Costs*

Exercise: investment decisions

	Existing tumble dryer	New tumble dryer Alpha	New tumble dryer Beta
Steam consumption per hour	24 kWh	12 kWh	6 kWh
Investment Costs	not applicable	15 000 000 VND	30 000 000 VND
Annual costs (2,000 VND / kWh)	19 000 000 VND	10 000 000 VND	4 000 000 VND
Total costs after 10 years	190 000 000 VND	115 000 000 VND	70 000 000 VND
Total GHG-emissions after 10 years	33.34 tons CO ₂ -eq	17.60 tons CO ₂ -eq	3.51 tons CO ₂ -eq

Calculation of GHG-emissions of tumble dryer 'Beta' =

Annual emissions * Estimated running time (years)

Exercise: investment decisions

	Existing tumble dryer	New tumble dryer Alpha	New tumble dryer Beta
Steam consumption per hour	24 kWh	12 kWh	6 kWh
Investment Costs	not applicable	15 000 000 VND	30 000 000 VND
Annual costs (2,000 VND / kWh)	19 000 000 VND	10 000 000 VND	4 000 000 VND
Total costs after 10 years	190 000 000 VND	115 000 000 VND	70 000 000 VND

Steam press 'Beta' is the best choice!

Problem: Policy that investments with payback longer than 2 years will not be considered.

Task! Please write a procedure for considering total cost of ownership (TCO). Discuss with your neighbour how it could be established. Who to be involved? How to be applied? How to monitor implementation?

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The use of renewable energies will reduce the level of GHG-emissions

Example

Source	Consumption (in kWh)	Emissions (in tons CO ₂ -eq)
Electricity from grid supplier	1 500 000	1 377.8
Total	1 500 000	1 377.8



Source	Consumption (in kWh)	Emissions (in tons CO ₂ -eq)
Electricity from grid supplier	1 200 000	1 102.2
Electricity from roof-top PV	300 000	0
Total	1 500 000	1 102.2

► Reduction of GHG-emissions by 20% by electricity from renewable source (roof-top PV)

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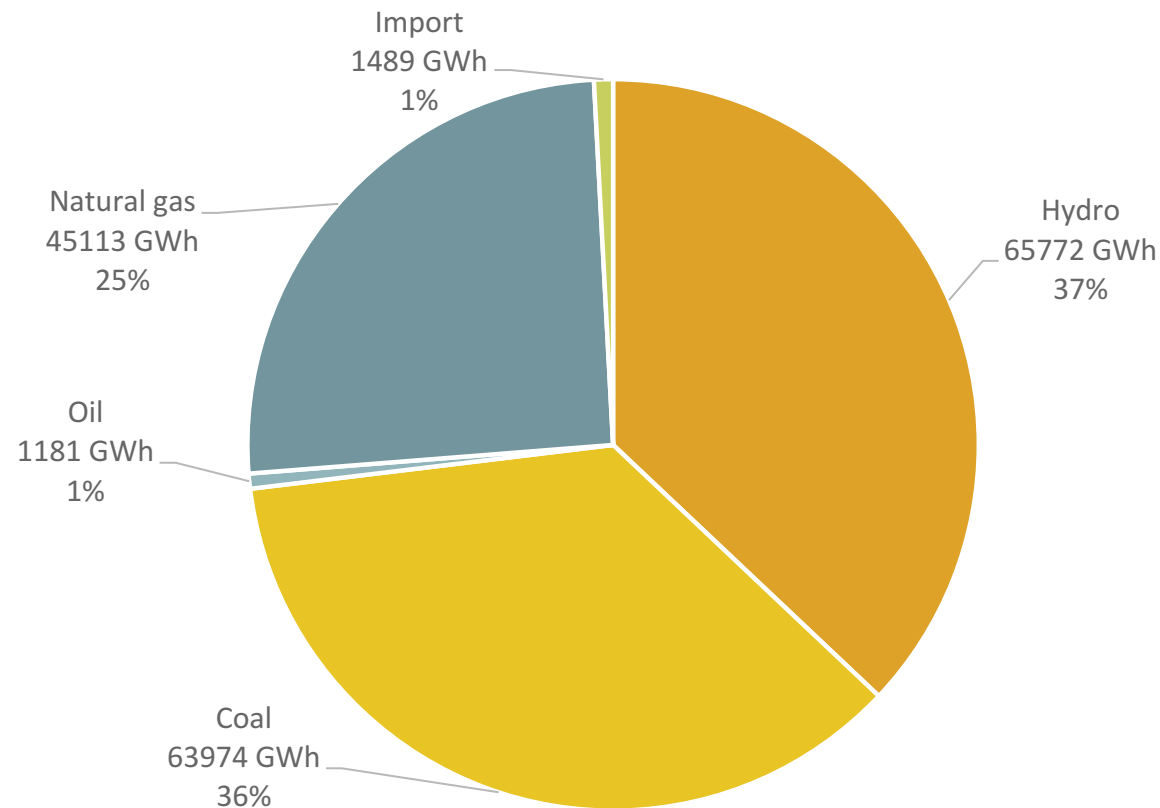
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The current electricity mix in Vietnam is dominated by hydro power and coal fired plants



2016

Source: Ministry of Industry and
Trade General Directorate of Energy, Viet
Nam's Power Development Plan

! Due to fast growing domestic electricity demand, rapid increase of electricity production from renewable sources is a must!

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In order to support your factory in taking first steps for establishing a GHG-management successfully:

- You have received a template with guidance for identifying areas for improvements in the factory (“Energy Saving Walk-Around”)
- we offer a hotline for consulting at 2 days (4 and 13 December) for any question that have come up in the meanwhile when taking first steps

As an experience from many workshops, it is recommended to take steps shortly after the training when the learnings are quite fresh.

Please note, your brand may have specific programs or requirements on GHG management and -reductions.

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Contacts (alphabetic order)

Deutsches Global Compact Netzwerk : Sophie von Gagern, sophie.gagern@giz.de

Systain Consulting: Norbert jungmichel norbert.jungmichel@systain.com

VCCI Nguyễn Thị Phan Chung chungnp@vcci.com.vn

WWF Germany: Alexander Liedke, Alexander.Liedke@wwf.de

WWF Vietnam: Ha Pham Thi Viet ha.phamthiviet@wwfgreatermekong.org

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