Climate Action Training for textile suppliers in Vietnam - DAY 2

Date: 29th - 31st October 2018
Location: HoChiMinh City

Conducted by:

WWF

UN Global Compact Network Germany

VCCI Liên kết doanh nhân Việt

UN Global Compact Network Viet Nam

accompanied by:

systain

supported by:

Federal Ministry for Economic Cooperation and Development

Agenda Day 2 – GHG-Accounting & Reduction

9:00 - 11:00	GHG-accounting
11:00 – 11:15	Coffee break
11:15 – 12:30	Energy saving measures
12:30 – 13:30	Lunch
13:30 – 14:15	Examples from factories in Vietnam
14:15 – 15:00	Exercise: Energy Saving Walk Around
15:15 – 15.15	Coffee Break
15:15 – 16:00	Target Setting
16:00 - 16:15	Wrap Up

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The Corporate Accounting and Reporting Standard from GHG-Protocol is the most widely used standard for corporate GHG-accounting

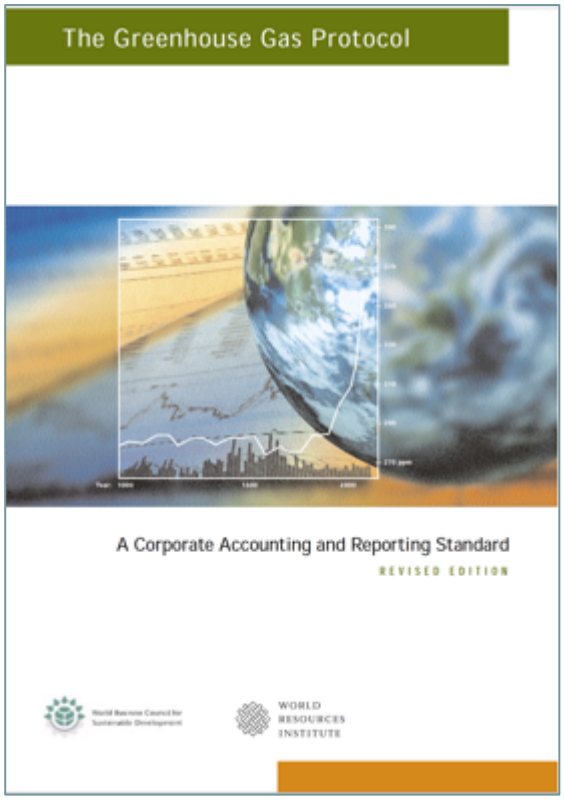
The '**Corporate Accounting and Reporting Standard**' from **GHG-Protocol** serves as a standard guideline for GHG-accounting and is available free of charge: *https://ghgprotocol.org/corporate-standard*

There might be already an existing accounting of GHG-emissions in your factory, esp. through:

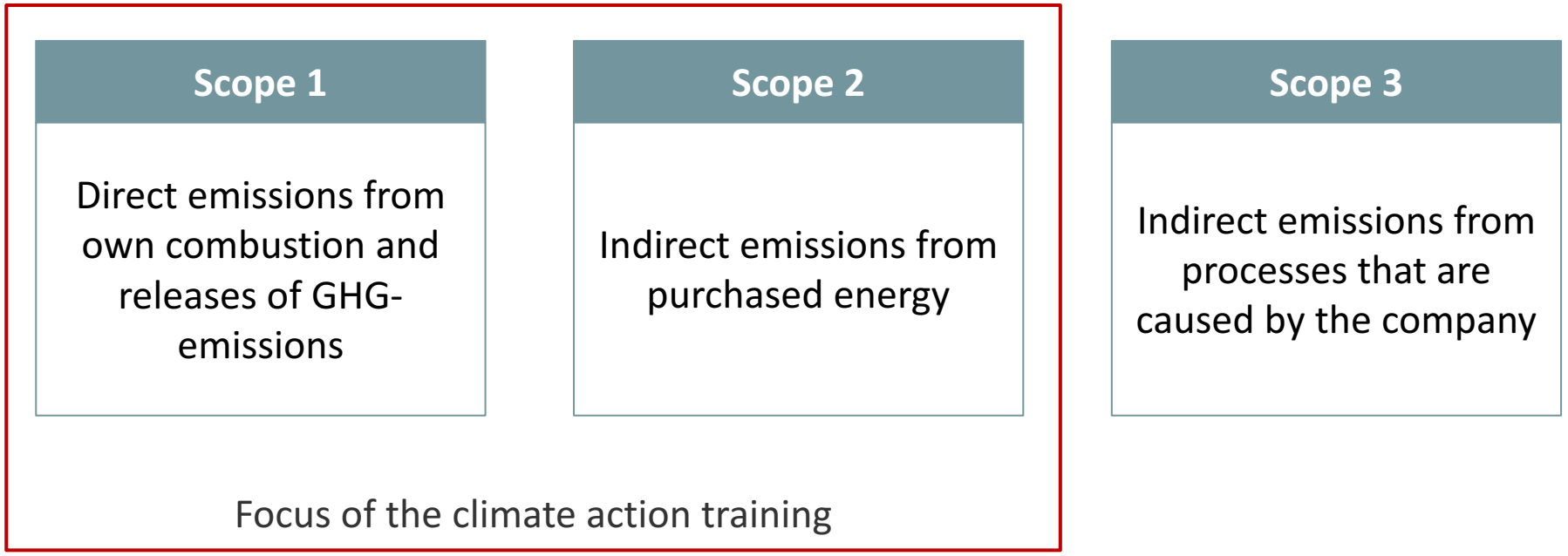
- *Environmental Management System – ISO 14,001ff.*
- *Energy Management System – ISO 50,001 ff.*
- *Higg-Index Facility Environmental Module (FEM)*

*Be aware, these system **boundaries are focused to an individual site**.*
You might use those evaluation of an individual site for the corporate GHG-accounting.

For accounting of scope 3 emissions, you may use 'Corporate Value Chain (Scope 3) Standard' from GHG-Protocol - *https://ghgprotocol.org/standards/scope-3-standard*



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



A GHG-inventory includes all greenhouse gases

- There are several greenhouse gases. All greenhouse gases are **calibrated to the equivalent of CO_2-emissions** → their so-called Global Warming Potential (GWP)
- Therefore the regular calibrated unit is kg / t CO_2-eq

- Greenhouse gases and the GWP (selected greenhouse gases):

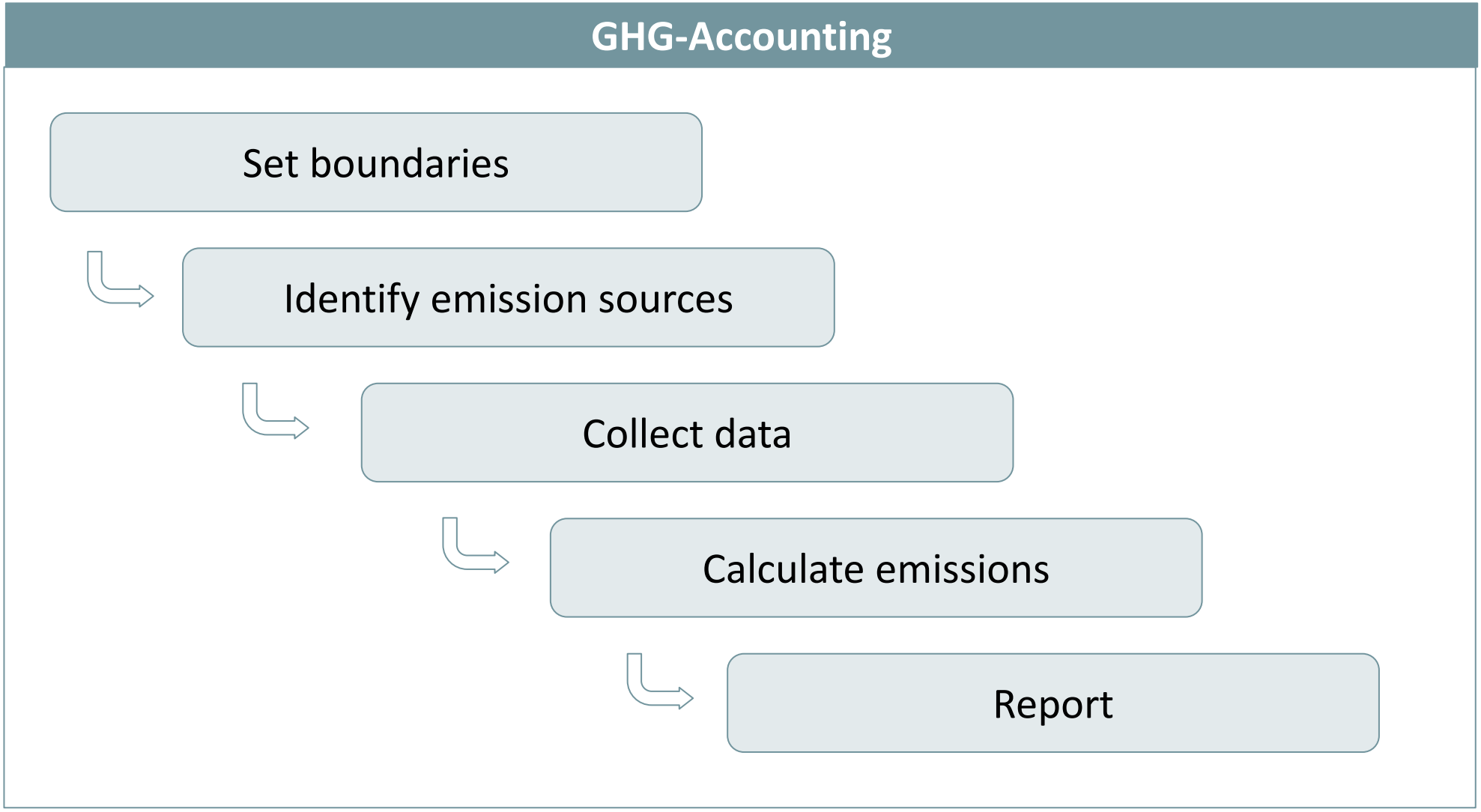
#	Gas	Global Warming Potential	Equivalence	Comment
1	Carbon Dioxide (CO_2)	1	1 kg CO_2 = 1 kg CO_2-eq	
2	Methane (CH_4)	21	1 kg CH4 = 21 kg CO_2-eq	Transport of natural gas
3	Nitrous oxide (N_2O)	310	1 kg N2O = 310 kg CO_2-eq	Agricultural processes, fertilizer use
4	Hydrofluorocarbons, e.g.HFC-125	2 800	1 kg HFC 125 = 2 800 kg CO_2-eq	Refrigerants
n	...			

Source: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html

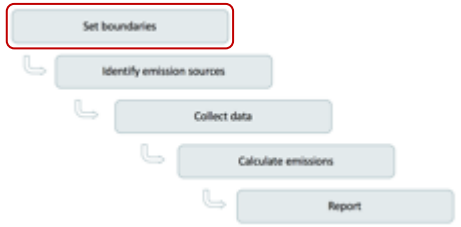
Any GHG-accounting must be based on the following principles

1	**Relevance**	Ensure a realistic picture of your company, thereby enabling internal and external users to make meaningful decisions
2	**Completeness**	Include ALL emissions, document data gaps and assumptions
3	**Consistency**	Use consistent methodology and data over time. Document any changes to data sources, boundaries, methods etc.
4	**Transparency**	Document calculation method, data sources, assumptions, and subsequent changes
5	**Accuracy**	Ensure high data quality, keep uncertainties at a practical minimum level

5 Steps towards a GHG-inventory

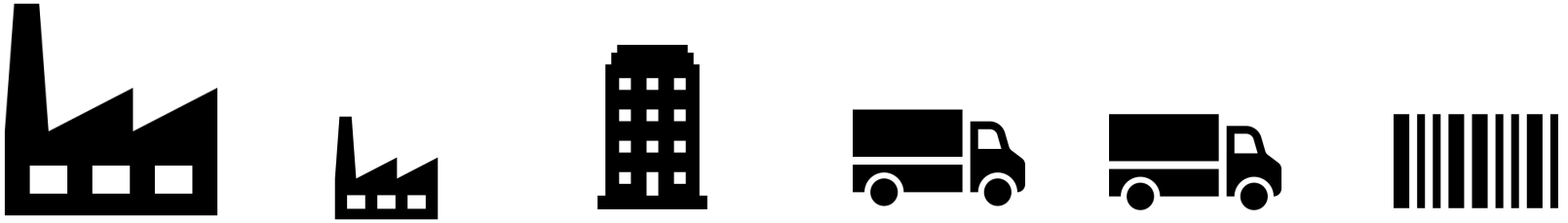


As a first step, system boundaries must be defined



The GHG-inventory includes all company‘s sites and participations:

Example of system boundaries for a textile company (Scope 1 + 2)

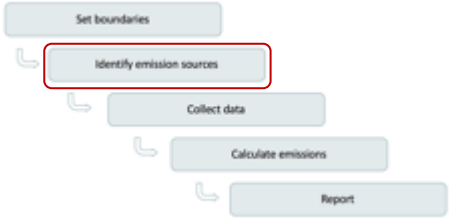


Main Production site | Shared Production site | Office | Own transport vehicles | Warehouse

Approaches for setting system boundaries:

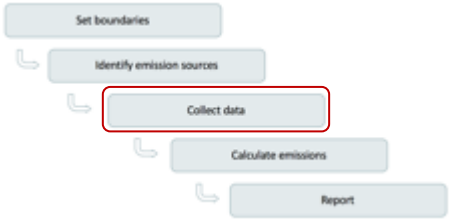
- **Operational control** approach – GHG-emissions from all sites, over which the company has operational control
- **Financial control** approach – GHG-emissions from all sites, whose cash flow is controlled by the company
- **Equity share** approach - from all its sites and participations according to their share of equity in the operation, even if there is no financial or operational control over them.

Identify emission sources in your company



- Identify all **fuels** being used for combustion at each site
  - *boilers, generators, stenters etc.*
- Identify all sources of **purchased energy** used at each site
  - *electricity, heat, steam etc.*
- Identify all **fuels for vehicles**
  - *transport cars, company owned cars etc.*
- Identify use of **refrigerants**
  - *air conditioning*

Data can often be collected from invoices



Collect data from:

- **Invoice** documents (e.g. electricity bills, diesel bills etc.)
- **Metering**
- **Filling level**

!!

- ✓ Ensure **all invoices and consumption data** are included, e.g. peak- and off-peak electricity consumption data from electricity bill
- ✓ Ensure **consistent period**, e.g. calendar year
- ✓ Avoid **unit faults**, e.g. kWh – Joule, kg – ton - Megaton
- ✓ Avoid **digit and decimal faults**

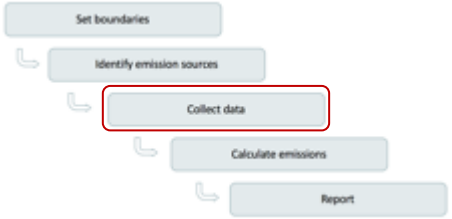
Data for evaluating scope 3 emissions might be gathered from various sources

Sources for collecting data on scope 3 emissions

- Type and amount of purchased goods, data from **suppliers**
- Type and amount of **raw materials**
- Transport data along the supply chain → data from contracted **logistic partner**
- **Packaging materials** and quantities
- Business **travel** data
- Types, quantities and processing of **waste**
- Processing of **sold products**
- …

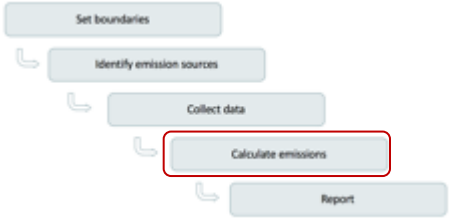
Software solutions may support data collection

Info Box 4: CR software solutions for GHG emissions data management			
Provider	**Tool**	**Link**	**Country**
Accuvio	Energy & Carbon	www.bit.ly/accuvio	IE
ADEC	MetricsTrac	www.bit.ly/MetricsTrac	US
CarbonTrust	Footprint Manager	www.bit.ly/CarbonFootprinting	UK
CarbonView	Sustainability Reporting	www.bit.ly/CarbonView	AU
cii	Sustainability Data Management	www.bit.ly/CGControlling	DE
Cloudapps	Energy & Carbon Management	www.bit.ly/sustainabilitycloudapps	UK
CSRware	Environmental Sustainability Management Software	www.bit.ly/CSRware	US
Dakota Software	Greenhouse Gas and Energy Application	www.bit.ly/dakotasoft	US
EcoMetrica	Carbon/GHG	www.bit.ly/ecometricaSustainability	UK
EcoPortal	Environmental Software	www.bit.ly/ecoportalManagement	NZ
ecova	Carbon Management	www.bit.ly/ecova	US
Enablon	GHG Software	www.bit.ly/EnablonGHG	FR
EnergyDeck	EnergyDeck Platform	www.bit.ly/EnergyDeckPlatform	UK
FigBytes	Carbon Module™	www.bit.ly/FigBytes	CA
Footprint Foundation	Enterprise Carbon Accounting	www.bit.ly/FoundationFootprint	NZ
GreenIntelli	Carbon Management & Reporting	www.bit.ly/GreenIntelli	US
Greenstone	Environment	www.bit.ly/GreenstonePlus	UK
Intelex	Air Emissions Management	www.bit.ly/Intelex	CA
ISOmetrix	Environmental & Social Sustainability	www.bit.ly/IsoMetrix	AU
Isystain	Energy & Carbon	www.bit.ly/iSystain-carbon-and-energy	AU
SAP	Sustainability Performance Management	www.bit.ly/SAPsustainabilitysoftware	DE
SupplyShift		www.bit.ly/SupplyShift	US
ThinkStep	SoFi	www.bit.ly/SOFIsustainability	DE
Turnkey Solutions		www.bit.ly/TurnkeySolution	HK
UL (former CR360)	PURE sustainability	www.bit.ly/UL-EHS	US
WeSustain	WeCarbon	www.bit.ly/wesustain	DE



Source: Global Compact Network Germany: Corporate Climate Action: A step-by-step guide for companies (https://www.globalcompact.de/wAssets/docs/Umweltschutz/Publikationen/GIZ-DGCN-Brschr-ENG-screen.pdf)

GHG-emissions are calculated by consumption ('activity') data and emission factors



Activity Data	X	Emission Factor	=	GHG-emissions
Example				
Consumption of total 1,000 Liter Diesel for transport trucks in 2017	X	2.677 kg CO_2-eq / Liter	=	2,677 kg CO_2-eq

Sources for emission factors can be found at the website of the GHG-Protocol https://ghgprotocol.org/calculation-tools:

- Emission factors for combustion of fuels: Tool ‚Emission Factors from Cross-Sector Tools'; tab ‚Stationary Combustion'
- Emission factors for refrigerants: Tool ‚Refrigeration and Air-Conditioning Equipment'

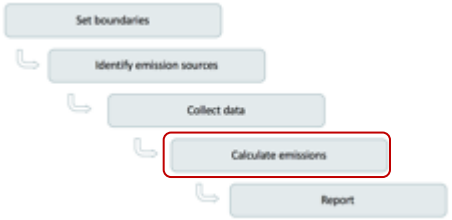
Also helpful source for conversion factors of fuels:

- https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting#conversion-factors-2018

Emission factors for calculating Scope 3 – emissions:

- https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting
- https://www.ipcc-nggip.iges.or.jp/EFDB/find_ef_main.php (for advanced users)

Selected emission factors



#	Fuel	Unit	Direct emissions per Unit
1	Crude Oil[1]	litre	2.480 kg CO_2-eq /l
2	Gasoline[1]	litre	2.272 kg CO_2-eq /l
3	Diesel[1]	litre	2.677 kg CO_2-eq /l
4	LPG[1]	litre	1.612 kg CO_2-eq /l
5	Lubricants[1]	litre	2.947 kg CO_2-eq /l
6	Coking coal[1]	kilogram	2.668 kg CO_2-eq /kg
7	Lignite coke[1]	kilogram	3.017 kg CO_2-eq /kg
8	Natural gas[1]	cubic meter	1.885 kg CO_2-eq /m^3
9	R-134A[2]	kilogram	1.430 kg CO_2-eq /kg
10	R-407C[2]	kilogram	1.774 kg CO_2-eq /kg
11	R-410A[2]	kilogram	2.088 kg CO_2-eq /kg

GHG-emissions of purchased electricity from grid: Vietnam electrical grid emission factor = 0.9185 kg CO_2 / kWh [3]

Sources:

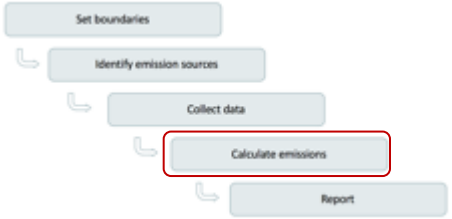
[1] https://ghgprotocol.org/calculation-tools

[2] https://pub.iges.or.jp/pub/iges-list-grid-emission-factors); https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting#conversion-factors-2018

[3] Ministry of Environmental Resources (NGHIÊN CỨU, XÂY DỰNG HỆ SỐ PHÁT THẢI (EF) - CỦA LƯỚI ĐIỆN VIỆT NAM, June 2018)

Use of biomass for boiler

"We are using biomass for boiler. How to include it into the calculation?"

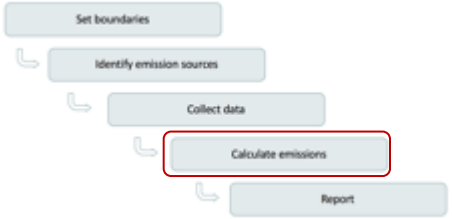


According to GHG-Protocol, direct CO_2 emissions from the combustion of biomass shall not be included in scope 1 but reported separately[1]
Emission factors from GHG-Protocol[2]:

- Wood = 1.752 kg CO_2-eq /kg wood
- Other solid biomass: 1.164 kg CO_2-eq /kg biomass

[1] *https://ghgprotocol.org/standards/scope-3-standard, page 25*
[2] https://ghgprotocol.org/calculation-tools

Calculate emissions



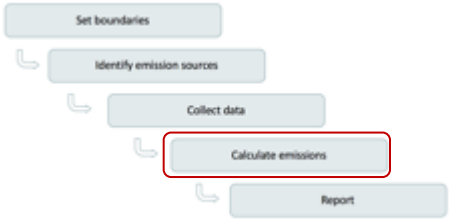
"How do I get emission factor from electricity provider?"

Use national emission factor for electricity in Vietnam (‚GHG Emissions from Purchased Electricity')

"Steam provider is not able to provide me emission factor for steam consumption."

Ask steam provider about fuel consumption data and data of produced steam / heat → emission factor per m^3 steam

Scope 3 emissions



Activity Data	X	Emission Factor	=	GHG-emissions

Example

Purchase of 10 tons paper board	X	844.5 kg CO_2-eq / ton	=	8,445 kg CO_2-eq

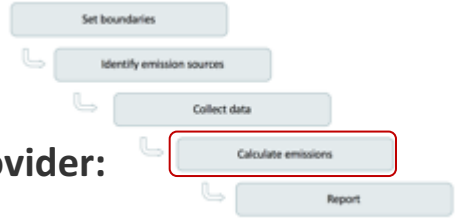
You may use **generic emission factors from databases** for calculating scope 3 emissions:

- https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting
- https://www.ipcc-nggip.iges.or.jp/EFDB/find_ef_main.php (for advanced users)

You may also calculate Scope 3 emissions by **direct data from suppliers**
Emissions from purchased fabric:

1. Ask your fabric mill(s) whether they have calculated their emissions per kg fabric (=„emission factor“)
2. Multiply the „emission factor“ of your fabric mill(s) with your purchased volume (= activity data)
3. Example: 5.100 tons CO_2-eq per ton fabric * 3,000 tons purchased fabric from dyeing mill in 2018 = 15,300 tons CO_2-eq

Scope 3 emissions – How to calculate transport emissions of logistic provider from factory to seaport?



1) Contact logistic company and ask for the following general data logistic service provider:

- which size of trucks are used for your company (5 tons, 10 tons ...)
- fuel consumption of truck per 100 km
- load weight for textile load (e.g. 5.4 tons of truck)

Fuel consumption	÷	Average Load	=	Fuel consumption per ton-kilometer (tkm)
5 ton truck = 10 liter diesel/100 km 10 ton truck = 20 liter diesel/100 km	÷	2 tons 5 tons	=	0.05 liter diesel per tkm 0.04 liter diesel per tkm

2) Collect transport data of your factory:

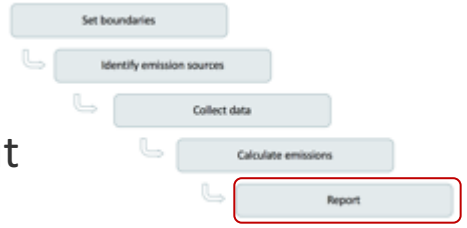
- Road distance from factory to port
- How many freights per year
- How much load (if your logistic provider consolidates freights)

Fuel consumption per ton-kilometer (tkm)	X	Distance	X	Tonnage	=	Fuel consumption
0.05 liter diesel per tkm	X	50 km	X	20,000 tons	=	50,000 liter diesel

3) Calculate emissions:

Example: 50,000 liter diesel * 2,677 kg CO_2-eq = 133.855 kg CO_2-eq

Reporting



Report internally and externally about the corporate GHG-emissions and about reduction efforts.

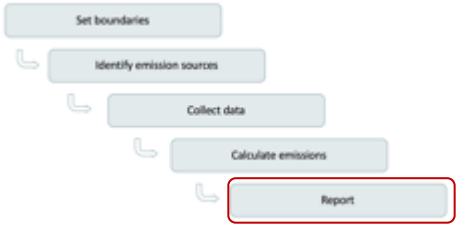
For **external reporting** provide information about:

- Organizational **boundaries** chosen
- Reporting **period**
- Emission data separately for each **scope** and for all **six GHG** in tons CO_2-eq
- Emission data for **direct CO_2-eq emissions from biogenic sources**, e.g. from burning biomass
- **Methodology** used to calculate emissions
- Data **gaps**
- Outline of any **GHG management / reduction program**

For **periodical external reporting** provide information about

- GHG emissions data for **all years** between base year and reporting year
- **Significant emissions changes** by acquisitions, subcontracting, outsourcing etc.
- **Changes** in reporting boundaries or calculation methodologies, etc.
- Information on the **causes of emissions changes**, e.g., increased production, process changes, efficiency measures, new production line

Meeting Higg-FEM requirements by setting-up a GHG-accounting



The Higg-Facility Environment Module (FEM V3.0) of the Sustainable Apparel Coalition (SAC) includes a section 'Energy Use & GHG'
By **setting-up a GHG inventory**, several **requirements of Higg FEM** can be met:

Level	Requirement	Fullfilled ?
1	Disclosing (all) sources of energy for the facility	YES
2	Disclosing baseline for energy use	YES
	Identifying processes or operations that use the most energy	PARTLY
	Setting targets for improving energy use / GHG emissions	YES
	Establishing an implementation plan to improve energy use / GHG emissions	NO
	Demonstrate improvement compared to baseline	NO
3	Calculating GHG emissions Scope 3	NO

Exercise: taking first steps to create a GHG inventory

EXERCISE

Document organizational boundaries of your company and identify energy sources.

1) **List all sites of your company** or where your company has operations (production sites, warehouse, office, other facilities etc.). Those sites may be the company's property or might rented (e.g. office space).
2) **Identify sources for GHG-emissions:**
   - **Fuels:** natural gas, LPG, diesel, coal, wood etc.; consider also company owned vehicles → scope 1 emissions (direct emissions)
   - **Refrigerants:** AC → scope 1 emissions (direct emissions)
   - **Purchased energy:** electricity from grid provider, steam from provider etc. → **Scope 2 emissions (indirect emissions)**
3) Enter source, type of use, emissions scope. Please also enter, from where you might get consumption data.

#	Source	Where	Type of use	Scope	Data from where?	Remarks
1	Natural Gas	Main factory	Use for boiler	1	Bills - Accounting office	
2	Steam	Main factory	Use for ironing unit	2	Bills – accounting office	
3						
4						
5						
6						

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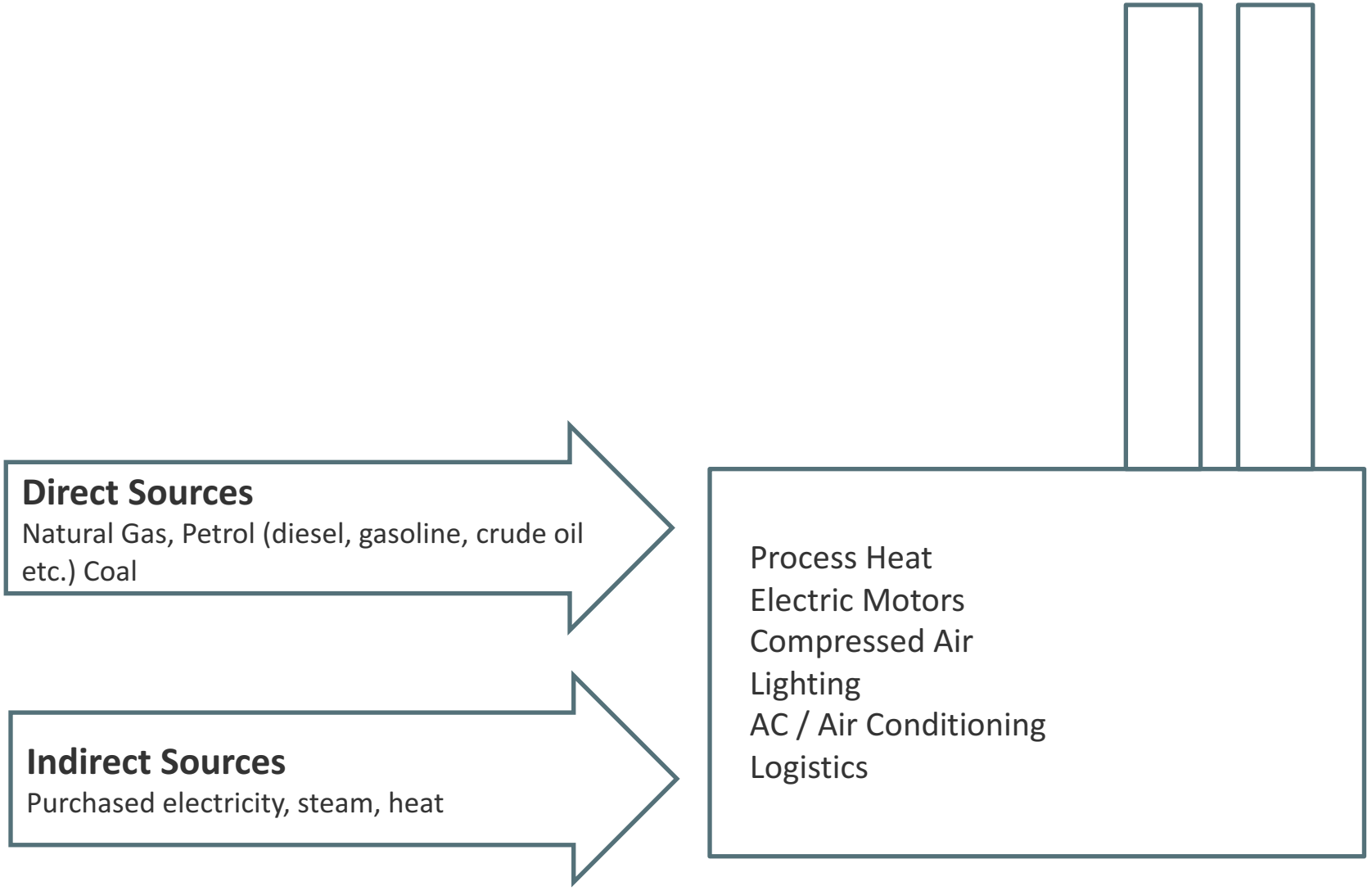
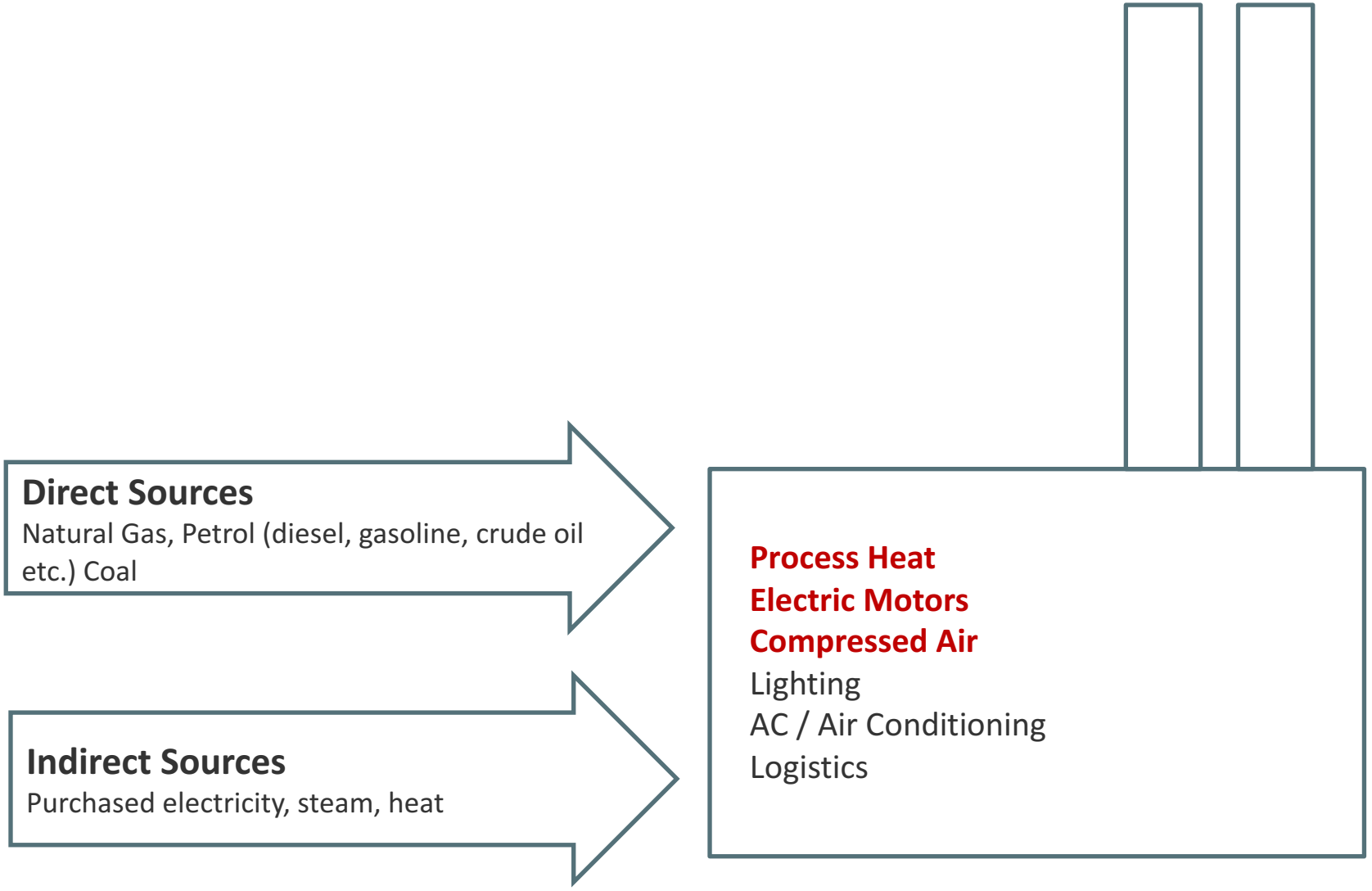
What energy consumers does a textile factory have?



What might be the top-3 energy consumers in an average textile factory?



Payback

Clustering improvement measures according to their payback	
Immediate	*payback below 3 months*
Medium	*payback below 3 years*
Long	*payback more than 3 years*

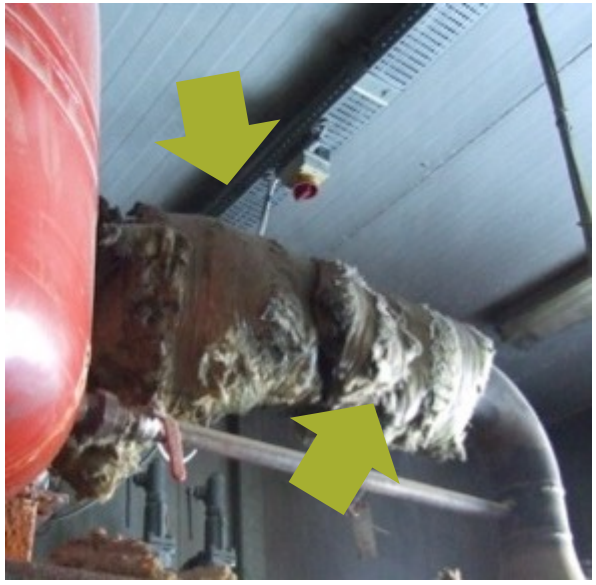
Detailed analysis of electricity consumption

- Install sub-meters, e.g. unit-wise
- Use clamp meters in order to measure electricity consumption of individual equipment

Continuous improvement of energy efficiency

Further benefits such as improved processes, less water use etc.

Process heat: proper insulation



Proper insulation on pipework, incl. condensate lines and hot water tanks minimized heat losses

Saving up to 10% of heat consumption

Low investment costs, immediate pay-back

Process heat: heat recovery

Heat recovery by economizer / heat exchanger

Waste heat was captured, e.g. condensate from ironing section, hot rinse water, exhaust air and reused e.g. to pre-heat boiler water or combustion air

Saving up to 50% of heating energy

Payback within 1-4 years

Process heat: optimizing boiler set-up

Sensor control of combustion by measuring excess air

Minimizing inadequate combustion and optimized delivery of oxygen to boiler

Automatic blow down control instead of manual or time-controlled blow down

It is a sensor-controlled unit which measures level of solids

Saving ca. 5% of heating energy, reduced chemical treatment of water

Payback within 2-3 years

Process heat: water reclamation

Water reclamation system for washing machines to recover and re-use water.

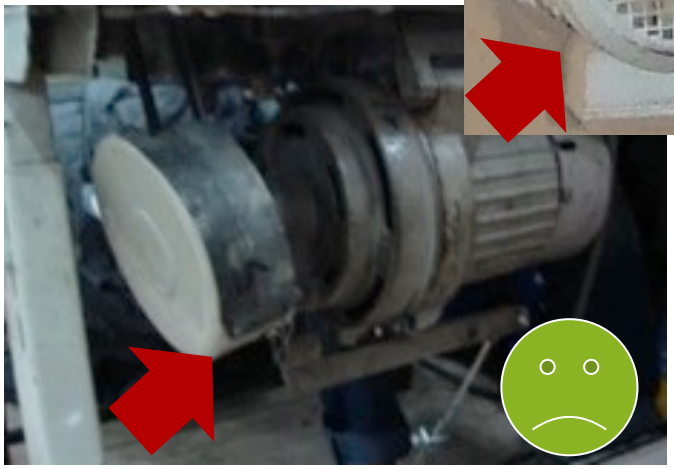
The rinse water from last cycle of a wash is used for first cycle of the next wash.

Saving ca. 10% of energy and water per wash, also lower chemical load in factory

Payback within 2-3 years

Electric motors: improved maintenance

Motor covered with dirt



Damaged motor, slacking belt

Annual "Energy-Saving-Maintenance" included:

- cleaning motors from dust and debris
- checking drive belts for slack and wear, replacing if necessary
- checking alignment of shafts and pulleys and fixing if necessary

Saving up to 5% of electricity use per motor

No costs, immediate pay-back

Electric motors: Variable Speed Drives (VSD) / inverters

It is an electronic motor control to adjust voltage and current exactly to the motor's need.
It is suitable for motors with varying speed, liquid flow or torque:

- any pumps
- throttle controls
- combustion air control for boilers
- motors of dyeing machines and stenters
- washing machines, tumble dryers

Further benefits: smoother starting → reduced current, less wear of motor

Saving up to 10– 60% of electricity use per motor

Payback 0.5 – 3 years

Electric motors: servo motors for sewing machines

Conventional clutch motor at sewing machine

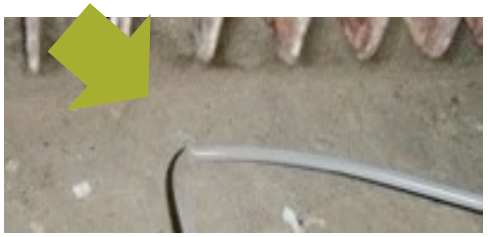
Replace clutch motors for sewing machines by servo motors.

Servo motor at sewing machine

Saving up to 40% electricity use compared to clutch motor

20-30% more costs compared to conventional motor, payback 2-4 years

Compressed air: regular leak detection



Size of leak	Additional costs per leak in a year*
1 mm	1 180 000 VND
3 mm	18 600 000 VND

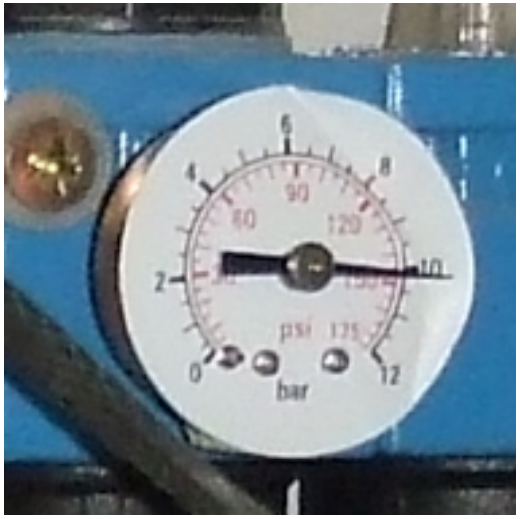
* 4 000 hours operating, 2 000 VND per kWh

Leakage rate of factory without regular leak detection: 20-50%.

Saving up to 30% energy input for compressed air system

No costs, immediate pay-back

Compressed air: optimize pressure level

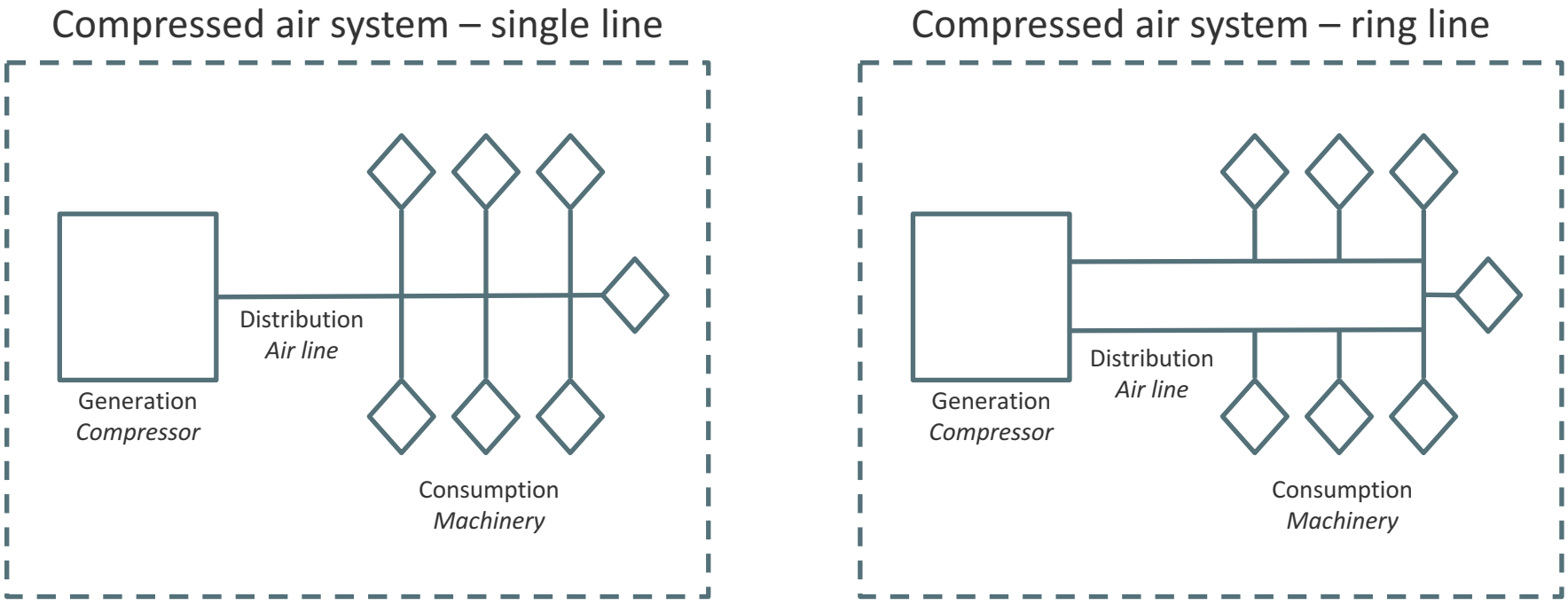


Working pressure of most equipment is 6 bar. Often compressed air system are operated on higher pressure level than necessary. Reducing 1 bar pressure level, saves 6% of energy input for compressor

Saving up to 10% energy input for compressed air system

No costs, immediate pay-back

Compressed air: ring line set up



Saving up to 10% energy input for compressed air system, reduced fluctuations

Significant investment, payback ca. 3-5 years

Lighting: occupancy sensors

Especially suitable for:

- Corridor
- Staircases
- Toilets
- Wash-rooms
- Warehouse
- Parking lots

Saving around 5% of electricity being used for lighting

Small costs, payback within 6 months

Lighting: zoning of lighting

Unoccupied workplaces with light switched on

Switches for separate areas

Saving 5-10% of electricity used for lighting

Low investment, immediate pay-back

Climate action through reducing energy use as well as shifting from fossil to non-fossil sources of energy

Reducing GHG-emissions by minimizing the use of fossil fuels

1

Reducing energy use

- Energy management systems
- Efficiency measures

+

2

Switching energy source

- Switching from fossil fuels sources to non-fossil sources of energy generation

Climate action requires both approaches, energy efficiency is not enough!

Which renewable sources do you know?

Fossil fuels
• Oil • Diesel • Gasoline • Coal • Natural Gas • Propane • LPG • CNG

Switch from fossil fuels to renewable sources

Renewable sources
• Hydro power • Photovoltaic (PV) • Wind energy • Solar thermal • Biomass • Geothermal

Benefits of renewable sources	
✓ Less GHG-emissions	✓ Less landuse
✓ Less air pollution and smog	✓ Less hazardous risks
✓ Less water pollution	

There are 2 options for textile factories to switch from fossil fuels to renewable energies

1. **Production of renewable energy sources at factory**, esp.:
   - Roof-top photovoltaic (PV) installation
   - Solar thermal installation for hot water generation
   - Use of biomass for heat generation

   Reduction of electricity consumption from grid or reduction of fossil fuel use for boilers

2. **Purchase of renewable electricity**
   - Reduction of emissions for electricity use - a lower emission factor for purchased electricity can be used in GHG accounting
   - Supports Vietnam's shift towards renewable energy mix

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)

Electricity generated from PV can be either used in the factory or sold to electricity supplier

- Electricity production of roof-top photovoltaic (PV) installation **reduces electricity need from grid supplier** → reduction of GHG-emissions and costs
- The PV can get connected to grid, so that **generated electricity above consumption by factory can be sold to grid supplier**
  - A 2-way electricity meter will be installed
- The **feed-in electricity is remunerated: 2.0868 VND (9.35 US$ Cent) / kWh**, exclusive of VAT
  - Feed-in tariff is subject to VND-US$ exchange rate
  - Reduced income tax for this revenue stream
  - A **Standardized Power Purchase Agreement (SPPA)** will be made, ensuring the purchase of electricity from PV for 10 years – Link (last 12 pages)
- Note:
  - projects must be implemented by 30 June 2019
  - Structural stability of building must be ensured

PHỤ LỤC 3
HỢP ĐỒNG MUA BÁN ĐIỆN MẪU
ÁP DỤNG CHO CÁC DỰ ÁN ĐIỆN MẶT TRỜI MÁI NHÀ
(Ban hành kèm theo Thông tư số 16 /2017/TT-BCT ngày 12 tháng 9 năm 2017 của Bộ trưởng Bộ Công Thương)

PHỤ LỤC 3.1
MUA BÁN ĐIỆN MẶT TRỜI LẮP TRÊN MÁI NHÀ
(Kèm theo Hợp đồng mua bán điện số... ký ngày... tháng... năm 20... giữa Công ty Điện lực..... và.... phục vụ sinh hoạt, ngoài mục đích sinh hoạt áp dụng công tơ 1 giá)

Căn cứ Quyết định số 11/2017/QĐ-TTg ngày 11 tháng 4 năm 2017 của Thủ tướng Chính phủ về cơ chế khuyến khích phát triển các dự án điện mặt trời tại Việt Nam;

Căn cứ nhu cầu mua, bán điện của hai bên,

Hôm nay, ngày ..... tháng ..... năm ..... , tại ..... .

Chúng tôi gồm:

Bên A (Công ty điện lực):_____

Địa chỉ: _____

Số CMND/hộ chiếu .....cấp ngày.....tại.....; Emai:...Điện thoại: _____Fax: _____

Mã số thuế: _____

Tài khoản: _____ Ngân hàng _____

_____

Đại diện: _____

Chức vụ: _____(được sự ủy quyền của _____ theo văn bản ủy quyền số _____, ngày _____ tháng _____ năm ____)

Bên B (Chủ đầu tư dự án điện mặt trời trên mái nhà):_____

Địa chỉ: _____

Điện thoại: _____Fax: _____

Mã số thuế: _____

Tài khoản: _____ Ngân hàng _____

_____

Đại diện: _____

Agenda Day 2 – GHG-Accounting & Reduction

9:00 - 11:00	GHG-accounting
11:00 – 11:15	Coffee break
11:15 – 12:30	Energy saving measures
12:30 – 13:30	Lunch
13:30 – 14:15	**Examples from factories in Vietnam**
14:15 – 15:00	Exercise: Energy Saving Walk Around
15:15 – 15.15	Coffee Break
15:15 – 16:00	Target Setting
16:00 - 16:15	Wrap Up

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Energy Saving Walk-Around

Walk through the factory and look especially at:

- Motors running when not needed
- Lights in unoccupied areas
- Valves not being closed
- Missing insulation at steam pipes
- Leaks
- Old equipment to be replaced

Good starting point for energy saving measures

No costs, immediate pay-back

Exercise

ENERGY SAVING WALK AROUND

Going through all areas and floors in the factory and looking for obvious inefficient energy use.

Agenda Day 2 – GHG-Accounting & Reduction

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How to set a target?

Steps towards setting a reduction target:

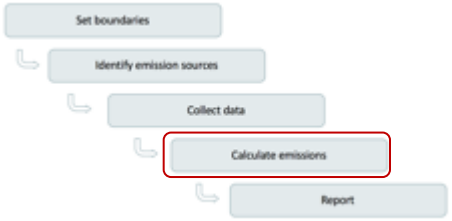
1. Define **base-year** and **target year** (e.g. timescale for science based targets are 5-15 years)
2. Define type of target:
   - **Absolute targets** = total quantity of GHG-emissions
   - **Specific targets** = based on output, turn-over

Absolute KPI‘s	Specific KPI‘s
Referring to absolute emissions: • Total / accumulated tons CO_2eq over time (e.g. annually)	Referring to a second parameter, e.g.: • CO_2eq per piece (CMT unit) • CO_2eq per kg fabric (dyeing unit) • CO_2eq per FTE (=full-time equivalent; office) • CO_2eq per turnover (as overall KPI for a conglomerate)

3. Define **level of ambition**, that means reduction either in percentage or in tonnage and quantity
   - Consider business activities and development, for example set-up of new production line
   - Target might be refined and updated on an annual basis

KPI of composite factories

"I am a composite factory with dyeing and garment unit: how to define KPI's?"



Problem: **2 units** with different product flow (e.g. not all dyed fabric is processed in garment unit)

- Approach for KPI development: Check whether you can separate consumption of electricity, steam etc. by **submeters** → allocate electricity use to certain units

Problem: infrastructure is used by both units, for example compressor; **overhead emissions** → allocation not possible

- Approach for KPI development:
  1. Make an **estimation**, how much **percentage** of steam, compressed air etc. is used by dyeing unit and how much by garment unit (e.g. 85% of compressed air used by dyeing unit, 15% by garment unit)
  2. **Allocate** total electricity consumption of compressor to both units (85% and 15%)
- Development of KPI:
  1. Total emissions of dyeing unit → KPI: kg CO_2-eq per kg fabric
  2. Total emissions of garment unit → KPI: kg CO_2-eq per kg piece

Two approaches for setting a target

Bottom-Up

- Widely used approach
- Based on **actual reduction potentials** in the company (short-to long-term)
- Requires evaluation of concrete saving potentials
- However, often focus ‘only’ on **feasible** reductions
- *Example: reducing total emissions by 10% within next 5 years (scope 1+2)*

Top-down

- **Long-term targets**, e.g. through science based targets without having first identified all reduction potentials
- **Ambitious** approach
- Challenge: meeting gap between bottom-up and bottom-up targets
- *Example: reducing total emissions by 90% within 15 next years (scope 1+2)*

Ambitious as possible as well as feasible

Regular monitoring in order to track progress

Process

- Set-up **monitoring scheme** for regular progress tracking and establish **reporting cycle to top management**
- Introduce cycle of central **collection of ‚activity-data'** (consumption) of emission sources
- Evaluate **implementation and progress** of reduction measures

Analysis

- Analyse significant emission changes, esp. caused by exogenous effects or organizational changes, e.g. increased production

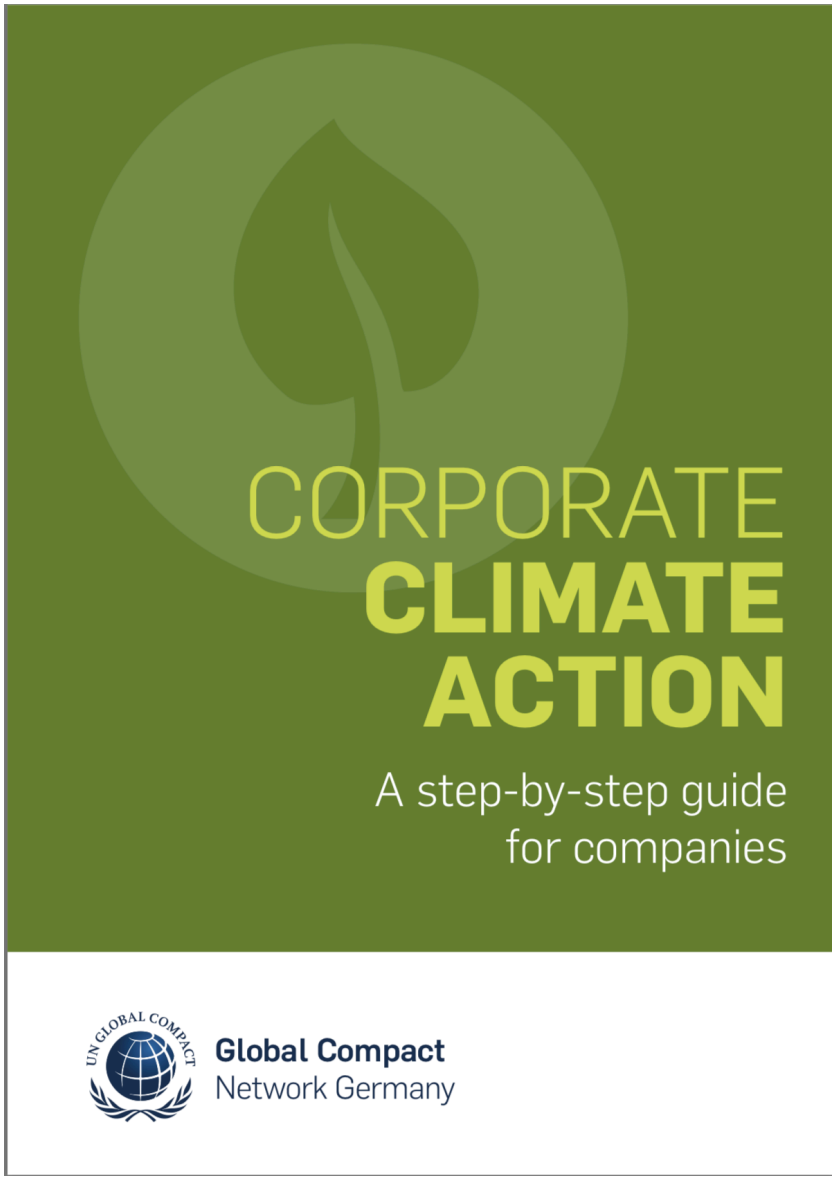
Communication

- **Communicate** progress **internally**

Updating

- **Adopt action plan** to updated business planning and corporate investment cycles (for example when new production line is set-up)

Guideline from Global Compact Network Germany for further guidance



https://www.globalcompact.de/wAssets/docs/Umweltschutz/Publikationen/GIZ-DGCN-Brschr-ENG-screen.pdf

SCIENCE BASED TARGETS

Science Based Targets in the fashion industy supply chain

30th October 2018

Alexander Liedke

PARTNER ORGANIZATIONS

CDP DISCLOSURE INSIGHT ACTION

UN GLOBAL COMPACT

WORLD RESOURCES INSTITUTE

WWF

IN COLLABORATION WITH

WE MEAN BUSINESS

WWF VCCI systain Federal Ministry for Economic Cooperation and Development

Science-based targets I Presentation outline

- **The need for science-based targets**
- What are science-based targets?
- The Science Based Targets initiative
- Why should companies engage?
- How can companies participate?
- Getting started on target setting

SCIENCE BASED TARGETS

Conducted by: WWF, Global Compact Network Germany, VCCI, Global Compact Network Viet Nam
accompanied by: systain
supported by: Federal Ministry for Economic Cooperation and Development

Science-based targets I The Paris Agreement

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."

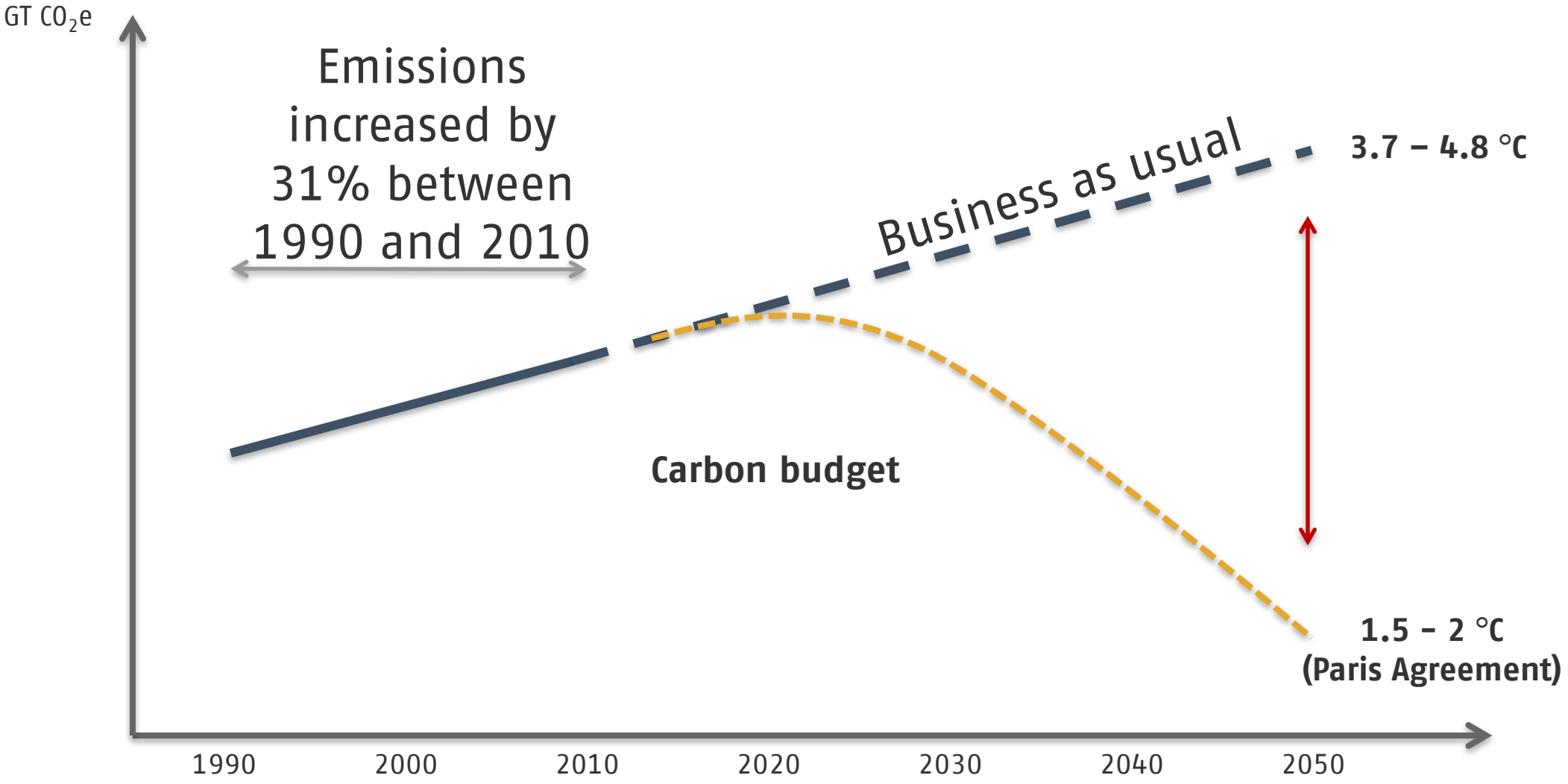
adaptation

"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."

Science-based targets I The need for science-based targets



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SCIENCE BASED TARGETS

Science-based targets I What are 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 2ºC compared to pre-industrial temperature levels"

Science-based targets I What are science-based targets?

- A business-modelling, strategic planning and decision-making tool for a carbon constraint world
- A clear pathway for companies to future-proof growth in the face of physical / political / regulatory / financial risk
- A tool that allows companies to demonstrate to policy makers/regulators/investors that the company's long-term growth is sustainable
- A challenge to companies to transform their business and help create and prepare for a low-carbon economy

Science-based targets I Examples of science-based targets

American apparel company **Levi Strauss & Co**. commits to reduce absolute Scope 1 and Scope 2 GHG emissions 90% by 2025 from a 2016 base-year. Levi Strauss & Co. also commits to reduce absolute Scope 3 emissions from purchased goods and services 40% by 2025 from a 2016 base-year.

Multinational Japanese footwear, apparel and sports equipment company **ASICS** commits to reduce absolute scope 1 and 2 GHG emissions 33% by 2030 from a 2015 base-year. ASICS also commits to reduce scope 3 GHG emissions from purchased goods and services and end-of-life treatment of sold products 55% per product manufactured by 2030 from a 2015 base-year.

Luxury goods holding company **Kering** commits to reduce scope 1, scope 2 and scope 3 emissions from upstream transportation and distribution, business air travel and fuel and energy related emissions 50% per unit of value added by 2025 from a 2015 base-year. In addition, the company commits to reduce scope 3 emissions from purchased goods and services 40% per unit of value added within the same timeframe. This is part of their overall goal to reduce environmental impacts upstream, such as air emissions, water use, water pollution, land use change and waste

Science-based targets I SBTi Pipeline Overview

Since officially launching in June, 2015, up to 17 October 2018:

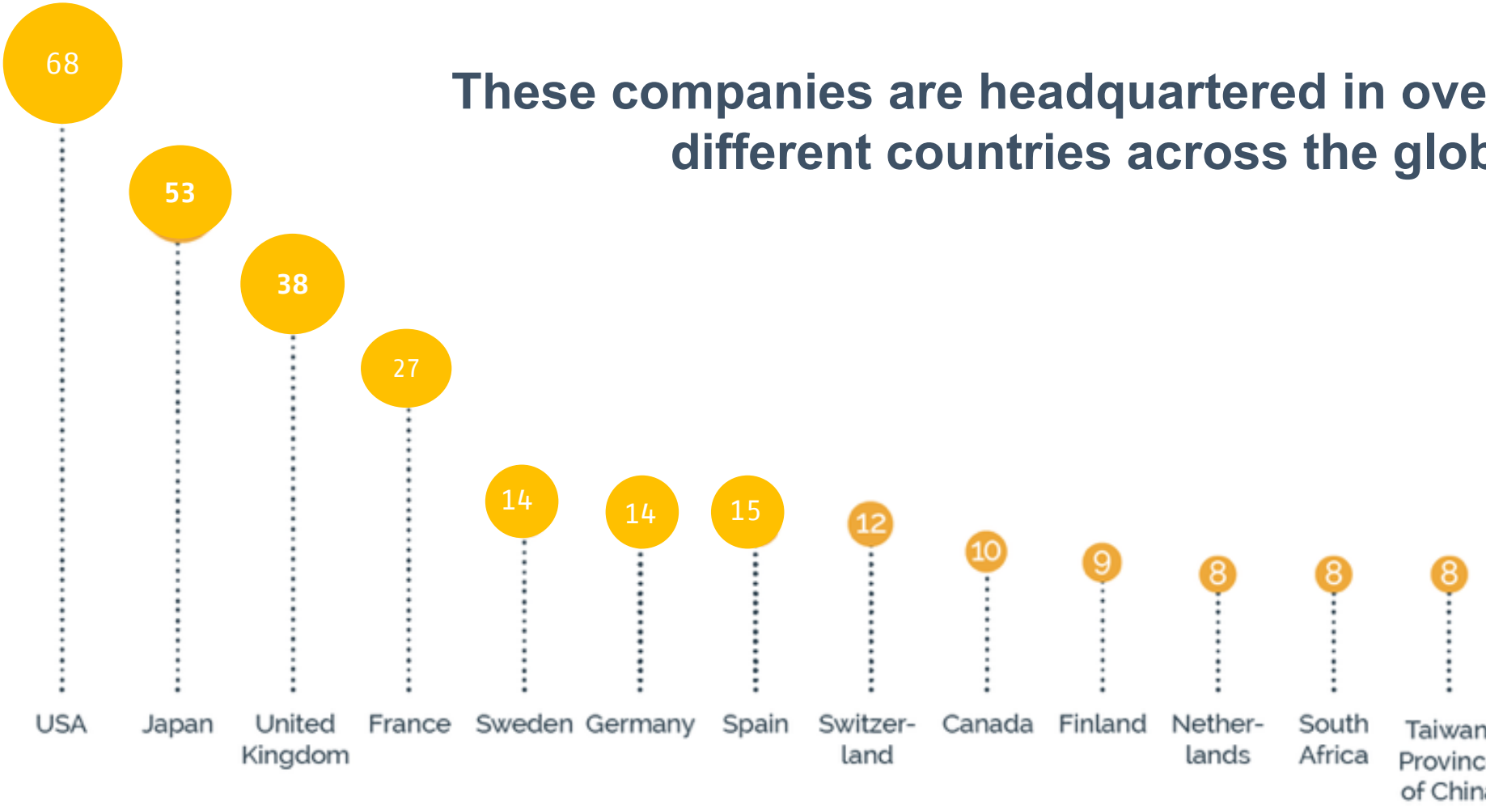
492
companies formally joined the SBTi

141
Approved and listed targets

~12
companies joining the initiative on average every month

Conducted by: WWF, VCCI
accompanied by: systain
supported by: Federal Ministry for Economic Cooperation and Development

Science-based targets I SBTi Pipeline Overview



These companies are headquartered in over 30 different countries across the globe…

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SCIENCE BASED TARGETS

about us

Science Based Targets – a joint initiative by CDP, the UN Global Compact (UNGC), the World Resources Institute (WRI) and WWF, in collaboration with the We Mean Business Coalition – intends to increase corporate ambition on climate action by mobilising companies to set greenhouse gas emission reduction targets consistent with the level of decarbonisation required by science to limit warming to less than 1.5ºC / 2°C compared to pre-industrial temperatures.

Conducted by: WWF, Network Germany, VCCI, Network Viet Nam
accompanied by: systain
supported by: Federal Ministry for Economic Cooperation and Development

our vision

Science-based target setting will become standard business practice and corporations will play a major role in driving down global greenhouse gas emissions and in supporting the implementation of country commitments.

our goals

1. **Impact goal:** By 2020, at least 300 high-impact companies, representing at least 2 GT of emissions, will have science-based emission reduction targets in place.
2. **Interim goal:** By 2018, at least 300 high-impact companies, representing at least 2 GT of emissions, will have committed to adopt science-based GHG emission reduction targets and more than 100 of these companies will have approved science-based targets.
3. **Policy goal:** In support of the Paris Agreement, science-based targets from leading companies demonstrate to policy-makers the scale of emission reductions that are achievable to positively influence international climate negotiations and domestic climate policy.

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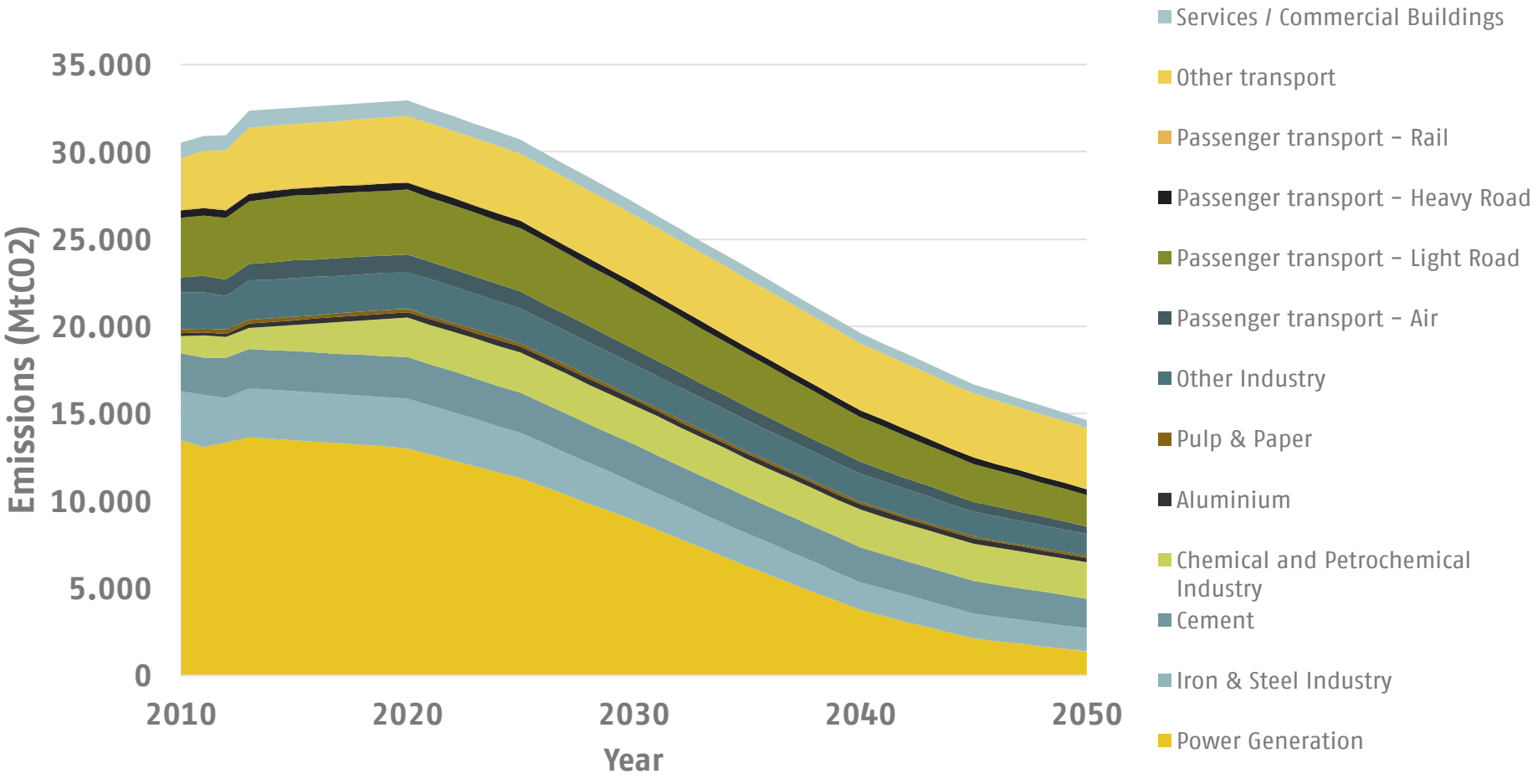
SCIENCE BASED TARGETS

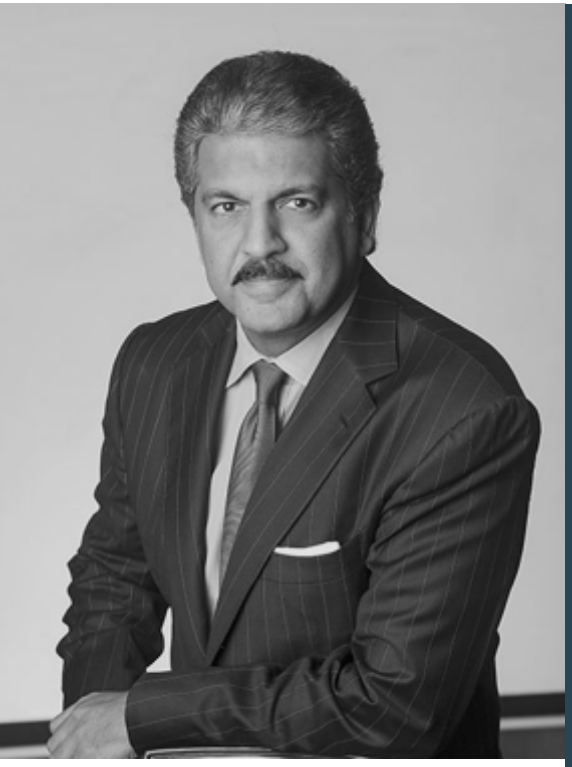
Science-based targets I Why Should Companies Engage?

- Brand reputation
- Investor confidence
- Resilience against regulation
- Increased innovation
- Bottom line savings
- Competitive edge

Science-based targets I Role of renewable energy

Decarbonisation of electricity supply I Energy efficiency





Anand Mahindra
Chairman
Mahindra Group

"I commit that the Mahindra Group will implement the Paris Agreement in its entirety. A powerful way of ensuring corporate climate action, aligned with the ambition of the Paris Agreement, is by setting science-based targets.

...Today, I am inviting all companies, particularly those that emit the most, to commit to set science-based targets. Over the course of 2018, I will be working to expand the adoption of science-based targets not only across the Mahindra Group, but amongst my business colleagues so that by the Global Climate Action Summit in September, 500 companies step up and commit to set science-based targets."

Conducted by: WWF, Network Germany, VCCI, Network Vietnam
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Conducted by: WWF, Global Compact Network Germany, VCCI, Global Compact Network Viet Nam
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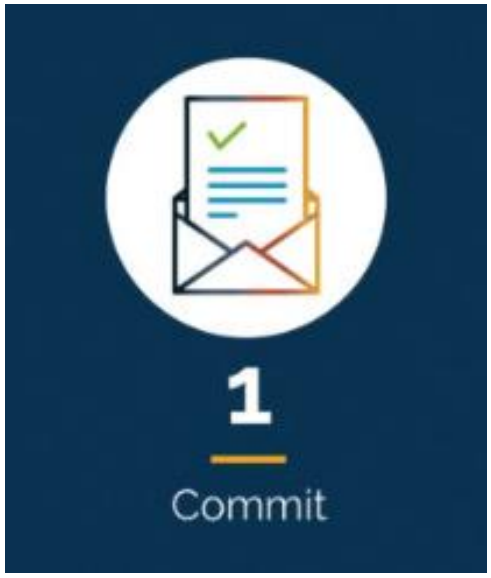
Science-based targets I How can companies participate?

Science-based targets I How can companies participate?

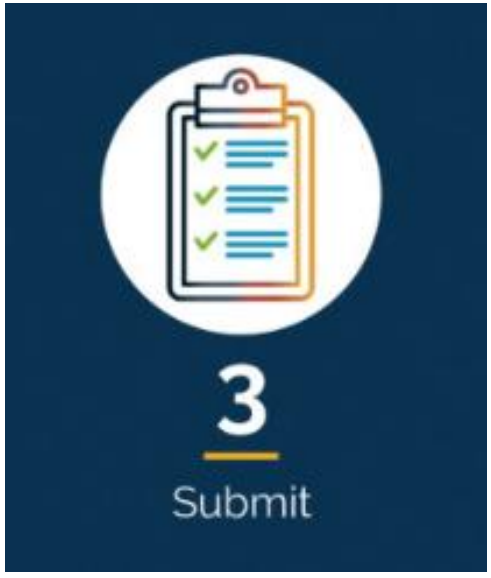


- Download Commitment Letter from sciencebasedtargets.org
  - Financial institutions to sign a sector-specific letter
- Submit signed Commitment Letter to info@sciencebasedtargets.org
- Be featured as a Committed Company on SBT and WMB websites

Science-based targets I How can companies participate?

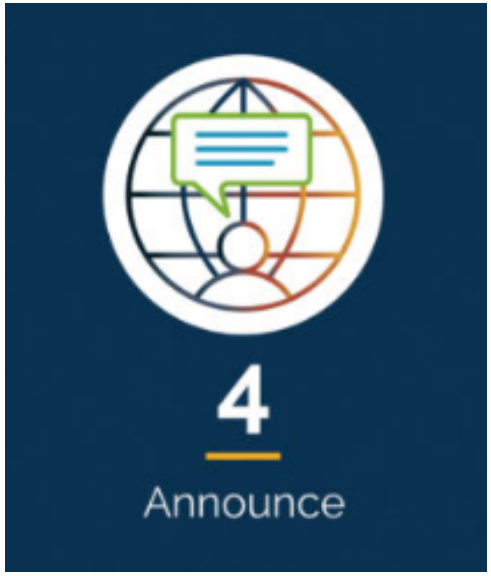
- Consult the target setting resources
  - Science based target setting manual
  - SBTi Criteria and Recommendations
  - GHG Protocol Corporate Standard
- Work internally to develop an SBT
  - Test different methods
  - Use most ambitious scenarios
  - Consider submitting draft targets for a preliminary validation before seeking management approval

Science-based targets I How can companies participate?



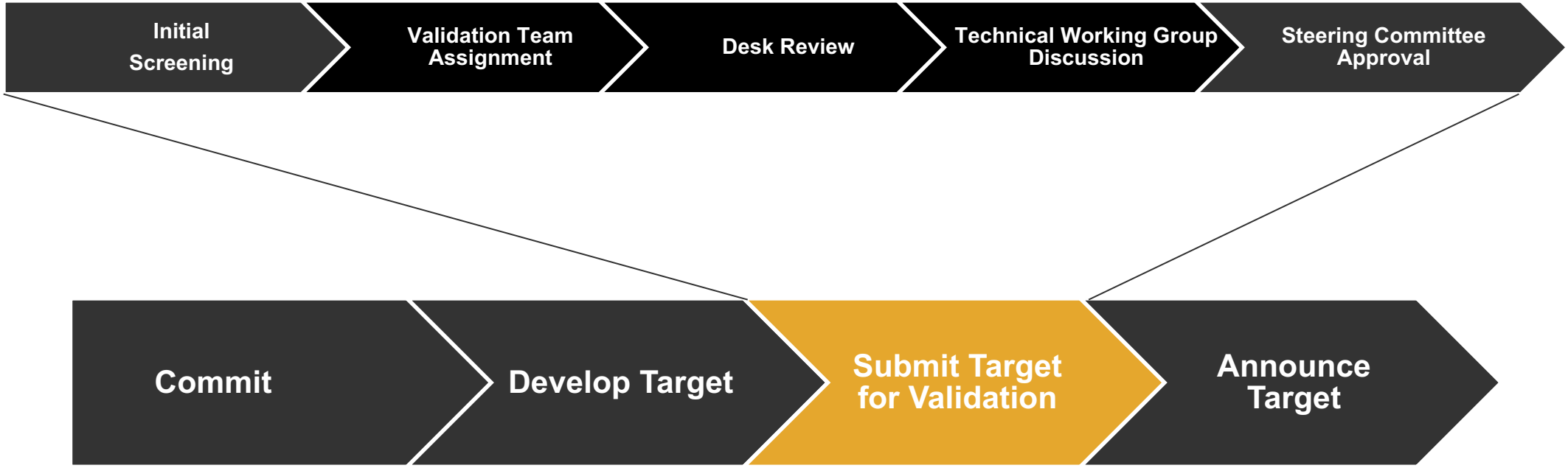
- Download and complete the *target submission form* with the help of the *guidance document* from sciencebasedtargets.org
- Submit final target for validation to info@sciencebasedtargets.org

Science-based targets I How can companies participate?



- When your target is approved it will be featured on the SBT website
- The SBTi will invite your company to speak at events and be quoted in media pieces based on your preference
- You will receive the SBTi welcome pack which explains how you can communicate about your target

Science-based targets I Target validation process



Science-based targets I Presentation outline

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- How can companies participate?
- **Getting started on target setting**

SCIENCE BASED TARGETS

Science-based targets I Getting started on target setting

1. The criteria for science based targets
2. Different approaches to target setting
3. The Sectoral Decarbonization Approach

Science-based targets I Criteria

The SBTi has established a set of criteria that all targets must meet to be validated as science-based

Boundary
All company-wide Scope 1 and Scope 2 GHG emissions must be covered

Timeframe
5-15 years into the future (2023-2033)

Ambition
At a minimum consistent with decarbonization required to stay below to 2°C - while we encourage efforts towards 1.5°C.

Scope 2

Disclose whether a location or market based approach is followed

Renewable energy

Targets to source renewable electricity at a rate that is consistent with 2°C scenarios are an acceptable alternative to scope 2 emission reduction targets.

Reporting
Disclose GHG emissions inventory

on an annual basis

Scope 3

A scope 3 screening is required.

An ambitious and measureable Scope 3 target is required when Scope 3 emissions cover more than 40% of total emissions.

Conducted by: WWF Network Germany VCCI Network Viet Nam accompanied by: systain supported by: Federal Ministry for Economic Cooperation and Development

Science-based targets I Criteria

Ambition of Scope 3 emissions targets:

- Absolute emission reduction targets in line with the decarbonization level required to keep global temperature increase below 2°C (i.e. absolute contraction approach).
- Physical or economic emissions intensity reductions consistent with the decarbonization level required to keep global temperature increase below 2°C (Sectoral Decarbonization Approach or GEVA).
- Other targets will be considered if the company can demonstrate that the target is ambitious and does not result in absolute emissions growth.

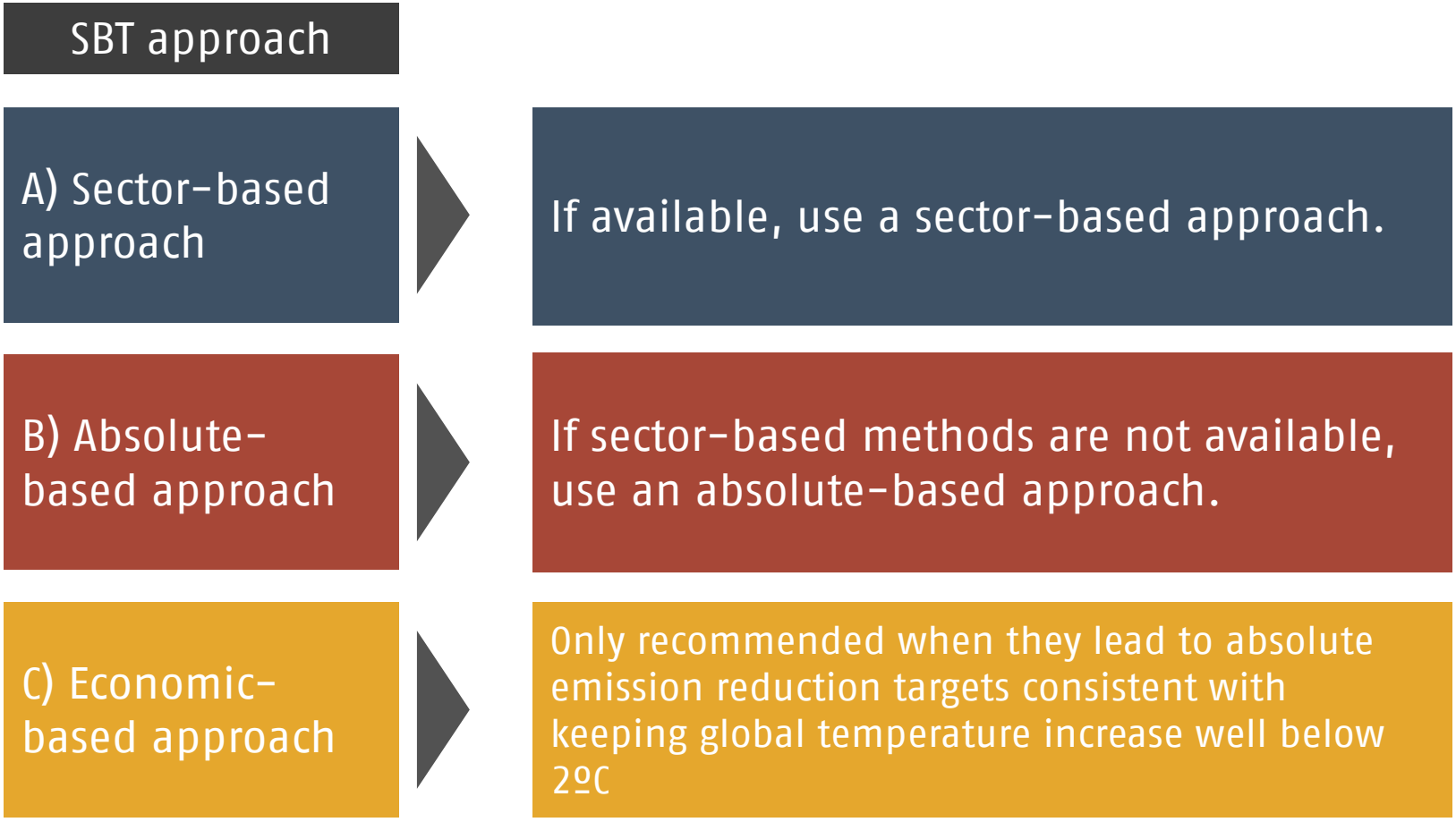
Supplier engagement targets:

- Targets must cover either 2/3 or more of cradle to gate emissions or, if that information is not available, 2/3 or more of annual procurement spend.
- At a minimum, the company's suppliers should set science-based emission reduction targets on their scope 1 and scope 2 emissions. Inclusion of suppliers' scope 3 emissions is also encouraged.
- Supplier engagement targets should cover a maximum of 5 years from the date the target is submitted to the SBTi for an official validation.

Science-based targets I Approaches

SBT approach	
A) Sector-based approach	Based on sector-specific carbon budgets determined by mitigation/technology options and activity projections.
B) Absolute-based approach	Based on absolute emissions reductions determined in climate reports (e.g. 49-72% reduction in IPCC 5th AR).
C) Economic-based approach	Based on the average emissions reductions determined in climate reports per projected economic output.

Science-based targets I Methods



Science-based targets I SDA

- Freely available open-source methodology
- Allows companies to set emission reduction targets in line with a 2°C decarbonization scenario.
- Based on the 2°C scenario (2DS) developed by the International Energy Agency (IEA) as part of its Energy Technology Perspectives publication.

See also Science Based Targets discussion paper: https://www.globalcompact.de/wAssets/docs/Umweltschutz/Diskussionspapiere/Discussion-paper-SBT-DGCN_screen_k.pdf

Science-based targets I Overview of sector-specific projects

Sector	Key deliverables	Lead organisation	Status	Timeframe
Transport	• Tool • Sector guidance	WWF	Completed	Released mid-2018
Apparel	• Sector guidance	WRI	In development	4Q, 2018
Oil &Gas	• Scoping paper • Methodology • Tool • Sector guidance	CDP	In development	4Q, 2018
Financials	• Methodology for asset classes: mortgages, real estate, listed equity, corporate loans, project finance	CDP / WRI / WWF / Ecofys / 2II	In development	4Q, 2019
Chemicals	• Tool • Sector guidance	CDP / WRI	Seeking funding	---
Buildings & Construction	• Scoping paper • Sector guidance	WBCSD	In development	4Q, 2018
Power	• Sector guidance	WBCSD	In development	4Q, 2018

Submit your commitment letter to start planning for a low carbon future,

Contact us at info@sciencebasedtargets.org if you need any further information.

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SCIENCE BASED TARGETS

Conducted by: WWF, Global Compact Network Germany, VCCI, Global Compact Network Vietnam

accompanied by: systain

supported by: Federal Ministry for Economic Cooperation and Development

SCIENCE BASED TARGETS

info@sciencebasedtargets.org
www.sciencebasedtargets.org
@sciencetargets

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WWF VCCI systain Federal Ministry for Economic Cooperation and Development

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