# Intergraf roadmap to $CO_2$ calculation, $CO_2$ reduction and $CO_2$ compensation in the printing industry

## Version 1 – 2022

**This Roadmap is based on the Intergraf Recommendations on $CO_2$ emissions calculation in the printing industry: https://www.intergraf.eu/about-print/print-carbon-footprint.**

## Introduction

The market increasingly asks for $CO_2$ compensation of the printed product rather than looking at the potential of reducing energy consumption and $CO_2$ emissions during the life cycle of the printed product. This approach will most likely lead to a situation where most of printed products on the market will not be as energy- and $CO_2$- optimised as they could be. What is always important is the interplay between reducing the $CO_2$ footprint and, only in a second step, offsetting the emissions through the purchase of compensation funds. This is the only way to give print shops and customers an incentive to work more energy- and $CO_2$-efficiently and thus consume less energy overall. As a positive side effect, this prevents unnecessary offsetting payments, which do not have to be made in the first place by reducing consumption and thus have to be offset. In order to achieve both a reduced $CO_2$ footprint for printed products and the most accurate $CO_2$ compensation as possible, Intergraf introduces this Roadmap of actions.

## Purpose

Support printing companies and print buyers in their efforts to prioritise and reduce $CO_2$ emissions related to printed products in the most efficient way.

## Methods and parameters

This Roadmap is based on the principles described in the Intergraf Recommendations, in which specific boundaries for $CO_2$ calculations of printing companies (corporate carbon footprint) and printed products (product carbon footprint) are standardised.

The Intergraf Recommendations point out 13 parameters to be included in the $CO_2$ calculation to cover minimum 95% of the emission within the defined scope. The Intergraf Recommendations divides the 13 parameters into scope 1, 2 and 3 according to the definitions in the Greenhouse Gas Protocol.

Furthermore, the Intergraf Recommendations categorise the 13 parameters into site relevant parameters related to the printing company and product relevant parameters related to the design of the printed product.

| No. | Parameter | Site/Product relevant | GHGP Scope |
|---|---|---|---|
| 1. | Production of substrate | Product | Scope 3 |
| 2. | On-site combustion of fuels | Site | Scope 1 |
| 3. | Production of purchased energy | Site | Scope 2 |
| 4. | Production of plates, cylinders and other image carriers | Site | Scope 3 |
| 5. | Transport of finished product | Product | Scope 3 |
| 6. | Transport of raw materials | Product | Scope 3 |
| 7. | Company owned or leased vehicles | Site | Scope 1 |
| 8. | Employees commuting | Site | Scope 3 |
| 9. | Production of inks, varnishes, toners and cartridges | Product | Scope 3 |
| 10. | Production of packaging materials | Product | Scope 3 |
| 11. | Production of fuels (upstream) | Site | Scope 3 |
| 12. | Purchased energy (upstream and transmission losses) | Site | Scope 3 |
| 13. | Production of Isopropanol (IPA), or alternative fountain solutions additives, and cleaning agents | Site | Scope 3 |

The two categories in the Intergraf Recommendations are closely connected to different scopes of the Greenhouse Gas Protocol:

### Parameters relevant for the printing company

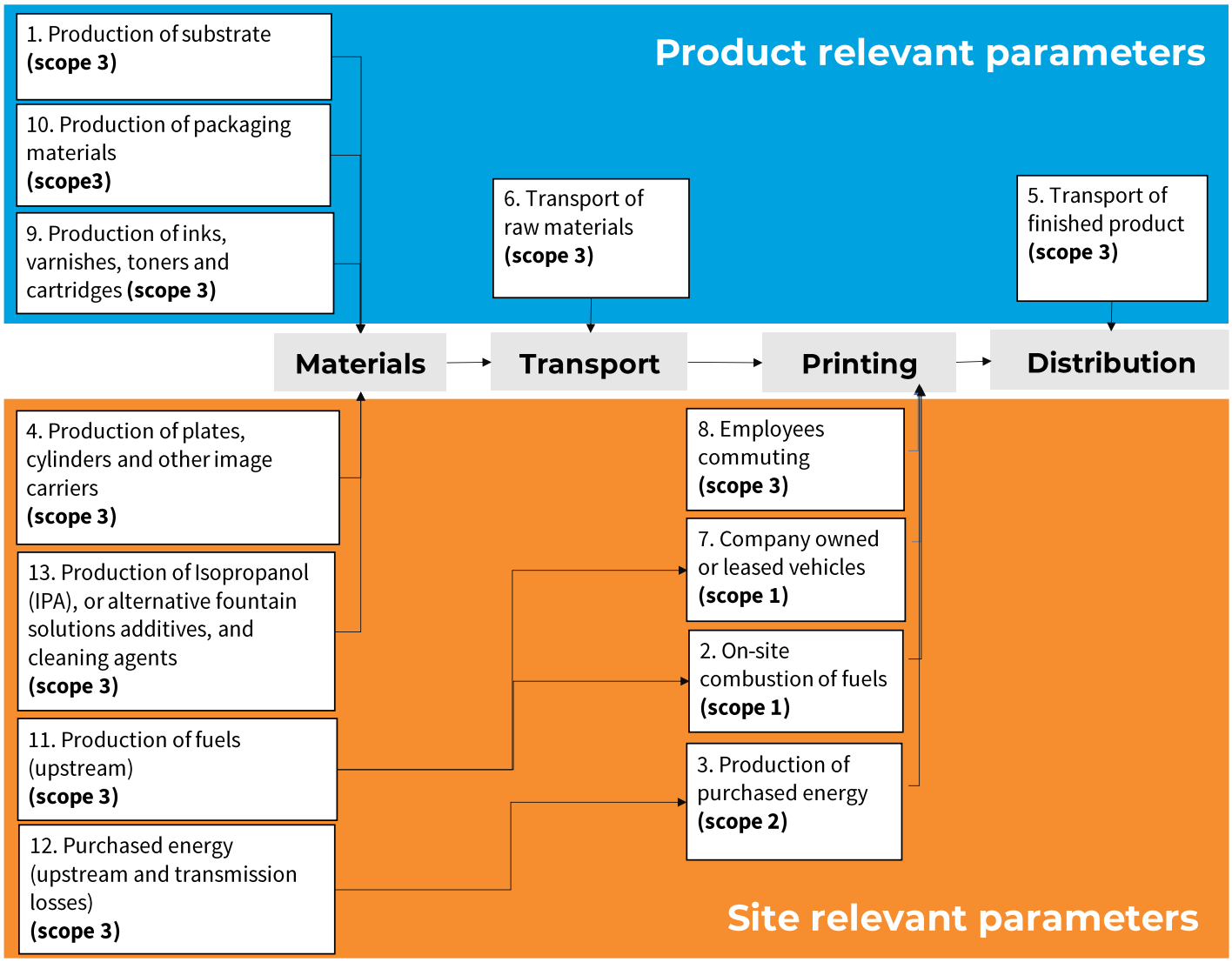
The most important site relevant parameters in the Intergraf standard are related to the consumption of purchased energy and the combustion of fuels in the printing company which are defined as Scope 1 and Scope 2 emissions in the Greenhouse Gas Protocol. The total emissions from scope 1 and 2 normally represents 10-20% of the total $CO_2$ emission of a printed product.

### Parameters relevant for the design of the product

The most important product relevant parameters in the Intergraf Recommendations are related to the production and transport of the substrate in the printed product which are defined as scope 3 emissions in the Greenhouse Gas Protocol. The total emissions from scope 3 normally represents 60-80% of the total $CO_2$ emission of a printed product.

## Categorisation of parameters

The categorisation into parameters related to the printing company and the design of the printed product is essential for the prioritisation of the activities for the reduction and compensation in the life cycle of the printed product. In this way, reduction measures can be identified, prioritised, implemented and subsequently evaluated step by step. The following figure shows the Intergraf Recommendations with its 13 parameters according to a life cycle assessment (LCA) approach.



# Activities for reduction and compensation

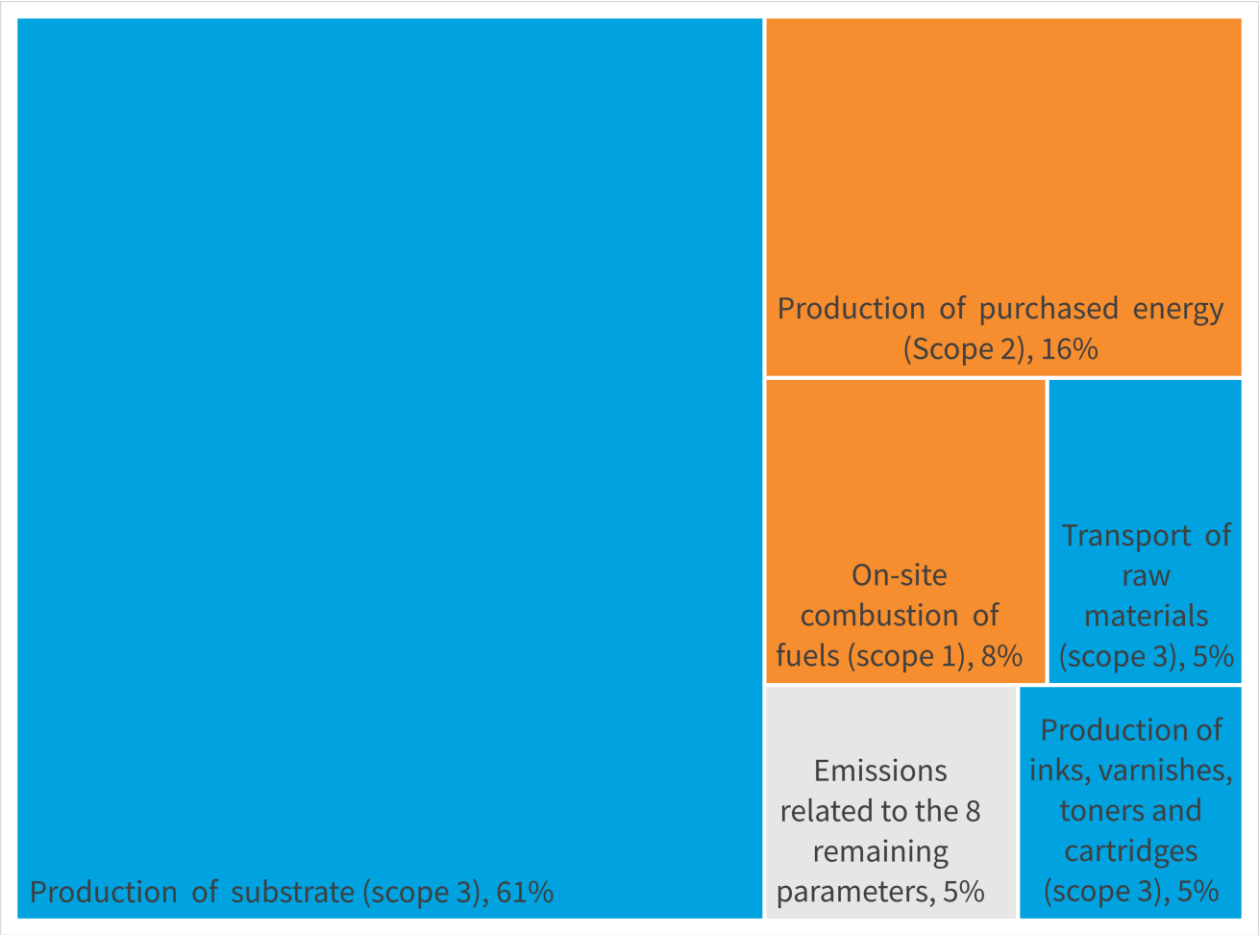
In the following scheme, a procedure for how to work with $CO_2$ reduction and $CO_2$ compensation within the life cycle of the printed product in a priority order is visualised in a recommended chronological order. A factual achievement of a low carbon footprint for a printed product could only be done by first, working with reductions of energy used trough the life cycle and of the product's design in a close cooperation between the printing company and the print buyer. A compensation of the remaining $CO_2$ emissions could then be taken into action.

| **Data and carbon account** | |
|---|---|
| **C.1** | Mapping data on $CO_2$ emission of the printing company and the printed product according to the 13 parameters defined in the Intergraf Recommendations. |
| **C.2** | Presentation of carbon account for the company and the printed products dividing the parameters into scope 1, 2 and 3 emissions according to the Greenhouse Gas Protocol and site relevant and product relevant parameters according to the Intergraf Recommendations. |

| **Parameters related to the printing company**<br><br>The company related emissions are primarily related to the consumption of energy in the company (scope 1 and 2). The printing company has a significant influence on the consumption of energy and the energy efficiency improvements. It is recommended that the reduction activities are prioritised as described below by the printing company. | | **Parameters related to the product**<br>The product related emissions are primarily related to the production and transport of the substrate in the printed product (scope 3). Since the print buyer is responsible for the final design of the printed product and thereby for the final choice of substrates in the printed product, it is recommended that the print buyer takes the reduction of the carbon emissions related to scope 3 into consideration. This should be done in a close cooperation between the print buyer and the printing company. The reduction activities are recommended to be prioritised as described below. | |
|---|---|---|---|
| **S.1** | Defining KPI's for energy efficiency of the printing company related to scope 1 and 2. | **P.1** | Setting targets for substrates with the lowest $CO_2$ emissions suitable for the printed product. The optimisation must happen in close cooperation between the customer and the printing company. |
| **S.2** | Setting targets for energy reduction activities in the printing company. | **P.2** | Implementation of the optimised substrate in the printed products. |
| **S.3** | Implementation of energy reduction activities in the printing company. | **P.3** | Setting targets for reduction of other product related parameters in scope 3 in cooperation between the print buyer and the printing company. |
| **S.4** | Purchasing of green energy for the printing company. | **P.4** | Implementation of other reduction activities related to the printed products. |
| **S.5** | Compensation of remaining emissions in scope 1 and 2. | **P.5** | Compensation of remaining emissions in scope 3. |

## SPECIFIC EXAMPLE of the most important parameters in the Intergraf Recommendations for a single printing company

The distribution of the top 5 parameters of the Intergraf Recommendation is shown for a single printing company in the diagram below. It is the same example as the one used in the Intergraf Recommendations.




These values provide an illustrative example of proportions of $CO_2$ emissions and should therefore not be interpreted as representative values for the European printing industry in general.

The company under investigation operates heatset printing facilities and produces magazines and advertising leaflets. It has in-house facilities for file content management, prepress, printing, finishing, and provides distribution services.