

CARBON CHALLENGE

Methodology Description

The Carbon Challenge portal encourages users to make simple lifestyle changes that can help reduce our carbon emissions. Any activity—from travel to the food we eat --is composed of several activities that produce carbon or greenhouse gas emissions that in turn, contributes to global warming and climate change.

What are Greenhouse Gases?

Greenhouse gases are gases in the earth's atmosphere that trap heat. Greenhouse gases consist of carbon dioxide, methane, ozone, nitrous oxide and chlorofluorocarbons. These gases absorb the wavelengths of radiation that a planet emits, resulting in the greenhouse effect.

Global Warming and Climate Change

Due to human activities, these gases are amplified and accumulated, resulting to the greenhouse effect that makes the planet warmer and alters our climate resulting to shifts in climate patterns and extreme weather events such as increased heatwaves and floods. Without significant intervention, a temperature increases globally by 1.5C by 2050 can be expected which will alter the way people work and live significantly—in ways that we cannot begin to imagine.

Change Starts With Us.

While a single lifestyle change may seem like a small dent in our global carbon emissions, we believe that with more people making the shift to a more sustainable lifestyle, our impact is amplified and can be a game-changer in healing the planet.

Our Calculation Methodology

The GHG Accounting Methodology is the basis for calculations made in this portal. Carbon “reduced” is based on actual carbon reduction because of the change initiated. Carbon “avoided” is based on actual carbon avoided of an activity compared to how the action is typically conducted or performed otherwise.

CATEGORY	CALCULATION	EMISSION FACTOR REFERENCE
ENERGY-Led Lighting	$[(\text{Previous non-LED wattage}) - (\text{New LED wattage})]/1000 * (\# \text{ LED bulbs}) * (\text{Average hours use per day}) * (\text{Number of days from installation to end date of challenge} + 1) * (\text{Country grid emission factor}) * 1000$	IEA Country Grid Emission Factor Reference; EPA for US and Canada
ENERGY-Upgrading Appliances	$[(\text{Previous Watts}) - (\text{New Watts})]/1000 * [(\text{Average hours use per day}) * (\text{Number of days from installation to end date of challenge} + 1) * (\text{Country grid emission factor}) * 1000]$	IEA Country Grid Emission Factor Reference; EPA for US and Canada
ENERGY-Solar Panels	$(\text{solar light wattage})/1000 * (\text{Number of days from installation to end date of challenge} + 1) * (\text{Country Solar PV Potential}) * (\text{Country grid emission factor}) * 1000$	IEA Country Grid Emission Factor Reference; EPA for US and Canada
ENERGY-Reduced my residential energy usage	$(\text{Previous Month kWh consumption} - \text{Current Month kWh consumption}) * (\text{Country grid emission factor}) * 1000$	IEA Country Grid Emission Factor Reference; EPA for US and Canada
WASTE	Weight in pounds X Emission Factor	DEFRA Emission Factors applicable for each type of waste disposal method
TRAVEL	$([\text{Distance Travelled}] * [\text{Emission Factor Travel FROM}]) - ([\text{Distance Travelled}] * [\text{Emission Factor Travel TO}])$	DEFRA Emission Factors applicable for each type of travel method
LIFESTYLE - Swapped store-provided plastic bags with reusable eco bags	$[\text{No of items (x) Weight in pounds per unit (x) 1.4072} = \text{CO}_2\text{e in KG}]$	DEFRA Emission Factors applicable for each material. Weight estimations are based on: https://alexaanswers.amazon.com/question/5e4FNH6EFSsTB0mcBTMfGe#:~:text=An%20empty%20one%20gallon%20ziploc%20bag%20weighs%20approximately%208.5%20grams
LIFESTYLE - Swapped store-provided paper bags with reusable eco bags	$[\text{No of items (x) Weight in pounds per unit} (x) \text{ EF Material Use} = \text{CO}_2\text{e in KG}]$	DEFRA Emission Factors applicable for each material. Weight estimations are based on PNZ_Plastic_Bags_Info.pdf (plastics.org.nz) .
LIFESTYLE - Swapped single - use plastic water bottles with bringing reusable water jugs	$[\text{No of items (x) Weight in pounds per unit} (x) \text{ EF Material Use} = \text{CO}_2\text{e in KG}]$	DEFRA Emission Factors applicable for each material. Weight estimations are based on: https://au.keepcup.com/impact-calculator
LIFESTYLE - Swapped store-provided plastic cutleries with reusable spoon and forks	$[\text{No of items (x) Weight in pounds per unit} (x) \text{ EF Material Use} = \text{CO}_2\text{e in KG}]$	DEFRA Emission Factors applicable for each material. Weight estimations are based on: https://www.amazon.com/180-Piece-Silverware-Disposable-Utensils-Including/dp/B01NASG6QN (state source).
LIFESTYLE – All Meals	$(\text{Estimated USD Cost of current meal plan} * \text{EF}) - (\text{Estimated USD Cost of new meal plan} * \text{EF})$	DEFRA Emission Factors applicable for each type of meal plan. Estimations are based on https://ourworldindata.org/carbon-footprint-food-methane

ECOSYSTEM- Planting a Tree	Above Ground Carbon (above ground biomass x 0.5)+ Below Ground Carbon(Exp(-1.0587 + 0.8836 x ln (above ground biomass))	WRI/WBCSD; The Land Use, Land-Use change, and Forestry (LULUCF) Guidance for GHG Project
ECOSYSTEM - Participated in a Beach/River/Lake/Community Clean-Up	Weight in pounds for waste sent for recycling X (EF Landfill - EF Recycling) = CO ₂ e in KG.	DEFRA Emission Factors for each type of waste disposal method

GHG Methodology Verification

Our carbon calculation methodology has been verified by TUV South Asia. For details of their assurance statement, please see succeeding section.



1. PURPOSE

The Purpose of this Statement is to ensure that the calculation methodology and formula adopted by Concentrix in the Carbon Challenge Tool (Carbon Challenge Data Reference_121123_FNL) remain adequate and valid. The Emission Factors included for the Calculation are taken from the Valid Source and are latest.

2. SCOPE

The scope covers and applicable to relevant aspects of this Carbon Challenge Calculation tool which are reviewed and validated by TUV SUD for the following:

- A. Energy Initiatives,
- B. Travel,
- C. Waste Management,
- D. Lifestyle, &
- E. Ecosystem i.e., Carbon Sequestration through Plantation

3. Statement Declaration

TUV SUD hereby states that the Approach, Methodology & Calculation Formula included in the Carbon Challenge Tool (name and version) are relevant, correct and in line with the Purpose of the Tool.

The emission factors are taken adequately from DEFRA.

Note: To keep the emission factors latest and updated we recommend having an annual assessment of the tool.

Disclaimer for Lifestyle Calculation: Although the emission factors have been taken as basic for each category/activity that means while doing the calculation other relevant parameters such as geographical and climatic conditions, energy consumption patterns, raw materials inputs, upstream and downstream transportation, country specific production/manufacturing guidelines/specifications etc. are not considered in this calculation.

For & behalf of TUV SUD South Asia Private Limited

Yours sincerely,



Dr. Ashish Rawat
Deputy General Manager (DGM)-Environment & Sustainability Services
TUV SUD South Asia Pvt. Ltd.
374, Udyog Vihar, Phase II, Sector – 20, Gurugram – 122016, Haryana, India.
Phone: +91-(124)-6139280
Mobile: +91 – 7290056918
Email ID: Ashish.Rawat@tuvsud.com

PAN No.: AABCT0716G TAN No.: MUMT09385F Service Tax Code AABCT0716GSD004 CST No.: 27150828488C	Registered Office: TUV SUD South Asia Pvt. Ltd. No.: TUV SUD House, Off Saki Vihar Road, Saki Naka, Andheri (East), Mumbai – 400072 India.	Corporate Office: TUV SUD South Asia Pvt. Ltd. Solitaire, 4th Floor, ITI Road, Aundh, Pune – 411007, India	Email: info@tuv-sud.in www.tuv-sud.in
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TUV SUD South Asia 374, Udyog Vihar, Phase II Sector – 20, Gurugram Haryana 122016