Briefing Note on Calculating Emission Reductions from Individual Daily Activities

To guide the public in practicing a low-carbon lifestyle, IPE has developed a Form for Calculating Emission Reductions from Individual Daily Activities (hereinafter referred to as the "Form") based on extensive research and analysis.

- Calculation Method of Emission Reduction of Individual Low-Carbon Behavior:

$$E = E_B - E_R \qquad (1)$$

where:

E - Emission reduction from individual low-carbon behavior

E_B - Baseline scenario emissions

E_R - Reduction scenario emissions

of which,

$$E_B = \sum AD_{B_i} * EF_{B_i} \qquad (2)$$

where:

AD_B - Baseline scenario activity level

EF_B - Emission factor or product carbon footprint associated with the baseline scenario activity

i - Types of baseline scenario activity

$$E_R = \sum AD_{R_j} * EF_{R_j} \qquad (3)$$

where:

AD_R - Activity level of the emission reduction scenario

EF_R - Emission factor or product carbon footprint associated with the emission reduction scenario activity

j - Types of activities involved in emission reduction scenario

IPE matches the relevant product carbon footprints or emission factors based on the activities or products involved in the baseline scenario and emission reduction scenario, and presents the calculation results in terms of emission reductions in grams of carbon dioxide equivalent (gCO2e) per person.

- Emission factor data: Sourced from the Product Carbon Footprint Disclosure (PCFD) Platform, China Products Carbon Footprint Factors Database (CPCD), China Enterprise GHG Emission Accounting Platform, the 2022 National Average Grid Emission Factor[1] released by the Ministry of Ecology and

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1 https://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202302/t20230207_1015569.html

Environment, industry research reports, academic literature, and more.

- Activity level data and supplementary notes: Derived from the National Bureau of Statistics (https://data.stats.gov.cn/index.htm), academic literature, industry research reports, news articles, publicly disclosed data of mainstream brands and manufacturers, field research and other channels.

IPE will periodically update, optimize and upgrade the Form based on the latest research.

Form for Calculating Emission Reductions from Individual Daily Activities:

	Individual Climate Action	LCA Emission Factor	Details on Individual Climate Action
1	Carry your own shopping bag when you go shopping	Plastic film bag 3.24kgCO2e/kg	When shopping, using your own containers or bags reduces your emissions by 19 g of CO2e for every plastic bag saved (measured in 6 g).
2	Go to bed early when there's no TV shows to watch	Calculation refers to academic paper or reports	Reducing household electricity consumption by going to bed one hour earlier reduces emissions by 95 g of CO2e.
3	Turn off the tap when brushing your teeth	Winter residential water use (other washing water) 1.43 kgCO2e/m3 Summer residential water use (other washing water) 0.12 kgCO2e/m3	Turning off the faucet while brushing your teeth reduces emissions by 9 g of CO2e each time.
4	Bring your own reusable cup when you go out	Calculation refers to academic paper or reports	Bringing your own cup when you go out reduces your emissions by 40 g of CO2e for every disposable cup (16 ounces/473ml) you substitute.
5	Separate your garbage	Calculation refers to academic paper or reports	Sorting your garbage reduces emissions by 145 g of CO2e per day (only considering reductions in landfill disposal).
6	Reduce unnecessary printing	Coated paper 953gCO2e/kg	Using less paper reduces emissions by 4 g of CO2e.

7	Buy and use less disposable plastic products	Disposable polypropylene takeout container (capacity 650ml, 23g each) 0.19kgCO2e/pc	Reducing the use of single-use plastics (3 disposable containers) reduces emissions by 570 g of CO2e per meal.
8	Efficiently use wrapping when giving gifts	Wrapping paper 141.56gCO2e/kg	Use less paper when wrapping gifts reduces emissions by 14 g of CO2e.
9	Run at night	Calculation refers to academic paper or reports	When you choose to run at night instead of staying at home watching tv, per one hour, you can reduce your household electricity consumption by 95 g of CO2e.
10	Air dry your hair naturally when you're not in a hurry	2022 National Average Grid Emission Factor 0.5703tCO2e/MWh	Drying your hair naturally instead of using a hair dryer (for 10 minutes), reduces your emissions by 152 g of CO2e each time.
11	Don't choose disposable utensils when ordering takeout	Disposable chopsticks 4.60tCO2e/t Plastics: average (UK) 3102.45kg/tonnes	Reducing the use of disposable cutlery by choosing "no cutlery" when ordering takeaway can reduce emissions by 54 g of CO2e.
12	Turn off your computer and lights at the end of the day	2022 National Average Grid Emission Factor 0.5703tCO2e/MWh	When you make a habit of turning off your computer and lights after work (for 12 hours), you reduce your emissions by 166 g of CO2e per day.
13	Turn off the lights when you go to bed at night	2022 National Average Grid Emission Factor 0.5703tCO2e/MWh	Turning off the lights when going to bed at night (for 8 hours) reduces emissions by 110 g of CO2e per day.

14	Take 1-minute shorter showers on a daily basis and try lowering the water temperature setting on your electric water heater by 10℃	Winter residential water use (water for washing machines) 0.4kgCO2e/m3 Summer residential water use (water for washing machines) 0.19kgCO2e/m3 2022 National Average Grid Emission Factor 0.5703tCO2e/MWh	If you reduce your shower time by 1 minute (1 shower per day) and try to lower the water temperature setting of your electric water heater by 10°C (60°C to 50°C, for example), you can reduce your emissions by 120 g of CO2e per day.
15	Hang clothes in sunny weather and use the dryer less often	2022 National Average Grid Emission Factor 0.5703tCO2e/MWh	Drying clothes on sunny afternoons and instead of using a dryer can reduce emissions by 323 g of CO2e.
16	If it's hot enough to turn on the AC, set the temperature to 26°C or above	2022 National Average Grid Emission Factor 0.5703tCO2e/MWh	If the weather is hot enough to turn on the air conditioner, you may want to set the temperature to 26℃ or above, which can reduce CO2e emissions by 219 g of CO2e per hour (calculated by increasing the air conditioner setting temperature from 25℃ to 26℃).

17	Save up for a full load of clothes before washing them	Municipal water: energy consumption for reclaimed water production in water supply systems 0.82kgCO2e/kg 2022 National Average Grid Emission Factor 0.5703tCO2e/MWh	Saving up a full load of dirty clothes for washing can reduce emissions by 473 g of CO2e each time.
18	Buy replacements for cosmetics and toiletries to minimize packaging waste.	Plastic (PE) 4.72kgCO2e/kg	Purchasing refills for household products reduces consumption of plastic bottles by 85 g of CO2e per bottle.
19	Buy local seasonal fruits	Medium-sized aircraft cargo 1.146kgCO2e / ton per km	Purchasing 1 kg of local fruit instead of imported fruit reduces emissions by 2,980 g of CO2e (in terms of air transportation from Haikou to Beijing).
20	Learn to cook from bloggers and order takeout less	Disposable polypropylene takeout container (capacity 650ml, 23g each) 0.19kgCO2e/pc	Ordering one less takeaway meal per week (based on 3 disposable lunch boxes) can reduce emissions by 570 g of CO2e.
21	Use less energy when cooking and eat more raw foods	Natural gas 21.6219 tCO2e/10000m³	Eating a light meal once a week and using less gas for cooking just once a week reduces emissions by 360 g of CO2e.

22	Eat all your fruits and vegetables every day	Food waste incineration - waste treatment stage 65.8kgCO2e/kg	Cleaning your plate and creating no leftovers can reduce 49 g of CO2e per day.
23	Don't waste food	Food waste incineration - waste treatment stage 65.8kgCO2e/kg	Cleaning your plate and creating no leftovers can reduce 49 g of CO2e per day.
24	Drink oat milk or plant-based foods	Oatly Oat Milk 0.63kgCO2e/L Milk 3.20kgCO2e/L	Choosing oatmeal milk over cow's milk (based on a 250 ml serving)　reduces emissions by 643 g of CO2e per serving.
25	Commute to and from work on the bus/subway	Subway 0.02kgCO2e/person-km Bus 0.077kgCO2e/person-km Private Passenger Vehicle 149gCO2e/km	A 10-kilometer round-trip commute to work, using public transportation, reduces emissions by 1,005 g of CO2e per day.
26	Ride a bike to explore the city	Private Passenger Vehicle 149gCO2e/km	If you choose to ride a bike instead of using a car for short distances (less than 5 kilometers), you can reduce 745 g of CO2e per trip.

27	Plant a tree	Absorption of trees planted in a region (by region): Beijing Reforestation -552t CO2e/km2	Based on the calculation that each hectare of plantation forest (about 550 trees) can absorb 5.52 tons of CO2e, on average, each tree can absorb about 10,000 g of CO2e a year.
28	Shop at used bookstores	Copy paper products made from commercial pulp 1756.18kgCO2e/t	Buying 1 used book instead of 1 new book reduces emissions by 2,880 g of CO2e.
29	Take the express train to the airport	Subway 0.02kgCO2e/person-km Private Passenger Vehicle 149gCO2e/km	Taking the Airport Express instead of a private car reduces emissions by 3,870 g of CO2e per trip, based on a 30-kilometer commute from home to the airport.
30	Carpool to/from work	Passenger transportation (Diesel cab) 0.045kgCO2e/person-km	Carpooling to and from work, based on a commute of 10 kilometers round trip, reduces emissions by 450 g of CO2e per trip.
31	Travel by bicycle	Private Passenger Vehicle 149gCO2e/km	If you choose to ride a bicycle instead of a private car for short distances (less than 5 kilometers), you can reduce your emissions by 745 g of CO2e per trip.
32	Bring your own toiletries when traveling	General plastic 3.12kgCO2e/kg	Bringing your own toiletries when traveling can reduce emissions by 47 g of CO2e per trip.

33	Repurpose old items	Beer glass bottle (Chile) 1.78kgCOe/kg	Reusing a beer bottle as a vase can reduce 770 g of CO_2e.
34	Purchase first-class energy-efficient appliances when renovating (air conditioners, for example)	2022 National Average Grid Emission Factor 0.5703tCO_2e/MWh	Using a Grade 1 energy-efficient air conditioner reduces CO_2e emissions by 2,150 g per day (based on 12 hours of use) compared to using a Grade 5 energy-efficient air conditioner.
35	Try to choose white or light-colored clothes with fewer processing steps	White cotton clothing 30.90tCO_2e/t Dyed cotton fabric 11.16kgCO_2e/pc (250g)	Buying one piece of white cotton clothing reduces emissions by 3,430 g of CO_2e compared to buying one piece of dyed fabric.
36	Go on a weekend walk in the great outdoors	2022 National Average Grid Emission Factor 0.5703tCO_2e/MWh	Going for a walk in nature on weekends and spending time outdoors for a day (in 8 hours) can lead to a reduction of 757 g of CO_2e by saving electricity.
37	Grow your own vegetables/flowers/grass	Agricultural medium hauler 0.15kgCO_2e/km	Growing your own vegetables and buying 1 kilog less of local vegetables can reduce emissions by 22 g of CO_2e.
38	Take an hour off your cell phone each day to rest your eyes and brain	2022 National Average Grid Emission Factor 0.5703tCO_2e/MWh	Using your cell phone 1 hour less per day reduces emissions by 0.3 g of CO_2e.
39	Handwash small items of clothing to save water and energy	Winter residential water use (water for washing machines) 0.4kgCO_2e/m3 Summer residential water use (water for washing machines) 0.19kgCO_2e/m3	Handwashing small items of clothing saves about 278g of CO_2e.

		2022 National Average Grid Emission Factor 0.5703tCO2e/MWh	
40	Use the stairs instead of the elevator for lower floors	2022 National Average Grid Emission Factor 0.5703tCO2e/MWh	Taking the stairs instead of the elevator saves around 5.4g of CO2e each time.
41	Hold online meetings to avoid business trips by air	Medium aircraft air passenger transport (average) 81.7gCO2e/passenger*km Business travel-Hotel Stays-activity-based 66.52kgCO2e/night	Replacing a round-trip flight from Beijing to Shanghai with an online meeting saves 246,310g of CO2e.
42	Hold online meetings to avoid business trips by high-speed train	High-speed rail travel-Based on consumption quantities 0.02kgCO2e/passenger*km Business travel-Hotel Stays-activity-based 66.52kgCO2e/night	Replacing a high-speed train trip from Beijing to Shanghai with an online meeting saves 110,570g of CO2e.
43	Buy fewer new cotton shirts	cotton shirt 8.77kgCO2e/piece	Upcycling an old cotton shirt instead of buying a new one saves 8,770g of CO2e.

This note has been translated into English by IPE for reference purposes only. If any questions arise related to the accuracy of the information contained in this translated version, please refer to the Chinese version, which is the official version.