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Verification report Product sheets

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**BUREAU
VERITAS**

SOLUTIONS

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1. BACKGROUND

The strategic sustainability plan of IKEA IBÉRICA S.A. (hereinafter IKEA) sets out "Change Driver 1", entitled "Healthy & Sustainable Living", which aims to "inspire and facilitate a better everyday life within the boundaries of the planet", with a commitment to:

- Creating a movement in society around better everyday living
- Inspiring and enabling healthier, more sustainable lives
- Promoting circular and sustainable consumption

Against this backdrop, according to studies conducted by IKEA, a large percentage of people want to live more sustainably, switching to a healthier, improved lifestyle that has a lower impact on the planet.

Although people want to live more sustainably, they are not doing so as much as they want to. Money matters, as price can be one of the main barriers to accessing products, services and solutions. The main action they want brands to take is to make products and services more affordable and better for both people and the environment. IKEA has therefore created different product sheets where it calculates the financial savings associated with the use of some of its products.

2. PURPOSE

As an independent third party that is in no way influenced by IKEA, this technical verification report is ultimately intended to objectively corroborate that the financial savings calculations determined and derived from the use of IKEA products are correct and have a traceable and reliable data source.

These savings calculations will be reflected in different product sheets, with the purpose of guiding customers and making them aware of the benefits of adopting efficient measures in their everyday lives.

3. PRODUCT SHEETS

The report will include the review of a total of nine product sheets. The topics of the sheets are as follows, categorised into three distinct groups:

1. Energy savings:

- LEDs (lamps/bulbs)
- Eliminating phantom expenses caused by leaving electrical appliances in standby mode
- Induction hobs vs other less efficient models (ceramic, etc.)
- Solar panels in the home
- Drying racks vs tumble dryers

2. Water and energy savings:

- Taps with aerators (bathroom and kitchen)
- Dishwashers

3. Waste reduction:

- Avoiding organic waste generated by disposing of food in good condition
- Rechargeable batteries

4. PRODUCT SHEET REVIEW

Each measure is shown in detail and individually below. The structure will consist of the following parts:

1. Description and approach

Savings data and conditions offered by the current product sheet, which will be shown to customers through the sheet.

2. Calculations and sources

Explanation of the calculations IKEA has carried out to produce the savings result, citing the source of the data and the numbers used to determine the calculation.

3. Disclaimers

Data used as an assumption in the different studies with reference to the calculations carried out by IKEA.

4.1 LEDs

The sheet referring to LEDs states the following:

Heading	Save up to EUR 174 per year
Body	LED bulbs use up to 85% less energy and last 5 times longer than halogen bulbs, which will help you save on your electricity bill.

Table 1 – Description of LED product sheet

Data and calculations

In order to obtain annual savings of EUR 174, a hypothetical model of a typical household has been created. The data used and their sources are as follows:

	Data	Units	Source
a	Total LED bulb power reduction compared to a halogen bulb		
	15%	--	OCU End of halogen bulbs
b	Light sources in a home		
	16	bulbs	Assumption
c	Average power per light source in the home (using halogen bulbs)		
	50	W/bulb	3 OCU LED bulbs, efficient lighting
d	Daily hours of use per bulb		
	3	hours/day	Assumption
e	Estimated electricity price		
	0.237	EUR/kWh	OCU Electricity price. Average for 2021–20221 OCU Price of electricity
f	Days per month		
	30	days	Assumption

Table 2 – LED data table

With items "a" and "c", we obtain the difference in power between LED and halogen bulbs and the difference in their energy costs.

The calculation structure to extract the annual savings is as follows:

$$\text{Savings}_{LED} \left(\frac{\text{EUR}}{\text{year}} \right) = (c - c \cdot a) \cdot b \cdot d \cdot e \cdot f \cdot 12 \quad \text{Equation 1}$$

The expanded form is as follows:

$$\text{Saving}_{LED} \left(\frac{\text{EUR}}{\text{year}} \right) = (50 - 50 \cdot 15\%) \frac{W}{\text{bulb}} \cdot 16 \text{ bulbs} \cdot 3.0^h \cdot \frac{\text{EUR } 0.237}{\text{day}} \cdot 30 \frac{\text{days}}{\text{mon th}} \cdot 12 \frac{\text{months}}{\text{year}} \cdot \frac{1 \text{ kW}}{1000 \text{ W}}$$

$$\text{Savings}_{LED} = 173.86 \frac{\text{EUR}}{\text{year}}$$

IKEA obtained the ratio regarding the superiority of average LED life span listed in the body of the sheet from the following source: OCU | LED bulbs, efficient lighting.

The calculations in these product sheets have been verified to be correct and reliable.

Disclaimers

- To obtain the annual energy savings value, a household with 16 halogen light sources with an average power of 50 W and an average daily use profile of 3 hours has been used as an assumption.

4.2 Phantom expenses

The sheet regarding phantom consumption states the following:

Heading	Save up to EUR 55 a year
Body	Going out or going to bed? Flip a switch and turn off several electrical devices at once. This way, devices don't remain in standby mode, avoiding unnecessary energy consumption.

Table 3 – Description of phantom expenses product sheet

Data and calculations

In order to obtain annual savings of EUR 55, the data used and their sources are as follows:

	Data	Units	Source
a	Annual phantom consumption of a household		
	231	kWh	IDAE Consumption in the Residential Sector in Spain
b	Estimated price of electricity		
	0.237	EUR/kWh	OCU Electricity price

Table 4 – Phantom expenses data table

With items "a" and "b", we obtain the annual savings that would result from not having these phantom expenses. The calculation structure to determine the annual savings is as follows:

$$\text{Savings}_{\text{standby year}} = a \cdot b \quad \text{Equation 2}$$

The expanded form is as follows:

$$\begin{aligned} \text{Savings}_{\text{standby year}}^{\text{EUR}} &= 231 \frac{\text{kWh}}{\text{year}} \cdot 0.237 \frac{\text{EUR}}{\text{kWh}} \\ \text{Savings}_{\text{standby}} &= 54.69 \frac{\text{EUR}}{\text{year}} \end{aligned}$$

The calculations in this product sheet have been verified to be correct and reliable.

Disclaimers

No calculation assumptions have been considered.

4.3 Induction vs ceramic

The fact sheet on the advantages of using induction states the following:

Heading	Save up to EUR 32 per year whilst cooking
Body	Induction hobs only heat up your cookware, they use less electricity and could save you EUR 32 a year on your electricity bill.

Table 5 – Description of induction vs ceramic product sheet

Data and calculations

In order to determine the annual savings of EUR 32, a model of energy consumption in the kitchen has been created. The data used and their sources are as follows:

	Data	Units	Source
a	Average daily consumption of a ceramic hob per hour		
	1.85	kWh/day	Assumption
b	Estimated price of electricity		
	0.237	EUR/kWh	OCU Electricity price
c	Savings in energy consumption when using induction instead of a ceramic hob (20–40%)		
	20%	--	IDAE: Course on household appliances 3/3

Table 6 – Induction vs ceramic data table

With items "a" and "c", we determine the difference in consumption between ceramic and induction and thus the financial savings.

The calculation structure to determine the annual savings is as follows:

$$\text{Savings}_{\text{induction}} \left(\frac{\text{EUR}}{\text{year}} \right) = (a \cdot c) \cdot b \cdot 365 \quad \text{Equation 3}$$

The expanded form is as follows:

$$\begin{aligned} \text{Savings}_{\text{induction}} \left(\frac{\text{EUR}}{\text{year}} \right) &= (1.85 \cdot 20\%) \cdot 0.237 \cdot 365 \\ &= 31.97 \frac{\text{EUR}}{\text{year}} \end{aligned}$$

The calculations in this product sheet have been verified to be correct and reliable.

Disclaimers

- In order to obtain the annual energy savings, a ceramic hob with an average power of 1.85 kW and an average daily use of 1 hour has been considered, which means an average daily consumption of 1.85 kWh.

4.4 Solar panels in the home

The sheet on the installation of solar panels in homes states the following:

Heading	Save up to EUR 243 per year
Body	Your roof can be a power plant, and you can save up to EUR 243 per year in a 35 m ² home.

Table 7 – Description of solar panel product sheet

Data and calculations

In order to determine the annual savings of EUR 243, a calculation tool from "Contigo Energía" was used through a partnership with IKEA. Subsequently, the tool's calculations were revised and the results were adapted to current annual savings values.

Our results are based on a south-facing 35 m² house in the Community of Madrid whose electricity bill ranges between EUR 25 and 50 per month.

The "Contigo Energía" calculation tool concluded that a good solution for this case is to install 3 solar panels with a peak power per panel of 375 W (1.12 kWp total). Selling the surplus energy generated to the grid was also proposed given that there is no provision for load shifting or the installation of a battery set.

From this point on, a study of energy consumption and savings was conducted. The data were as follows:

	Data	Units	Source
a	Total annual energy consumed by the household		
	1,722.8	kWh	Contigo Energía IKEA solar self-consumption calculator
b	Percentage of energy self-consumed directly		
	43%	--	Contigo Energía IKEA solar self-consumption calculator
c	Surplus energy fed into the grid		
	969.55	kWh	Contigo Energía IKEA solar self-consumption calculator
d	Price of energy sold to the grid		
	0.069	EUR/kWh	Contigo Energía IKEA solar self-consumption calculator
e	Estimated price of electricity		
	0.237	EUR/kWh	1 OCU Electricity price

Table 8 – LED data table

With items "a", "b" and "e", we determine the financial savings from generating energy using solar panels. The calculation to determine the savings from using solar panels is as follows:

$$\text{Savings}_{\text{panels}} \left(\frac{\text{EUR}}{\text{year}} \right) = a \cdot b \cdot e$$

Equation 4

The expanded form is as follows:

$$\begin{aligned} \text{Savings}_{\text{panels}} \left(\frac{\text{EUR}}{\text{year}} \right) &= 1722.8 \frac{\text{EUR}}{\text{year}} \cdot 43\% \cdot 0.237 \frac{\text{EUR}}{\text{kWh}} \\ \text{Savings}_{\text{panels}} &= \mathbf{175.73} \frac{\text{EUR}}{\text{year}} \end{aligned}$$

Next, with items "c" and "d", we determine the profits from selling the surplus energy generated by the panels to the grid.

$$\text{Sale}_{\text{grid}} \left(\frac{\text{EUR}}{\text{year}} \right) = c \cdot d$$

Equation 5

The expanded form is as follows:

$$\begin{aligned} \text{Sale}_{\text{grid}} \left(\frac{\text{EUR}}{\text{year}} \right) &= 969.55 \frac{\text{EUR}}{\text{year}} \cdot 0.069 \\ \text{Sale}_{\text{grid}} &= \mathbf{66.90} \frac{\text{EUR}}{\text{year}} \end{aligned}$$

Together, the total savings are determined:

$$\begin{aligned} \text{Savings}_{\text{total}} \left(\frac{\text{EUR}}{\text{year}} \right) &= \text{Savings}_{\text{panels}} + \text{Sale}_{\text{grid}} \\ \text{Savings}_{\text{total}} \left(\frac{\text{EUR}}{\text{year}} \right) &= 175.73 \frac{\text{EUR}}{\text{year}} + 66.73 \frac{\text{EUR}}{\text{year}} \\ \text{Savings}_{\text{total}} &= \mathbf{242.63} \frac{\text{EUR}}{\text{year}} \end{aligned}$$

Equation 6

The calculations in this product sheet have been verified to be correct and reliable.

Disclaimers

- A surplus sale price of EUR 0.069/kWh has been assumed.
- BVS has validated the solar production values obtained from the "Contigo Energía" calculation tool with the PVGIS tool validated at the European level.
- In order to determine the annual energy savings value, a 35 m² south-facing home located in Madrid with an energy cost of between EUR 25 and EUR 50 has been considered.
- The calculation was based on the installation of three solar panels with a peak power per panel of 375 W, assuming an installation of 1.12 kWp.

4.5 Drying racks vs tumble dryers

The sheet on drying racks states the following:

Heading	Save up to EUR 78 per year
Body	Switch off the tumble dryer and use a drying rack to save on your electricity bill. Better for your wallet and better for the planet

Table 9 – Description of drying rack vs tumble dryer product sheet

Data and calculations

In order to determine the annual savings of EUR 78, the data used and their sources are as follows:

	Data	Units	Source
a	Average consumption of a dryer cycle		
	2.1	kWh/cycle	OCU Use the dryer without it taking a toll on you
b	Average tumble dryer cycles per week		
	3	Cycles/week	OCU Use the dryer without it taking a toll on you
c	Estimated price of electricity		
	0.237	EUR/kWh	OCU Electricity price

Table 10 – Drying rack vs tumble dryer data table

The calculation structure to determine the annual savings is as follows:

$$\text{Savings}_{\text{drying rack}} \left(\frac{\text{EUR}}{\text{year}} \right) = a \cdot b \cdot c \cdot 52 \quad \text{Equation 7}$$

The expanded form is as follows:

$$\begin{aligned} \text{Savings}_{\text{drying rack}} \left(\frac{\text{EUR}}{\text{year}} \right) &= 2.1 \frac{\text{kWh}}{\text{cycle}} \cdot 3 \frac{\text{cycles}}{\text{week}} \cdot 0.237 \frac{\text{EUR}}{\text{kWh}} \cdot 52 \frac{\text{weeks}}{\text{year}} \\ \text{Savings}_{\text{drying rack}} &= 77.56 \frac{\text{EUR}}{\text{year}} \end{aligned}$$

The calculations in this product sheet have been verified to be correct and reliable.

Disclaimers

- The number of times the dryer is used in a week, which is contained in the source, has been used as the correct assumption.

4.6 Taps with aerators

The sheet on taps with aerators states the following:

Heading	Save up to EUR 173 per year on your shower
Body	Save up to EUR 173 per year on your water bill with our taps with aerators that limit consumption by 50% without impacting water pressure.

Table 11 – Description of tap with aerator product sheet

Data and calculations

In order to determine the annual savings of EUR 173, the data used and their sources are as follows:

	Data	Units	Source
a	Water savings by installing aerators		
	50%	--	Internal IKEA sheet information
b	Price of water for domestic use		
	1.90	EUR/m ³	Aeas XVI National Study (AEAS-AGA)
c	Litres of water per shower (10 min)		
	200	l/shower	AQUAE foundation Water savings vs environmental impact
d	Users per home		
	2.5	people/household	INE Continuous Household Survey. 2020
e	Average number of showers per day		
	1	Shower/day per person	Assumption

Table 12 – Tap with aerator data table

The calculation structure to determine the annual savings is as follows:

$$\text{Savings}_{\text{aerators year}} \left(\frac{\text{EUR}}{\text{year}} \right) = a \cdot b \cdot c \cdot d \cdot e \cdot 365 \quad \text{Equation 8}$$

The expanded form is as follows:

$$\text{Savings}_{\text{aerators year}} \left(\frac{\text{EUR}}{\text{year}} \right) = 50\% \cdot 1.9 \frac{\text{EUR}}{\text{m}^3} \cdot 200 \frac{\text{l}}{\text{shower}} \cdot 2.5 \text{ people} \cdot 1 \frac{\text{shower}}{\text{day} \cdot \text{person}} \cdot 365 \text{ days} \cdot \frac{1 \text{ m}^3}{1000 \text{ l}}$$

$$\text{Savings}_{\text{aerators}} = 173.18 \frac{\text{EUR}}{\text{year}}$$

The calculations in this product sheet have been verified to be correct and reliable.

Disclaimers

- Data from studies and tests carried out by IKEA with its products and certified by third parties was taken into account in order to determine the water savings.
- Water consumption of 200 litres per shower, equivalent to 10 minutes, was used as an assumption to determine the financial savings.
- An assumption of one shower per person per day was considered.

4.7 Dishwashers vs hand-washing

The sheet on dishwashers states the following:

Heading	Save water and energy
Body	Dishwashers save water and energy. Remember to run it only when it is completely full to save about 11,000 litres per year and reduce your electricity bill by up to EUR 92 per year.

Table 13 – Description of dishwasher vs hand-washing product sheet

Data and calculations

In order to determine the annual water and energy savings, the data used and their sources are as follows: savings data taken directly from Canal de Isabel II study: Research on potential efficiency with the use of dishwashers.

This study compares the water consumption of homes before and after installing a dishwasher, and this data shows the unit savings.

Data		Units	Source
to	Average frequency of dishwasher use		
	2.46	cycles/week	Canal de Isabel II Research on potential efficiency with the use of dishwashers
b	Unit savings of water when using dishwasher		
	87.1	l/cycle	Canal de Isabel II Research on potential efficiency with the use of dishwashers
c	Daily unit savings of energy when using dishwasher		
	1.06	kWh/day	Canal de Isabel II Research on potential efficiency with the use of dishwashers
d	Price of electricity (DOESN'T SAY).		
	0.237	EUR/kWh	OCU Electricity price

Table 14 – Dishwasher vs hand-washing data table

The calculation structure to determine the annual WATER savings is as follows:

$$\text{Savings}_{\text{dishwasher}} \left(\frac{\text{€}}{\text{year}} \right) = a \cdot b \cdot 52 \quad \text{Equation 9}$$

The expanded form is as follows:

$$\begin{aligned} \text{Savings}_{\text{dishwasher}} \left(\frac{\text{€}}{\text{year}} \right) &= 2.46 \frac{\text{cycles}}{\text{week}} \cdot 87.1 \frac{\text{€}}{\text{cycle}} \cdot 52 \text{ weeks} \\ \text{Savings}_{\text{dishwasher}} &= \mathbf{11.142} \frac{\text{€}}{\text{year}} \end{aligned}$$

The calculation structure to determine the annual ENERGY savings is as follows:

$$\text{Savings}_{\text{dishwasher}} \left(\frac{\text{EUR}}{\text{year}} \right) = a \cdot c \cdot d \cdot 365 \quad \text{Equation 10}$$

The expanded form is as follows:

$$\text{Savings} \left(\frac{\text{EUR}}{\text{year}} \right) = 2.46 \frac{\text{cycles}}{\text{week}} \cdot 1.06 \frac{\text{l}}{\text{cycle}} \cdot 0.237 \frac{\text{EUR}}{\text{kWh}} \cdot 52 \text{ weeks}$$

$$\text{Savings} = 91.60 \frac{\text{EUR}}{\text{year}}$$

The calculations in this product sheet have been verified to be correct and reliable.

Disclaimers

No calculation assumptions have been considered.

4.8 Tap nozzle

The sheet in reference to using tap nozzles states the following:

Heading	Save up to EUR 42 per year on your bill
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Table 15 – Description of tap nozzle product sheet

Data and calculations

In order to obtain annual savings of EUR 42, a hypothetical model of a typical household has been created. The data used and their sources are as follows:

	Data	Units	Source
a	Average household water consumption per person per day		
	142	l/per/day	AQUAE foundation Average household water consumption
b	Household water consumption from tap use		
	18%	--	AQUAE foundation Average household water consumption
c	Maximum water savings when using the nozzle in spray mode		
	66%	--	IKEA product technical data sheet
d	Maximum water savings when using the nozzle in mist mode		
	95%	--	IKEA product technical data sheet
e	Number of residents per household		
	2.5	per	INE Continuous Household Survey. 2020
f	Average household water price		
	0.0019	EUR/l	Aeas XVI National Study (AEAS-AGA)

Table 16 – Tap nozzle data table

With items "a", "b" and "e", we obtain the water consumed by the bathroom sink per household per year.

The calculation structure to determine the annual savings is as follows:

$$\text{Consumption}_{\text{water}} \left(\frac{l}{\text{year}} \right) = a \cdot b \cdot e \cdot 365 = \quad \text{Equation 11}$$

With the savings value of the different nozzle modes from items "c" and "d" and the previously calculated consumption, we determine the annual water savings when using the product.

$$\text{Litre savings}_{\text{SPRAY}} \left(\frac{l}{\text{year}} \right) = \text{Consumption}_{\text{water}} \cdot c \quad \text{Equation 12}$$

$$\text{Litre savings}_{\text{MIST}} \left(\frac{l}{\text{year}} \right) = \text{Consumption}_{\text{water}} \cdot d \quad \text{Equation 13}$$

Finally, using the water price from item "f", we obtain the financial savings derived from the use of the nozzle.

$$\text{Savings EUR}_{\text{SPRAY}} \left(\frac{\text{EUR}}{\text{year}} \right) = \text{Litres savings}_{\text{SPRAY}} \cdot f =$$

Equation 14

$$\text{Savings EUR}_{\text{MIST}} \left(\frac{\text{EUR}}{\text{year}} \right) = \text{Litres savings}_{\text{MIST}} \cdot f =$$

Equation 15

The expanded form is as follows:

$$\text{Consumption}_{\text{water}} \left(\frac{\text{l}}{\text{year}} \right) = 142 \frac{\text{l}}{\text{per-day}} \cdot 18\% \cdot 2.5 \text{ per} \cdot 365 \frac{\text{day}}{\text{year}} =$$

$$\text{Consumption}_{\text{water}} \left(\frac{\text{l}}{\text{year}} \right) = \mathbf{23,324} \frac{\text{l}}{\text{year}}$$

Savings in litres from using the product:

$$\text{Litres savings}_{\text{SPRAY}} \left(\frac{\text{l}}{\text{year}} \right) = 23,324 \frac{\text{l}}{\text{year}} \cdot 66\% =$$

$$\text{Litres savings}_{\text{MIST}} \left(\frac{\text{l}}{\text{year}} \right) = 23,324 \frac{\text{l}}{\text{year}} \cdot 95\% =$$

$$\text{Litres savings}_{\text{SPRAY}} \left(\frac{\text{l}}{\text{year}} \right) = \mathbf{15,384} \frac{\text{l}}{\text{year}}$$

$$\text{Litres savings}_{\text{MIST}} \left(\frac{\text{l}}{\text{year}} \right) = \mathbf{22,157} \frac{\text{l}}{\text{year}}$$

Financial savings from using the product:

$$\text{Savings EUR}_{\text{SPRAY}} \left(\frac{\text{EUR}}{\text{year}} \right) = 15,384 \frac{\text{l}}{\text{year}} \cdot 0.0019 \frac{\text{EUR}}{\text{l}} =$$

$$\text{Savings EUR}_{\text{MIST}} \left(\frac{\text{EUR}}{\text{year}} \right) = 22,157 \frac{\text{l}}{\text{year}} \cdot 0.0019 \frac{\text{EUR}}{\text{l}} =$$

$$\text{Savings EUR}_{\text{SPRAY}} \left(\frac{\text{EUR}}{\text{year}} \right) = \mathbf{29.25} \frac{\text{EUR}}{\text{year}}$$

$$\text{Savings EUR}_{\text{MIST}} \left(\frac{\text{EUR}}{\text{year}} \right) = \mathbf{42.10} \frac{\text{EUR}}{\text{year}}$$

Disclaimers

- The percentage savings value of the product is calculated assuming that the tap is fully opened (calculated with a typical flow rate of 5.7 l/min). In addition, the savings value is calculated in maximums, i.e. whenever the sink is used, the spray or mist mode should be activated.

4.9/ Avoiding food waste

The sheet on food waste states the following:

Heading	Save up to EUR 222 per year on food
Body	We want to make keeping leftovers as easy as possible. Everything organised and on view. When you can see what you have, you waste less food.

Table 17 – Description of avoiding food waste product sheet

Data and calculations

In order to determine the annual savings of EUR 222, the amount of food wasted annually in Spain, the average price of food by weight and the number of households in Spain have been considered. Data on waste per person is also provided.

	Data	Units	Source
a	Amount of food wasted in Spain annually		
	1,364,760,000	kg/year	Government of Spain Spain Food Report 2021
b	Households in Spain		
	18,754,800	households	INE Continuous Household Survey. 2020
c	Average price per kilo of food		
	3.05	EUR/kg	INE Physical amounts consumed, expense and unit value
d	Amount of food wasted per person per year		
	30.93	kg/person	Government of Spain Spain Food Report 2021

Table 18 – Avoiding food waste data table

The calculation structure to determine the annual savings is as follows:

$$\text{Savings}_{\text{containers}} \left(\frac{\text{EUR}}{\text{year} \cdot \text{household}} \right) = \frac{a}{b} \cdot c \quad \text{Equation 16}$$

The expanded form is as follows:

$$\begin{aligned} \text{Savings}_{\text{containers}} \left(\frac{\text{EUR}}{\text{year} \cdot \text{household}} \right) &= \frac{1,364,760,000 \frac{\text{kg}}{\text{year}}}{18,754,800 \text{ households}} \cdot 3.05 \frac{\text{EUR}}{\text{kg}} \\ \text{Savings}_{\text{containers}} &= 221.94 \frac{\text{EUR}}{\text{year} \cdot \text{household}} \end{aligned}$$

The calculations in this product sheet have been verified to be correct and reliable.

Disclaimers

- In order to determine the savings value from not wasting food, it was assumed that the user would take advantage of all the food otherwise wasted.

4.10 Rechargeable batteries vs single-use

The sheet on rechargeable batteries states the following:

Heading	Save up to EUR 376
Body	By purchasing the LADDA battery pack, you can avoid buying up to 1,880 alkaline batteries and save up to EUR 376 during their lifetime.

Table 19 – Description of rechargeable batteries vs single-use batteries product sheet

Data and calculations

In order to determine the savings of EUR 376 per rechargeable battery pack, the following data were used:

	Data	Units	Source
a	Unit cost of a 2450 mAh alkaline battery		
	0.80	EUR/4 batteries	Assumption
b	Recharging cycles of a 2450 mAh LADDA battery, IKEA product		
	470	--	IKEA product sheet information

Table 20 – Rechargeable batteries vs single-use batteries data table

For calculation purposes, one recharge of a rechargeable battery is comparable to having a new battery. The calculation to determine the savings from using rechargeable batteries is as follows:

$$\text{Savings}_{\text{batteries}} (\text{EUR}) = 4 \cdot a \cdot b$$

Equation 17

$$\text{Savings}_{\text{batteries}} (\text{EUR}) = 4 \frac{\text{EUR}}{\text{batteries}} \cdot 0.2_{\text{battery}} \cdot 470$$

$$\text{Savings}_{\text{batteries}} (\text{EUR}) = \text{EUR } 376.00$$

The calculations in this product sheet have been verified to be correct and reliable.

Disclaimers

- The calculation is based on a unit cost of EUR 0.20 per alkaline battery.

5. Appendix I: Sources consulted by IKEA

Product sheet	Sources	
General	1 OCU Electricity price Average for 2021–2022	https://www.ocu.org/vivienda-y-energia/gas-luz/informe/precio-luz
LEDs	2 OCU End of halogen bulbs	https://www.ocu.org/vivienda-y-energia/equipamiento-hogar/noticias/fin-bobillas-halogenas
	3 OCU LED bulbs, efficient lighting	https://www.ocu.org/vivienda-y-energia/equipamiento-hogar/informe/bombillas-led-guia-compra
	4 CACITI Every bulb counts	https://www.caciti.es/secretaria/noticias/330-2017-02-03-12-35-43.html
Phantom expenses	5 IDAE Consumption in the residential sector in Spain	https://www.idae.es/uploads/documentos/documentos_Documentacion_Basica_Residencial_Unido_c93da537.pdf
	6 OCU Standby consumption calculator	https://www.ocu.org/vivienda-y-energia/gas-luz/calculadora/consumo-stand-by
Induction vs ceramic	7 IDAE: Course on household appliances 3/3	https://www.idae.es/uploads/documentos/documentos_cursos_electrodomesticos_3de3_fb864ddb.pdf
Solar panels in the home	8 Contigo energía IKEA solar self-consumption calculator	https://contigoenergia.com/calculadora-autoconsumo-solar-ikea/
Drying rack vs household	9 OCU Use the dryer without it taking a toll on you	https://www.ocu.org/electrodomesticos/secadora/consejos/ahorrar-energia-con-secadora
Taps with aerators	10 Internal IKEA information	Internal IKEA information
	11 Aeas XVI National Study (AEAS-AGA)	https://www.aeas.es/component/content/article/52-estudios/estudios-suministro/185-xvi-estudio-nacional-aeas-aga?Itemid=101
	12 AQUAE foundation Water savings vs environmental impact	https://www.fundacionaquae.org/cuanta-agua-consume-la-ducha-minuto/
	13 INE Continuous Household Survey. 2020	https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176952&menu=ultiDatos&idp=1254735572981
Dishwashers vs hand-washing	14 Canal de Isabel II Research on potential efficiency with the use of dishwashers	http://www.madrid.org/bvirtual/BVCM010570.pdf
Tap nozzle	15 Aeas XVI National Study (AEAS-AGA)	https://www.aeas.es/component/content/article/52-estudios/estudios-suministro/185-xvi-estudio-nacional-aeas-aga?Itemid=101
	16 AQUAE foundation Average household water consumption	https://www.fundacionaquae.org/en-que-se-utiliza-el-agua-en-espana/
	17 INE Continuous Household Survey. 2020	https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176952&menu=ultiDatos&idp=1254735572981
Avoiding food waste	18 Government of Spain Spain Food Report 2021	https://www.mapa.gob.es/es/alimentacion/temas/desperdicio/07052022_desperdicio_alimentario_2021_v2_tcm30-626538.pdf
	19 INE Continuous Household Survey. 2020	https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176952&menu=ultiDatos&idp=1254735572981
	20 INE Physical amounts consumed, expense and unit value	https://www.ine.es/jaxiT3/Tabla.htm?t=10699&L=0
Rechargeable batteries vs single-use batteries	21 Internal IKEA information	Internal IKEA information
	22 IKEA Rechargeable battery, HR06 AA 1.2V, 2450 mAh, LADDA	https://www.ikea.com/gb/en/p/ladda-rechargeable-battery-hr06-aa-1-2v-50504692/

6/. Appendix II: Example of IKEA product sheet

An example of a product sheet generated by IKEA is shown below. It is made up of a heading, body and clarifications regarding savings data.



Ahorra agua

**Ahorra hasta 173€*
al año en tu ducha**

Ahorra hasta 173€ al año en tu factura de agua con nuestro grifos con aireadores que limitan el consumo en un 50% sin que esto afecte a la presión.

*Según datos del estudio de AEAS-AGA.



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pequeños cambios
con un gran impacto



Figure 1 – Example of an IKEA product sheet