UBQ Materials: A Cost Competitive, Here and Now Solution

June 11, 2025

JTF Just Transition Fund

Co-funded by the European Union

For centuries humans have extracted from Earth, depleting its resources, and creating **waste**.

This is one of the single biggest threats to our planet.

400M tons of virgin plastic produced globally every single year

>2B tons of Municipal Solid Waste are produced annually

13% of global Municipal Solid Waste is Recycled.

>1.6B tons of CO2 eq of GHG emissions annually generated from solid waste

SOURCE; WHAT A WASTE 2.0: A GLOBAL SNAPSHOT OF SOLID WASTE MANAGEMENT TO 2050 (2018)

THERE IS A SOLUTION: UBQ USES THIS WASTE

UBQ is a viable solution TODAY!

Netherlands Production Facility
Fully Operational

80,000
Tons Annual Capacity

ZERO
operational water consumption

ZERO
combustion

ZERO
effluents

ZERO
emissions

YOU SEE WASTE. WE SEE ENDLESS POSSIBILITIES.

Landfill & incineration bound waste, including **all organics,** and **hard-to-recycle** waste, becomes the **singular feedstock** used to make **UBQ™**.

A HERE AND NOW SOLUTION!

THE SOLUTION: UBQ™ MATERIALS

Converting organic and hard-to-recycle waste into a sustainable plastic alternative

WASTE

Mixed municipal **household waste**, including organics & hard-to-recycle materials, **diverted from landfills and incinerators.**

PROPRIETARY UBQ™ MATERIAL

UBQ Materials' advanced conversion technology transforms waste into **UBQ™**, a **climate-positive thermoplastic.**

DIVERSE PRODUCTS

UBQ™, a new substitute to fossil-based resins enables you to create more **sustainable products without extracting new resources from the planet.**

UBQ Material Processing & Production

Leftover household waste arrives

Any remnants of minerals, metal and glass are removed

Breaking the organic material into its basic building blocks and binding it with inorganic materials

Conversion process using green energy, no water added.

Reconstruction of the matrix into our new bio-based matrix, **UBQ™**

UBQ™ material can replace conventional plastic or be mixed with most polymers to create more sustainable products

COMPLIANCES, CERTIFICATIONS AND VERIFICATIONS

Innovation that achieves the highest industry standards

COMPLIANCES

REACH COMPLIANCE

SVHC

RoHS COMPLIANT

HSE

REACH UK

CALIFORNIA PROPOSITION 65 PROP 65 COMPLIANT

TSCA compliant

CERTIFICATIONS & VERIFICATIONS

Certified B Corporation

USDA CERTIFIED BIOBASED PRODUCT PRODUCT 50%

UL VALIDATED

• UBQTM POWDER CONTAINS A MINIMUM OF 100% POST-CONSUMER RECYCLED CONTENT

UL.COM/ECV

Vireo Advisors, LLC

Raising the Bar on Sustainability in Innovation

NEAR FOOD CONTACT STANDARD
USA & EUROPE

UNITED REGISTRAR OF SYSTEMS URS IATF 16949

UNITED REGISTRAR OF SYSTEMS URS ISO 9001

UNITED REGISTRAR OF SYSTEMS URS ISO 14001

AXION

Circular economy specialists

RECYCLABILITY APPROVAL

IMDS

International Material Data System

gadsl

global automotive declarable substance list

AUTOMOTIVE

Industry Leaders Choose UBQ™

McDonald's (Arcos Dorados)

Mercedes-Benz

PEPSICO

Kingfisher

ACTION

TEKNOR APEX

Polyram UK

KETER

CRESCENT GARDEN COMPANY

MAGNA

EXPANDING UBQ PARTNER ECOSYSTEM

CONNECTING THE GLOBAL SUSTAINABILITY VALUE CHAIN

Global brands, retailers, manufacturers, and compounders use UBQ™ material throughout their supply chain to accelerate their environmental goals.

UBQ DELIVERS CARBON BENEFITS
in Production and Removal

0.15

PRODUCTION* PROCESS EMISSIONS

UBQ production creates **less than 1/20 of the carbon of virgin polymer production** & uses minimal land for production & sourcing of raw materials

-1.17

BIOGENIC REMOVAL

UBQ removes nearly 1.2 kg CO_2eq of biogenic carbon per kg of **UBQ** produced

-1.02

TOTAL PRODUCT CARBON FOOTPRINT

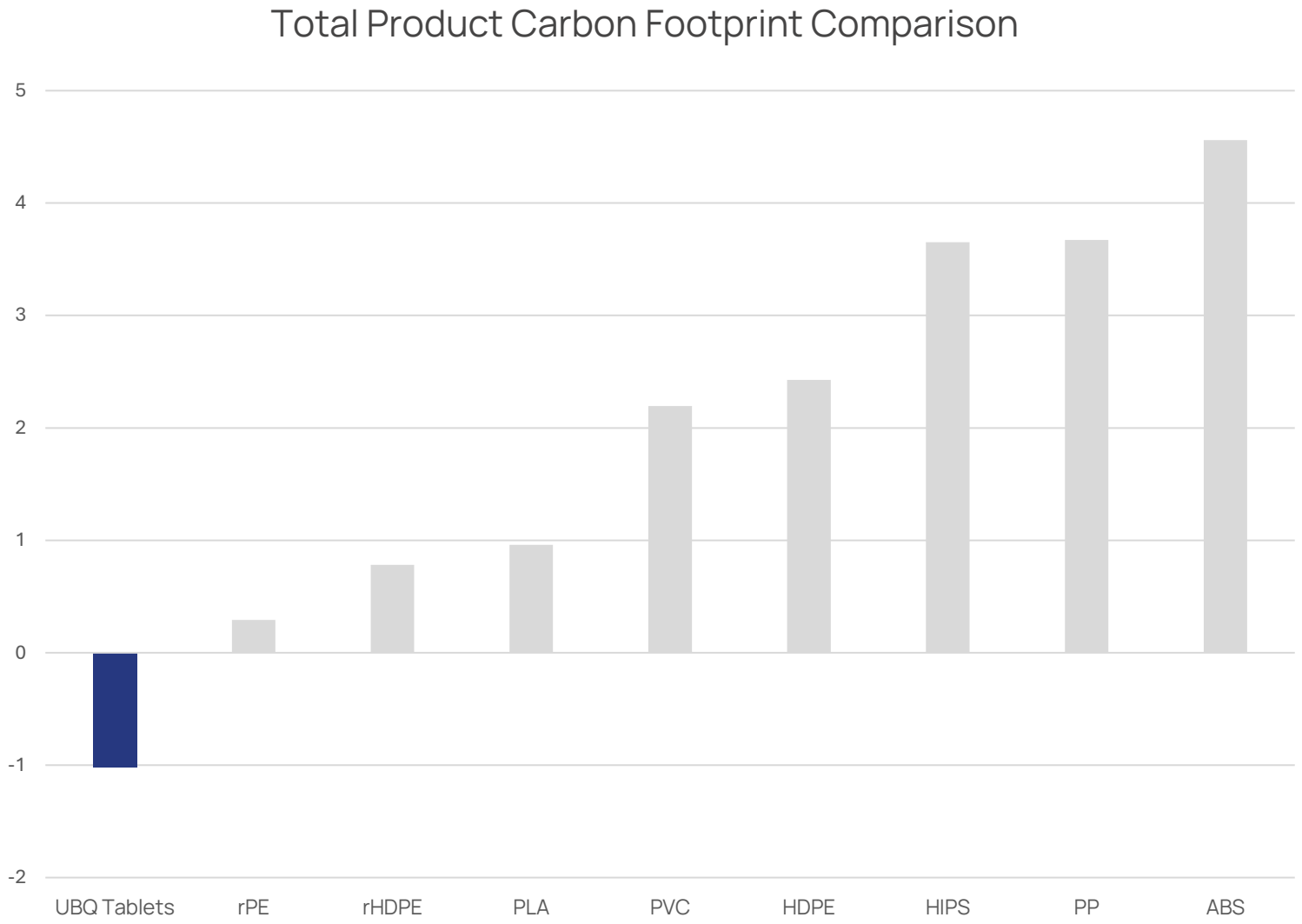
The total carbon impact is **-1.02** making **UBQ** a **carbon-negative** material

*Cradle to Gate according to ISO 14040:2006. Units: kg of CO_2eq per 1 kg of UBQ Tablets (GWP100)

UBQ's Carbon Footprint vs. Common Polymers

(kg CO2eq/kg of material)

UBQ material has a significantly better carbon footprint compared to other conventional polymers



ISO 14040:2006
According to Ecoinvent database – representing Europe or Global #'s
Design Data used

UBQ MEASURES AVOIDED EMISSIONS

7.6 kg

AVOIDED EMISSIONS* [GWP20]

CO2e CARBON AVOIDANCE

Avoidance of greenhouse gas emissions that would occur outside of a product's value chain, as a direct result of using UBQ™

HOW DOES UBQ PRODUCTION AVOID EMISSIONS?

Alternative Waste End-of-Life Scenario:

UBQ production diverts waste from landfills or incinerators, creating a considerable avoidance of GHG emissions, and in particular **Methane**.

UBQ Replaces Oil-Based Plastics (Δ impact):

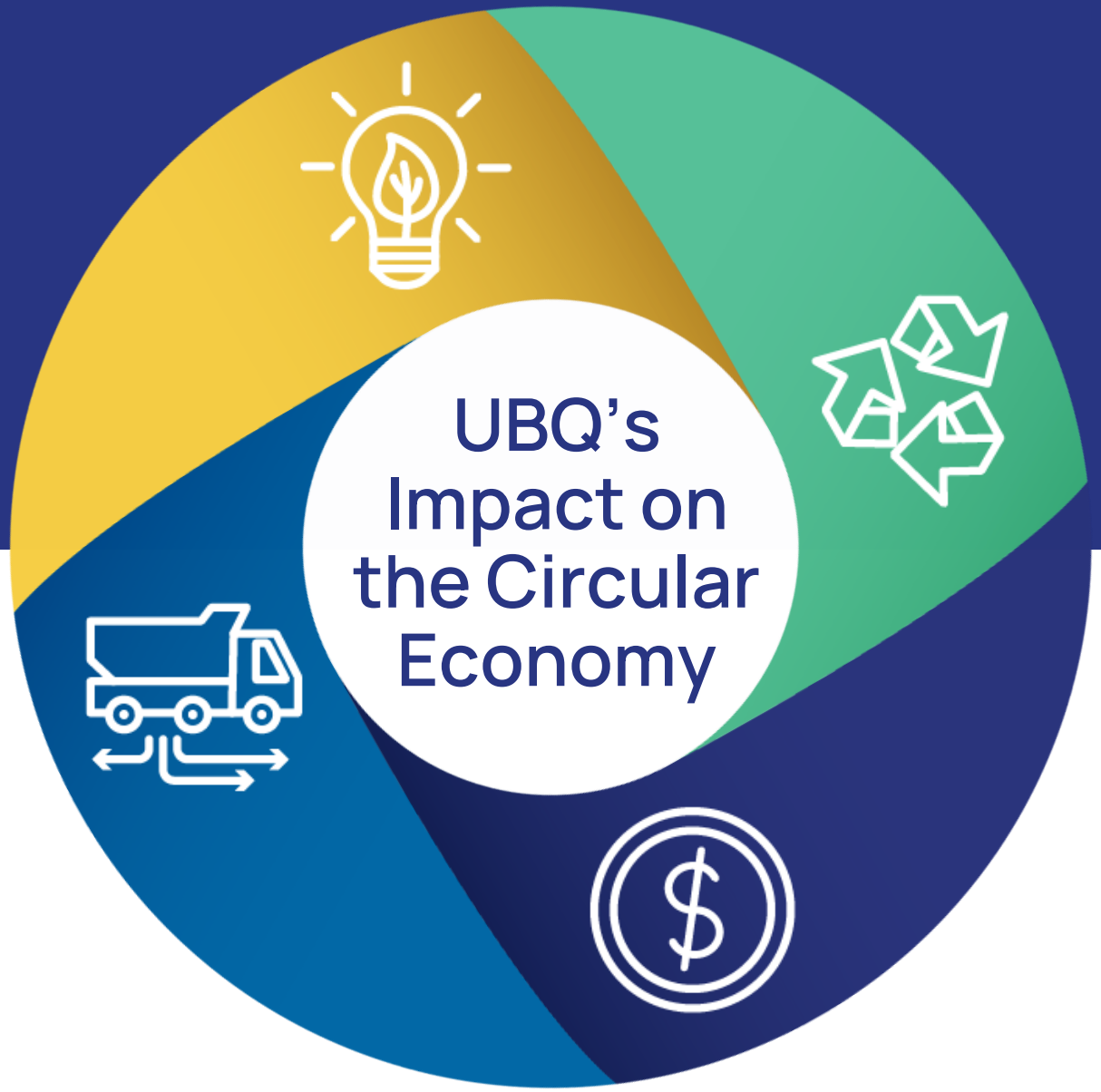
Avoids the emissions associated with extracting, refining, and processing the fossil fuels used as feedstock.

*These figures are not certified due to the absence of a standardized methodology for measuring avoided emissions.

3. CIRCULAR ECONOMY IMPACT

RESOURCE EFFICIENCY

- Green Energy Usage
- Zero Operational Water Usage
- Zero Effluents
- Zero Combustion
- Zero Emissions
- Minimal Waste



RECYCLABILITY

Testing by Axion has shown that incorporating UBQ has no impact on mechanical properties of recycled plastic when returned to the recycling process.

WASTE DIVERSION

Every kg of UBQ produced in Bergen op Zoom brings "new life" to

1.5 kilograms

of waste destined for landfills and incineration

ECONOMIC VALUE

The economic value of circular activities is derived from:

- Enhanced Efficiency
- Innovation
- Resilience

All contribute to financial performance, and broader environmental and social benefits.

UBQ™ is a **climate positive**, thermoplastic composite, **made from household waste**, including **all organics**.

It enables you to create more **sustainable products** without extracting new resources from the planet.

Cost competitive with most oil-based polymers

A **cost-stable solution,** unaffected by fluctuations in fossil fuel prices

It's Here Now

Suitable for **durable** and **semi-durable applications**, meeting most performance requirements

Compatible with **existing processes**, **polymers**, and **equipment**

Safe for both people and the environment

Produced using **100% solar and wind energy**, with zero water usage and no effluents

REAL LIFE SOLUTIONS
Many Products Can be Made with UBQ Today!

CONSUMER DURABLES


Outdoor furniture


Shelves


Toolboxes


Storage Bin


Planters


Step Stool


Pet houses


Footwear


Hangers

BUILDING & CONSTRUCTION


Roofing


Fencing


Pipes & Tubes


Flooring


Wall Cladding


Decking


Brick

SUPPLY CHAIN & LOGISTICS


Pallets

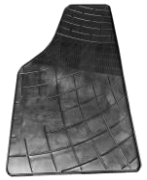

Crates


Waste Bins


Trash Carts


Containers

AUTOMOTIVE


Car Mat


Mud Flap


Dash Mat


Front End Module Bracket

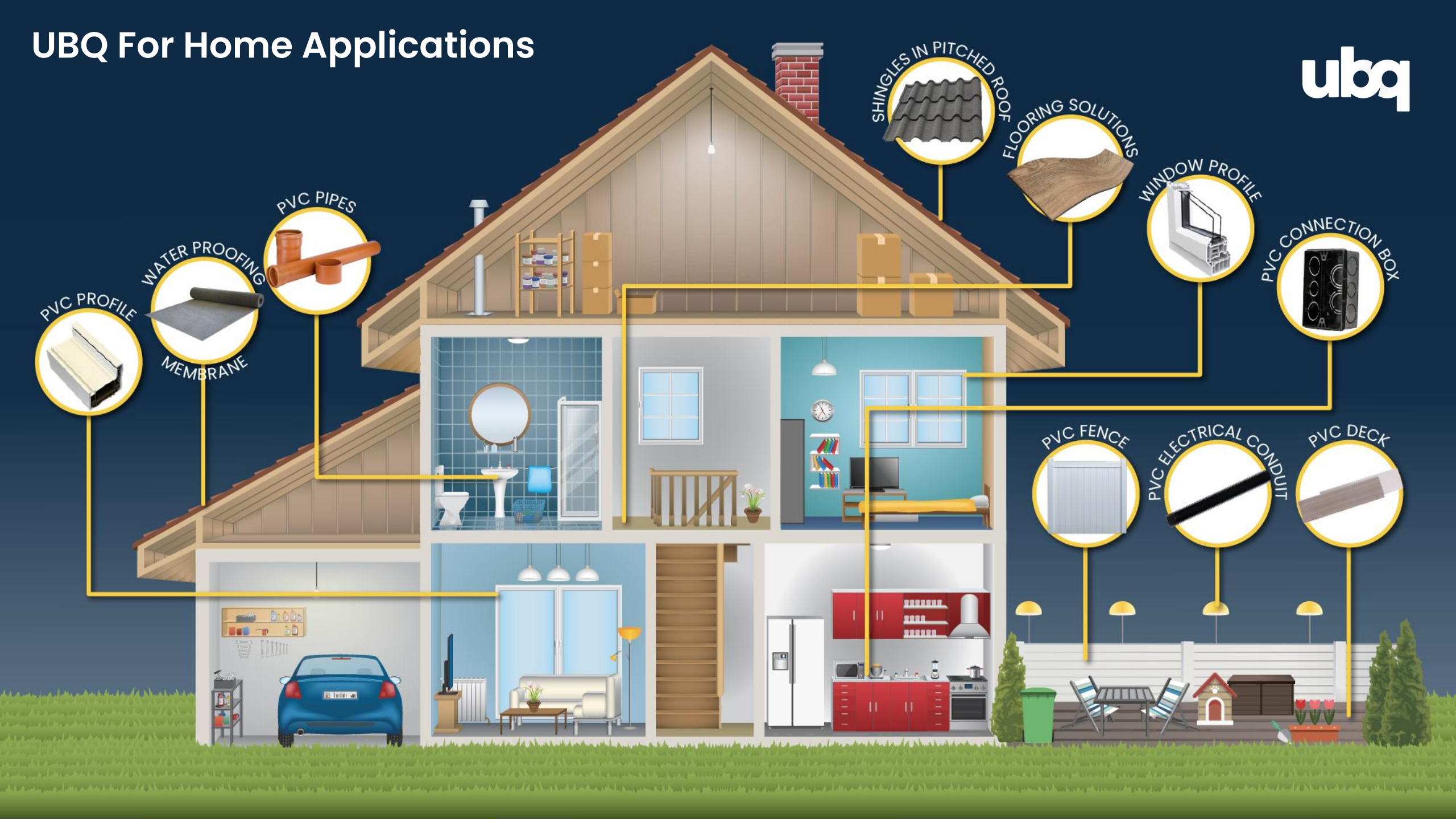

Sound Generator Bracket


Panel Air Duct

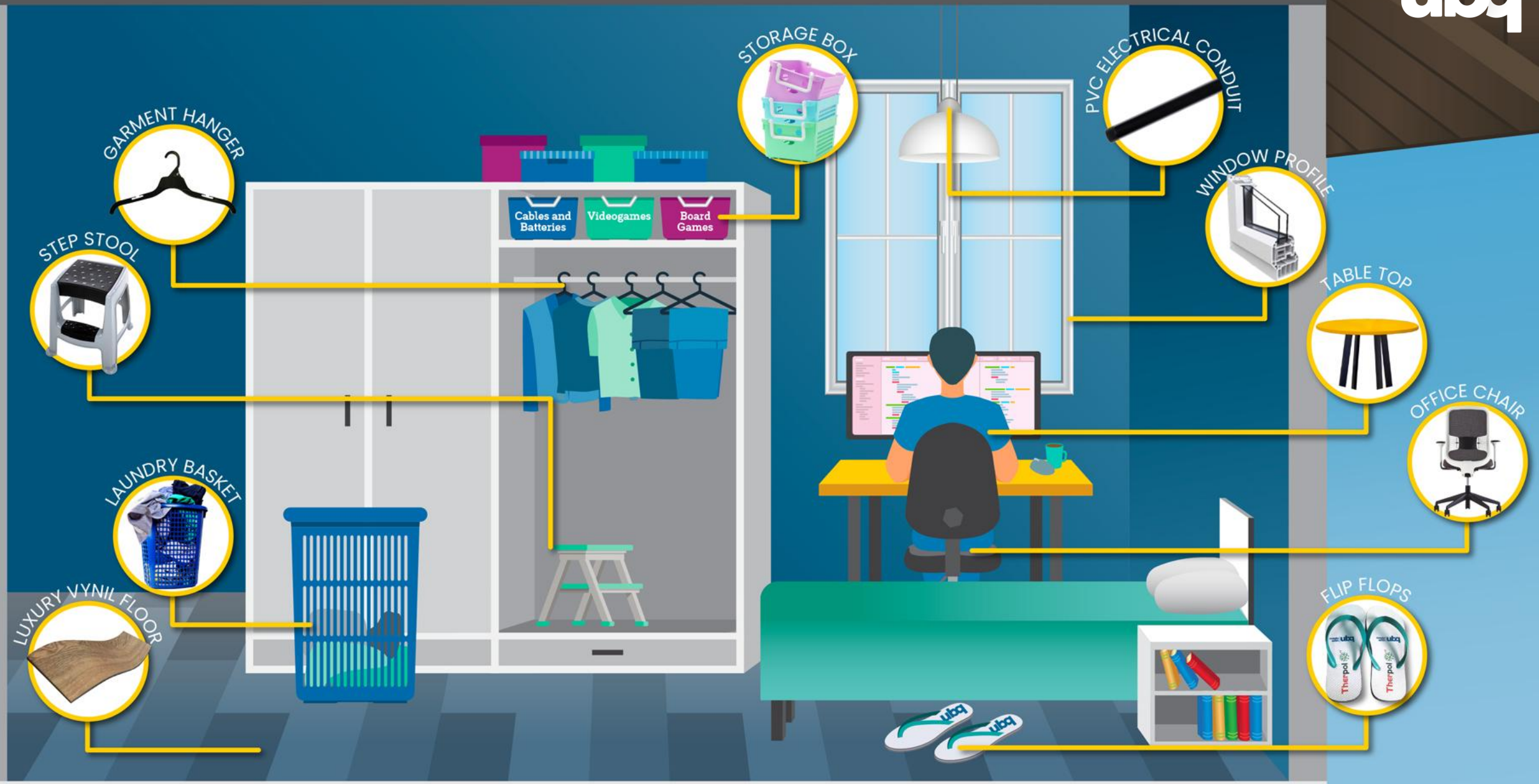
UBQ for Corporate Office Applications

UBQ for Retail Applications

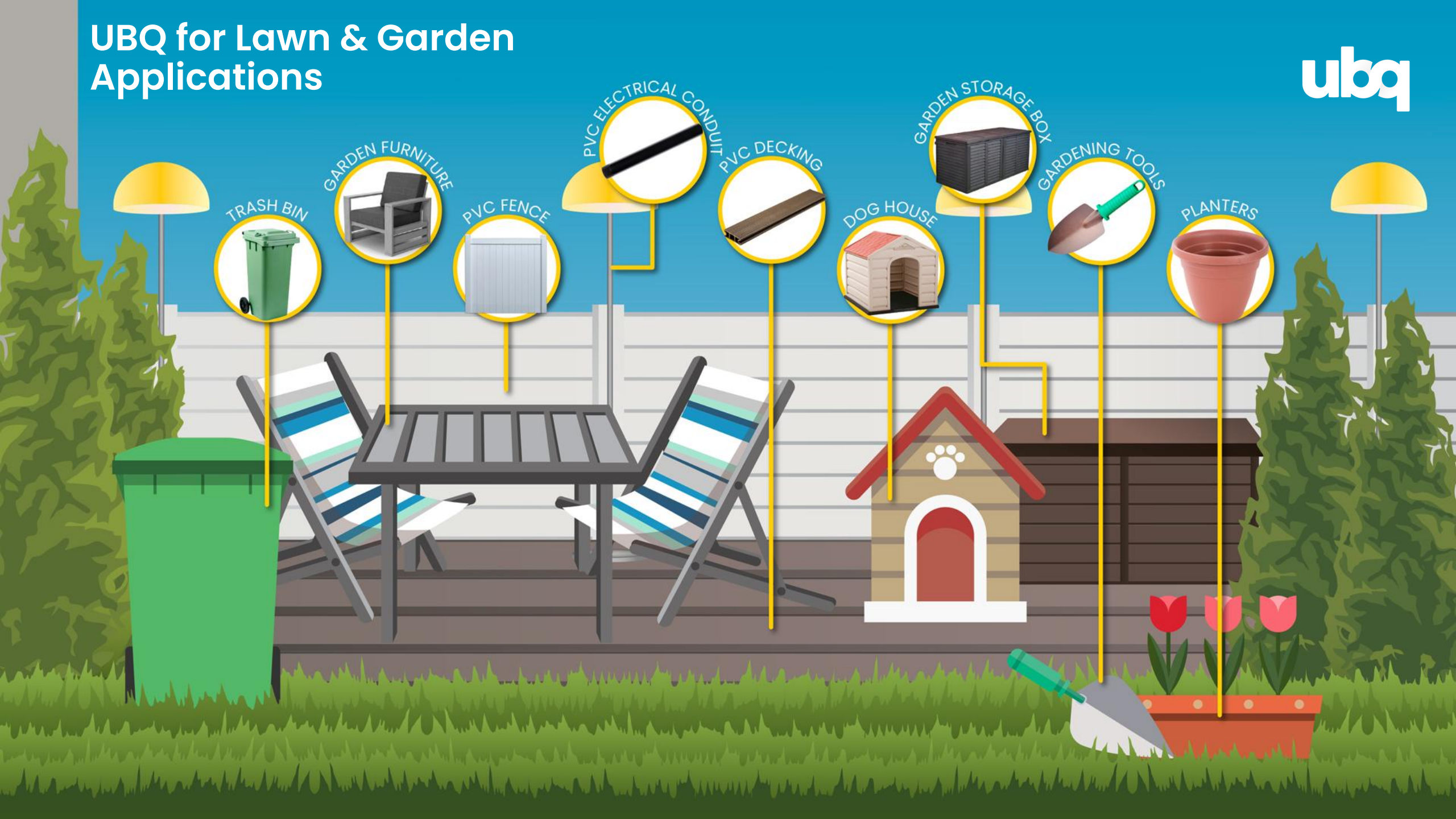
UBQ For Home Applications



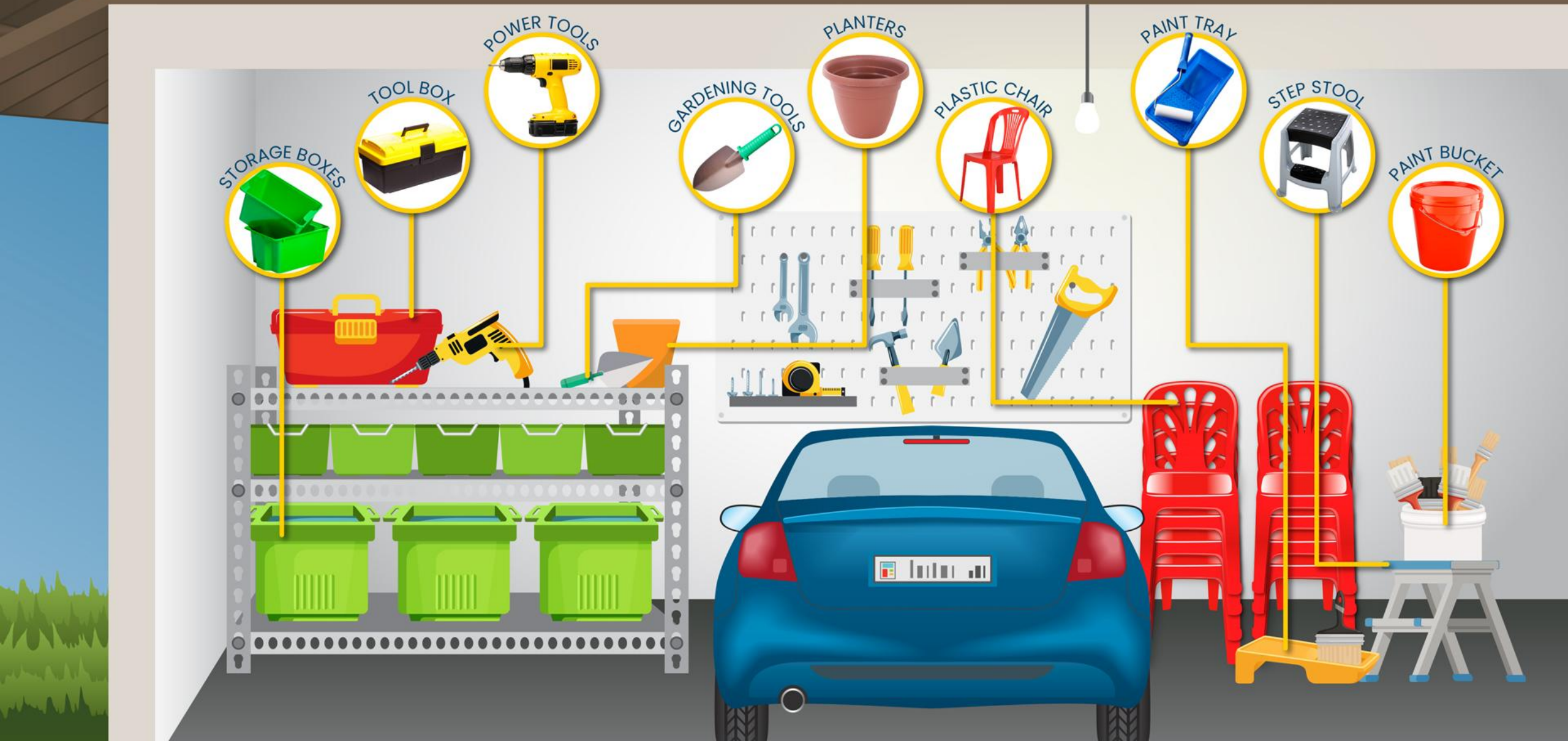
UBQ For Home Applications



UBQ for Lawn & Garden Applications



UBQ For Garage Applications



Thanks to the JTF for UBQ Supported Projects

Masterbatch Product Development → **Energy Monitoring System** → **Technotrans Heating System → Improved Energy Efficiency** → **Process Optimizations to Increase Efficiency & Product Quality**

JTF Just Transition Fund

Co-funded by the European Union

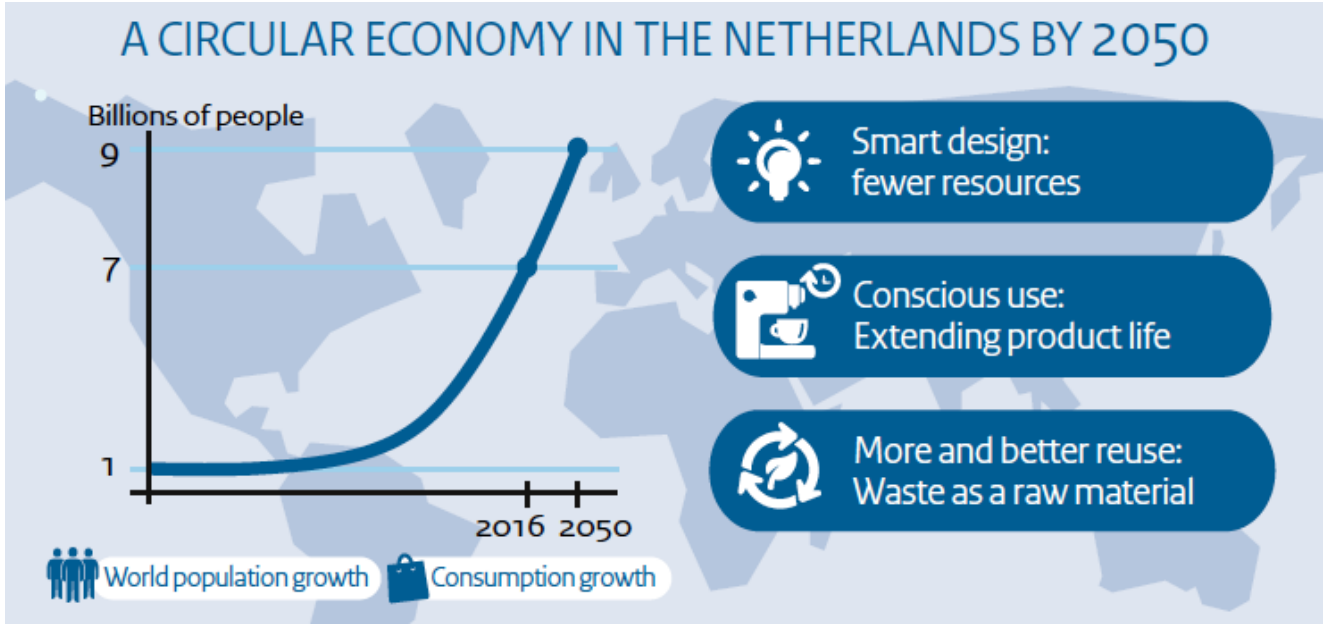
Strategic Partnerships for Innovation

UBQ & Hemp Combine to Form the Optimal
Sustainable Material for Building & Construction

Quality
Durability
High Performing
Cost Competitive

Sustainability Targets Driving Business Practices

- Netherlands Circular Economy Program
  - Fully Circular by 2050
  - 50% reduction in primary raw material use by 2030
- National Climate Agreement
  - 49% CO2 reduction by 2030
- UPV – Dutch EPR Rules
  - Post-consumer waste strategies
- Upcoming ETS (Emission Trading Systems) Modifications and Improvements
  - Inclusion of municipal waste incineration and landfilling
  - Permanent carbon removals
    - Carbon accounting landscape shift from 100 to 35 years in building & construction
  - Non-permanent carbon capture and use



Renewing Waste to Evolve Plastics

Every kilogram of waste incinerated represents a lost opportunity for circularity.

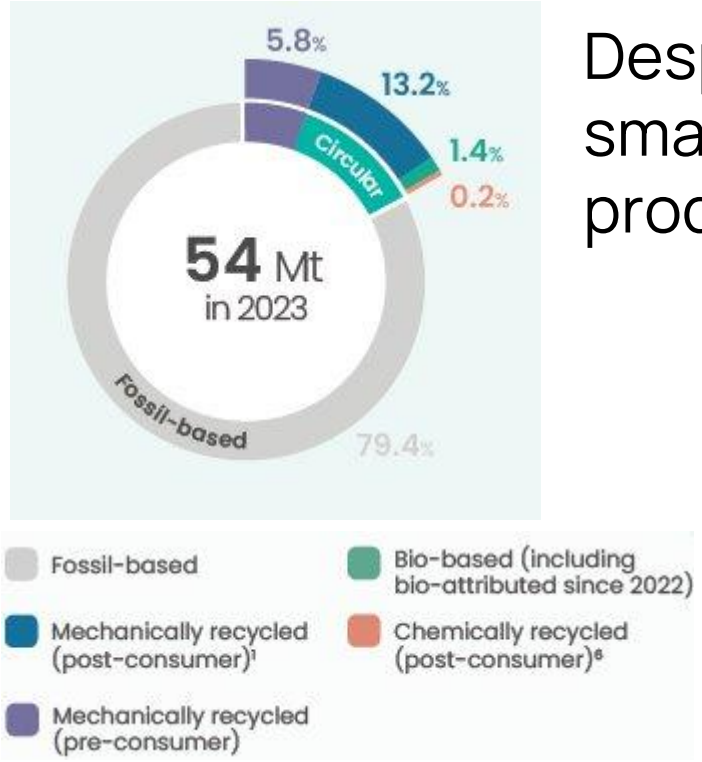
The Netherlands burns over 3 million tonnes of waste annually, equating to:

- **90 million tonnes of "ecological rucksack" at a MIPS ratio of 30:1**
- **18 million tonnes at a MIPS ratio of 6:1**

By converting waste into **80,000 tonnes of UBQ Material,** we **prevent** between **480,000 & 2,400,000** tonnes of **negative impact on the Planet**.

Source: Metabolic.nl

Turning Garbage into the Solution for Plastics



Despite decades of investment, only a small fraction of Europe's plastic production is genuinely recycled.

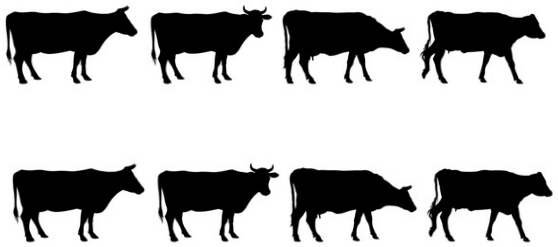
UBQ addresses **Both** Waste & Recycling Challenges by:

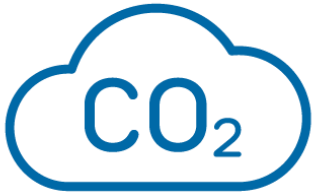
- Replacing fossil-based plastics
- Upcycling household waste—including mixed plastics—into high-performance materials

Garbage as the Key to Reducing Dutch Emissions

New housing in the Netherlands is constrained by a 47 Mt CO_2 cap (2023 allocation)

The UBQ Netherlands facility carbon removal can offset the CO_2 equivalent of ~27,000 dairy cows*.





Even further, taking avoided emissions into account, the net greenhouse-gas benefit rises to **6–8 X that amount**—and even more with our NEW hemp-based UBQ-Bio product

ubq - Bio

Source: Wageningen University "The evolution of the carbon footprint of Dutch raw milk production between 1990 and 2019""

UBQ is Renewing the Planet – Today

At Full Capacity, our Netherlands Plant:

Diverts 95% of household waste used from incineration or landfill → Replaces 80,000 tonnes of plastics → Removes 80,000 tonnes of CO_2e emissions → Eliminates methane emissions from waste disposal → Supports additional housing permits by freeing up carbon-budget space → Offsets methane from dairy production

Make the Netherlands a Global Leader in Circularity

Partner with UBQ to Demonstrate a Truly Circular Economy

UBQ™ is a **climate positive**, thermoplastic composite, **made from household waste,** including **all organics**.

It enables you to create more **sustainable products** without extracting new resources from the planet.

Benefits You & the Planet

Even a **small amount of UBQ** in formulations helps you move towards **carbon-neutral** or **climate-positive** goals.

Highly recyclable, promoting **resource conservation** and advancing the **circular economy**.

Reduces reliance on petroleum-based **plastics** and other extracted materials.

Encapsulates microplastics present in the waste, preventing their release into the environment.

Removes carbon from the atmosphere through the **biogenic processes** in the **organic material**.

Avoid methane and carbon emissions generated by the decomposition of **organic waste in landfills**.

THANK YOU!

LEARN MORE
UBQMATERIALS.COM

FOLLOW US

Subscribe to our
UBQ TALKS SERIES