Next Gen Bluetooth LE SoC family

Xtreme Low Power

XLP with Energy harvesting

Conscious Living

Sustainability

The challenge

60%

are ready to change their purchasing behavior

IBM Institute for Business Value 2020

86%

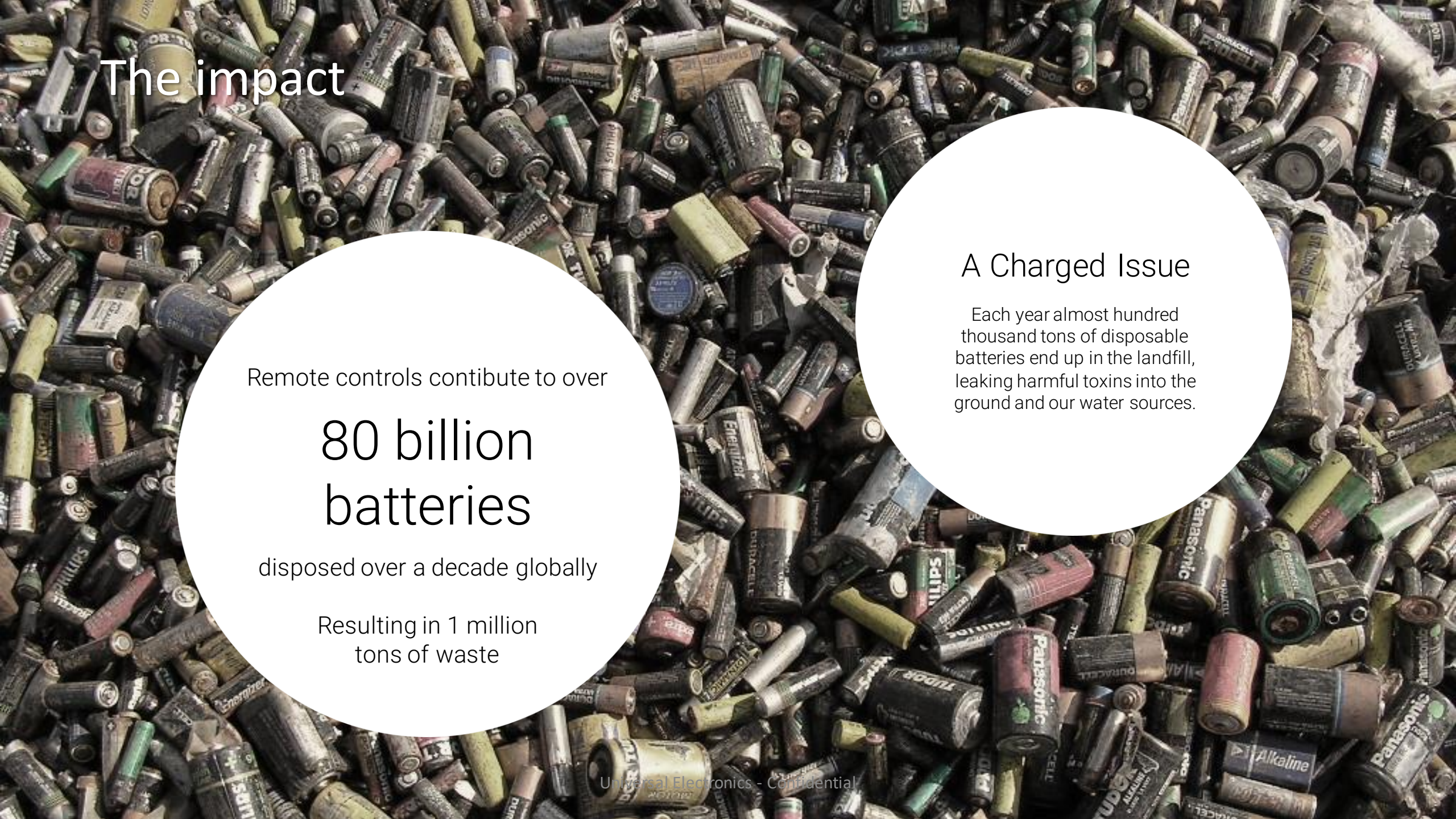
of consumers want to see more sustainable products

World Economic Forum Survey 2020

‘For the convenience and delight of the ‘user,’ we create products that are cheap and desirable but create **environmental and social damage** through their production, service, and after-life.

Felix Heibeck

The impact



Remote controls contibute to over

80 billion batteries

disposed over a decade globally

Resulting in 1 million tons of waste

A Charged Issue

Each year almost hundred thousand tons of disposable batteries end up in the landfill, leaking harmful toxins into the ground and our water sources.

Key sustainability focus topics for UEI

Sup-Free Packaging

Extend the solution offering for complete SUP-free product delivery

Recycled Plastics

Reduce the use of virgin plastics with >95% PCR recycled material

Extreme Low Power Chip

UE961 & 962 Xtreme low power SOC with Energy Harvesting capability

Energy Harvesting

Next-generation indoor PV cell solution & RF Harvesting technology

We can change this

Specific Processor

Low Power SOC

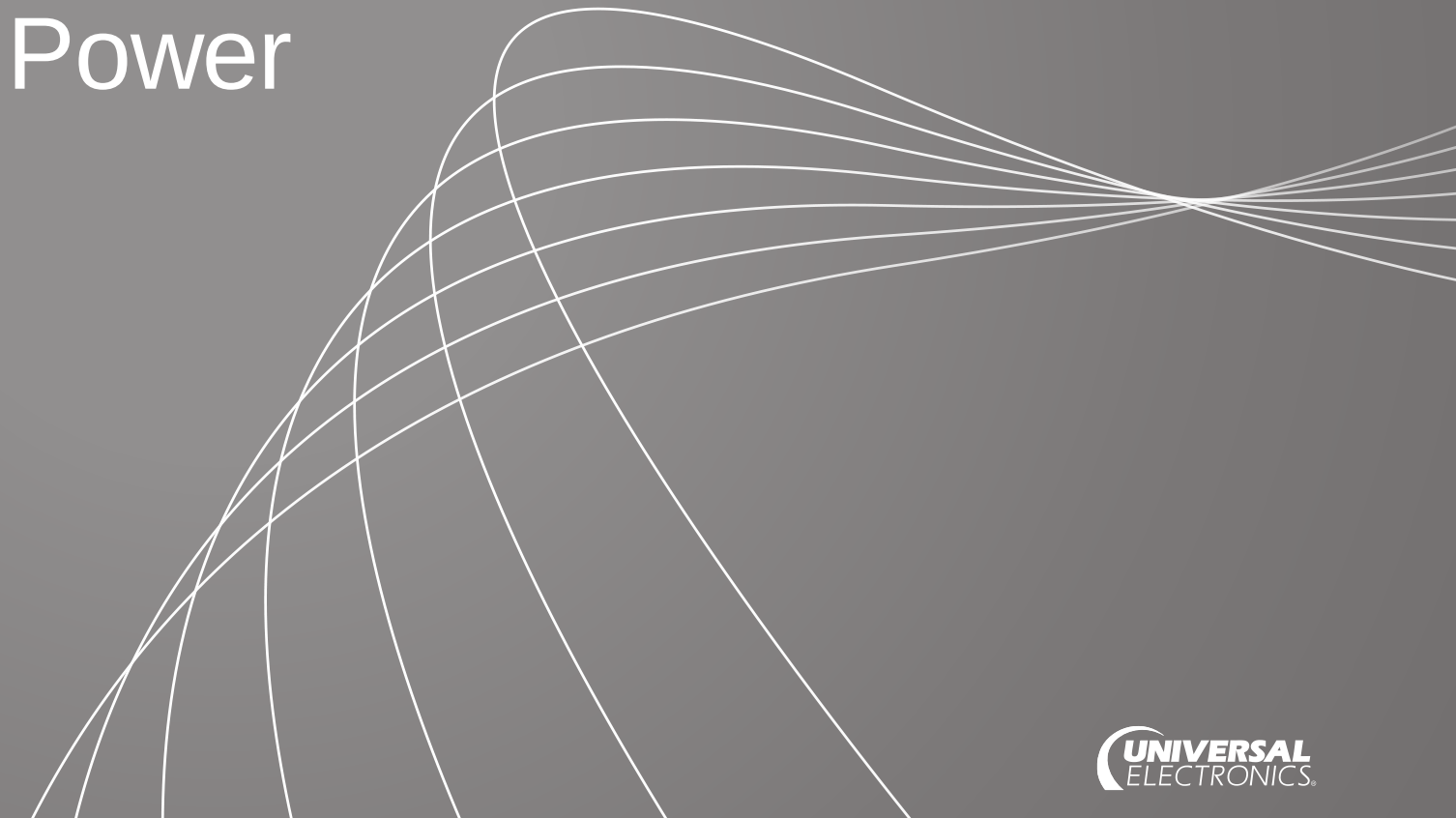
Extreme Low Power SOC

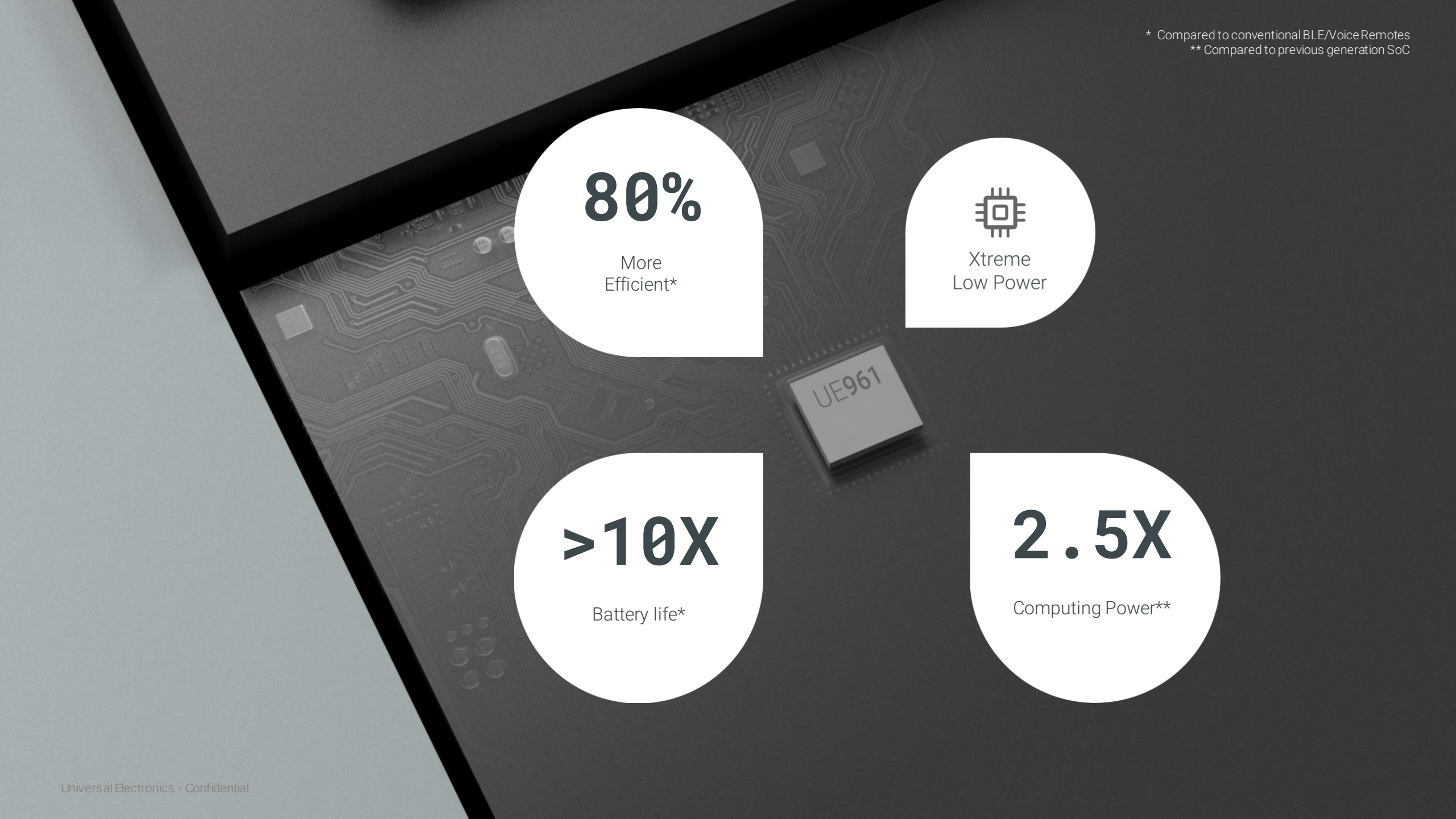
QuickSet Widget SOC

QuickSet Widget Module

Line up of Silicon Solutions

UE961 Xtreme Low Power





* Compared to conventional BLE/Voice Remotes
** Compared to previous generation SoC

80%

More Efficient*

Xtreme Low Power

>10X

Battery life*

2.5X

Computing Power**

UE961

Xtreme Low Power SoC

Up to 10x longer battery life vs conventional BLE/Voice remotes

Depending on the power use case 3.5x** to 10x* battery lifetime can be achieved.

Enabling battery for life

Assuming remote life span of 7 years

>6x
Longer
Battery Life*

BLE/Voice

>3.5x
Longer
Battery Life**

IR/BLE/Voice/Backlight

** Compared to conventional BLE/Voice remotes, under standard UEI use case*
*** IR/BLE/Voice remote, estimated under standard UEI use case*

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UE961

Improve waste & CO_2 footprint

Battery for life

1,000,000

12,000,000

612 tons of CO_2*

During the remote lifetime (7 years)

*Equals 185 Intercontinental Jumbo Jet flights

Better user experience

Enhance user experience

Always listening

Backlight

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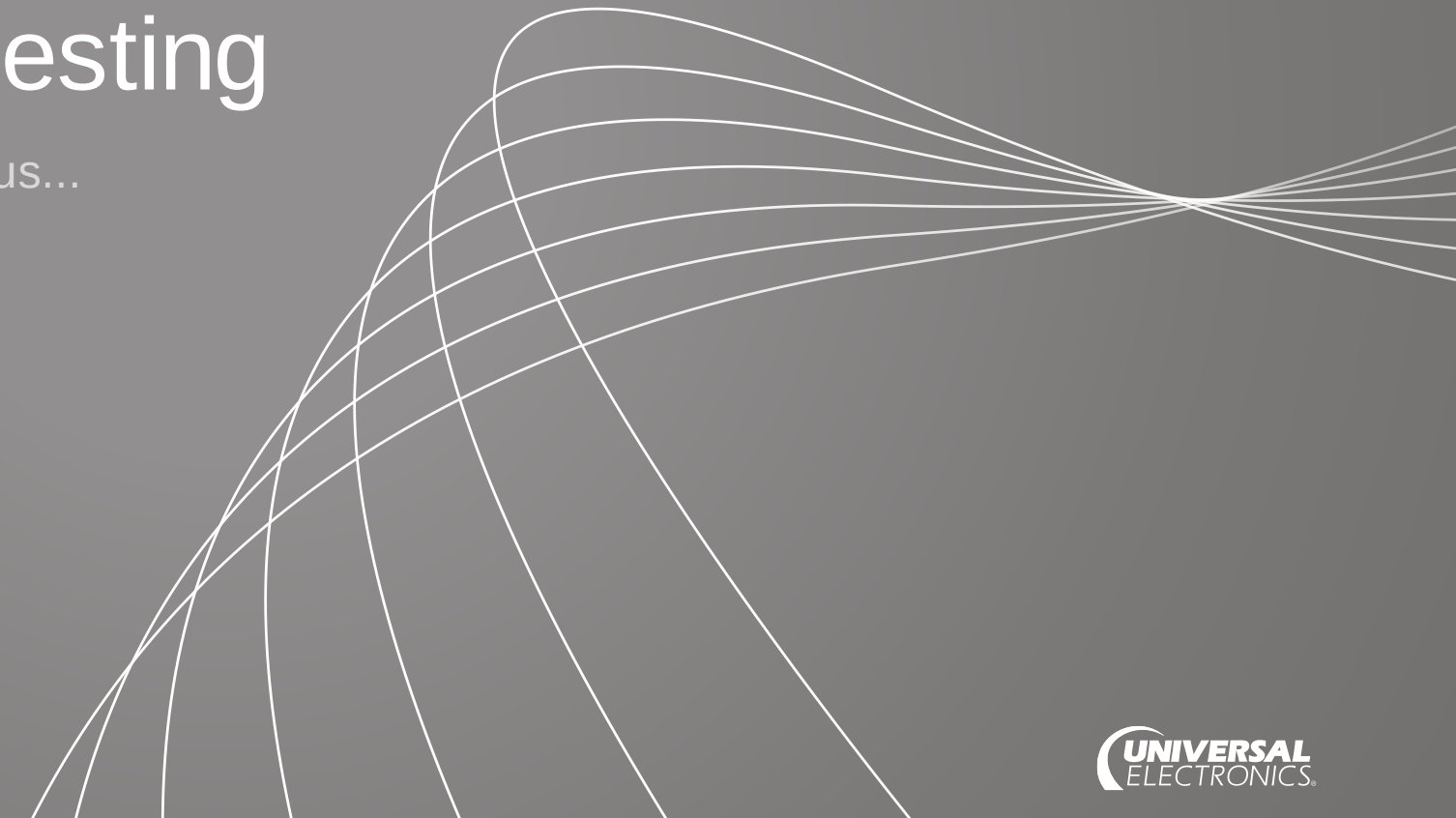
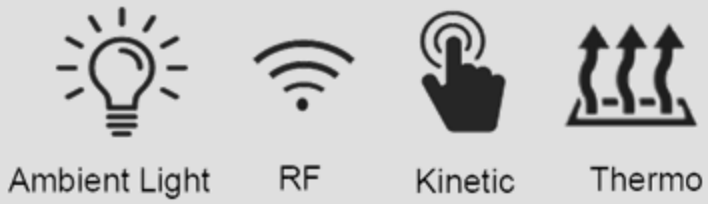
UE962 Energy Harvesting

All the features & performance of UE961, plus...



Harvestable Energy

- Multiple energy sources suitable for indoor harvesting
- Ultra Low-Power micro architecture silicon design
- Built-in energy harvesting unit and highly efficient power management unit that stores harvested energy efficiently

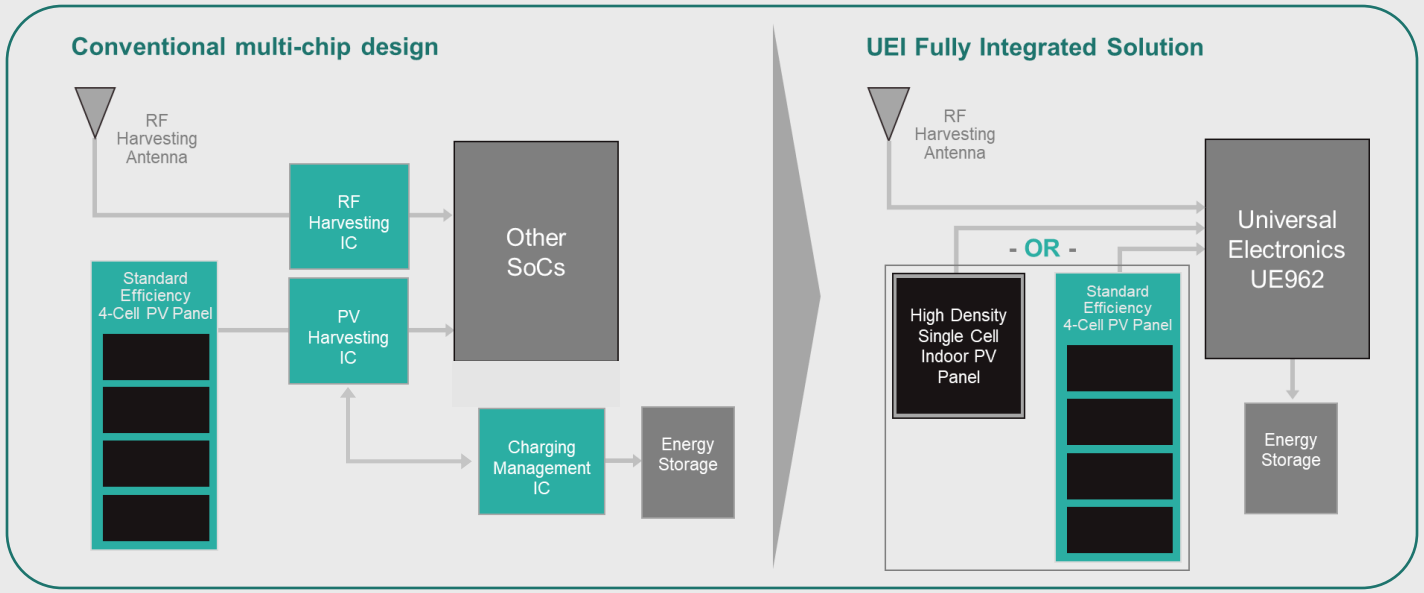


The evolution of energy harvesting remotes

- Announced at CES 2021:
  First deployment of new UEI chipset
  First market introduction with PV solar panel

- Announced at CES 2022:
  2nd generation with RF harvesting and PV solar panel to eliminate use of battery

XTREME LOW-POWER SOC WITH ENERGY HARVESTING



UE962 Harvesting SOC

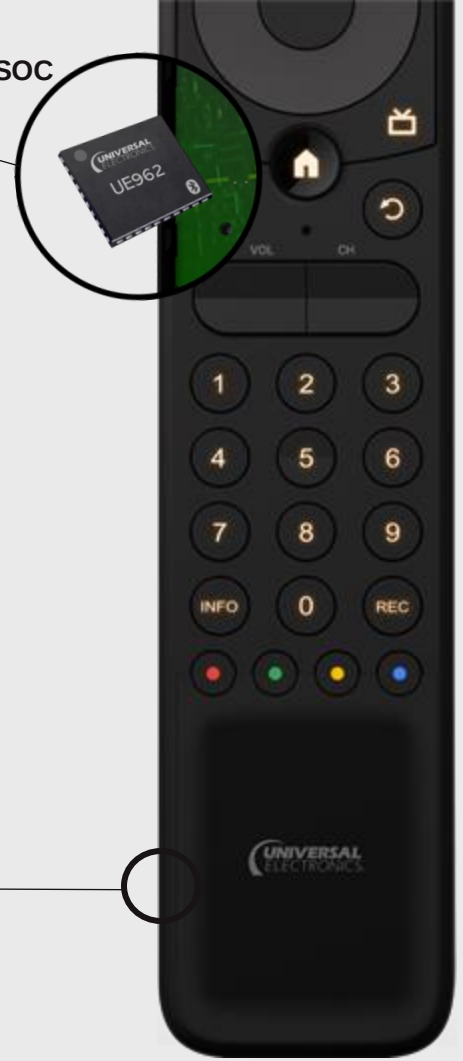
Optimized for **energy** harvesting

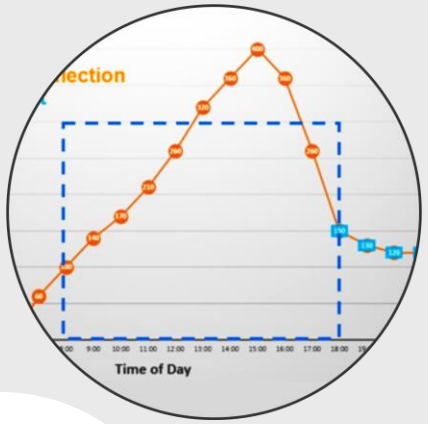
A true All-in-One Harvesting SoC

- Reduces the need for external ICs
- Minimizes additional components
- Improves power harvesting efficiency
- Minimizes total BOM cost

XTREME LOW-POWER SOC WITH ENERGY HARVESTING

UE962 Harvesting SOC



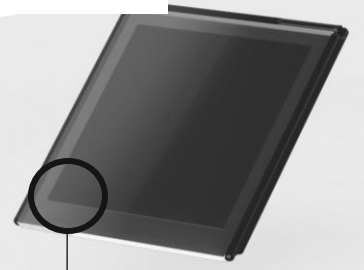


>3x
Higher Energy Density*

70%
More power in partial shade*

HD Panel requires only 1/3 of the space vs a standard PV panel for the same power requirement

Optimized for **Indoor** light harvesting

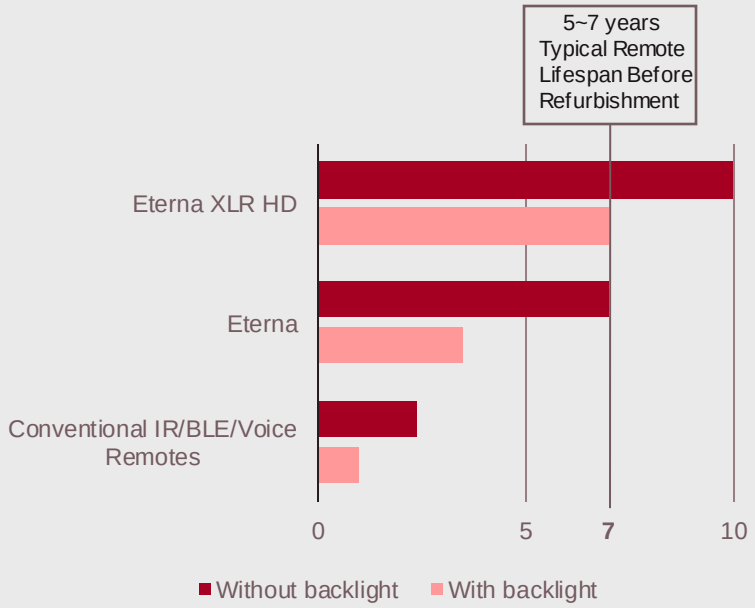


High performance Single Cell PV panel
UEI in exclusive partnership

* Compared to commonly used 4-Cell PV panels

Eterna & Eterna XLR

Estimated Battery Life



Eterna
Xtreme Low Power

Eterna XLR HD
Energy Harvesting
High Density PV Panel

Compared to conventional IR/BLE/Voice remotes, under standard UEI use case

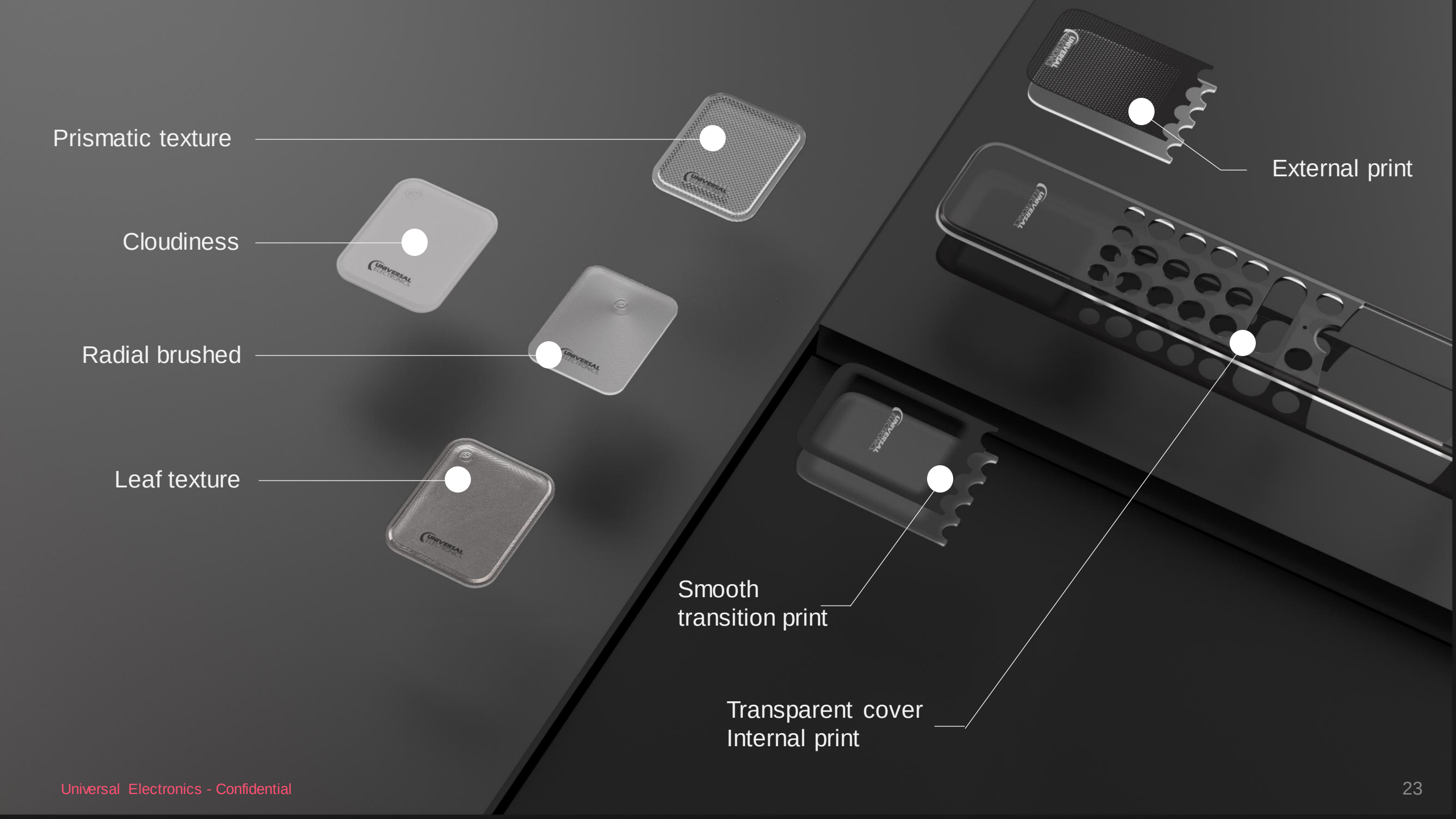
Indoor Solar

High Density Single Cell PV Panel

Design options

High Density Single Cell PV Panel

Design options


Prismatic texture
Cloudiness
Radial brushed
Leaf texture
External print
Smooth
transition print
Transparent cover
Internal print

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Use indoor light to power your remote

How green can you go?

Never change batteries again*

Save up to 14 batteries

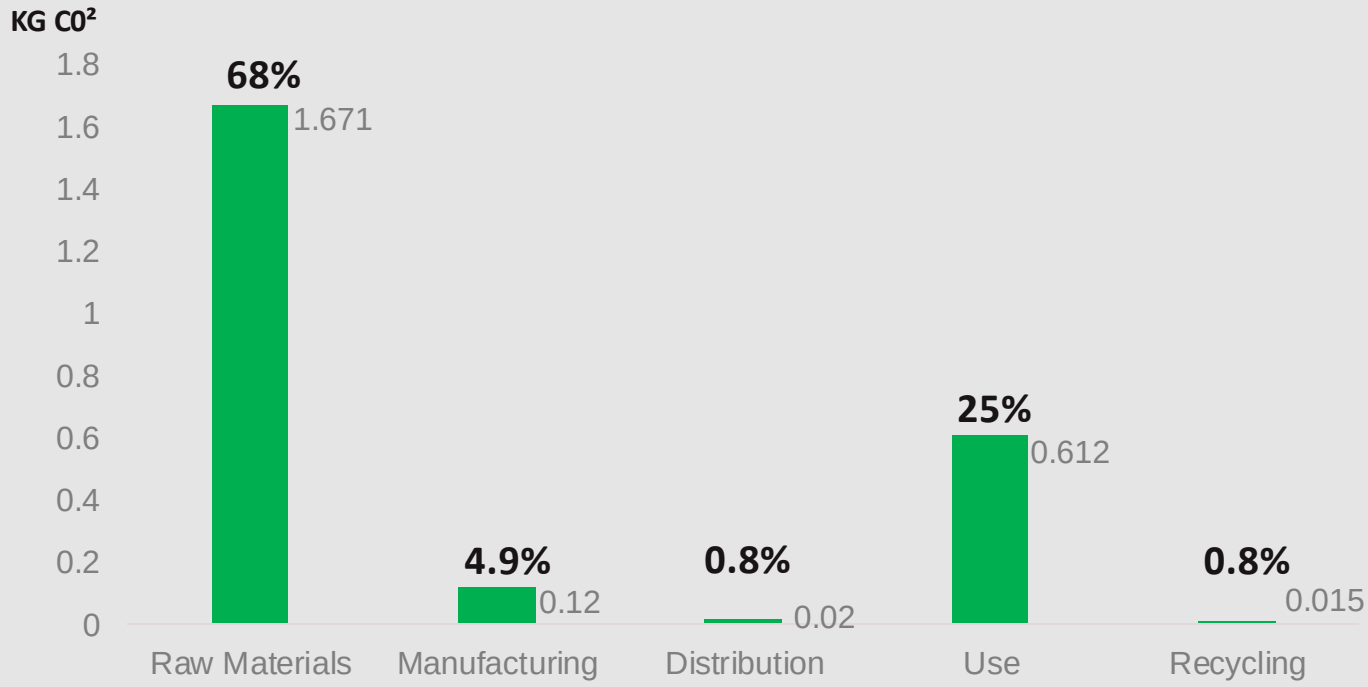
UE962 Xtreme Low power SOC with HD Indoor PV panel

** Compared to conventional IR/BLE/Voice/BL remotes, under standard UEI use case, assuming 7 years of service before refurbishment*

Regular remote – CO2 footprint ~2.44KG

Regular remote

Batteries alone account for almost 30%*



* Raw materials includes the 2 original supplied batteries + Use includes 1 set per year over the lifetime of 7 years

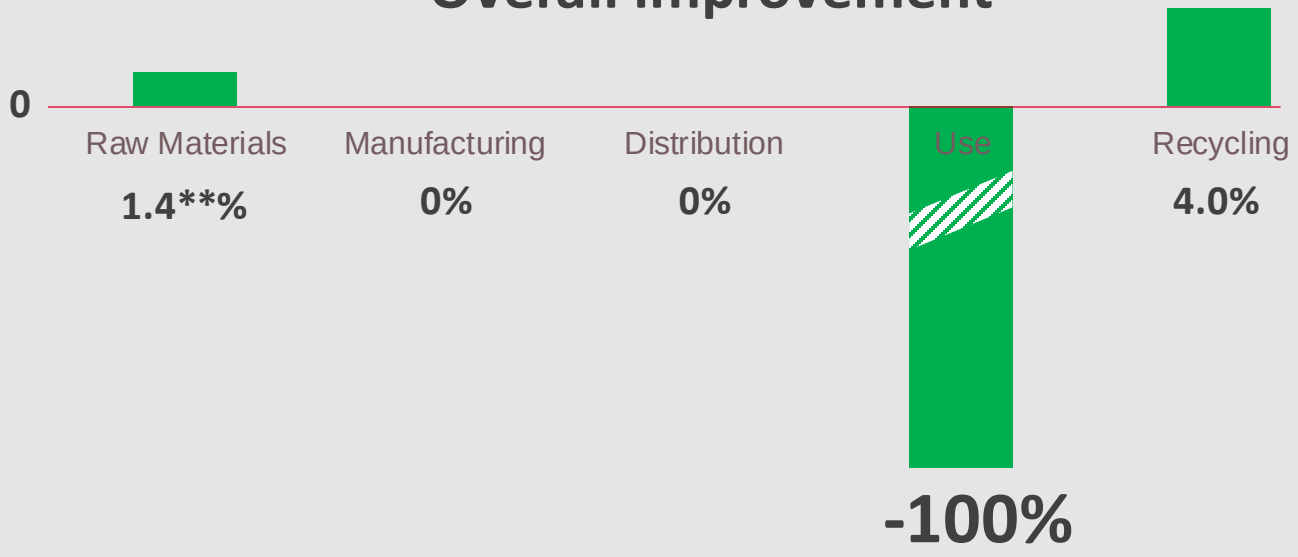
Improve the CO2 footprint -> 1.71-1.85KG

Regular remote

Energy Harvesting remote

-25% CO²*

Overall improvement



* Overall improvement based on adding HD PV panel, including 2x AAA batteries and 1 Hybrid SuperCap
**Note the used HD PV panel has a 85% lower CO^2 footprint vs regular PV panel (based on same power output)
2nd By moving from regular plastics to 95% PCR plastics the overall improvement can be 29.8%

The impact of new batteries purchases

Traditional Shopper (instore) 1.6KG CO2

5x Battery purchase with regular shopping

- 80 items per purchase -> 20gr x 5 = 100gr

1x Urgent purchase (other articles? Assume 20)

- 1.6kg

Total between 180gr – 1.7kg CO2

Online purchase 1.4KG CO2

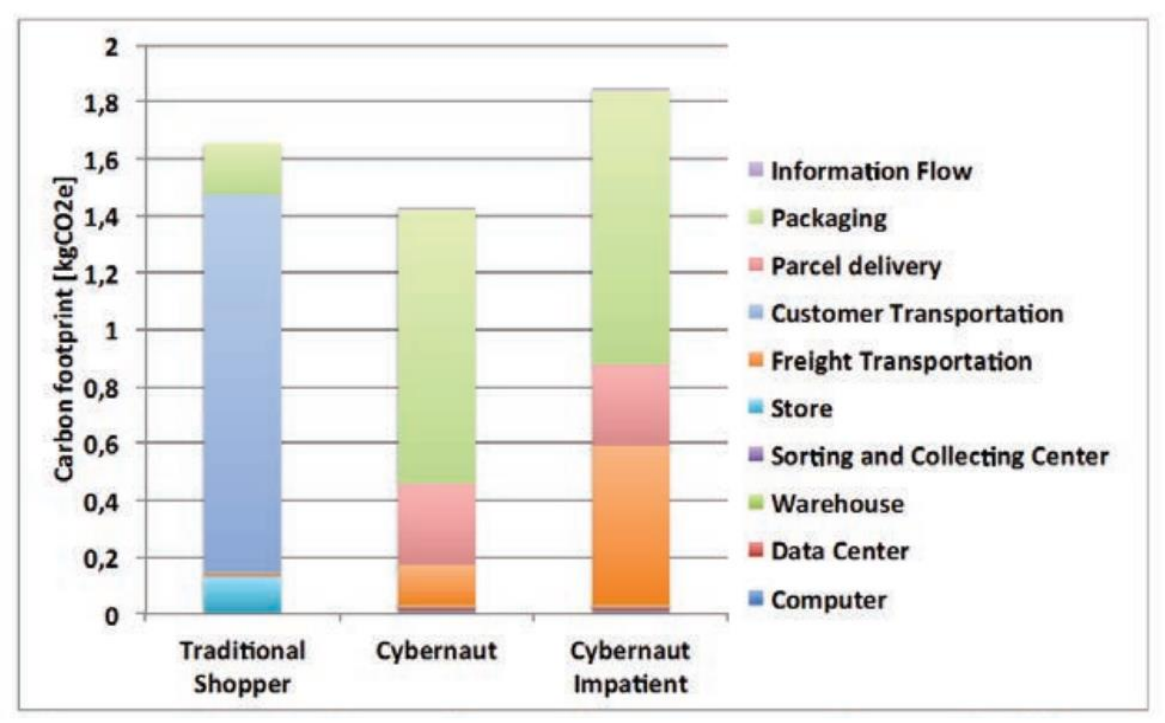
5x Battery purchase with regular shopping

- 80 items per purchase -> 17,5gr x 5 = 87,5gr
- 10 items per purchase -> 140gr x 5 = 700gr

1x Urgent purchase (other articles? Assume 5)

- 1.4kg

Total between 368gr – 2.1kg CO2



https://ctl.mit.edu/sites/default/files/library/public/Dimitri-Weideli-Environmental-Analysis-of-US-Online-Shopping_0.pdf

Eterna

Improve waste & CO_2 footprint

Batteries impact

10,000,000 — 6,120,000 kg CO^2

6,120 tons of CO^{2}*

During the remote lifetime (7 years)

*
- Equals the average emissions of 12,240 passengers on a flight from Paris to New York
- Or equals 3672 diesel cars driving 10,000 km a year
- Or equals 744 Million smartphones being fully charged

ATV or Streamer remote accounts for 4% of annual European battery consumption per household (1 set per year)

Alternative power source/storage

51gr CO2 per battery
12 batteries over the life-time

Total ~ 612gr CO2

195gr CO2 per battery

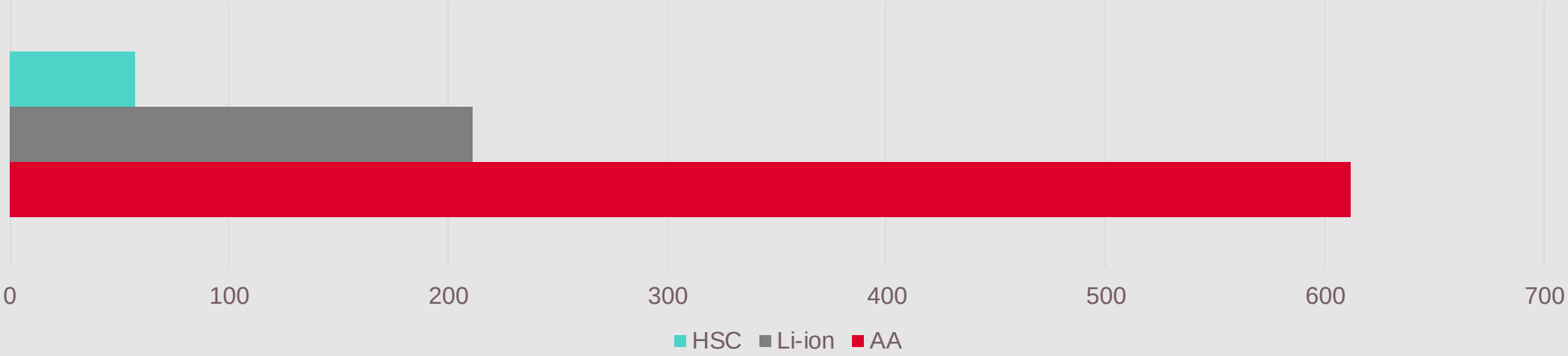
0,8gr CO2 per recharge (2 p.y.)
Assume 5 gr for USB port

Total ~ 211gr CO2

22.9gr CO2 per 50F HSC
1 additional HSC needed for HSC only solution

0,8gr CO2 per recharge (2 p.y.)
Assume 5 gr for USB port

Total ~ 57,5gr CO2



Thank you!
Questions?