



Attraktive Nachhaltigkeit

Dr.-Ing. Werner Jäger



99 West Tower Frankfurt

APP- 400 Tonnen CIRCAL 75R in E6 EV1 Eloxal

Attraktive Nachhaltigkeit



DER NEUE LANSERHOF SYLT
FERTIGSTELLUNG ENDE 2020



Lanserhof List auf Sylt, Zielstadtquartier München
DIN Hochhaus – Mercator One Duisburg

Senckenbergturn 99 West Frankfurt



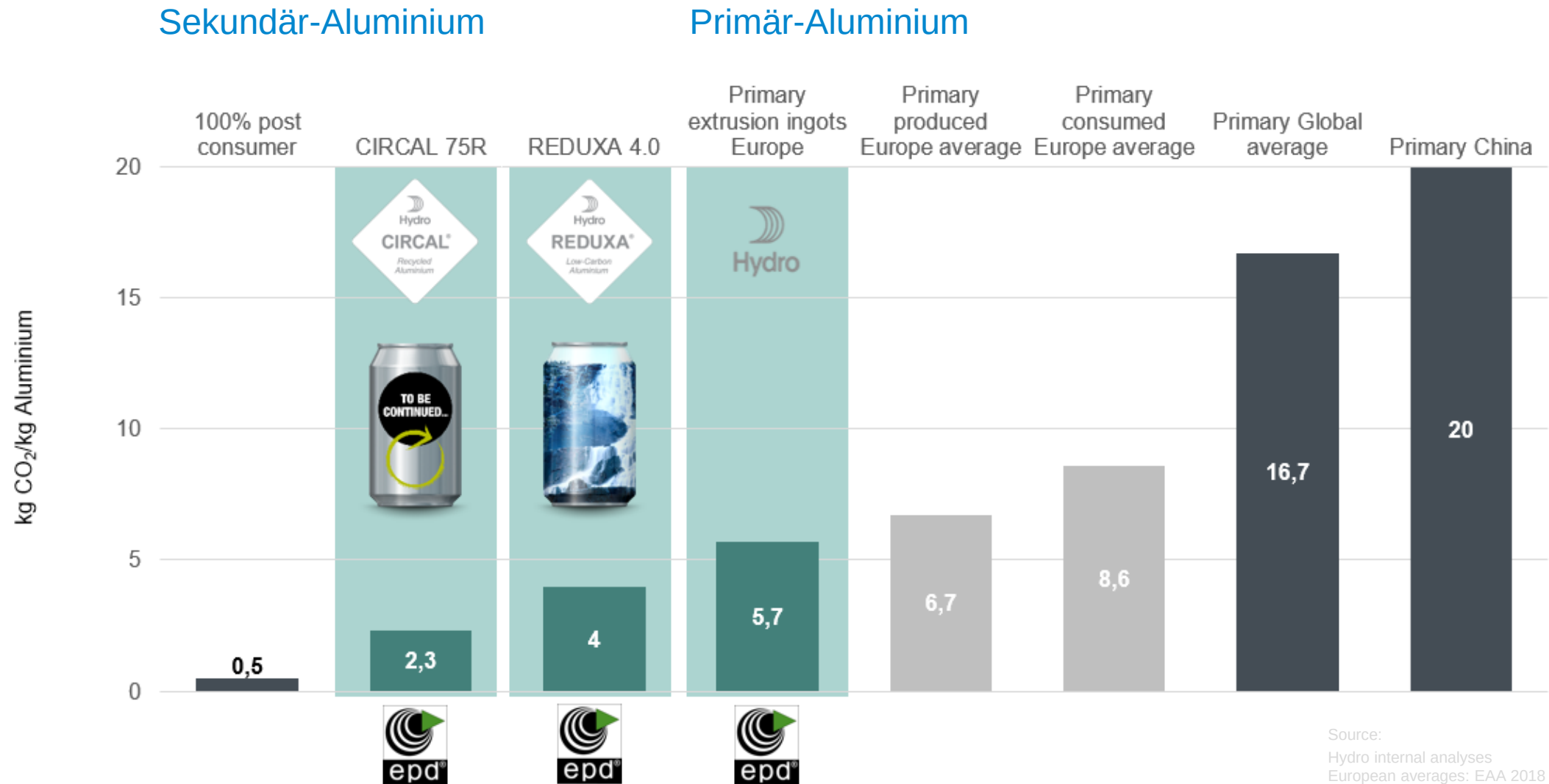


REDUCE
REUSE
RECYCLE

Stockholm ONE
STATICUS – KAM DE



Aluminium CO₂ Fußabdruck – es kommt darauf an...



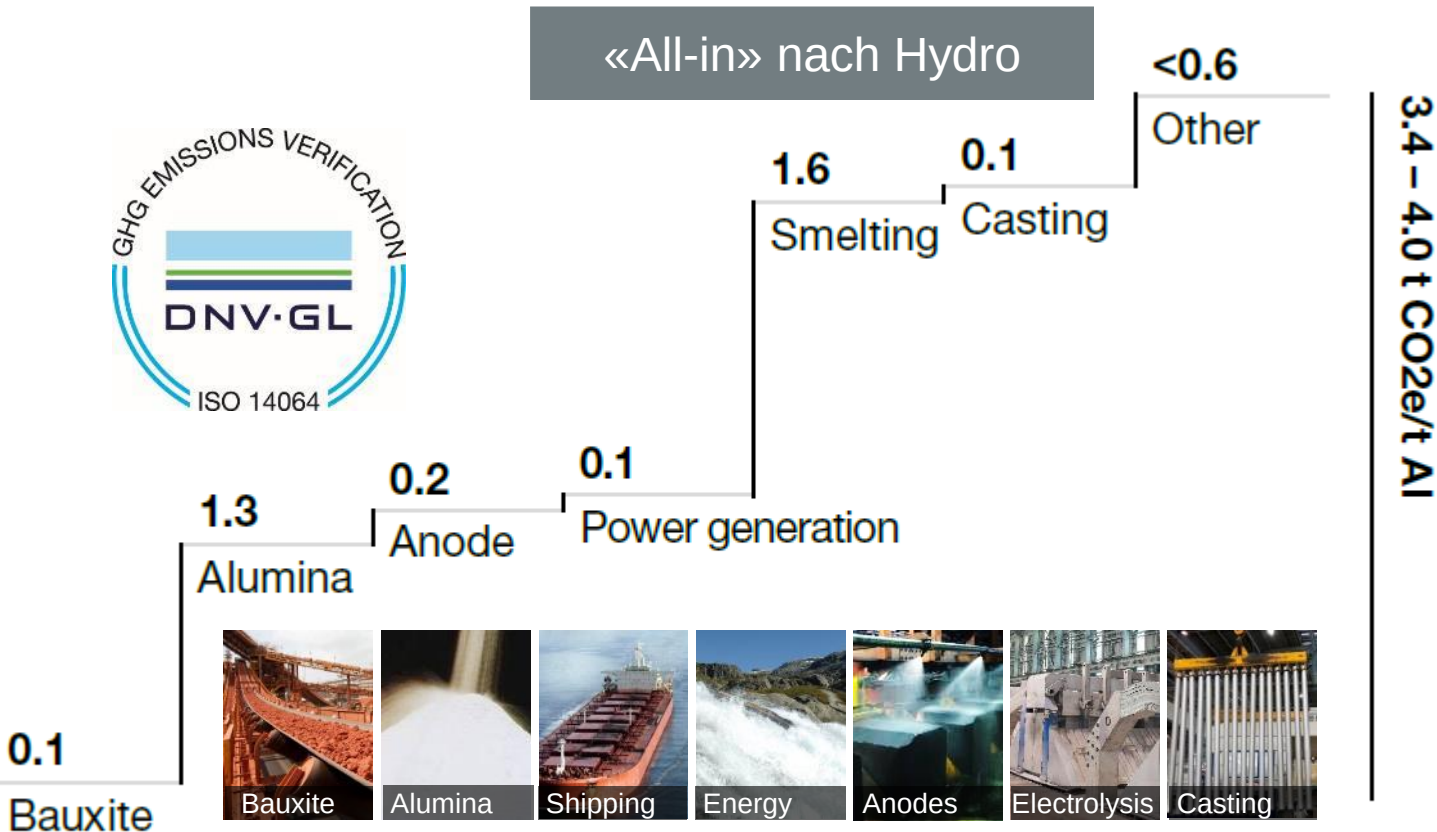
*75% EOL Scrap + 10% Process Scrap + 15% Primary Ingot: 2,3 kg CO₂/kg 75R

Aluminium Energiebedarf

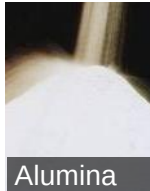


Product description:

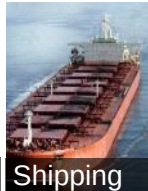
This EPD covers the Aluminum under the brand Hydro 4.0. The primary Aluminum used in the products is produced based on renewable power production in Norway, ensuring maximum Carbon footprint of 4,0 tons CO₂-eq/ton Aluminium. The carbon footprint of the Aluminum is calculated on individual batches, and the methodology complies with ISO 14064-1. The calculation covers the integrated process route of Aluminum production covering Bauxite Mining, Alumina Refining, Anode production, Smelting, Power Generation and Casting. The calculation covers the integrated process route of Aluminum production covering Bauxite Mining, Alumina Refining, Anode production, Smelting, Power Generation and Casting. Other contributions: Includes: Transport of raw material, Aluminum from alloying elements, cold metal and external scrap. The calculation of the carbon footprint does not include infrastructure and a few process inputs, which explains the discrepancy between the results reported in this EPD and Hydro's reported carbon footprint. The infrastructure accounts for 0.15 tons CO₂-eq/ton Aluminium.



Bauxite



Alumina



Shipping



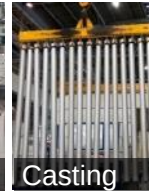
Energy



Anodes



Electrolysis



Casting

Typical production values



REDUCE
REUSE
RECYCLE

OKERN Portal Oslo
Staticus – KAM DE



Reduce – Reuse - Recycle

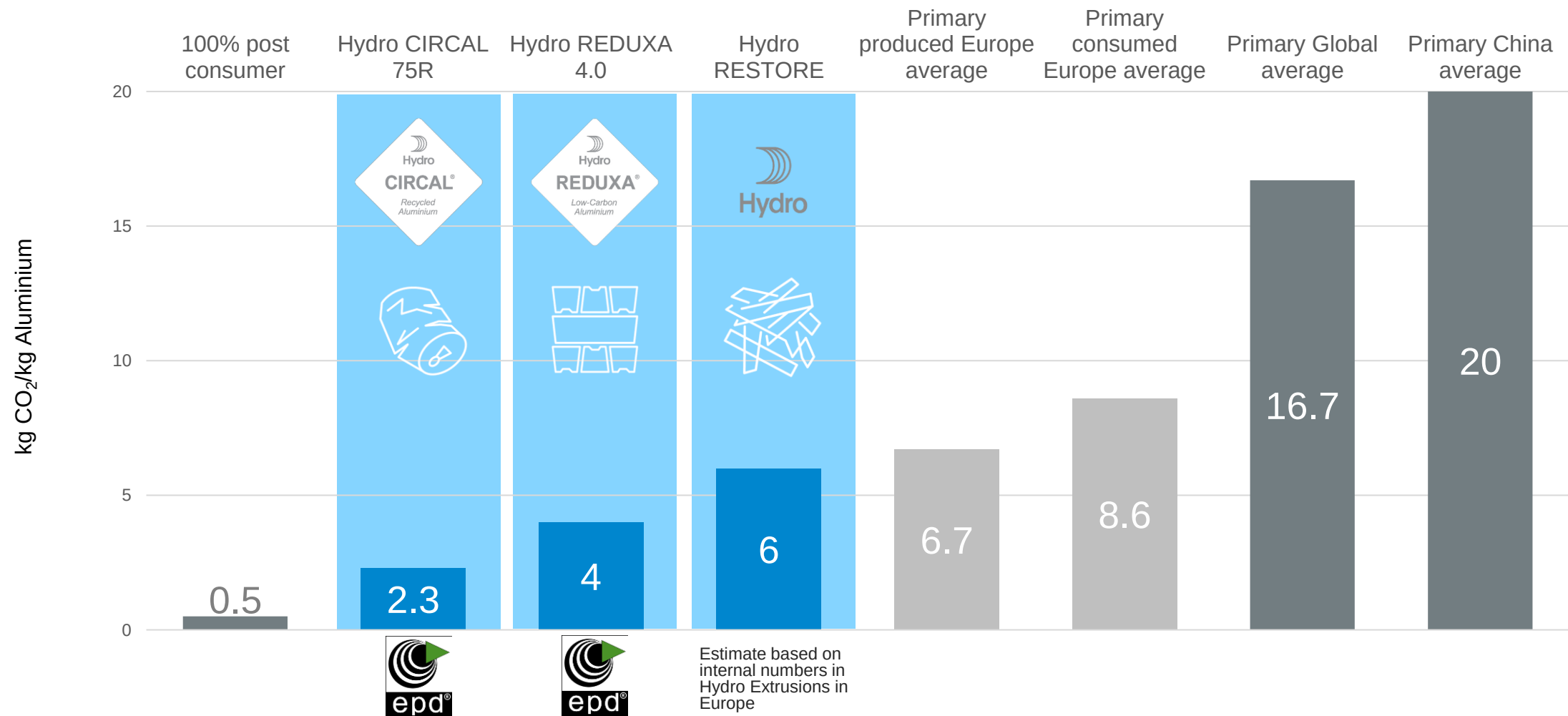


Pre-consumer Wertstoff
war noch nicht im Einsatz



Post-consumer Wertstoff
war schon im Einsatz als Produkt

Aluminium CO₂ Fußabdruck – Verantwortung in der Beschaffung

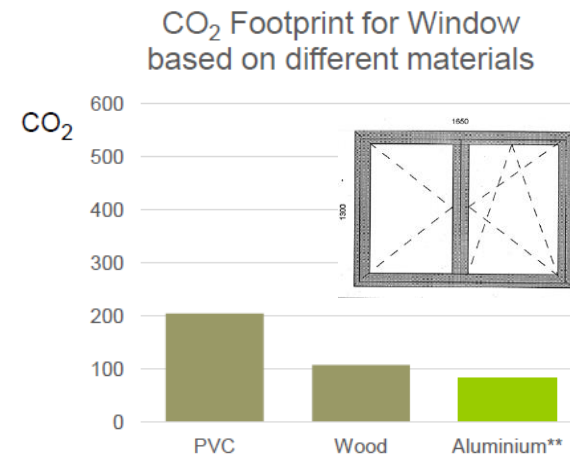
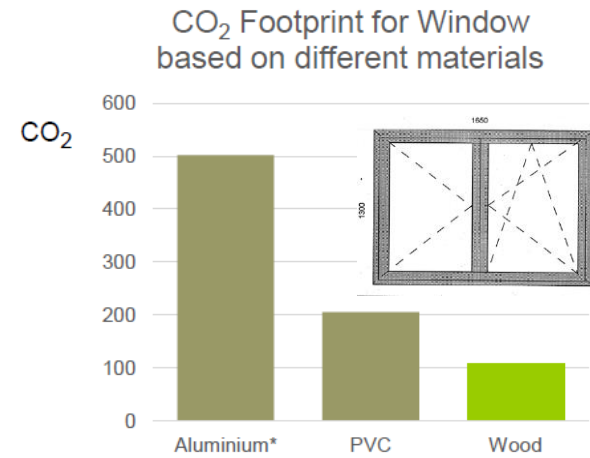
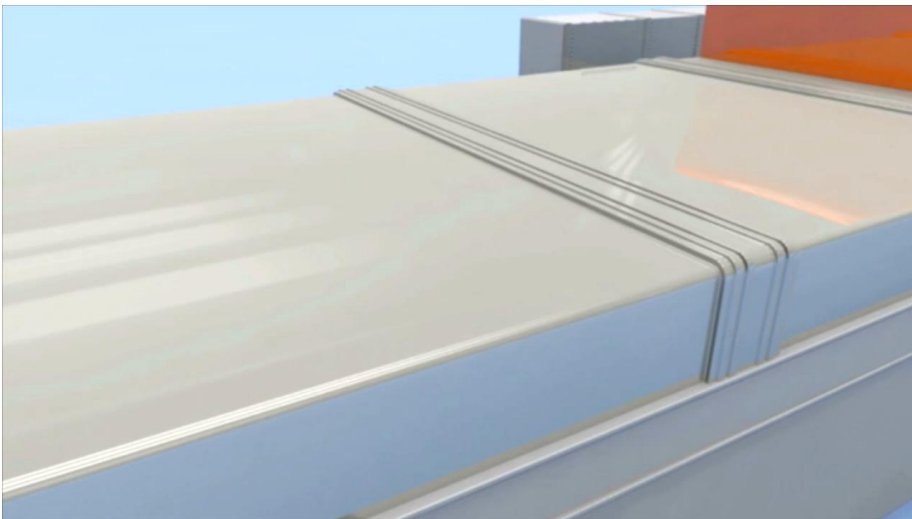
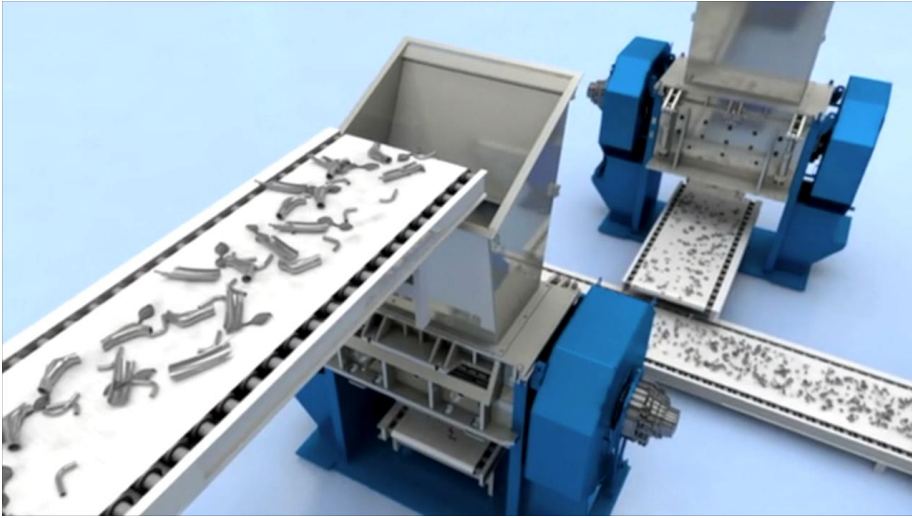


Sources:

European averages: EAA 2018

Global average: IAI 2018

Attraktive Nachhaltigkeit



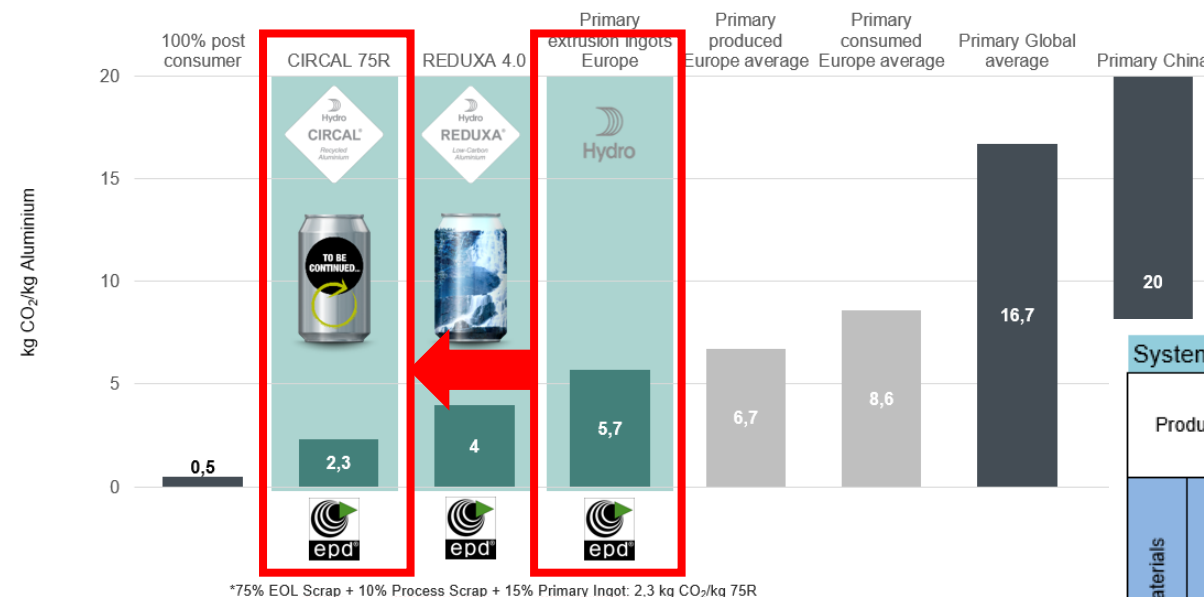
*Based on world averag

**Based on Green Window Alloy with 100% EOL scrap



Aluminium CO₂ Footprint – es kommt auf das WIE an.

HYDRO Primary – CIRCAL – EPD Figures



*75% EOL Scrap + 10% Process Scrap + 15% Primary Ingot; 2,3 kg CO₂/kg 75R



ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration: Hydro Aluminium AS
 Program operator: The Norwegian EPD Foundation
 Publisher: The Norwegian EPD Foundation
 Declaration number: NEPD-1841-768-EN
 Registration number: NEPD-1841-768-EN
 ECO Platform reference number: -
 Issue date: 05.08.2019
 Valid to: 05.08.2024

Hydro 75R Aluminium Extrusion Ingot

Hydro Aluminium AS



HYDRO CIRCAL 75R vs. Primary

GWP: – 60 % Treibhauseffekt

ODP: – 75 % Ozonabbau

AP: – 50 % Versäuerung der Böden

EP: – 50 % Überdüngung Böden und Gewässer

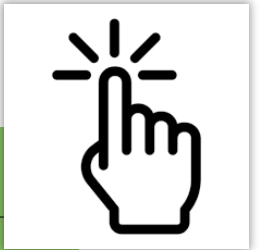
System boundaries (X=included, MND= module not declared, MNR=module not relevant)

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X

Environmental impact

Parameter	Unit	A1-A3	A4	C2	C3	C4	D
GWP	kg CO ₂ -eqv	2.33E+00	3.60E-02	7.85E-03	2.50E-01	0.00E+00	-5.90E-01
ODP	kg CFC11-eqv	1.25E-07	6.90E-09	1.46E-09	9.72E-09	0.00E+00	-3.61E-08
POCP	kg C ₂ H ₄ -eqv	1.15E-03	5.88E-06	1.30E-06	3.07E-05	0.00E+00	-3.17E-04
AP	kg SO ₂ -eqv	1.89E-02	1.19E-04	3.08E-05	7.04E-04	0.00E+00	-3.76E-03
EP	kg PO ₄ ³⁻ -eqv	1.28E-03	1.97E-05	5.52E-06	1.61E-04	0.00E+00	-1.96E-04
ADPM	kg Sb-eqv	8.40E-06	6.73E-08	2.37E-08	1.66E-06	0.00E+00	-1.47E-06
ADPE	MJ	4.87E+01	5.66E-01	1.20E-01	1.34E+00	0.00E+00	-5.71E+00

EPDs – extern zertifiziert



UMWELT-PRODUKTDEKLARATION nach /ISO 14025/ und /EN 15804/	
Deklarationsinhaber	Hydro Building Systems Germany GmbH
Herausgeber	Institut Bauen und Umwelt e.V. (IBU)
Programmhalter	Institut Bauen und Umwelt e.V. (IBU)
Deklarationsnummer	
Ausstellungsdatum	
Gültig bis	
WICONA Fassadensystem WICTEC 50 HI Hydro Building Systems Germany GmbH	

www.ibu-epd.com / https://epd-online.com




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Ausstellungsdatum	
Gültig bis	
WICONA Türsystem WICSTYLE 75 evo Hydro Building Systems Germany GmbH	

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Deklarationsnummer	
Ausstellungsdatum	
Gültig bis	
WICONA Fenstersystem WICLINE 75 TOP Hydro Building Systems Germany GmbH	

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... Bedarf

Blick nach London

NFT Tower London
SCHNEIDER + KAM DE



Entkarbonisierung des Bauwesens

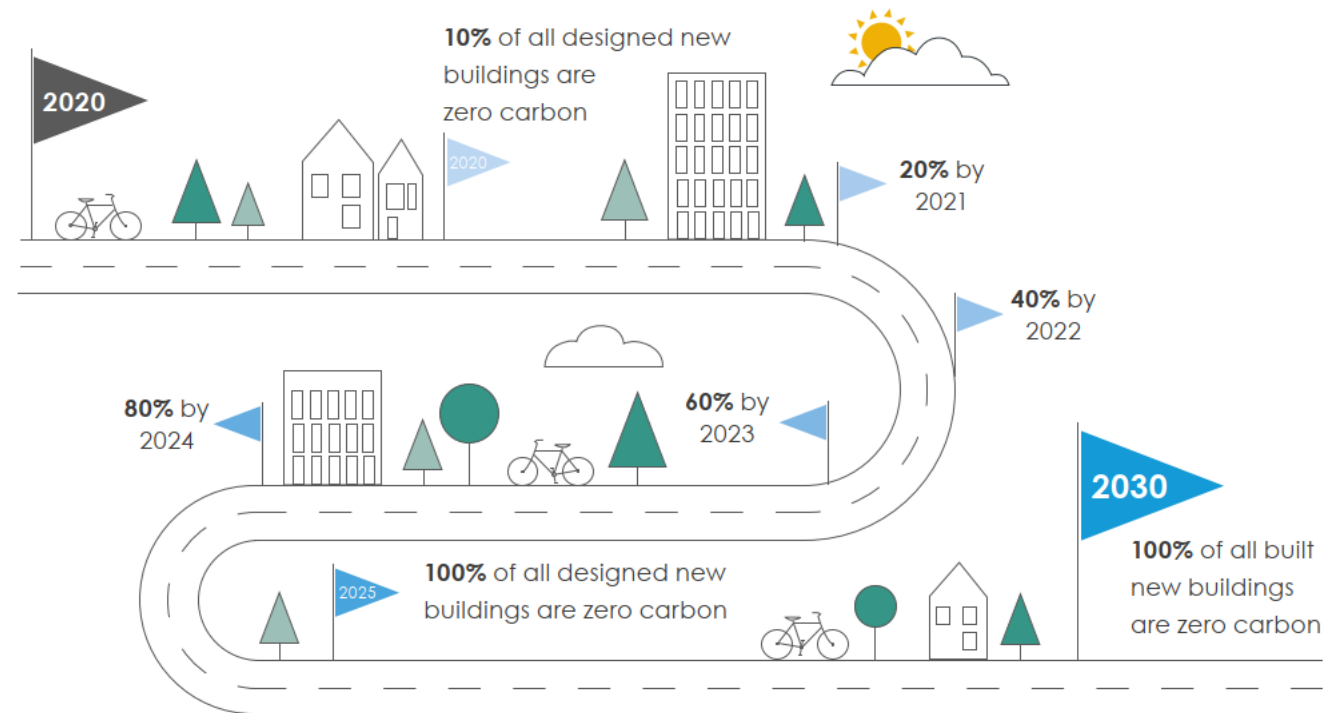
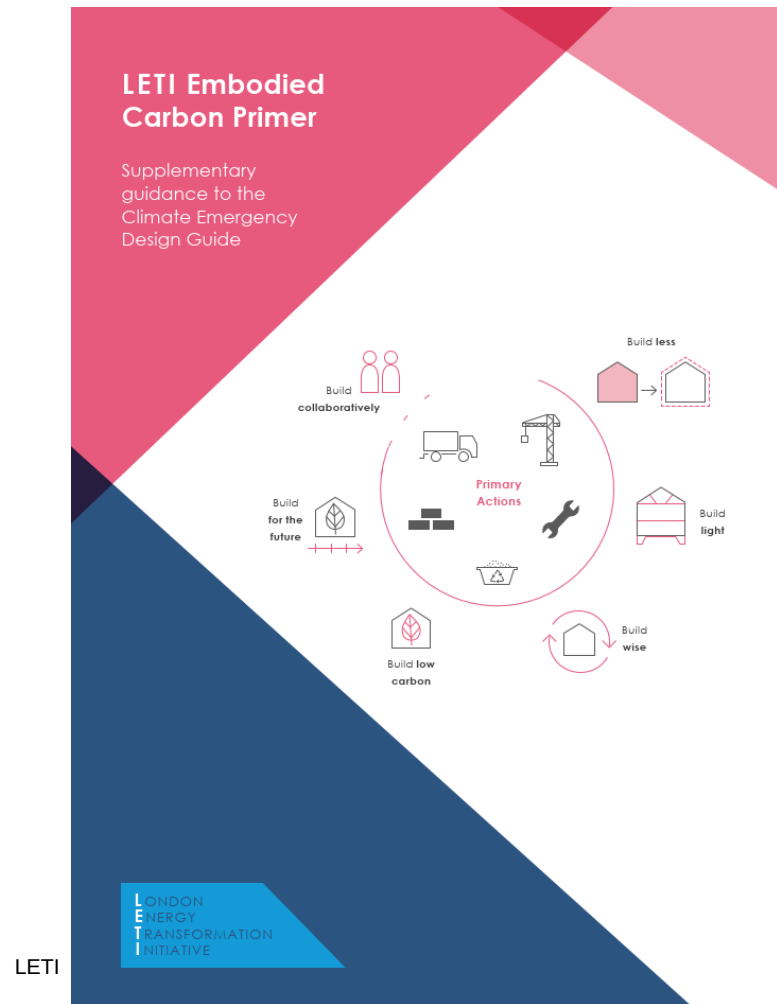


Figure i - LETI - Getting to Zero

Entkarbonisierung des Bauwesens

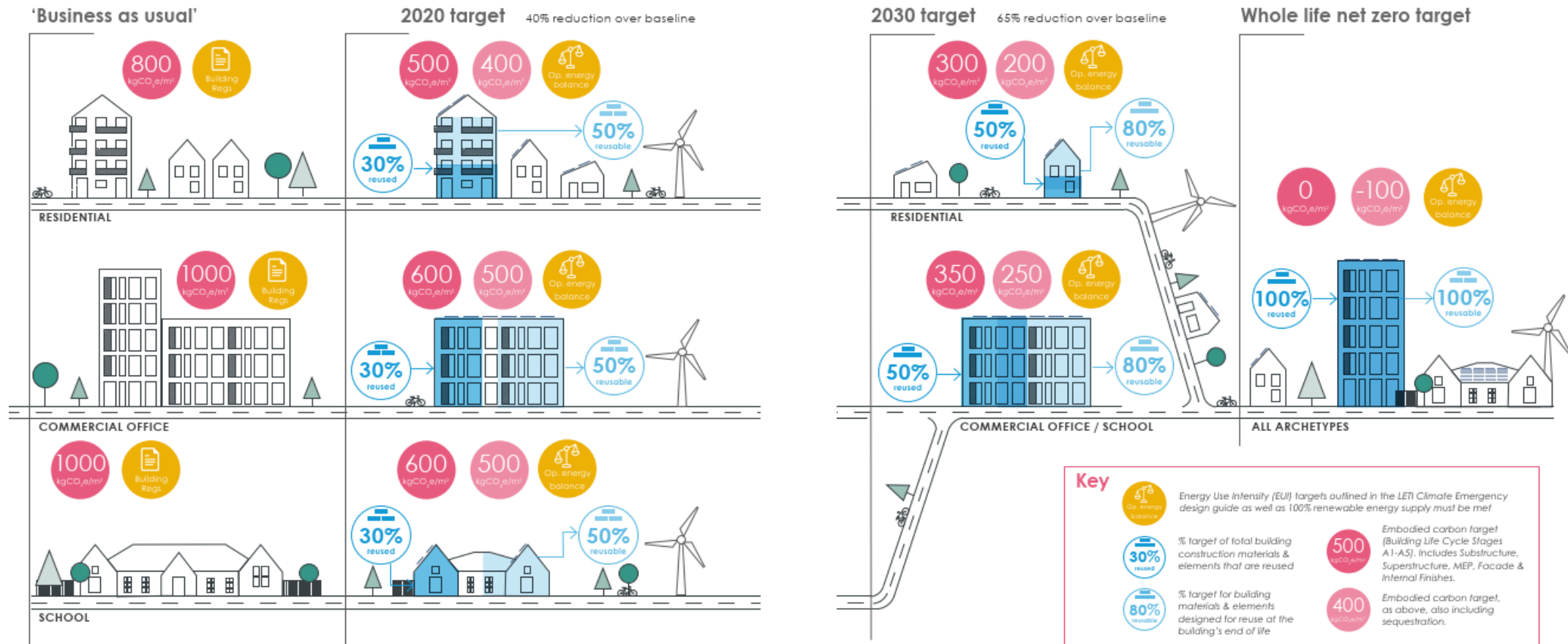
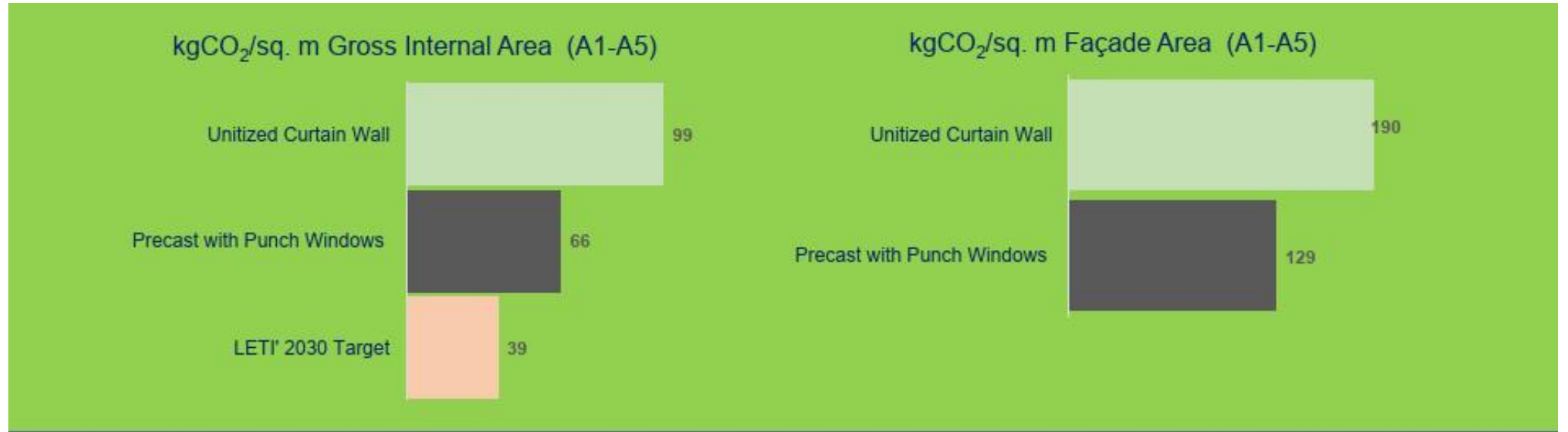


Figure 7.1 - LETI Embodied Carbon Reduction Targets towards Whole Life Net Zero

Entkarbonisierung des Bauwesens



Unitized Curtain Wall



Aluminium Unitized Curtain Wall Facade



Precast Façade with punch windows



Precast

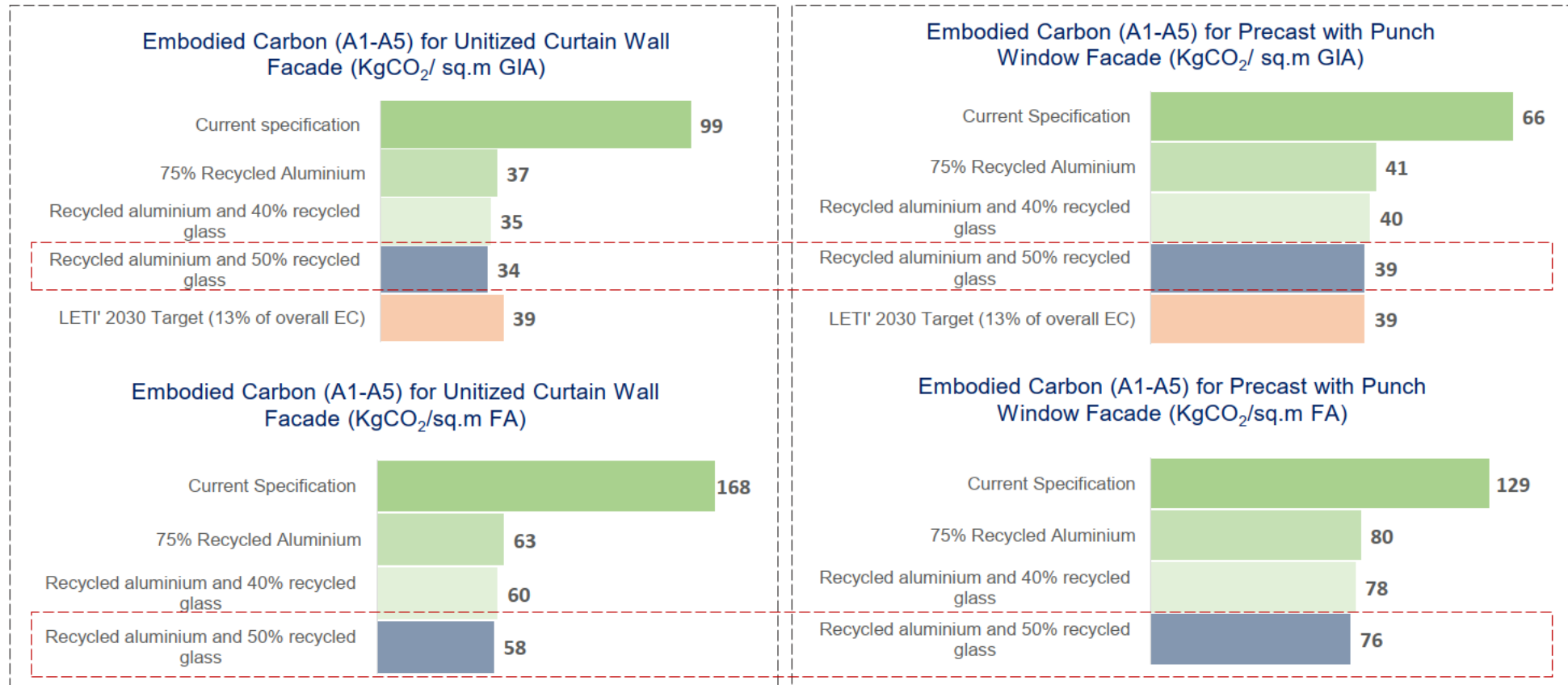
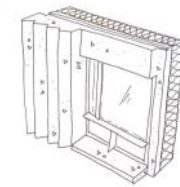


Entkarbonisierung des Bauwesens

Unitized Curtain Wall



Precast



Note: Embodied carbon per sq. m Façade area = Overall embodied carbon due to façade/ total façade surface area



Nachhalten

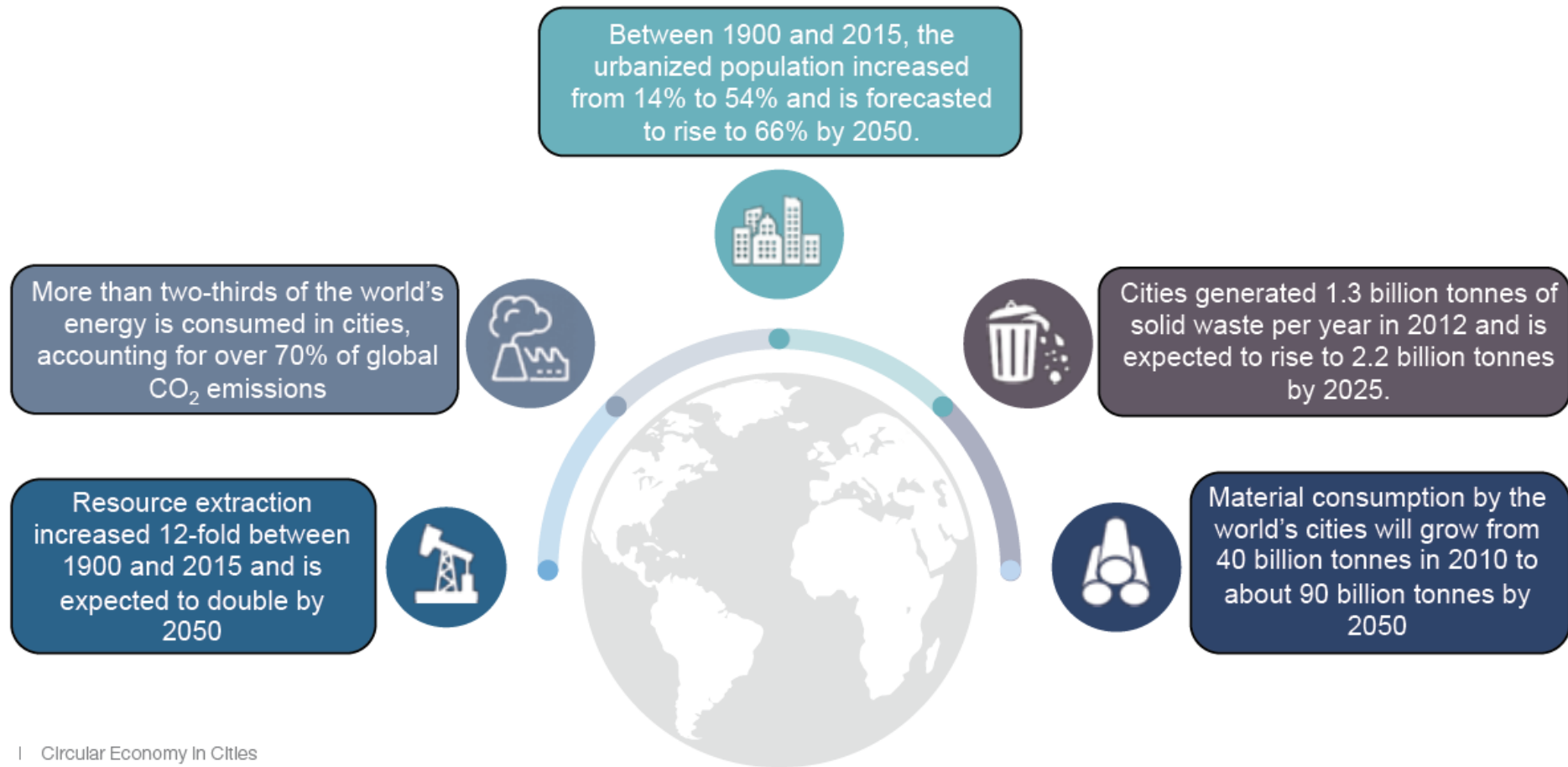
Die Frage nach dem WARUM?

A detailed architectural rendering of the Wardian Towers in London. The image shows two tall, modern skyscrapers with glass facades and balconies, set against a twilight sky. The buildings are illuminated from within, and the surrounding urban environment is visible at the base.

WARDIAN Towers London
SIPRAL – CZ – KAM DE

Kreislauf-Wirtschaft- Faktoren

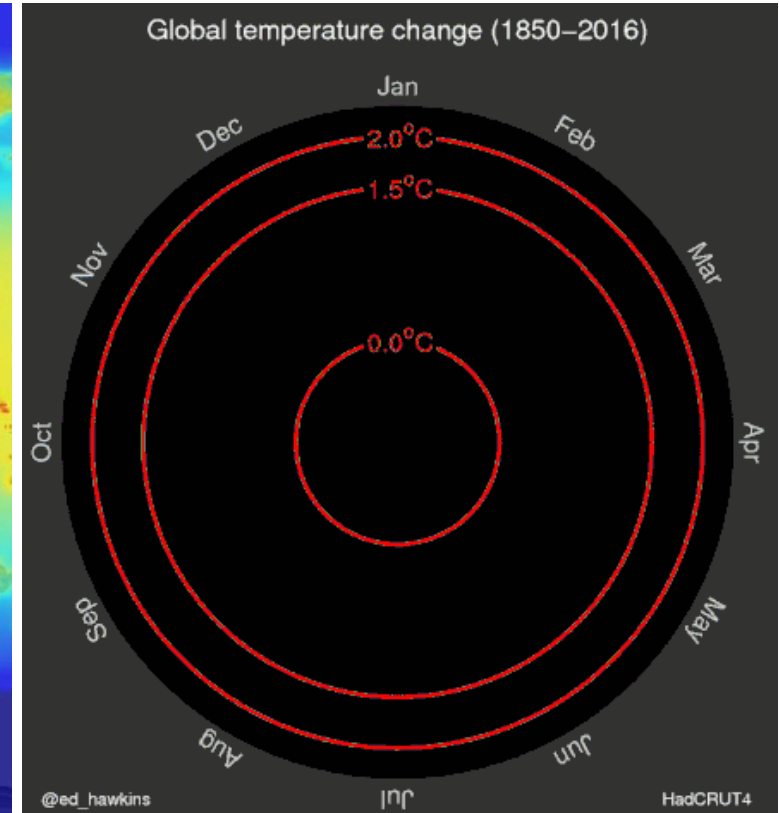
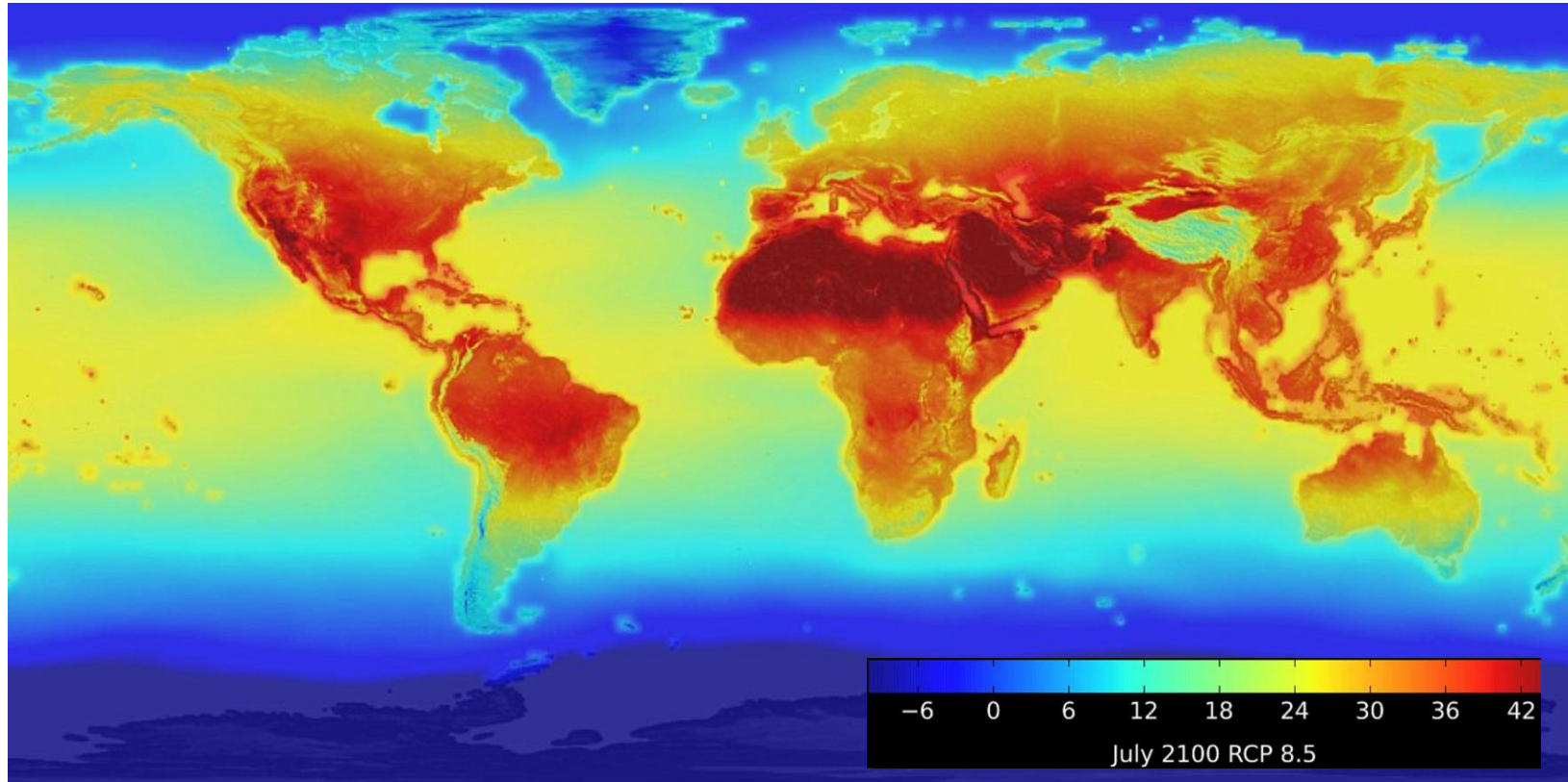
Zukünftige Trends – Ressourcen - Bedarf von Städten



| Circular Economy In Cities

Kreislauf-Wirtschaft- Faktoren

Zukünftige Trends – CO₂ Anstieg und Globale Erwärmung



Source WIKIPEDIA – NASA – Daily Mail UK



...what's next?



Attraktive Nachhaltigkeit

Do it and not only talk about it!





Hydro

We are aluminium

