



La durabilité attrayante

Werner Jager, Ingénieur



99 West Tower Frankfurt
APP- 400 Tonnen CIRCAL 75R in E6 EV1 Eloxal

La durabilité attrayante



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

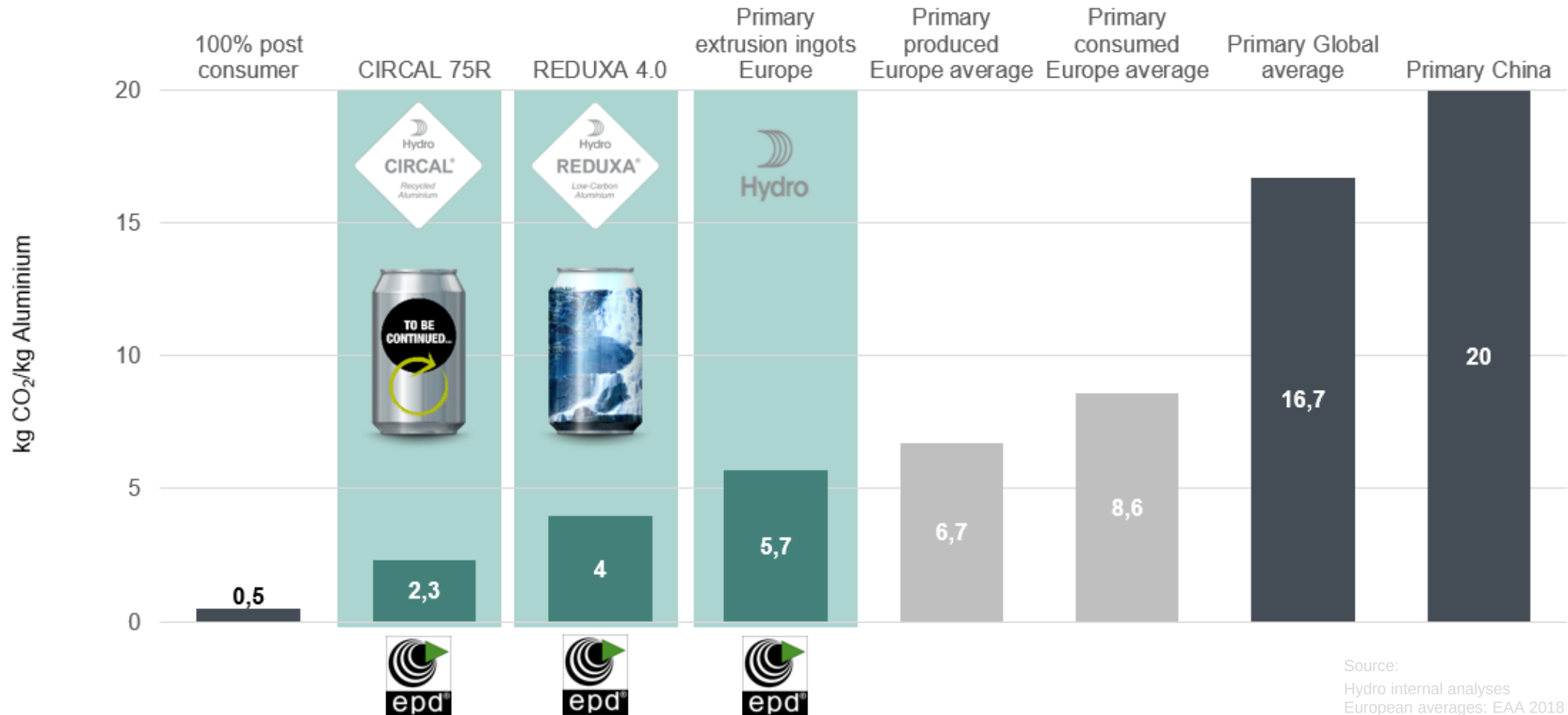
Stockholm ONE
STATICUS – KAM DE



Empreinte CO2 de l'aluminium – ça dépend...

Aluminium secondaire

Aluminium primaire



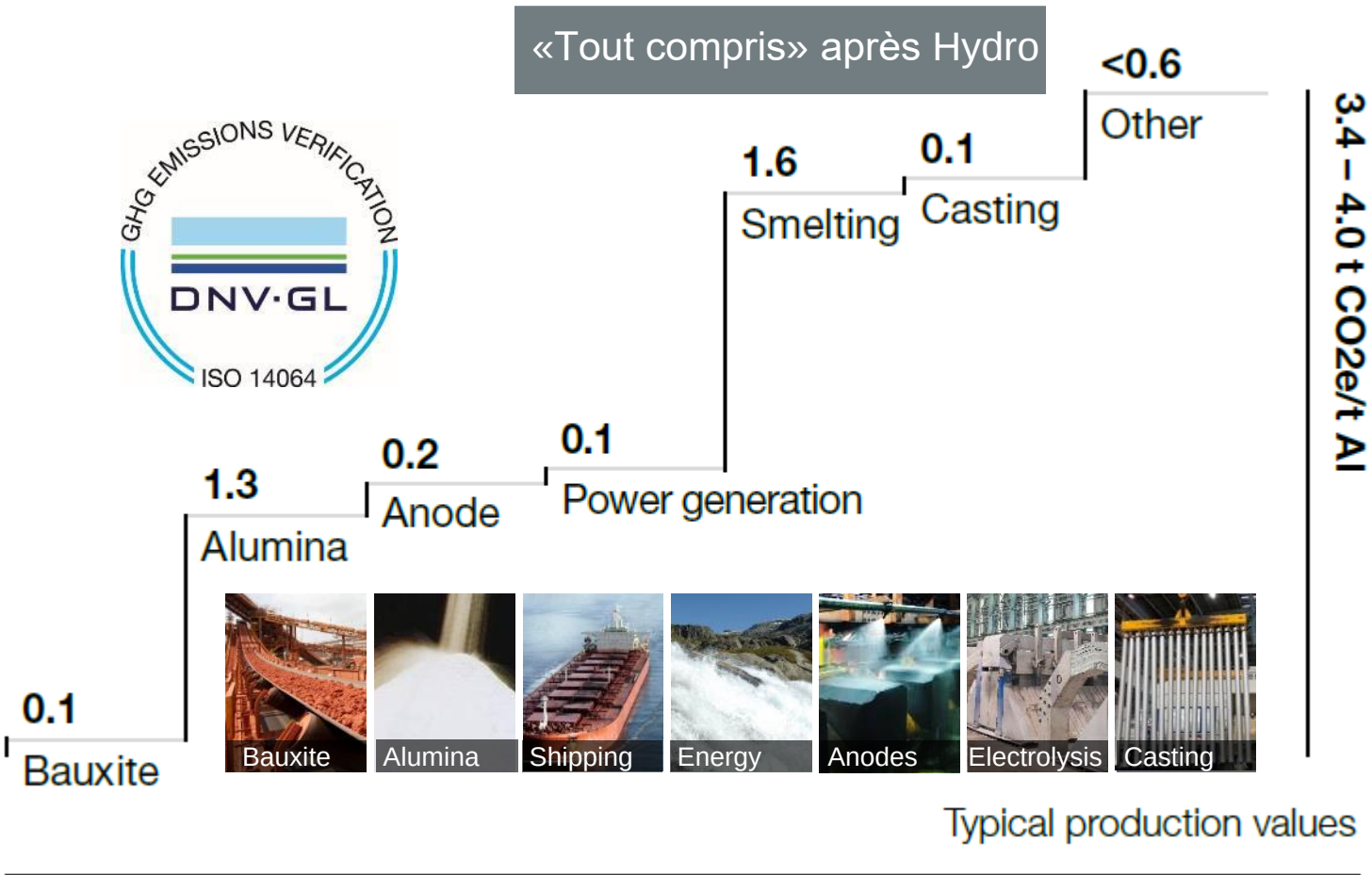
*75% EOL Scrap + 10% Process Scrap + 15% Primary Ingot: 2,3 kg CO₂/kg 75R

Besoin en énergie de l'aluminium



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.





REDUCE
REUSE
RECYCLE

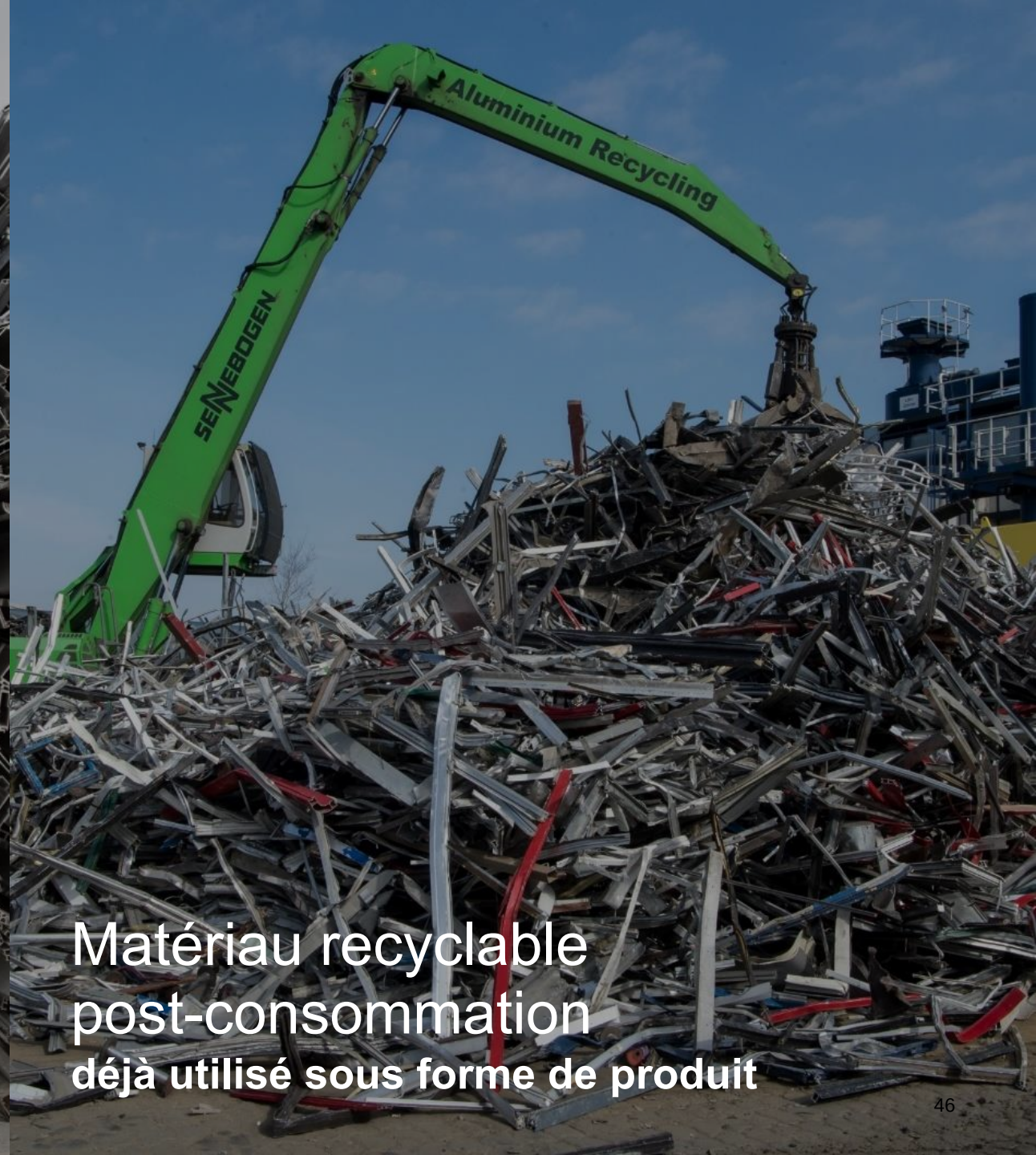
OKERN Portal Oslo
Staticus – KAM DE



Reduce – Reuse - Recycle

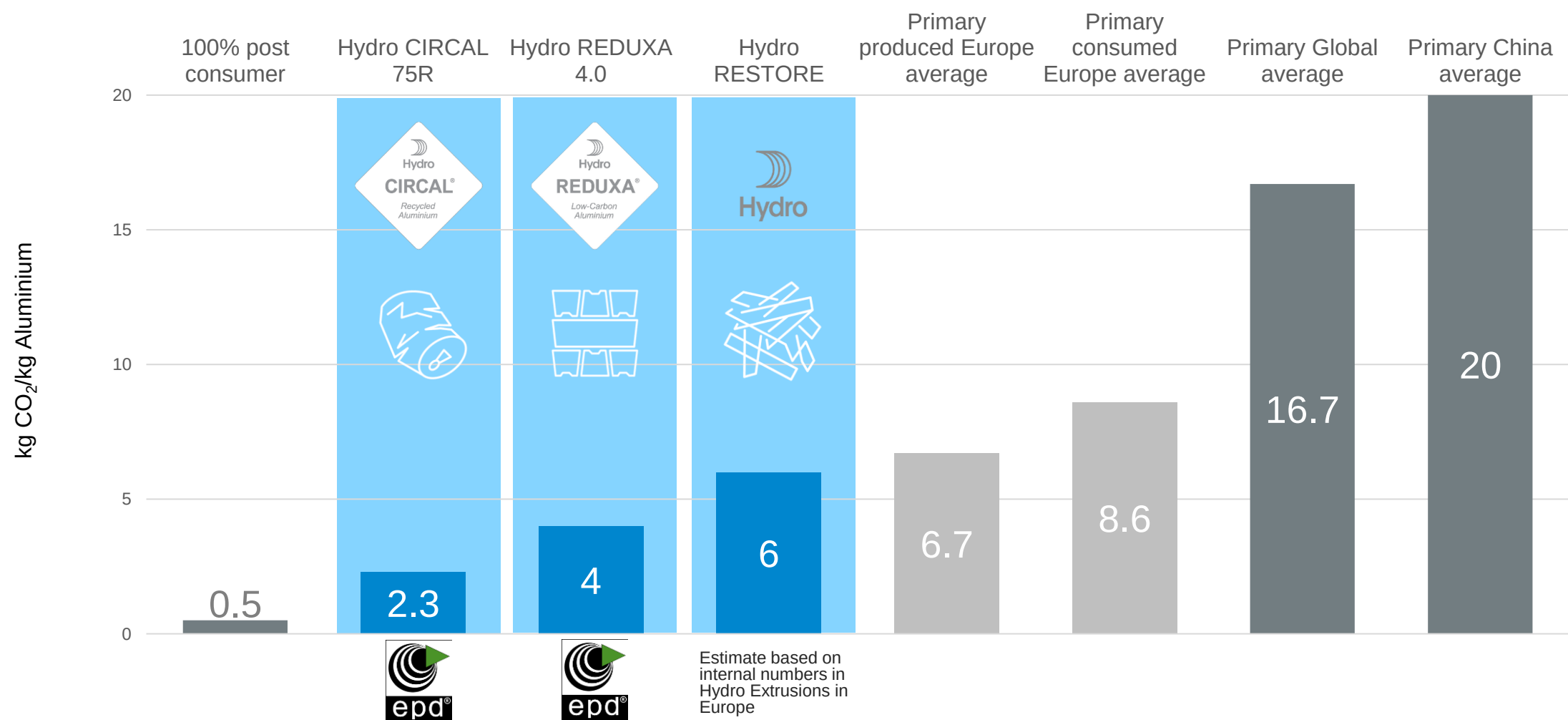


Matériau recyclable
préconsommation
Encore jamais utilisé



Matériau recyclable
post-consommation
déjà utilisé sous forme de produit

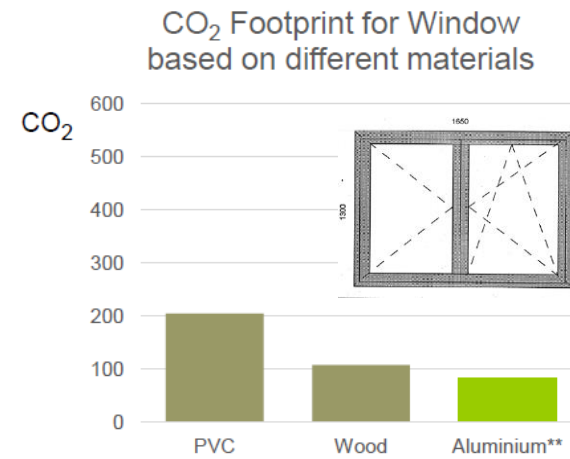
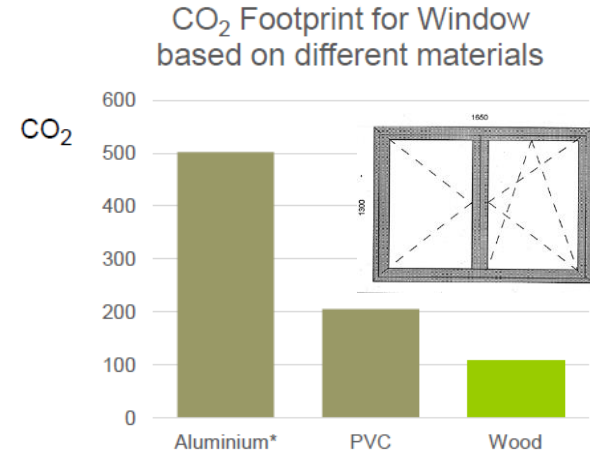
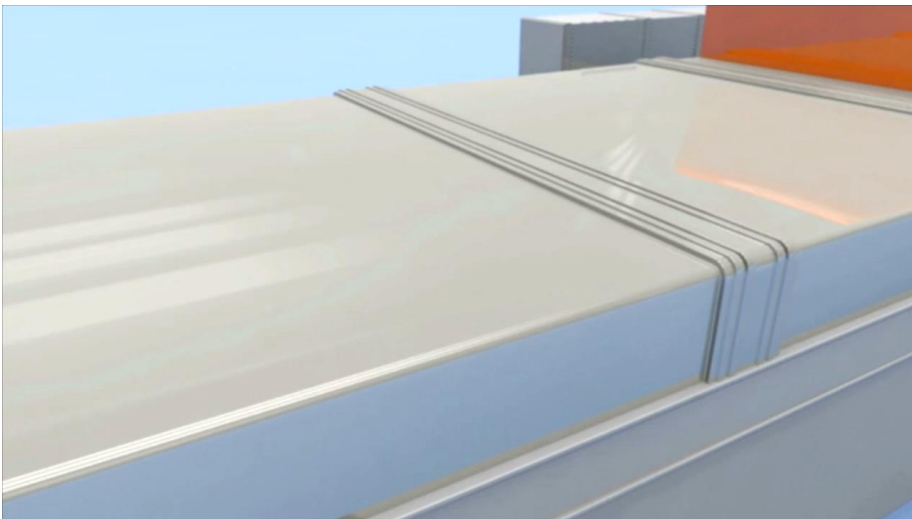
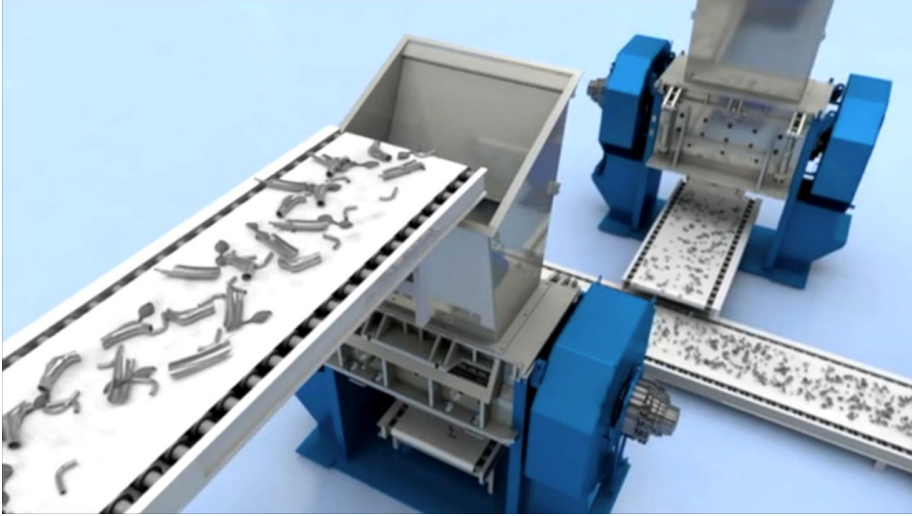
Empreinte CO₂ de l'aluminium – Responsabilité dans les achats



Sources:

European averages: EAA 2018
Global average: IAI 2018

La durabilité attrayante



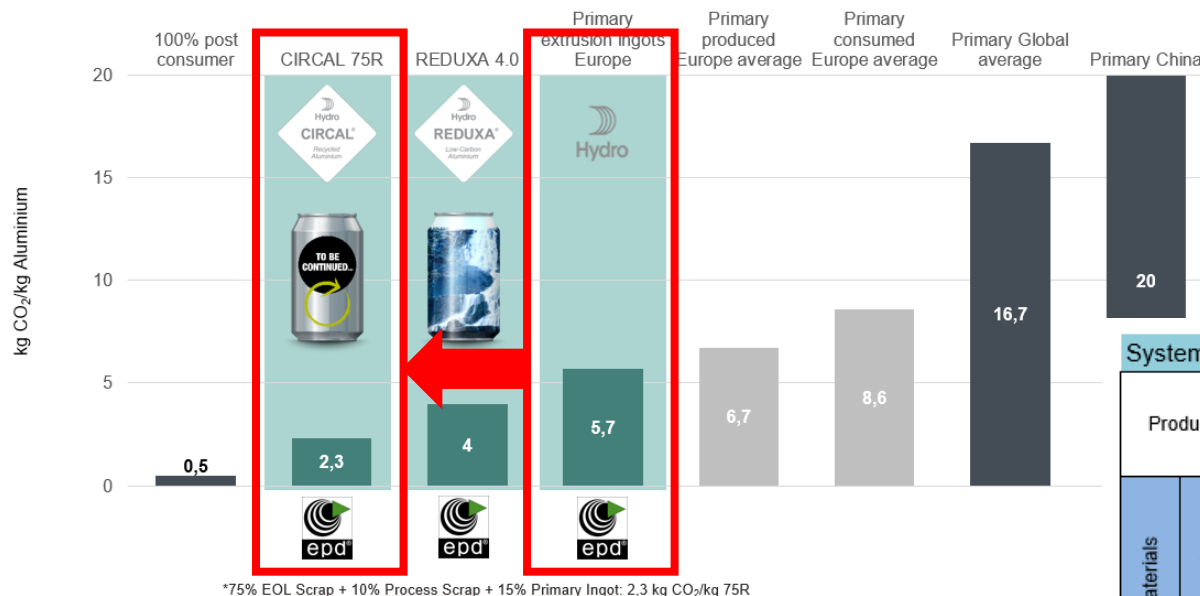
*Based on world averag

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



Empreinte CO₂ de l'aluminium – l'influence du COMMENT

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% d'émissions de gaz à effet de serre

ODP: – 75% d'appauvrissement de la couche d'ozone

AP: – 50% d'acidification des sols

EP: – 50% d'eutrophisation des sols et des eaux

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 – Certification externe



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>



UMWELT-PRODUKTDEKLARATION
nach /ISO 14025/ und /EN 15804/

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Ausstellungsdatum	
Gültig bis	

WICONA Türsystem WICSTYLE 75 evo
Hydro Building Systems Germany GmbH

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



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nach /ISO 14025/ und /EN 15804/

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Ausstellungsdatum	
Gültig bis	

WICONA Fenstersystem WICLINE 75 TOP
Hydro Building Systems Germany GmbH

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



Source: WICONA WICTOP Softwarelösung – ICONPACK.NET



... Besoins

Vue sur Londres

NFT Tower London
SCHNEIDER + KAM DE



Décarbonation de la construction

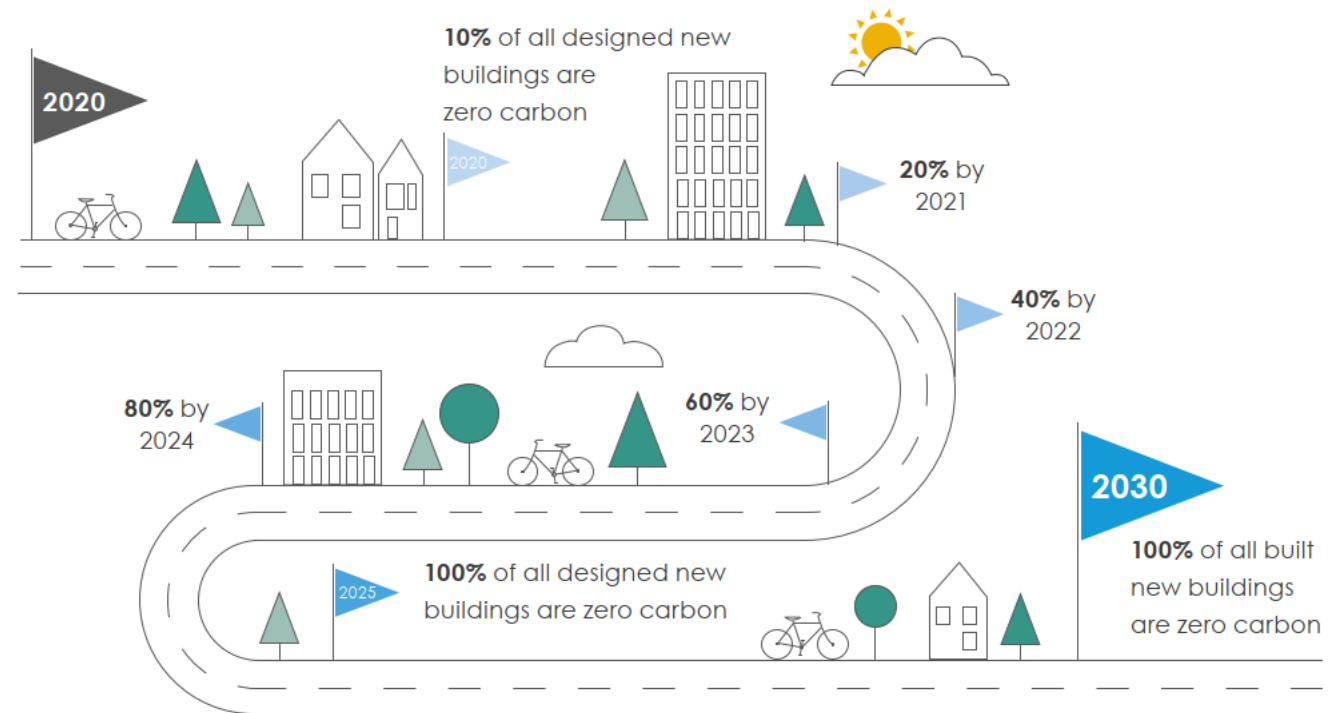
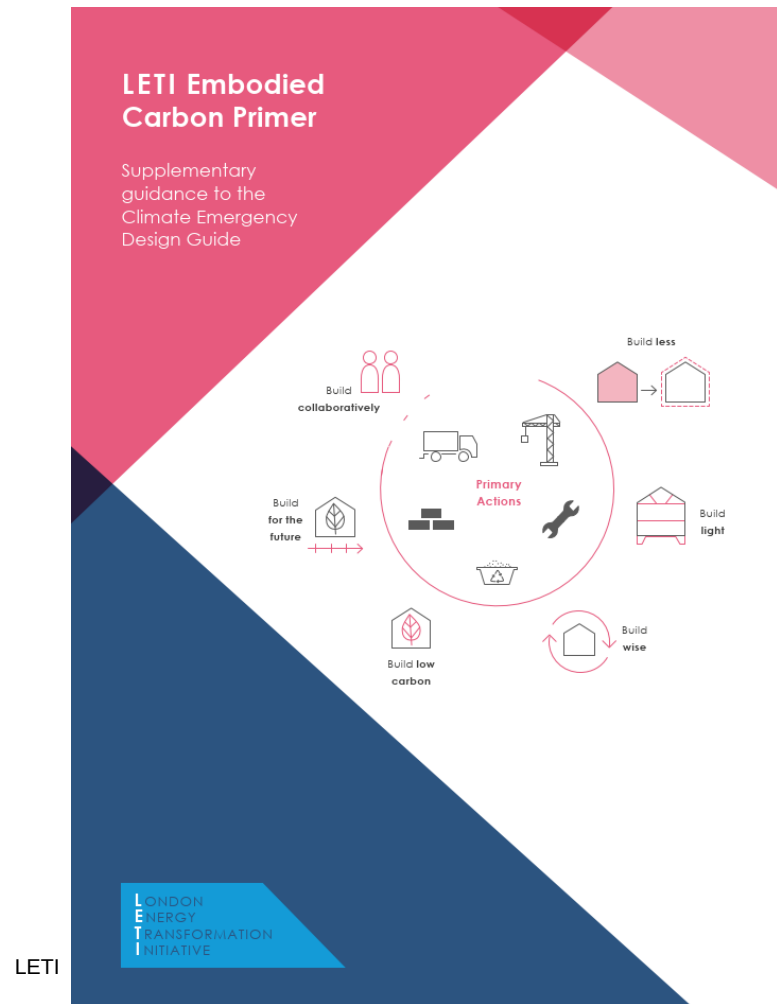


Figure i - LETI – Getting to Zero

Décarbonation de la construction

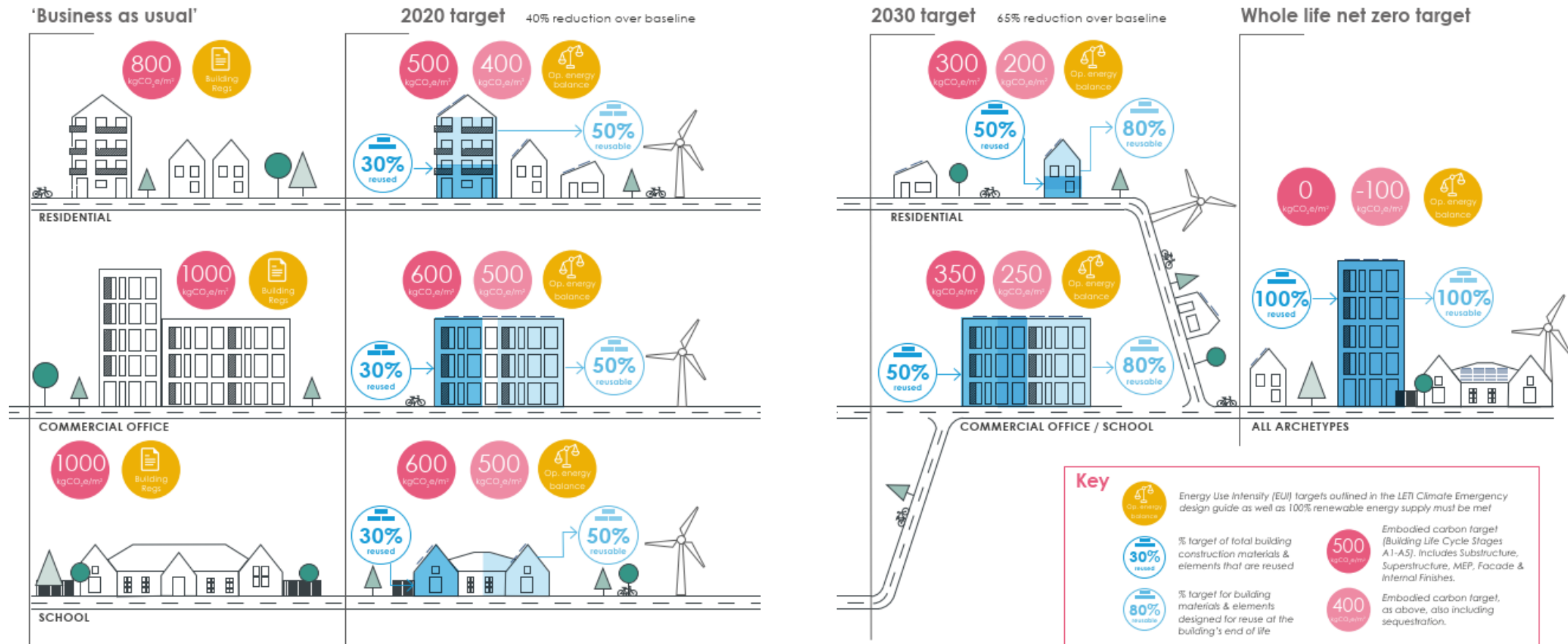
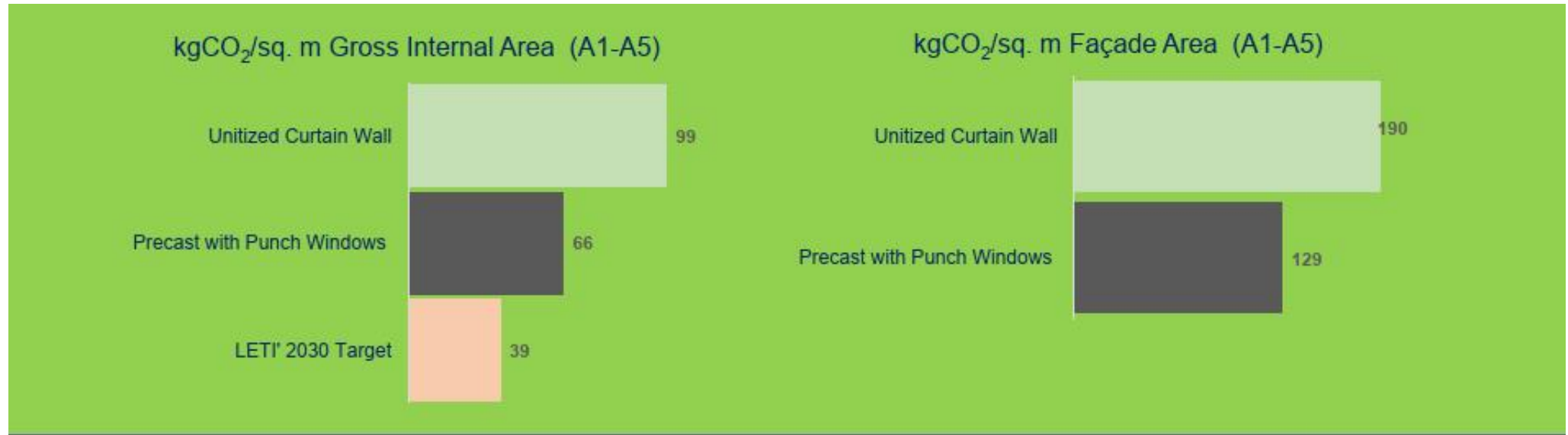


Figure 7.1 - LETI Embodied Carbon Reduction Targets towards Whole Life Net Zero

Décarbonation de la construction



Unitized Curtain Wall



Aluminium Unitized Curtain Wall Façade



Precast Façade with punch windows



Precast

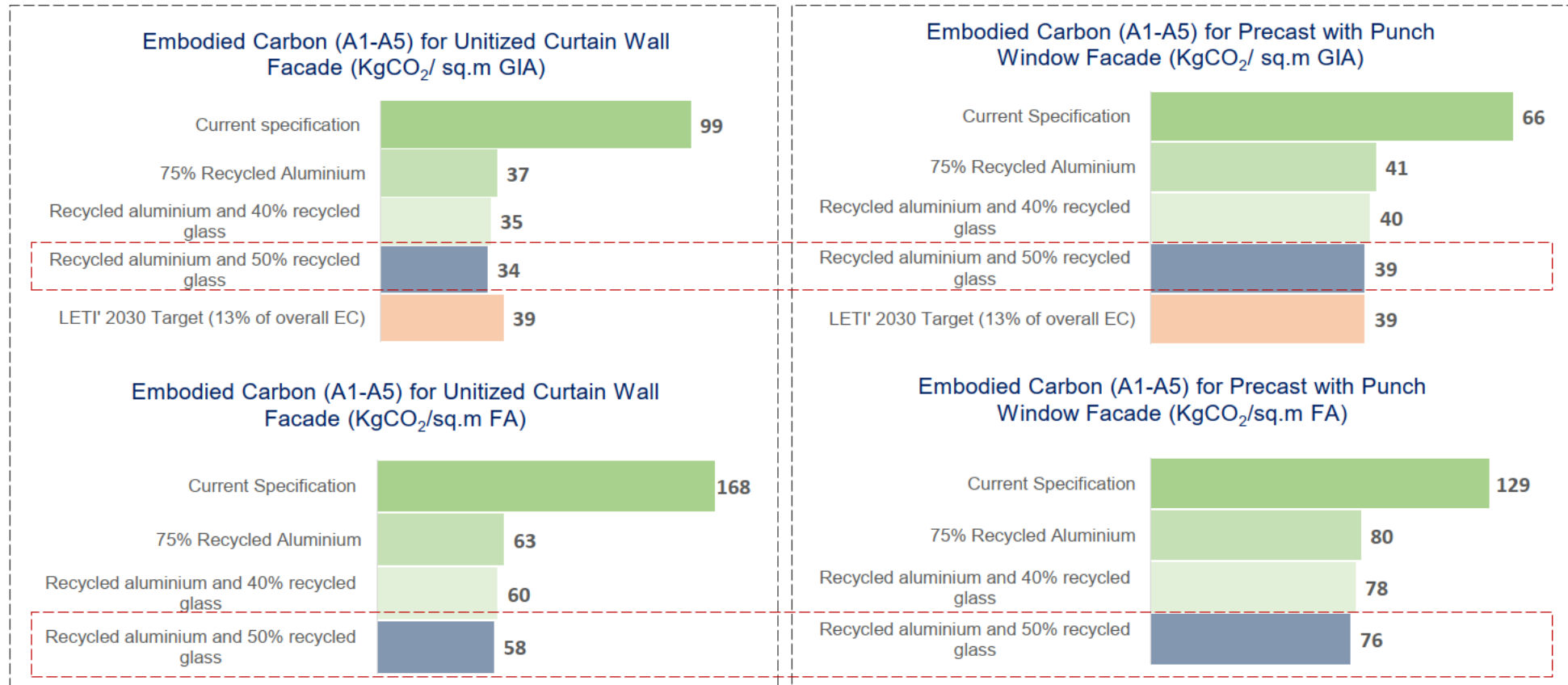
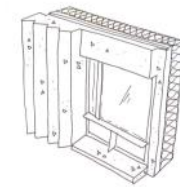


Décarbonation de la construction

Unitized Curtain Wall



Precast



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



Durabilité

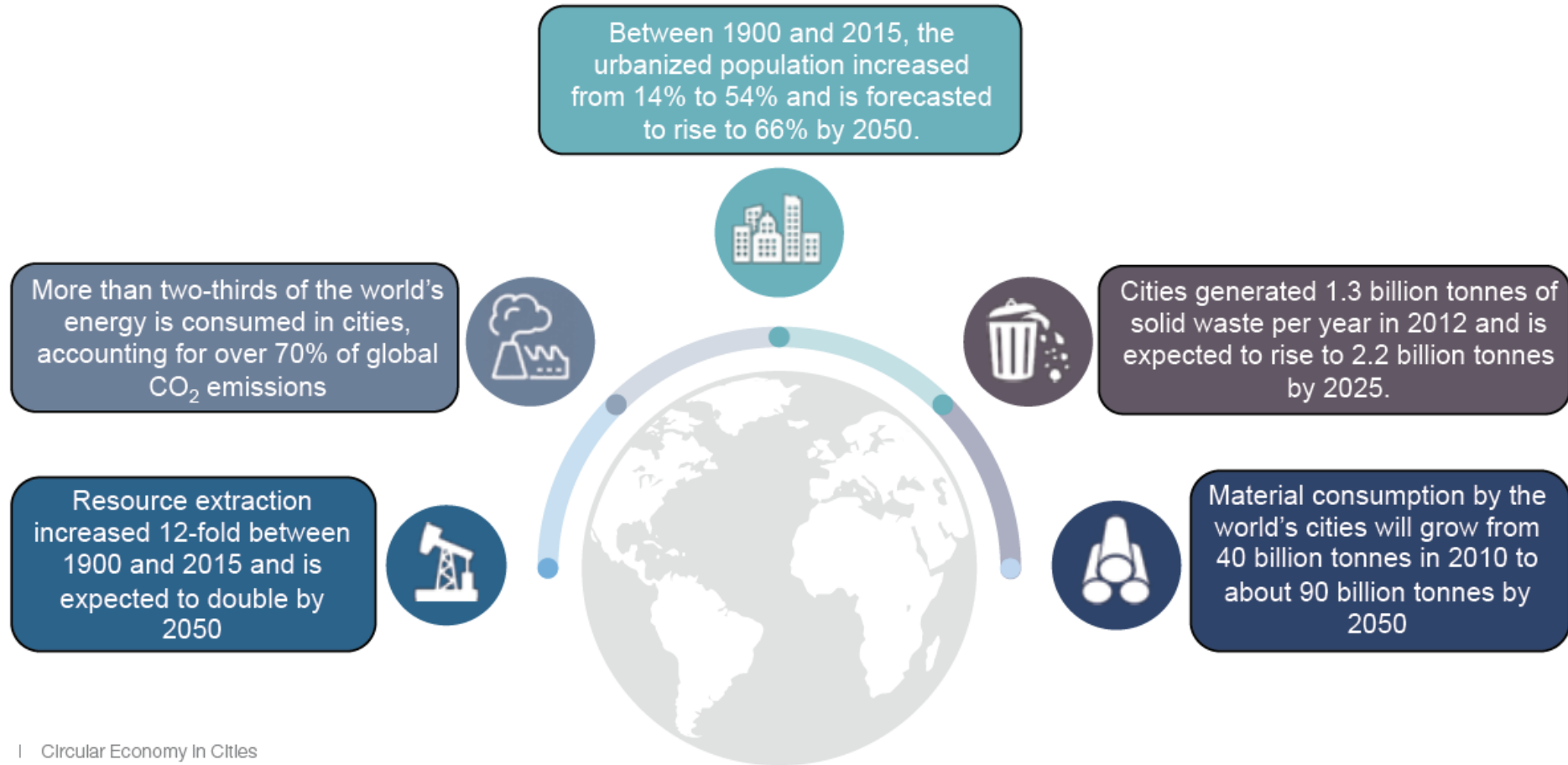
La question du POURQUOI?

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

Facteurs de l'économie circulaire

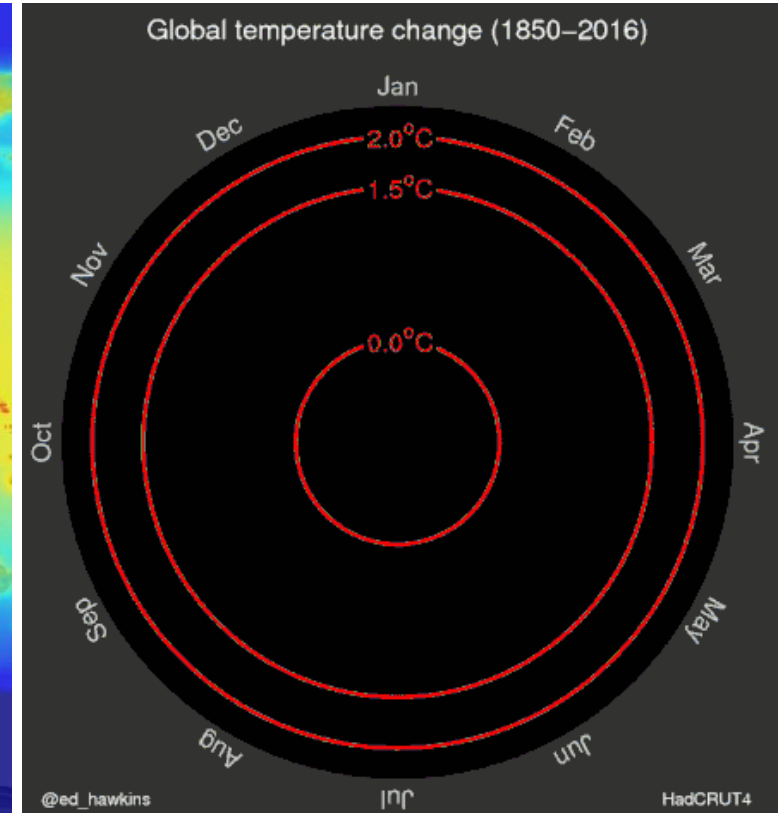
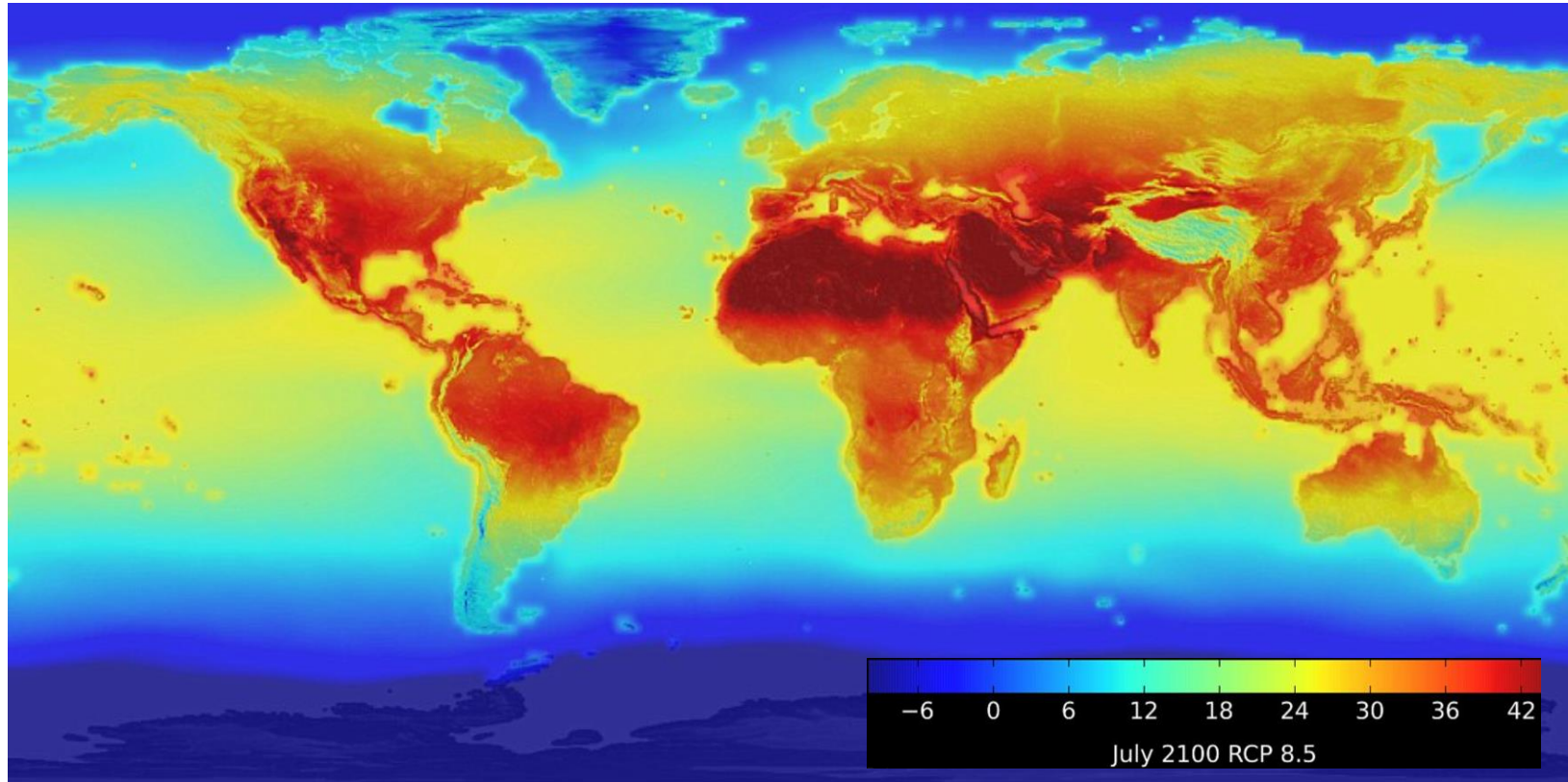
Tendances futures – Ressources - Besoins des villes



| Circular Economy In Cities

Facteurs de l'économie circulaire

Tendances futures – Augmentation des émissions de CO₂ et rechauffement climatique



Source WIKIPEDIA – NASA – Daily Mail UK



...what's next?



La durabilité attirante

Do it and not only talk about it!





Hydro

We are aluminium

