

Circular construction

Rules & Spatial consequences



ASSET Meet and Learn

Joeri Schutte | advisor sustainability - materials | 27 sept 2024



DURAVERMEER

Waarmaken van ambities



Infra



Construction & Real Estate -----



Technique



DURA VERMEER

Waarmaken van ambities

National team sustainability | Division Construction & Real Estate

- Role: Organising policy and guiding sustainability central for joint challenges and overview



Joeri

Focus on materials

- Improve existing material usage › for example changing concrete mixtures or searching alternatives for plaster or bricks
- Stimulating implementation of new building methods like biobased- and timber building
- Background in architecture in both Netherlands and Belgium

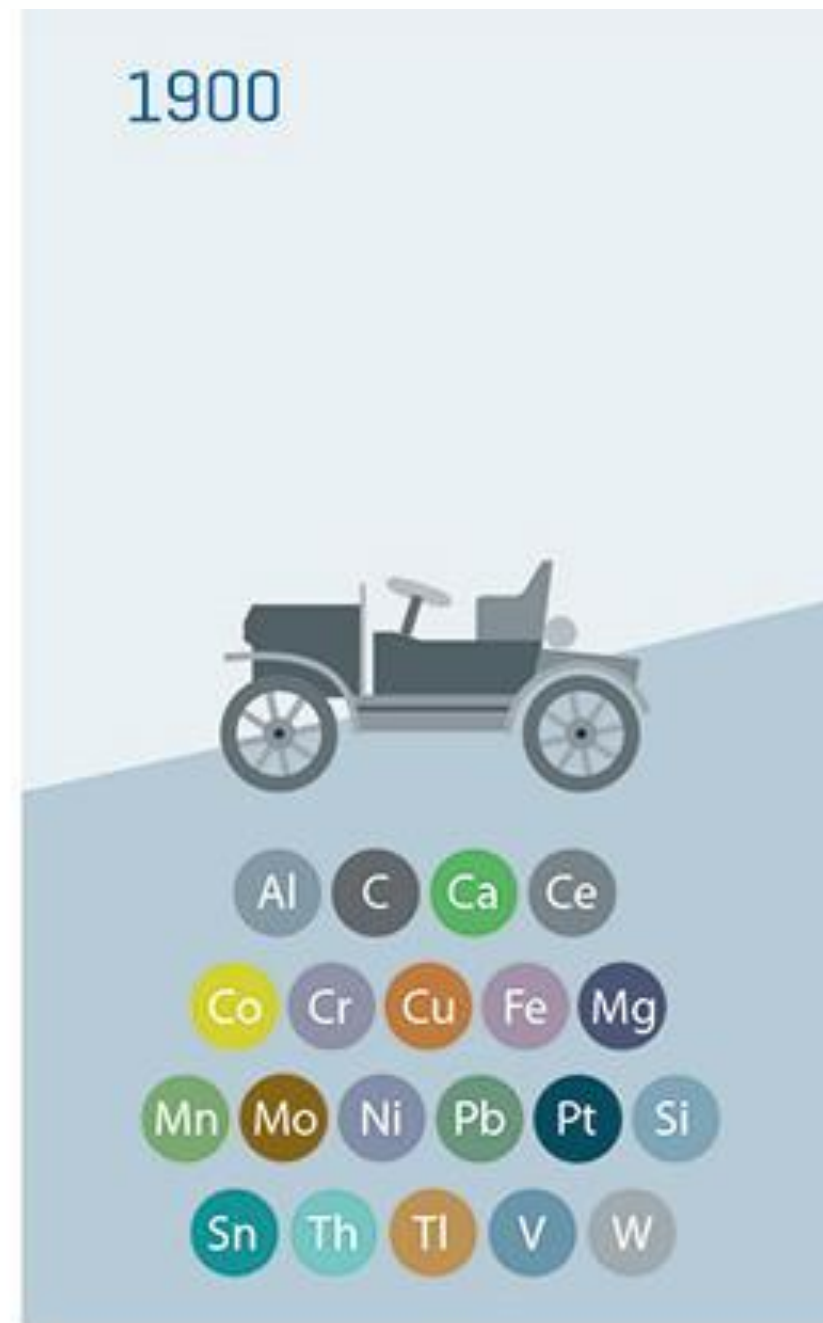
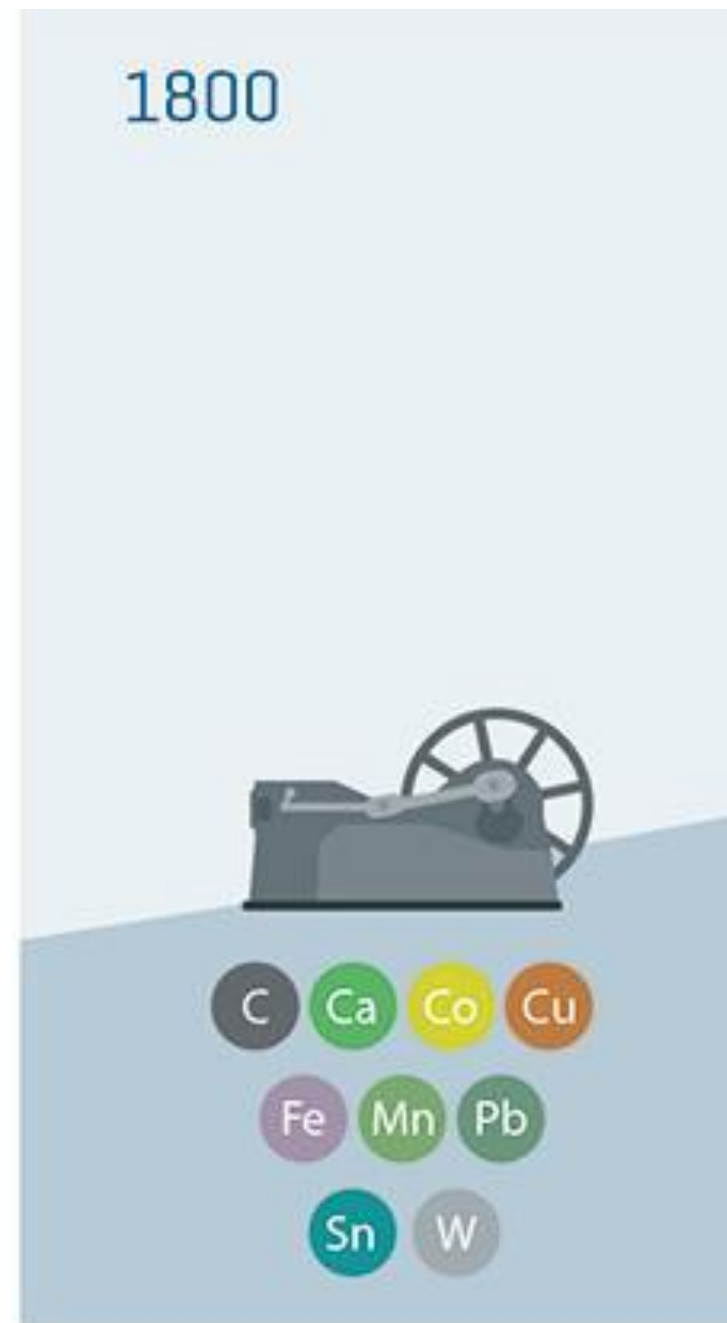


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Waarmaken van ambities

FROM GREEN TO GREY

>> CAUSE AND NEED OF THE MATERIAL TRANSITION



>> THE ATTENDANCE OF METAL

Sustainability strategy

>> Organisation



Mission



Sustainability Division Construction & Real Estate

EARTH

HUMAN

PRIO



FOOTPRINT TO ZERO



BUILDING CIRCULAR



NATURE INCLUSIVE & KLIMATE ADAPTIVE



EMBEDDED IN ORGANISATION



FRONTRUNNER IN SOCIAL

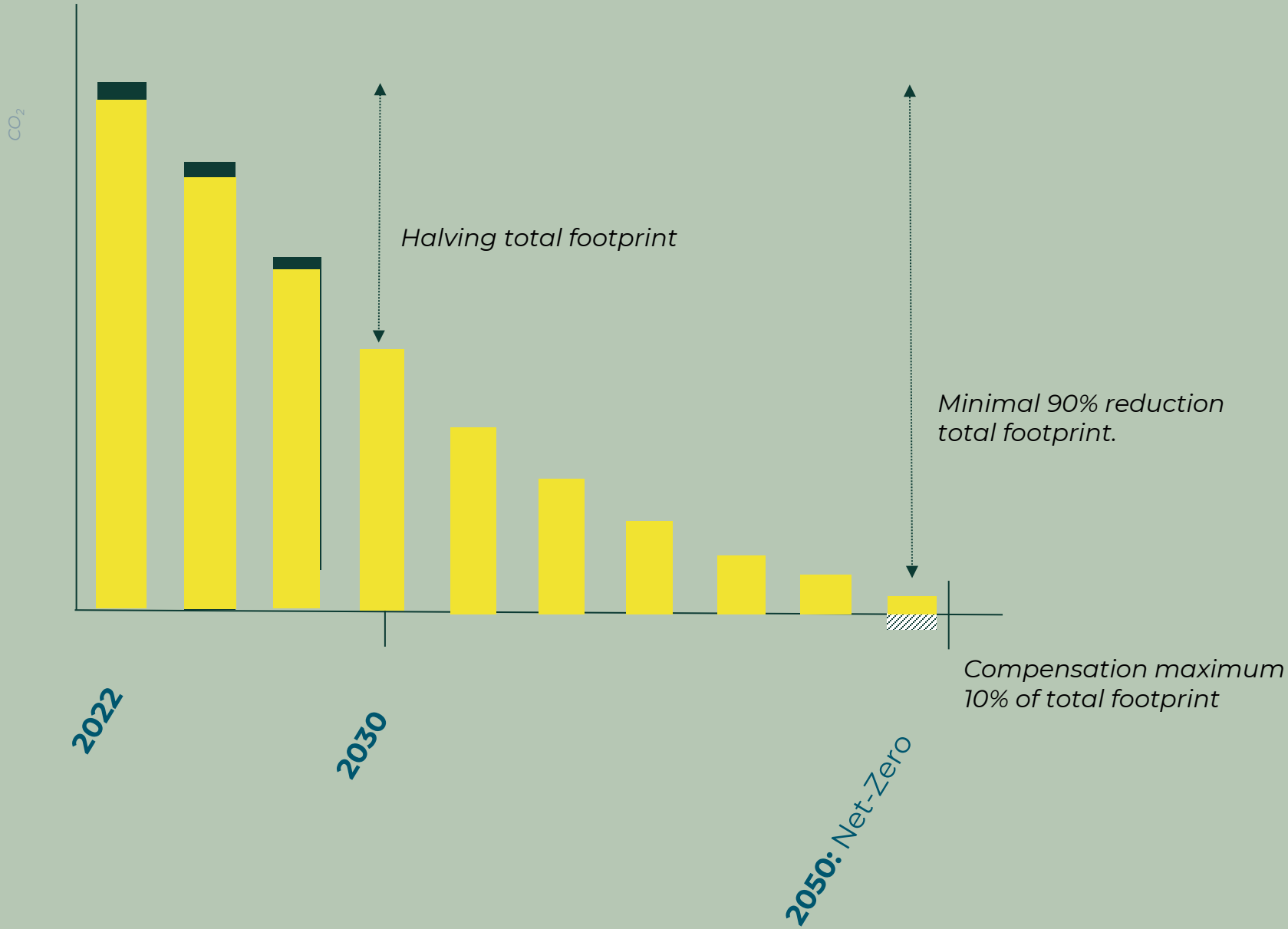


POSITIVE SOCIAL IMPACT

Net Zero

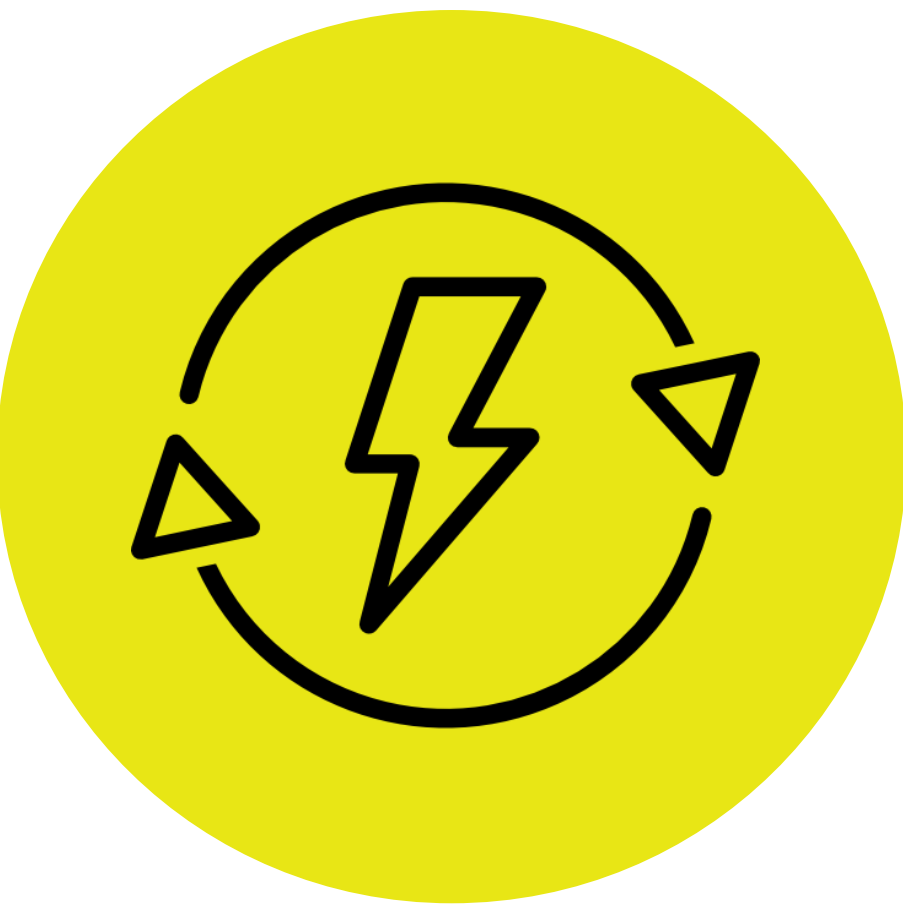
>> Reductionplan scope I, II en III

■ Scope 1 & 2 ■ Scope 3 ▨ Offset / removals

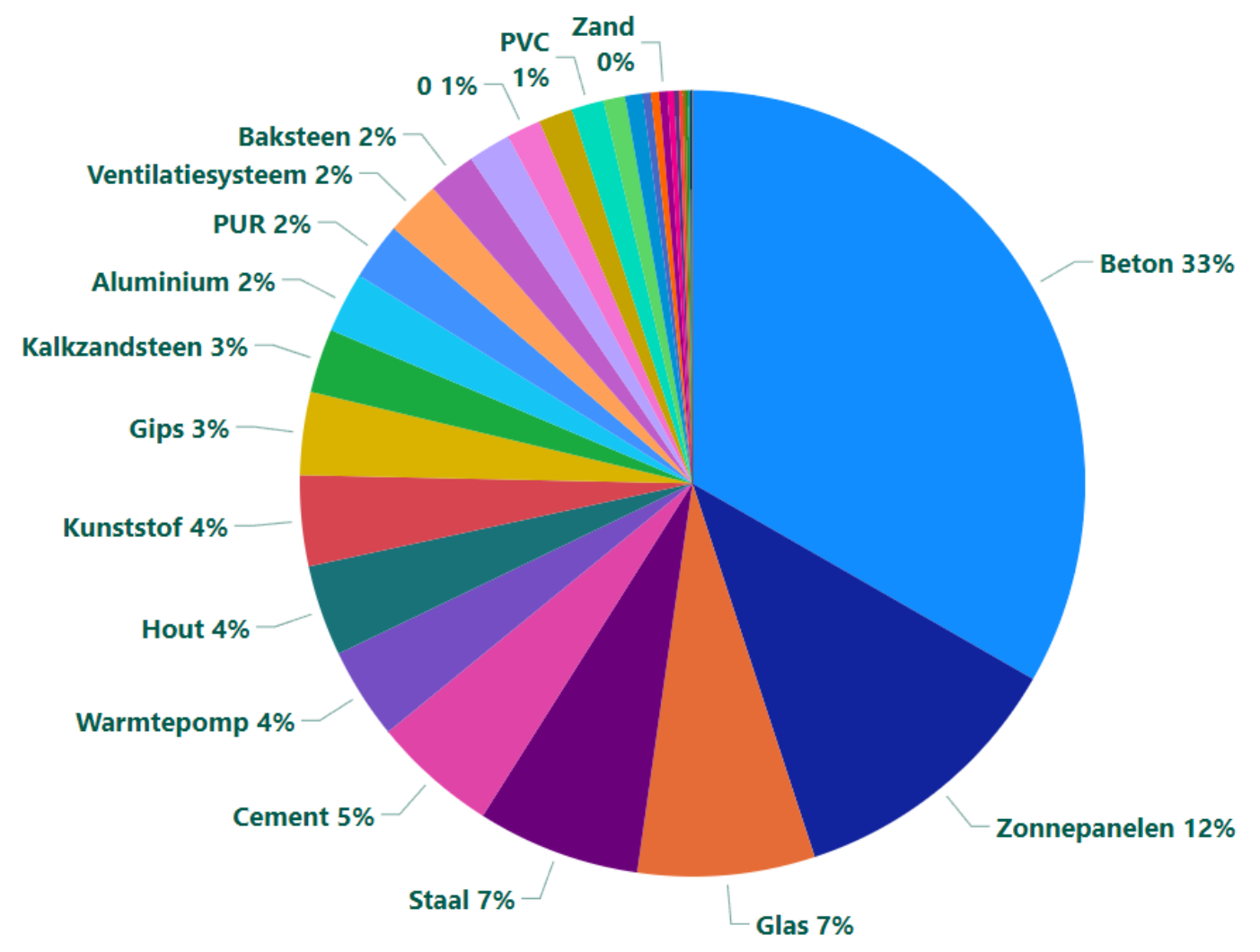


Carbon footprint 2023

ENERGY **47%**
During life expectancy
of the buildings

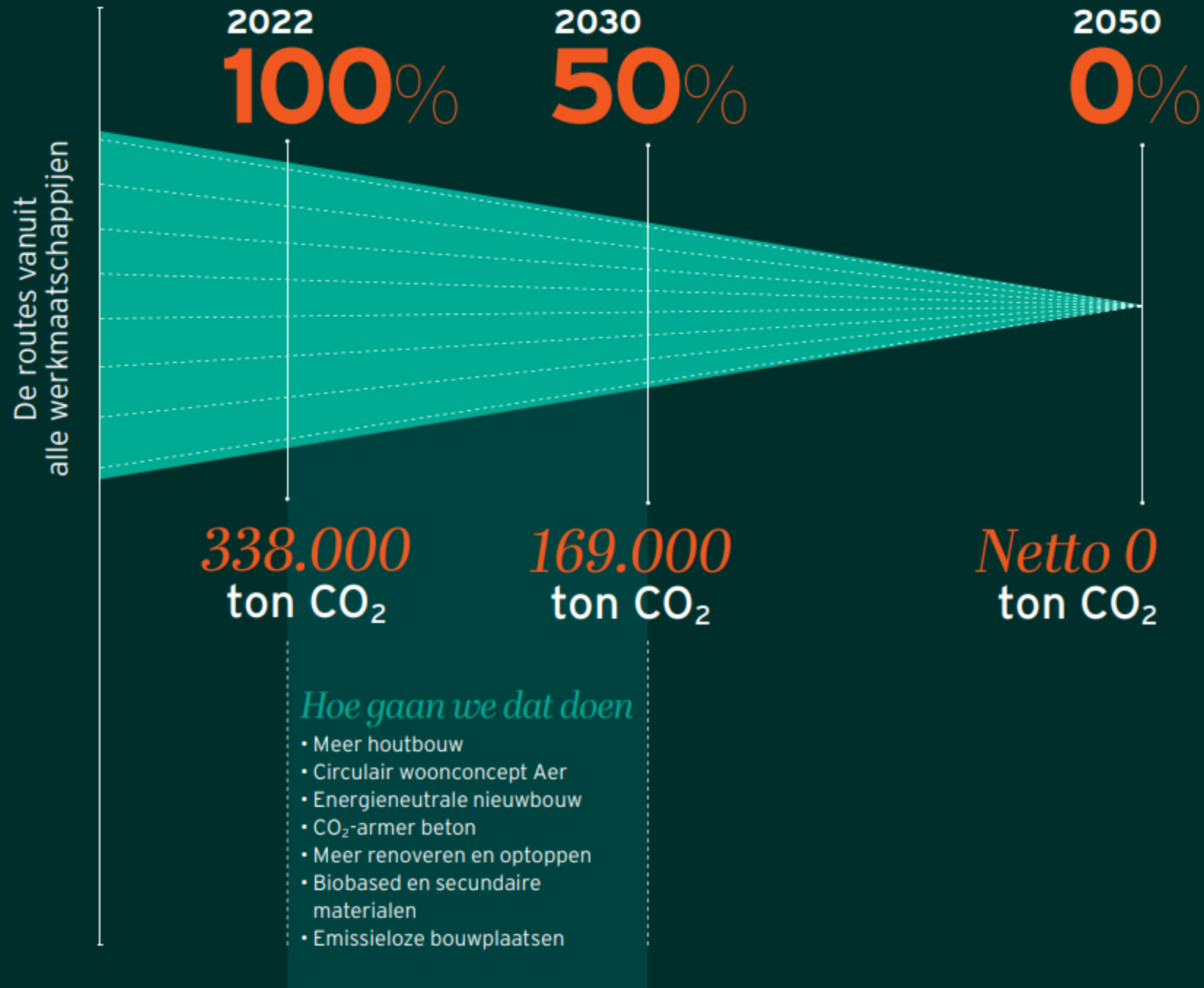


MATERIALS **53%**

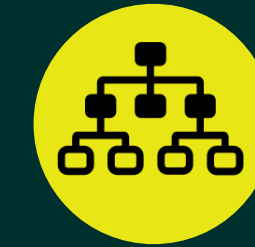


Sustainability strategy

>> Road to net zero



Critical factors



Organisation



Management



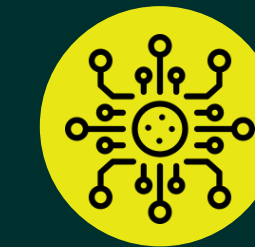
Collaboration with clients



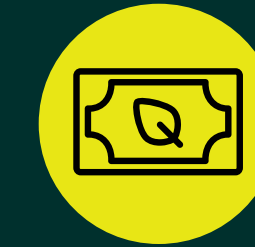
Strategic supply chain



Communication



Digitisation



Long term investing

Low carbon concrete

25%



>> Challenges

- Partnerships
- Investing in factories
- Make internal policy

>> Challenges regarding rules

- Edges of norms NEN & NTA
- Regulations based on cement

**NOBELHORST
ALMERE**

Constructing in timber

>> Challenges

- Affordability
- Knowledge
- Optimising chains

>> Challenges regarding rules

- Fire and sound

**ALLIANDER
AMSTERDAM**

Developing in timber

>> Challenges

- Affordability
- Knowledge
- Industrialisation

>> Challenges regarding rules

- Spatial frameworks based on traditional building unit measurements
- Required aesthetics



**HORTUS LUDI
NIJMEGEN**

Biobased social housing

>> By Buro Kade



Location: Boschveld (NL)
Biobased percentage: 95%
Materials: timber frame, wood fibre insulation, cork, wooden roofing



Topping up in timber

>> Challenges

- Collective ownership
- Participation/living conditions during construction

>> Challenges regarding rules

- Spatial frameworks
- Parking norms



**STICHTING
OUDERENHUISVESTING
ROTTERDAM**

URBAN MINER

SECUNDAIRE & BIOBASED MATERIALEN

>> Challenges

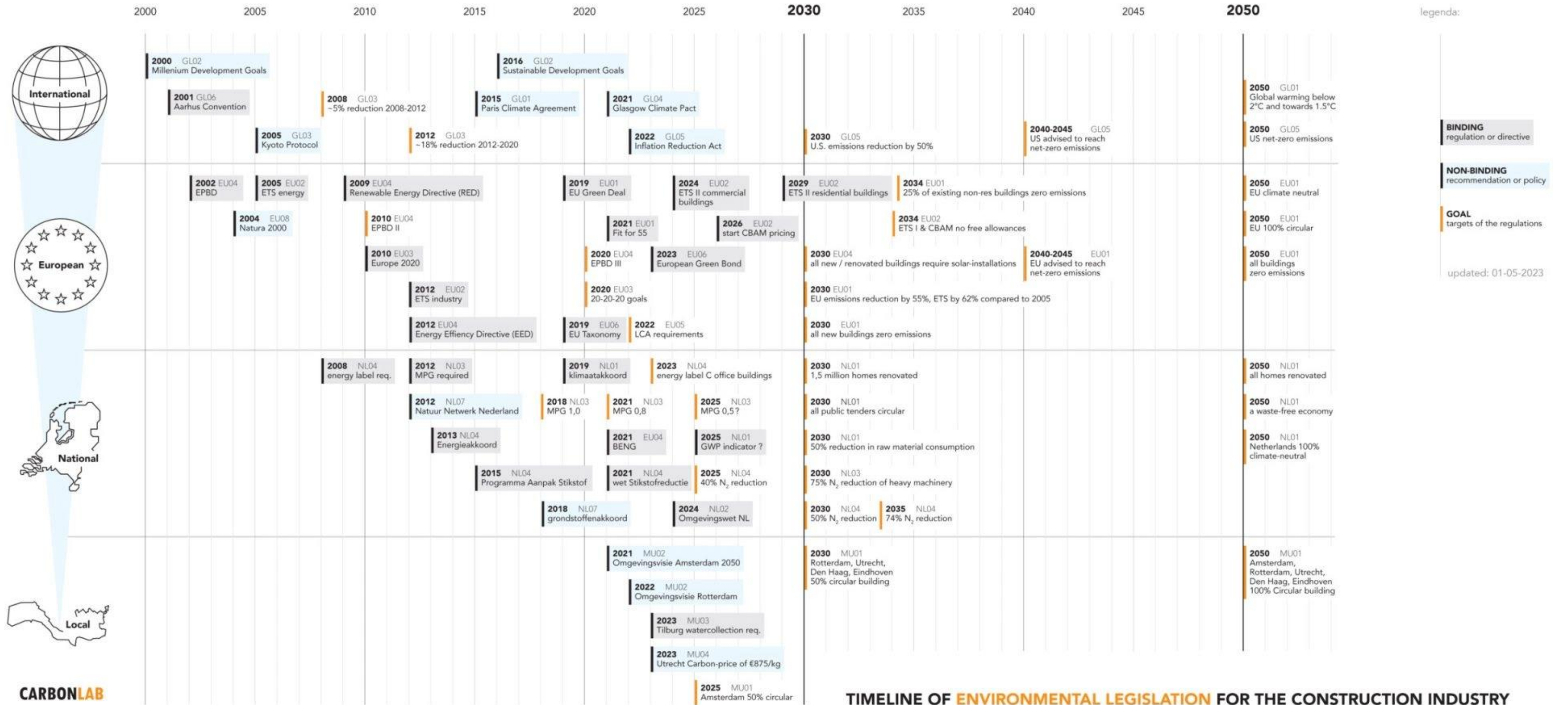
- Finding the right location
- Good businesscase
- Supply and demand
- Investmends

>> Challenges regarding rules

- Permits for locations
- Regulations based on new products instead of circular/recycled products



Upcoming laws and goals



MPG INDICATORS








>> Dutch shadow-cost system for environmental aspects

Maatschappelijke opgaven



The New Normal

>> New market driven performance levels for buildings

Indicator	Category	Performance levels: HNN for Buildings 1.0 Newly-built			Unit	Method
		Residential ground-level	Residential multi-storey	Non-residential: Offices		
Environmental impact						
 Milieuprestatie Gebouw (MPG) ^{1,2}	Standard	≤0,45	≤0,50	≤0,70	€ECl / m ² GFA / year	Determination method <i>Milieuprestatie Gebouw</i> (MPG)
 Embodied carbon ³	Standard	≤200	≤240	-	kg CO ₂ -eq / m ² GFA	Calculation method Paris Proof
 Construction stored carbon	Indicative	-	-	-	metric tonne CO ₂ -eq	Assessment method carbon storage bio-based materials
Materials use						
 Origin of materials	Standard	≥25%	≥20%	≥25%	% mass biobased, reused, recycled	CB'23 guideline Measuring Circularity (v3.0)
 Healthy materials	Conceptual	-	-	-	Number of certified products	Certificates (e.g. Material Health Certificate, Natureplus)
 Residual materials from construction	Conceptual	-	-	-	-	Inventory of material flows & binding agreements
Value retention						
 Adaptability	Indicative	-	-	≥40%	%	Adaptability Method for Buildings
 Disassembly potential	Standard	≥55%	≥50%	≥55%	%	Circular Buildings - a measurement methodology for demountability (v2.0)
 Reuse potential	Indicative	-	-	-	% mass recycling, reuse	End-of-life scenario (EPD, phase C3 - C4)
<p>1. The MPG performance levels are based on the determination method version 1.1 and the monetary weightset is in accordance with standard EN 15804+A1;</p> <p>2. For smaller residential buildings (< 80 m² GFA), it is more difficult to comply with the MPG performance level in the HNN framework. For these houses, an indicative performance level of ≤0,55 applies;</p> <p>3. For embodied carbon, the 'Calculation methodology Paris Proof' applies. The HNN performance level is based on experiences from evaluations and additional data sources ('What is currently feasible and ambitious?'). The actual required CO₂ threshold value in accordance with Paris Proof is lower. The goal is to converge this limit value and the HNN performance level..</p>						

Regulations

Concluding for different levels

>> National level

- **Take care of a good score circular buildings, include carbon storage**
- **Subsidies**
- **High circular ambitions for own buildings**
- **Long term regulations**

>> Municipal level

- **Register ambitions in parcel/ground positions**
- **Take it into account in zoning plans**
- **Esthetic plans not standard in brick but open for all kind of materials**
- **Making circular hubs possible (providing land)**

>> Stimulate and embrace the market

- **The New Normal**
- **Paris proof constructing**
- **Material agreements: Beton & Staal akkoord**

Q & A

>> Challenges and regulations on our road towards circular buildings and net zero



BOUW & VASTGOED

Joeri Schutte



Adviseur Duurzaamheid

Regio Heel Nederland

✉ j.schutte@duravermeer.nl

🌐 [Contacteer mij via LinkedIn](#)

📞 Bel mij 06 53 59 90 27



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