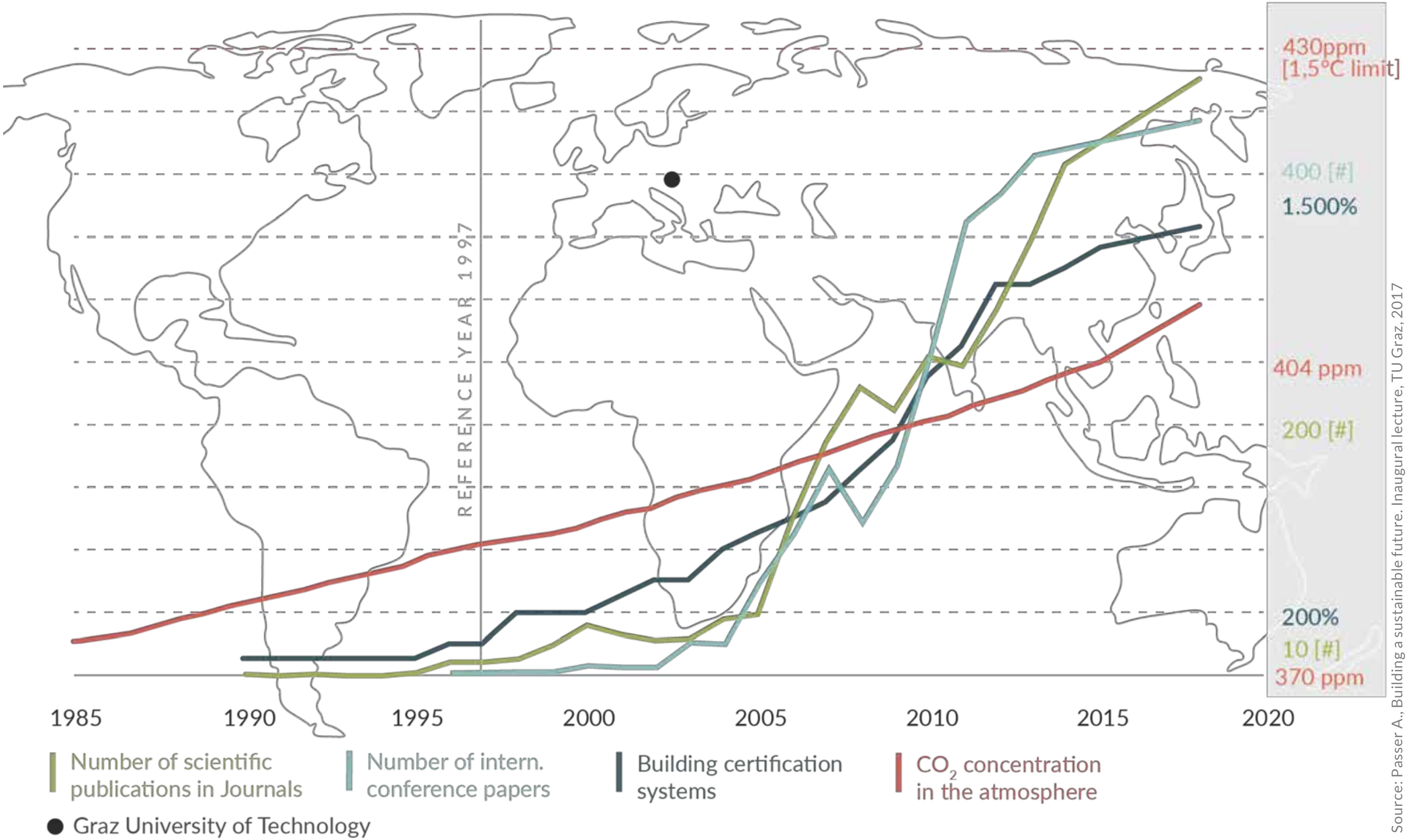
COP24 - KATOWICE #1.5tosurvive The role of buildings towards net zero carbon

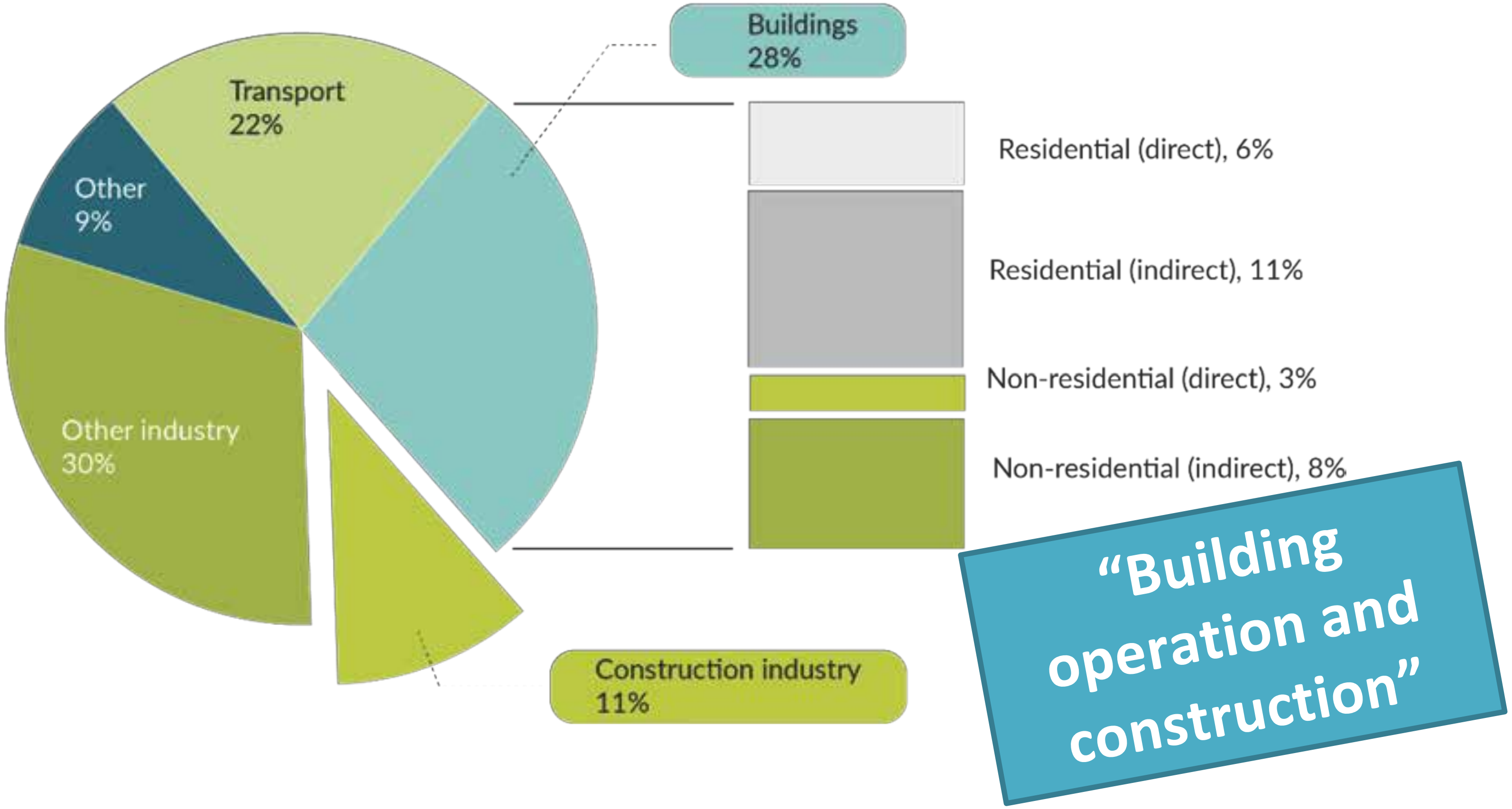
06.12.2019

Alexander Passer, Martin Röck, Guillaume Habert,
Thomas Lützkendorf and Rolf Frischknecht @COP24



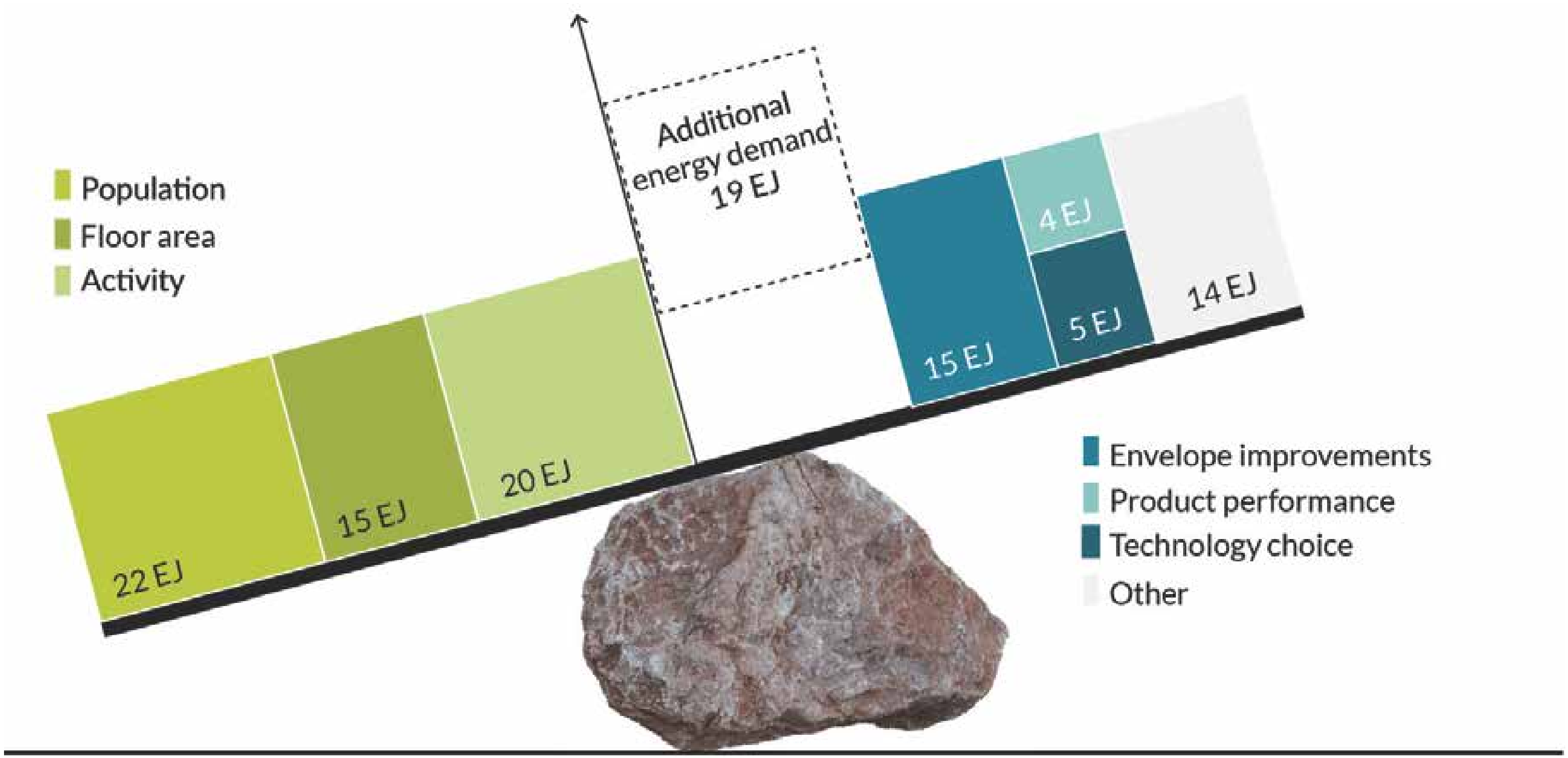
Source: Passer A., Building a sustainable future. Inaugural lecture, TU Graz, 2017

Construction industry and building operation represent 40% of global CO2 emissions.



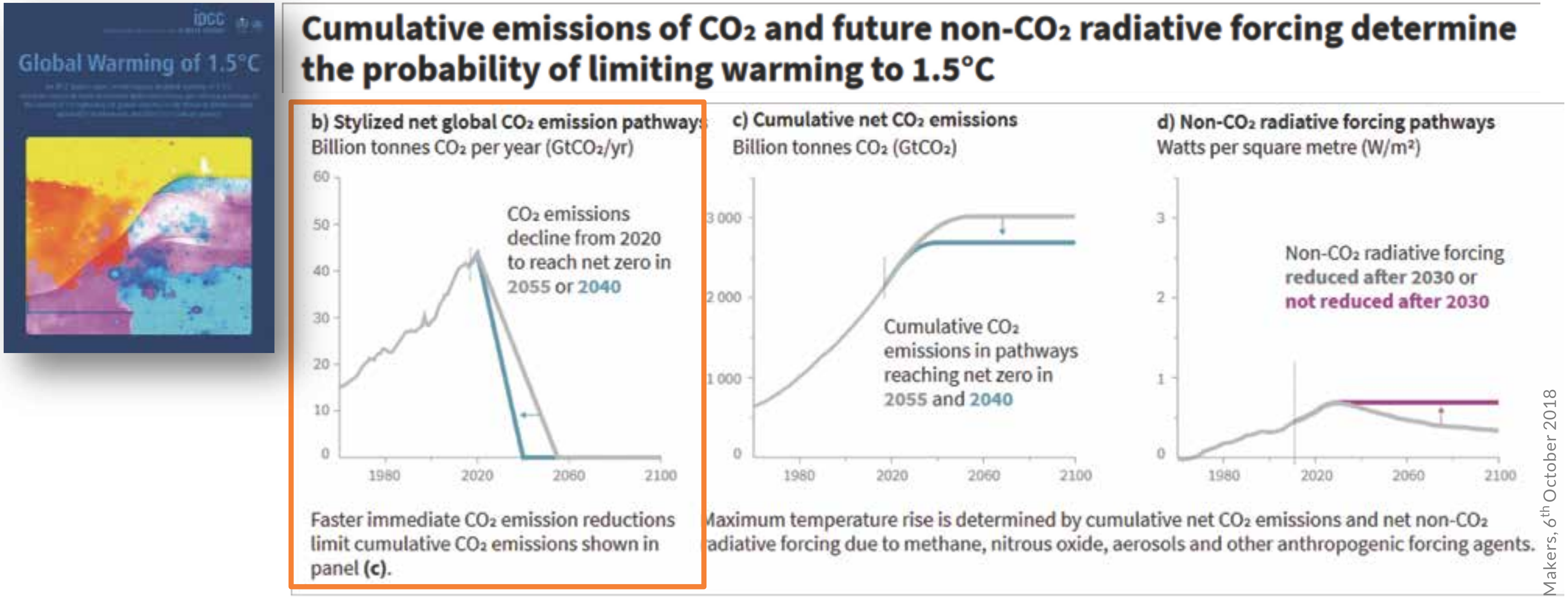
- Potential trade-offs in operational & embodied carbon!

Source: GABC Global Status Report 2017 based on IEA World Energy Balances and Statistics / Figure: TU Graz AGNHB 2017



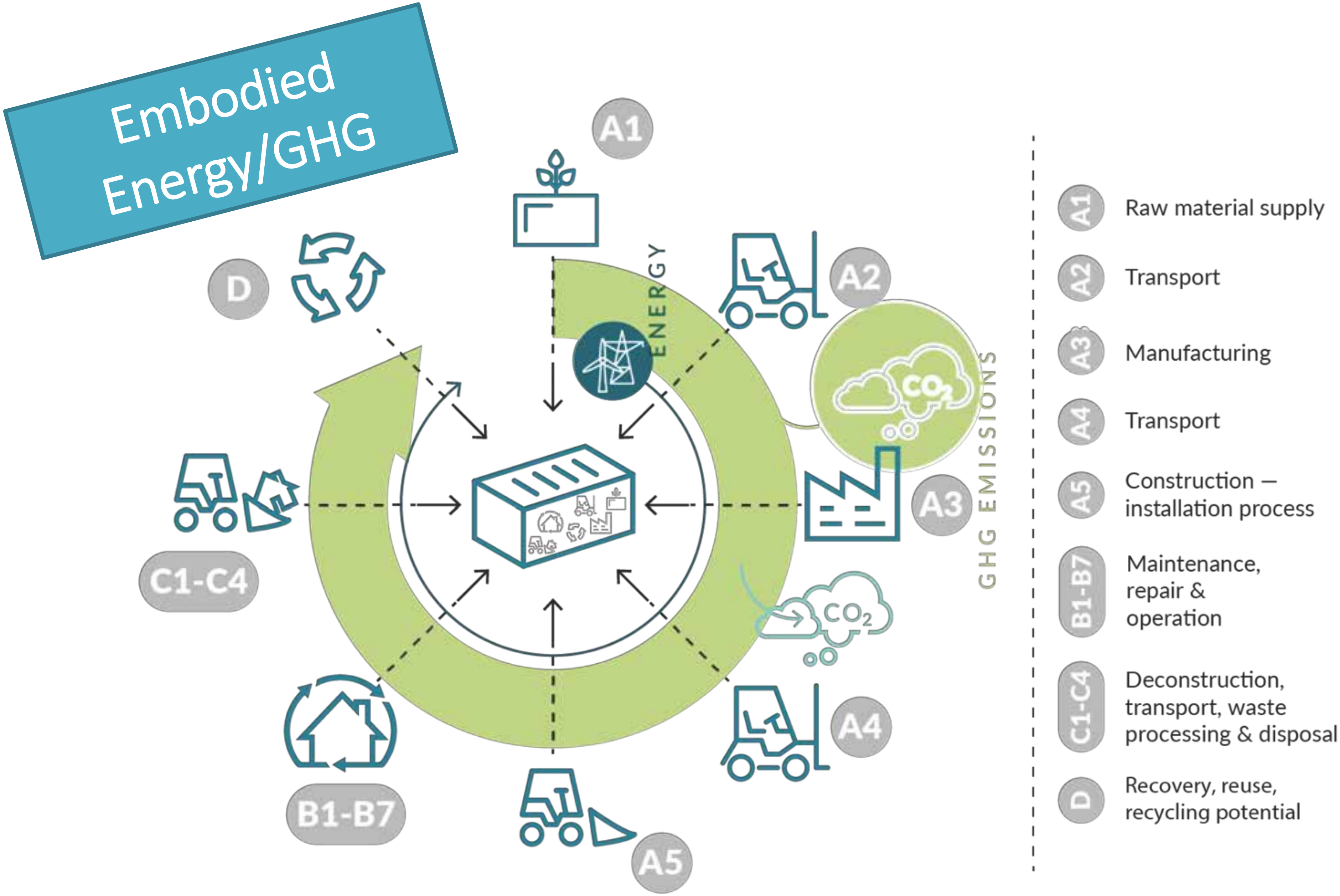
- Efficiency gains are <u>not sufficient</u> to compensate the increase in total energy consumption!

Quelle: GABC Global Status Report 2017 based on IEA World Energy Balances and Statistics

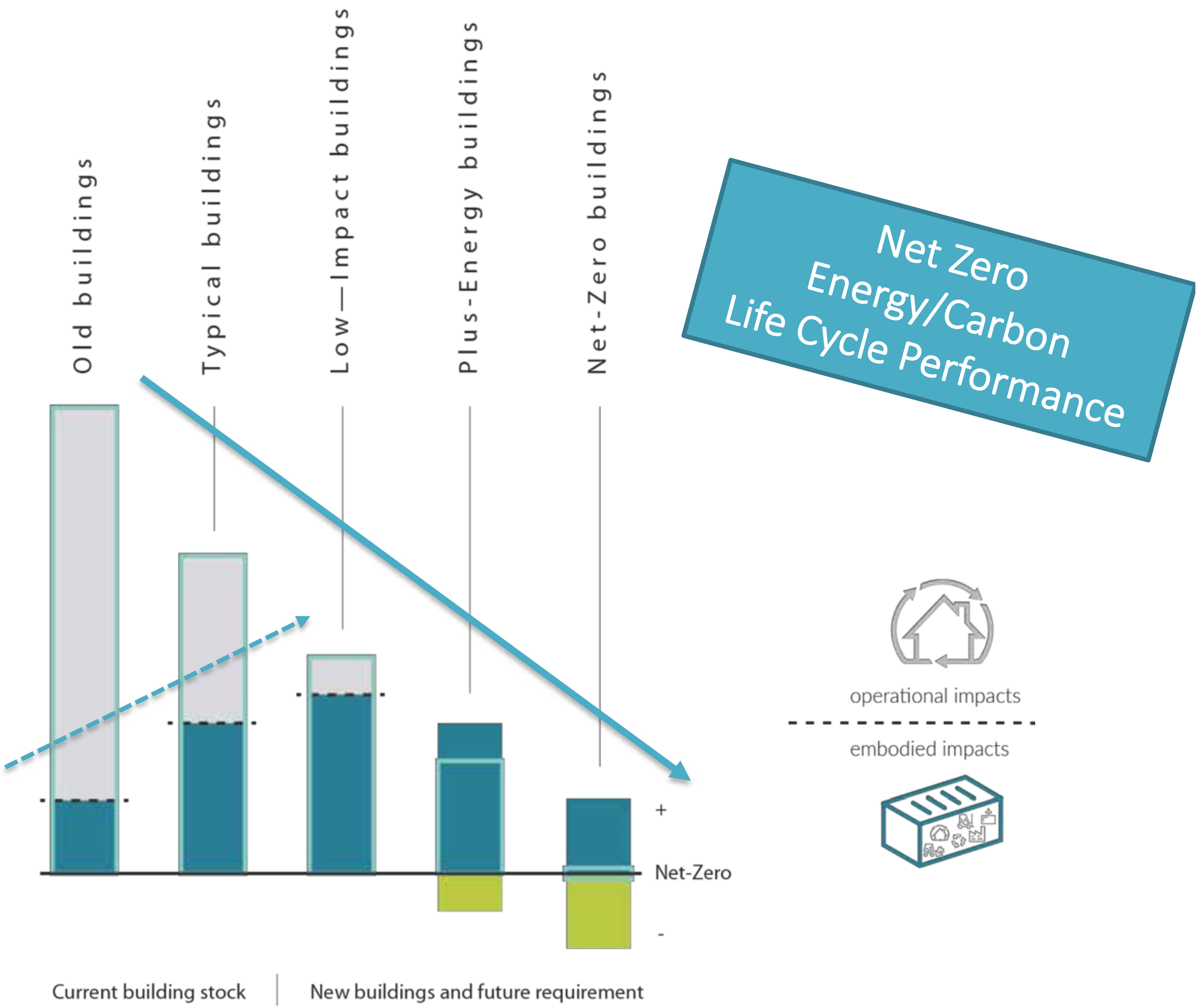


Source: IPCC SR1.5 Summary for Policy Makers, 6th October 2018

- Decarbonizing global economy by 2040!
- Building‘s operation <u>and</u> construction

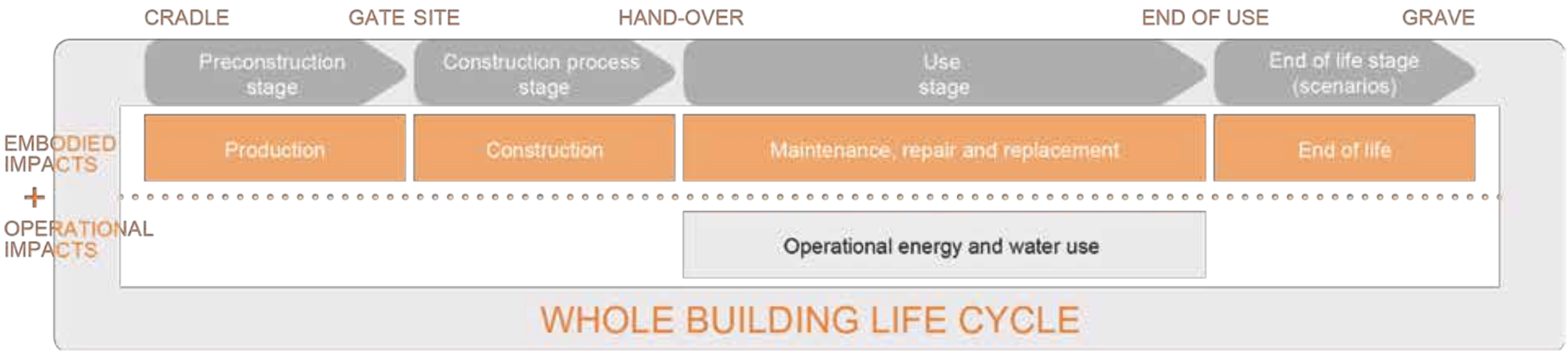


Source: IEA EBC Annex 57, Guideline for Construction Products Manufacturers, 2017



Old buildings
Typical buildings
Low—Impact buildings
Plus-Energy buildings
Net-Zero buildings
Net Zero
Energy/Carbon
Life Cycle Performance
operational impacts
embodied impacts
+
Net-Zero
-
Current building stock
New buildings and future requirement

Environmental impacts caused by buildings



Objectives of IEA EBC Annex 72:

- common methodology guidelines
- methods for the development of specific environmental benchmarks for different types of buildings
- guidelines how to use building design and planning tools (such as BIM and others)
- case studies for deriving empirical benchmarks
- guidelines to establish national/regional databases and share national experiences

Frischknecht et al. 2016

Global survey on assessment of environmental performance of buildings

- **Topic**
  – Needs of **designers and engineers** regarding **environmental assessment of buildings**
- **Outcome**
  – contribution to future **standards and regulations** as well as **construction industry policies** concerning environmental performance of buildings
  – guidance for future **research activities**

Survey ongoing in 20 countries worldwide
- Contribute now!

Austria: http://bit.ly/A72-AT
EN (general): http://bit.ly/A72-EN
Your country: http://annex72.iea-ebc.org/news

- Buildings have a very **long lifespan.** New Buildings should therefore **already fullfill NOW the climate targets for 2050** to avoid lock-in effects!
- Buildings **refurbishment** rate needs to be increased.
- Due to energy efficiency gains **Embodied Energy** and Embodied GHG-emissions become more and more important!
- A **cross sectoral, systemic approach** is needed to track all building related emissions.
- The whole supply chain (construction product manufacturers, procurers, designers, users, FM...) need to support this **Transition Towards a Net Zero Carbon Built Environment!**

Transition Towards a Net Zero Carbon Built Environment

United Nations Framework Convention on Climate Change

Climate Change Centre AUSTRIA

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Supported by:

Federal Ministry Republic of Austria Sustainability and Tourism

TU Graz

bmvit Bundesministerium für Verkehr, Innovation und Technologie

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