



AEG Chicago 21Q2 Stakeholder Challenge: Buildings & Construction

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The Problem



← Building Operations will account for only **10%**

Embodied carbon will total

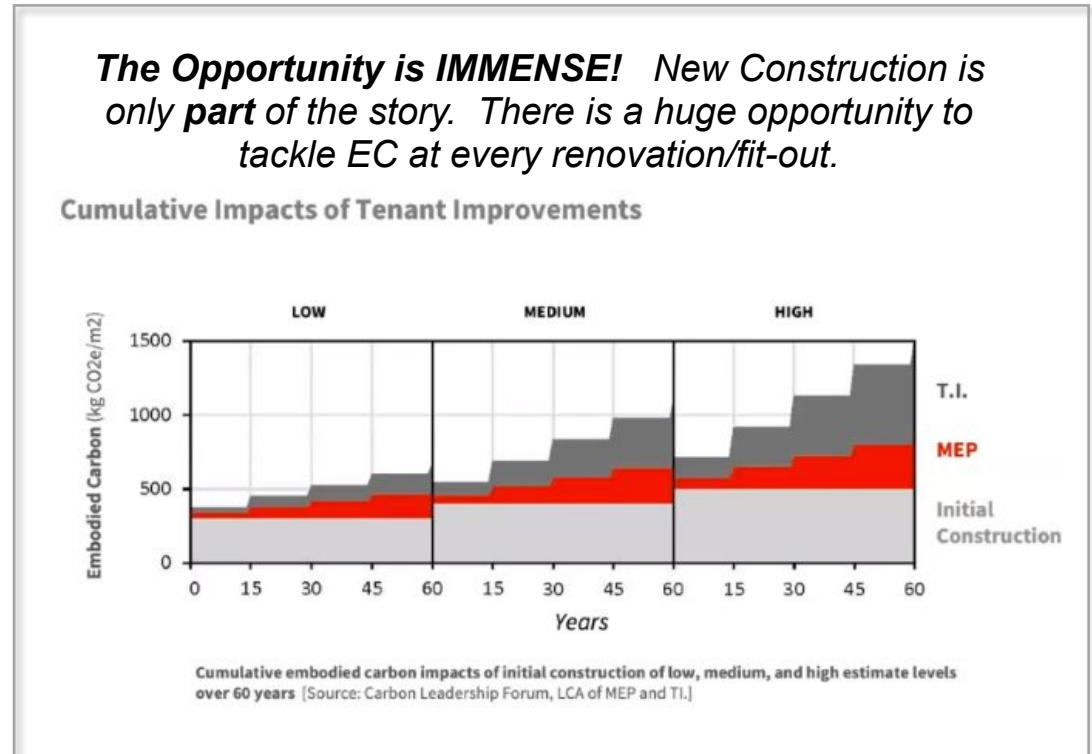
← **90%**

of the carbon released from newly constructed buildings between **2015 and 2050.**

The key obstacle to reducing the impact of Embodied Carbon is **awareness** - no one is talking about it!

Key Barriers:

- **It's NEW!** Obtaining material data with carbon (EPDs) is **not widely available**, and data is **outdated** as soon as it is published
- **It's COMPLEX!** For manufacturers, project owners, contractors and sub-contractors, measuring and disclosing embodied carbon is **complex, expensive, and rapidly changing**, and finding low-carbon alternatives takes resources
- **It's OBSCURE!** As it is generally accounted for as a product owner's Scope 3 Emission, not Scope 1 or 2, there is **little external pressure**, making it infrequently accounted for, and reported



JLL is uniquely positioned to put a spotlight on the problem:

Education

Measurement

Accountability

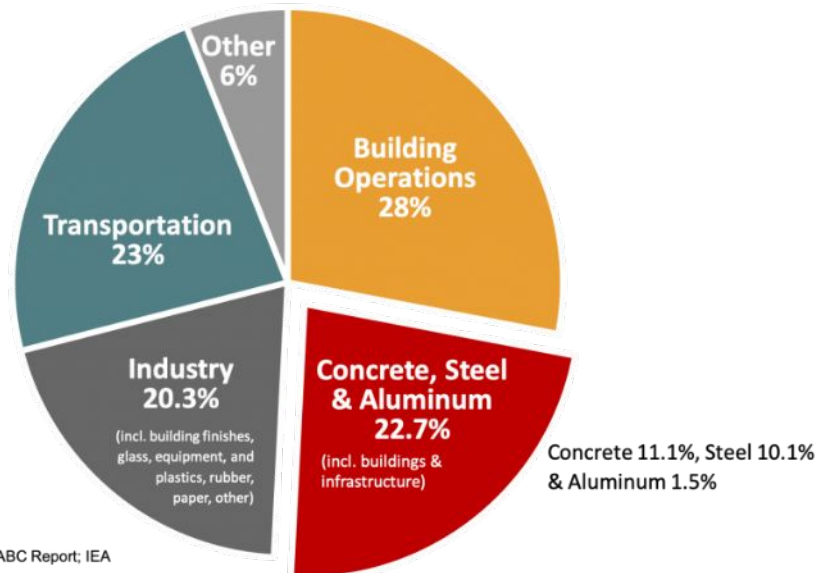
Collaboration

Investment

The **benefit** of action & **consequences** of inaction

Action can be truly needle moving

Global CO₂ Emissions by Sector

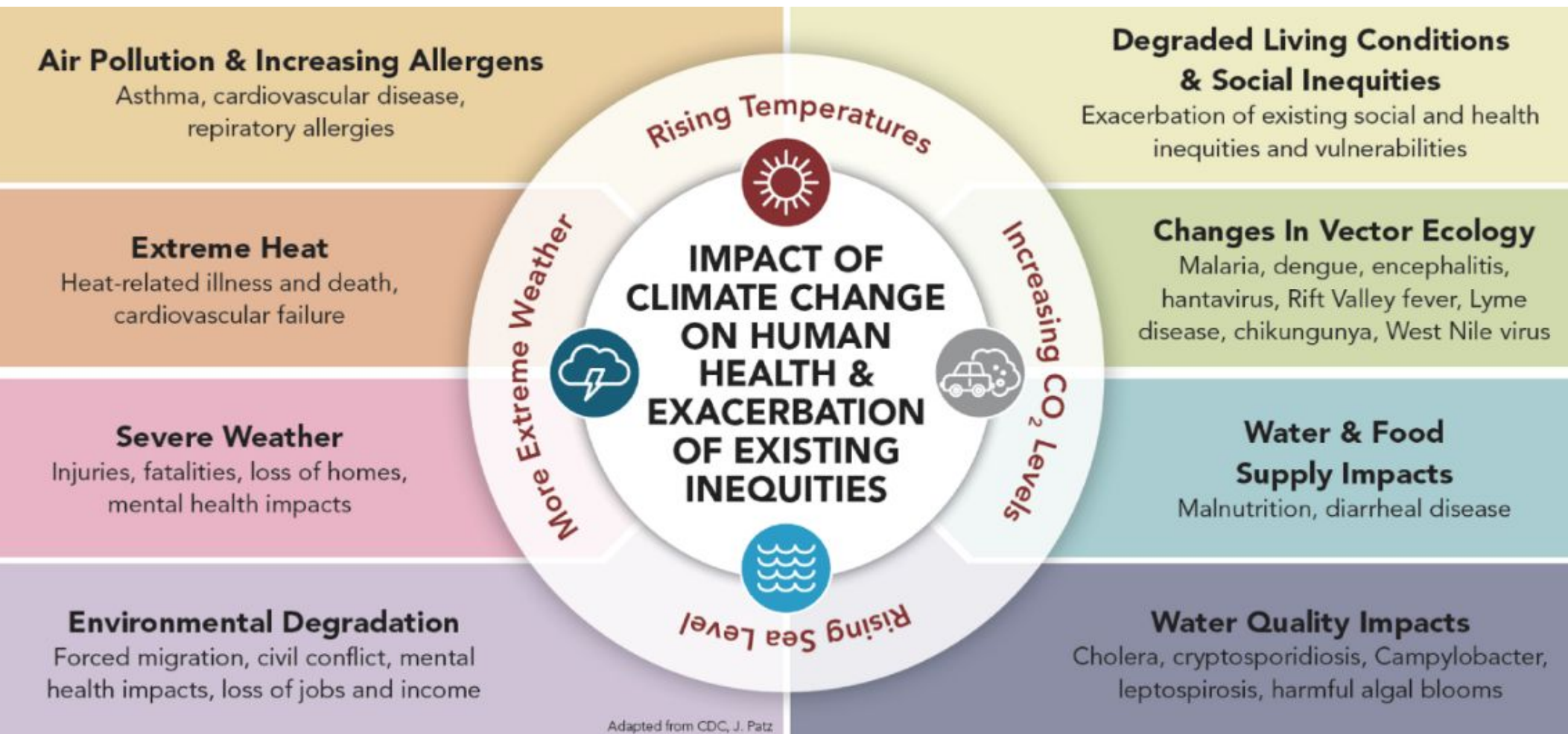


Inaction can be costly

- The world's building stock is expected to **double by 2060**, with embodied carbon estimated to be **3729 million metric tons CO₂** per year. Unlike operational carbon, embodied carbon is locked in place as soon as a building is built.
- Existing technology can only solve **45-50%** of our carbon problem. We need to encourage investment in R&D **today** to solve the issues tomorrow.
- We cannot **"Net Zero"** our way out of the **climate crisis**. If we ignore the embodied carbon, we will need to "offset" or find savings elsewhere, and eventually we will run out of offset options, which is not a viable, long term solution


Note: Emissions for the Industrial Sector are based on the International Energy Agency's "Industry Direct CO₂ Emission" for 2017.

The consequence of inaction: Ignoring the impact of embodied carbon, slows our progress, leaving future generations to pay for the climate crisis



Impact of Climate Change on Human Health and Exacerbation of Existing Inequities (Adapted from CDC, J. Patz).

Regarding **Buildings & Construction**, to achieve Chicagoland's Carbon & Equity goals, the most critical obstacle to overcome is



reducing embodied carbon associated with building construction (estimated to total 90% of carbon released from newly constructed buildings between 2015 and 2050) **through education, measurement, accountability, collaboration, investment and action.**

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