

Buildings for a more productive and low-carbon economy

Nora Wang Efram, Ph.D., AIA
Senior Director for Research



The American Council for an Energy-Efficient Economy is a nonprofit 501(c)(3) founded in 1980. We act as a catalyst to advance energy efficiency policies, programs, technologies, investments, & behaviors.

Our research explores economic impacts, financing options, behavior changes, program design, and utility planning, as well as US national, state, & local policy.

Our work is made possible by foundation funding, contracts, government grants, and conference revenue.

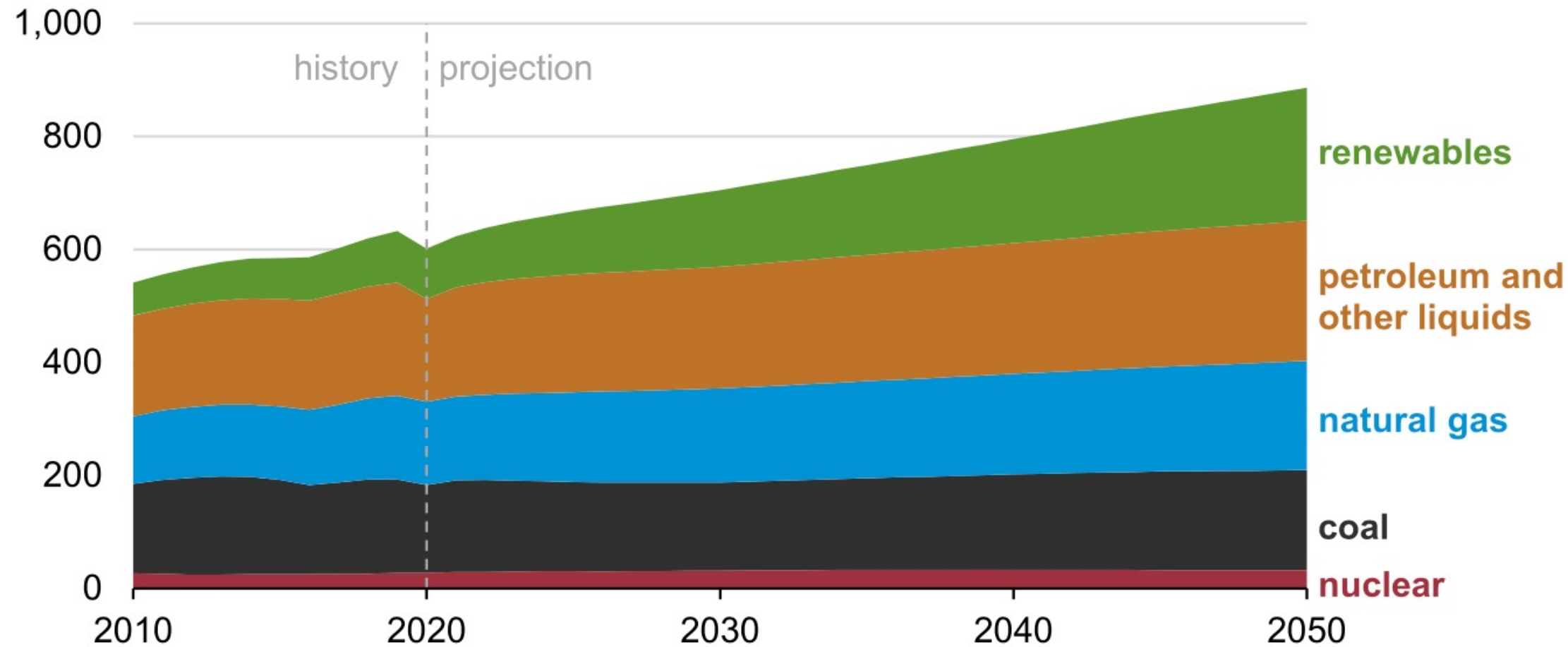
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American Council for an Energy-Efficient Economy

If current policy and technology trends continue...

Global primary energy consumption by energy source

quadrillion British thermal units

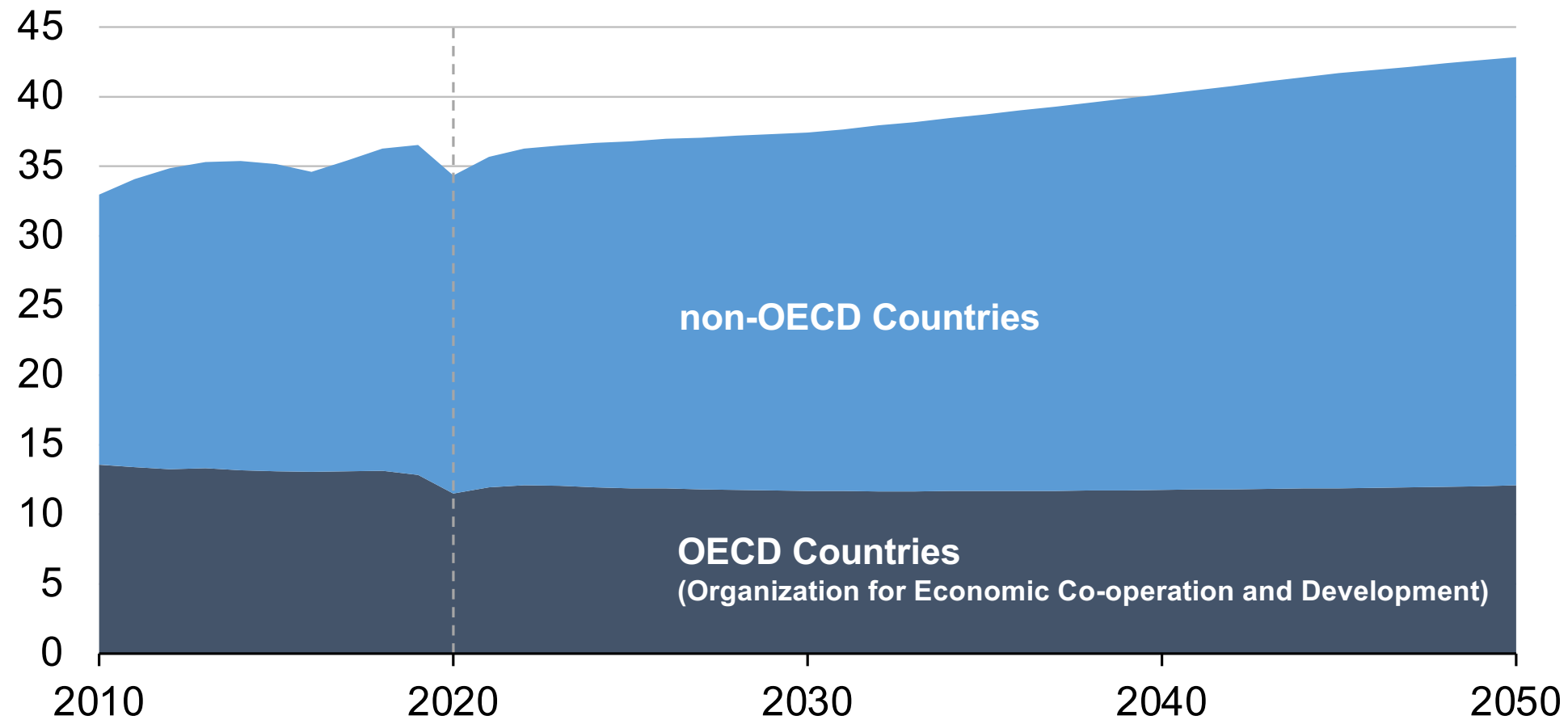


Global energy consumption and energy-related carbon dioxide emissions will increase through 2050 as a result of population and economic growth.

If current policy and technology trends continue...

Energy-related CO₂ emissions

billion metric tons



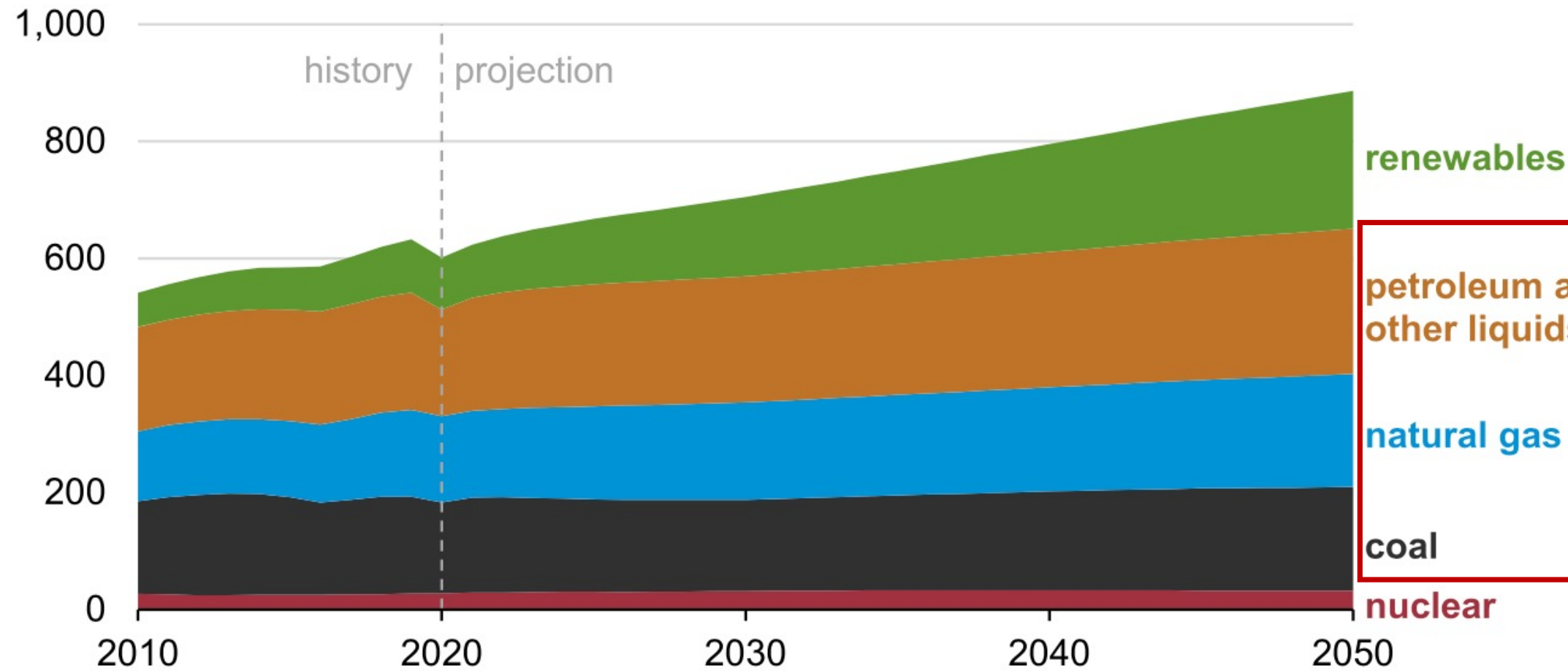
To follow a 1.5° C-consistent pathway, the world will need to decrease fossil fuel production by **6%** per year between 2020 and 2030.

Countries are instead planning and projecting an average annual increase of **2%**.

What is THE solution?

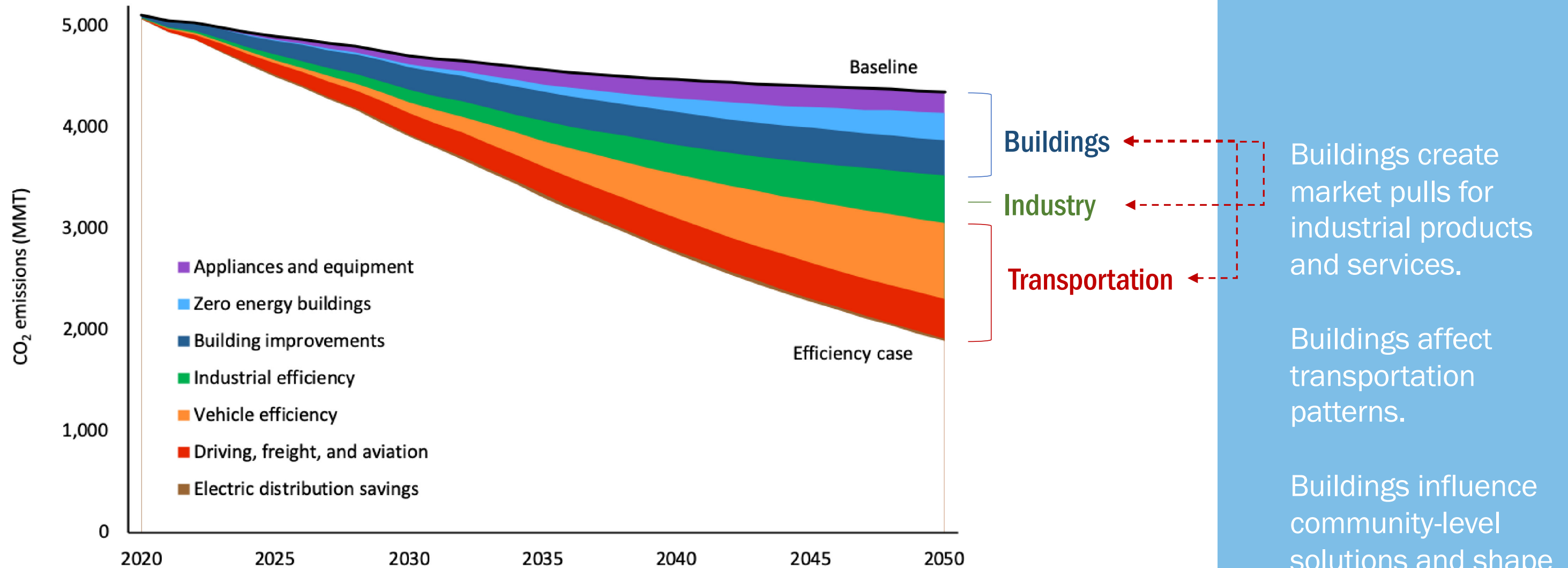
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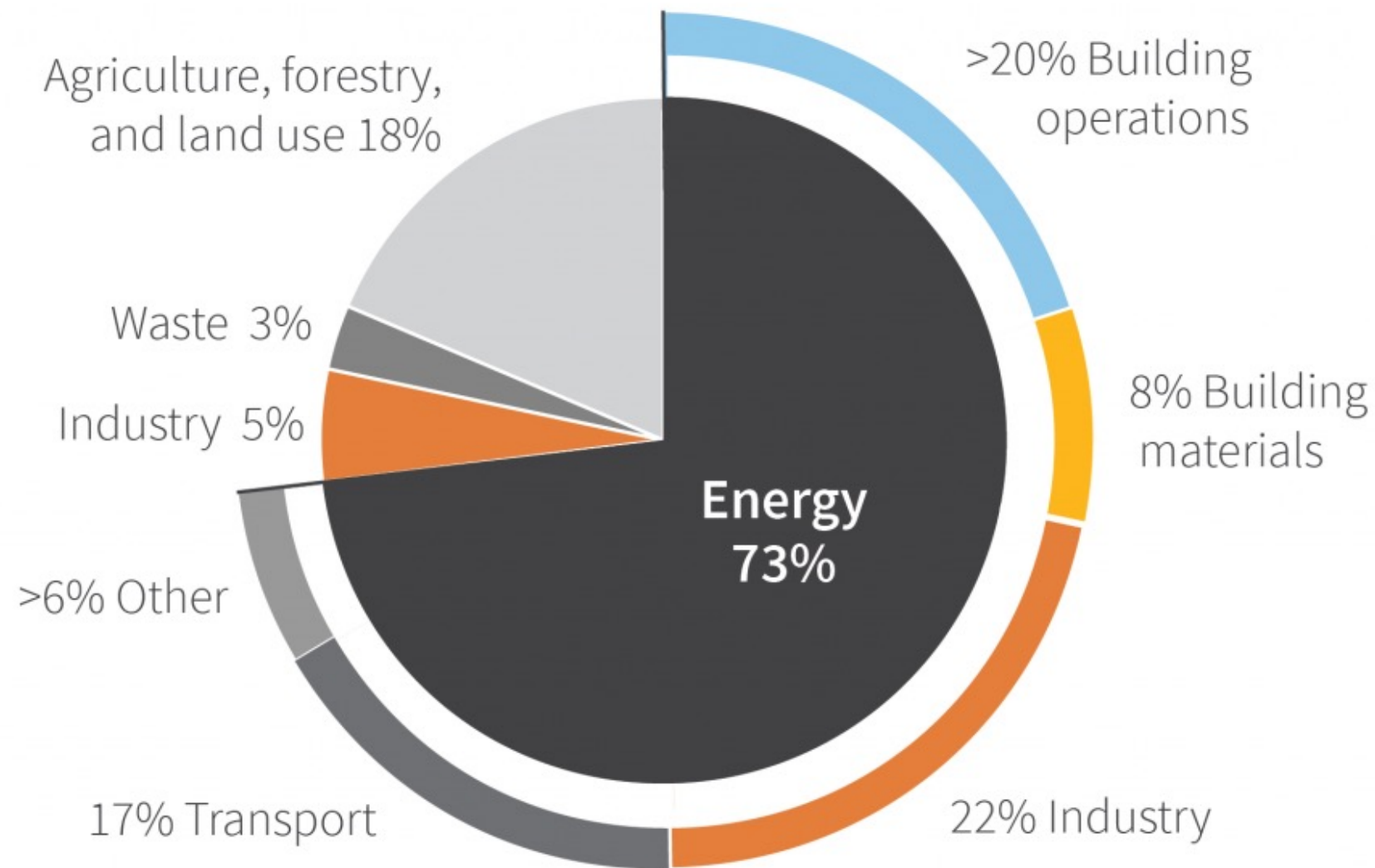
- Electrification
- More renewables
- Battery storage
- Hydrogen
- Carbon capture & storage
- Energy efficiency**

Efficiency can slash U.S. GHG emissions by half



Approximately **30%** of all global carbon emissions are attributed to the building sector, with at least **8%** resulting from the manufacturing of construction materials

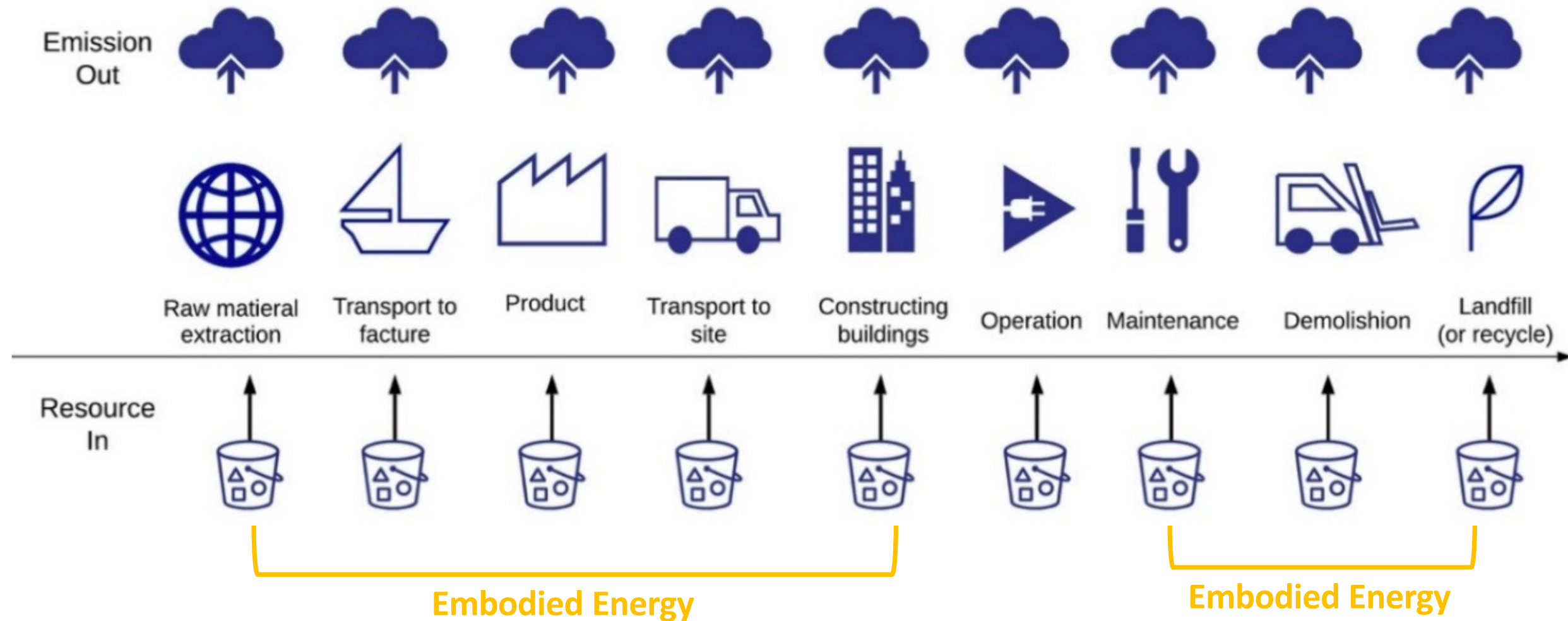
Source: <https://carbonleadershipforum.org/embodied-carbon-101/>



Global CO₂ emissions by sector. Adapted from the UNEP 2019 Global Status Report and OurWorldInData.org, based on data from Climate Watch and the World Resources Institute.

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- Scope 1: Direct emissions from a company's owned or controlled sources.
- Scope 2: Indirect emissions from the generation of purchased energy.
- Scope 3: All other indirect emissions that occur from upstream and downstream.
- Scope 4: Avoided emissions.



Source:

Hu, Ming. 2020. "A Building Life-Cycle Embodied Performance Index—The Relationship between Embodied Energy, Embodied Carbon and Environmental Impact" *Energies* 13, no. 8: 1905. <https://doi.org/10.3390/en13081905>

Scope 4: do we need a new category of emissions to better address corporate climate action? Available at www.cdsb.net/corporate-reporting/1005/scope-4-do-we-need-new-category-emissions-better-address-corporate-climate

How to build a sustainable, low-carbon economy?



How to lose weight?

How to lose weight **fast**?

How to lose weight **forever**?



How to lose weight?

How to lose weight **fast**?

Fast

Exercise excessively

Hire a nutritionist and a trainer



How to build a sustainable, low carbon economy?

How to get **short-term results**?

Fast

Exercise excessively

Hire a nutritionist and a trainer

Develop stringent standards/policies and enact a carbon tax

Change human behavior

Install onsite renewables, purchase carbon offsets, obtain a LEED platinum



How to lose weight?



How to lose weight **forever**?

Eat a balanced, healthy diet

Shift to an active lifestyle

Build support and change environment



How to build a sustainable, low carbon economy?

How to get long-term results?

Eat a balanced, healthy diet

Shift to an active lifestyle

Build support and change environment

Optimize system performance and improve energy productivity

Build knowledge infrastructure and market demand for low-carbon products

Commercialize transformative technologies and deploy at scale

Can we pave a pathway together?



What can we jump start with today's knowledge?

What do we want to achieve in 5 years?

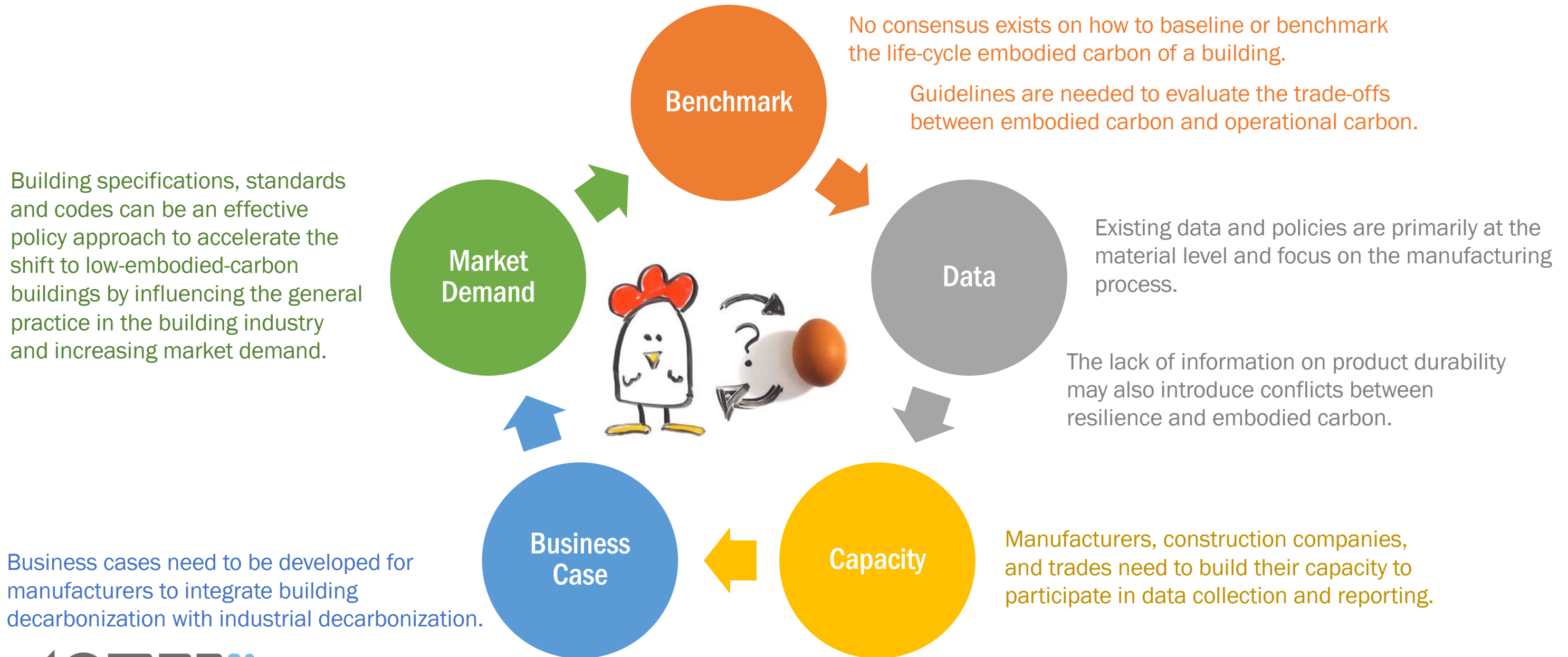
Where do we want to be in 30 years?

Optimize system performance and improve energy productivity

Build knowledge infrastructure and market demand for low-carbon products

Commercialize transformative technologies and deploy at scale

Are we ready for embodied carbon building codes?



Thank you!

Contact: nesram@aceee.org

Upcoming ACEEE Conferences

Hot Water Forum	March 21-23, 2022	Atlanta, GA
Energy Efficiency Finance Forum	May 23-25, 2022	White Plains, NY
Summer Study on Energy Efficiency in Buildings	August 20-26, 2022	Pacific Grove, CA
Behavior, Energy, and Climate Change	November 13-16, 2022	Washington, DC

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