#GGKPWEBINAR

MATERIAL EFFICIENCY STRATEGIES FOR BUSINESS: **UNTAPPED CLIMATE SOLUTIONS FOR BUILDINGS AND MOBILITY**

2 FEBRUARY 2021 | 2PM CET

UN environment programme

International Resource Panel

GGKP

ELLEN MACARTHUR FOUNDATION

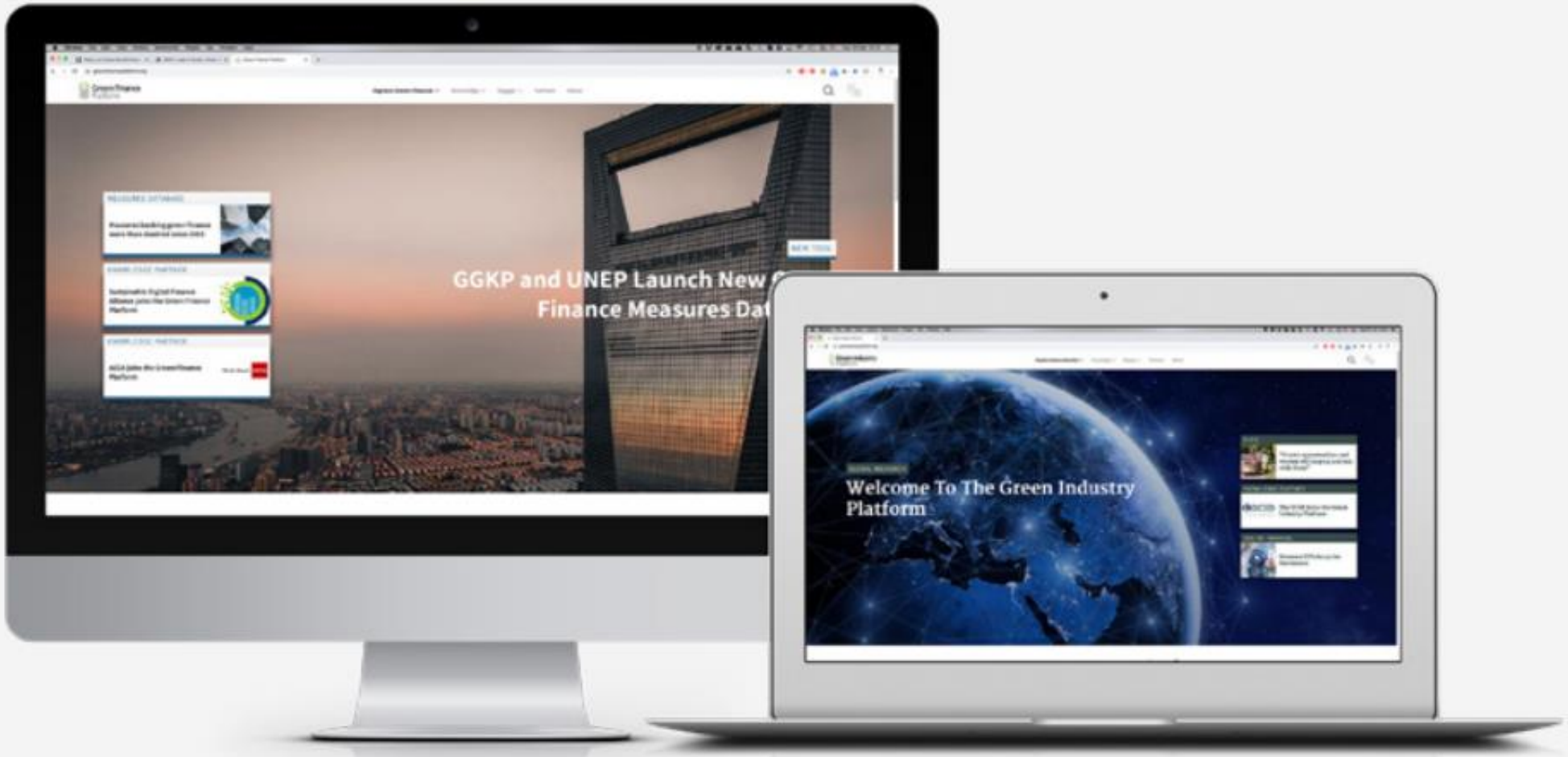
WORLD ECONOMIC FORUM

GREEN GROWTH
Knowledge Partnership

Green Industry Platform

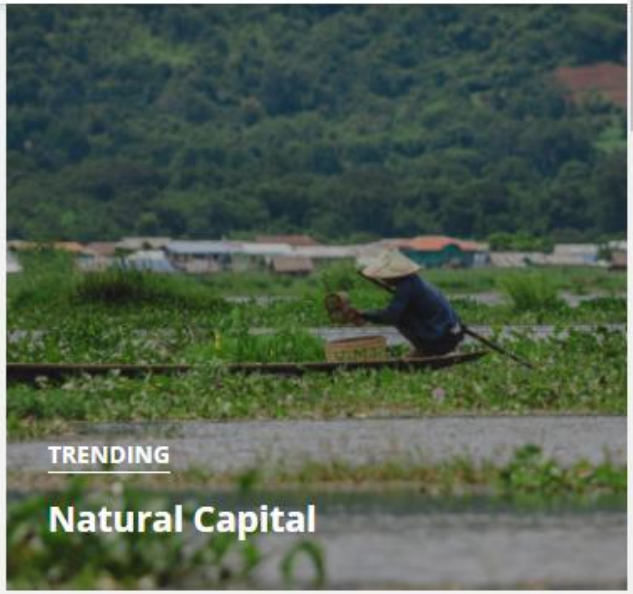
Green Growth Knowledge Platform

Green Finance Platform


GGKP and UNEP Launch New
Finance Measures Dat
Welcome To The Green Industry
Platform

EXPLORE GREEN FORUM

A space for professionals to share and discuss insights from specific sectors, themes and issues in the pursuit of a sustainable economic transformation.



JOIN THE DISCUSSION

REGISTER

Stephani Widorini created a Post in **Cities and Urban Development**
18 hours ago

GGGI has just released a flagship publication on green cities, which reflects on the past and present work on sustainable and inclusive cities focusing on strategic planning, circular economy, infrastructure, sanitation, and sustainable mobility. Free to download!

https://gggi.org/report/green-growth-in-action-attaining-green-cities/

UPCOMING EVENTS

19 NOV — **Balancing Ecological Connectivity a...**
19 Nov 2020 - 18 Nov 2020

19 NOV — **Panda bonds: Market developments an...**
19 Nov 2020

VIEW ALL →

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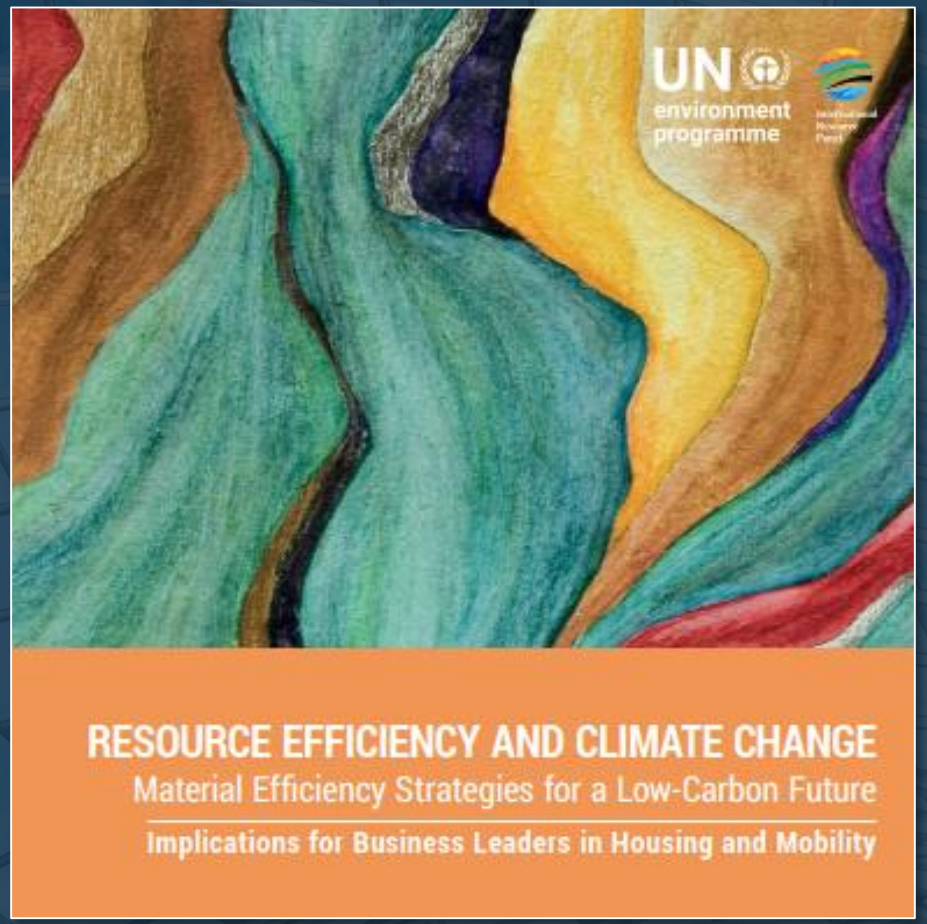

#ResourceEfficiency4Climate
@UNEPIRP
Access: bit.ly/IRPrecc

RESOURCE EFFICIENCY AND CLIMATE CHANGE

Implications for Business Leaders in Housing and Mobility

Lead authors

International Resource Panel

- **Edgar Hertwich**
  Professor at Norwegian University of Science and Technology
- **Reid Lifset**
  Research Scholar at Yale University

With support from

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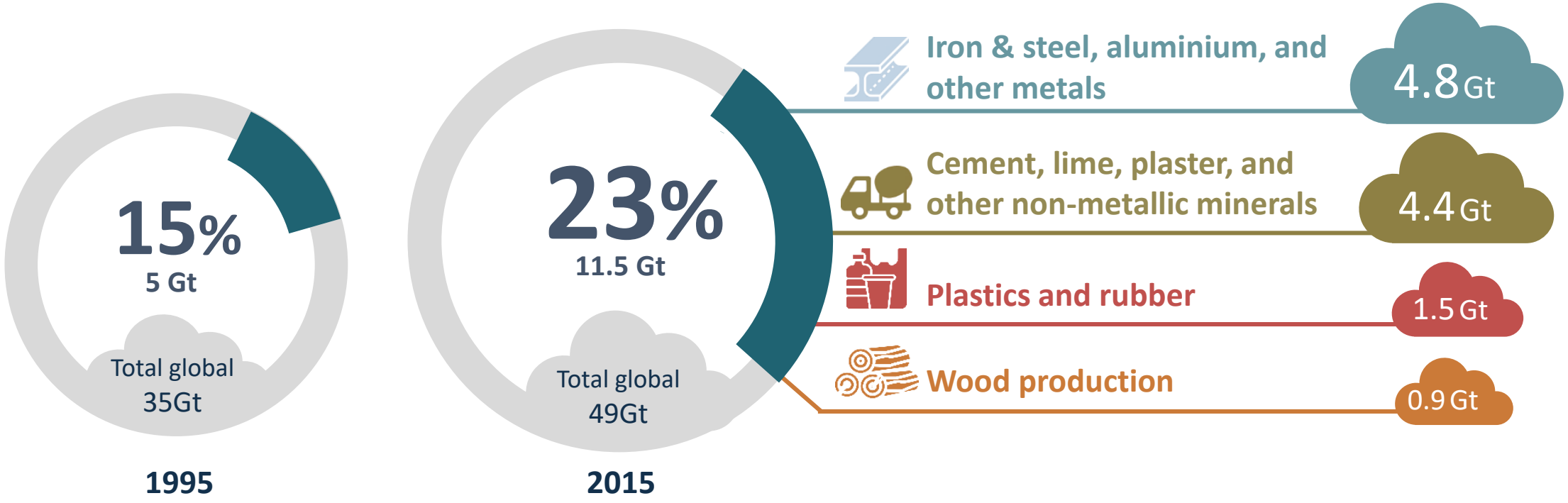
SYSTEMIQ

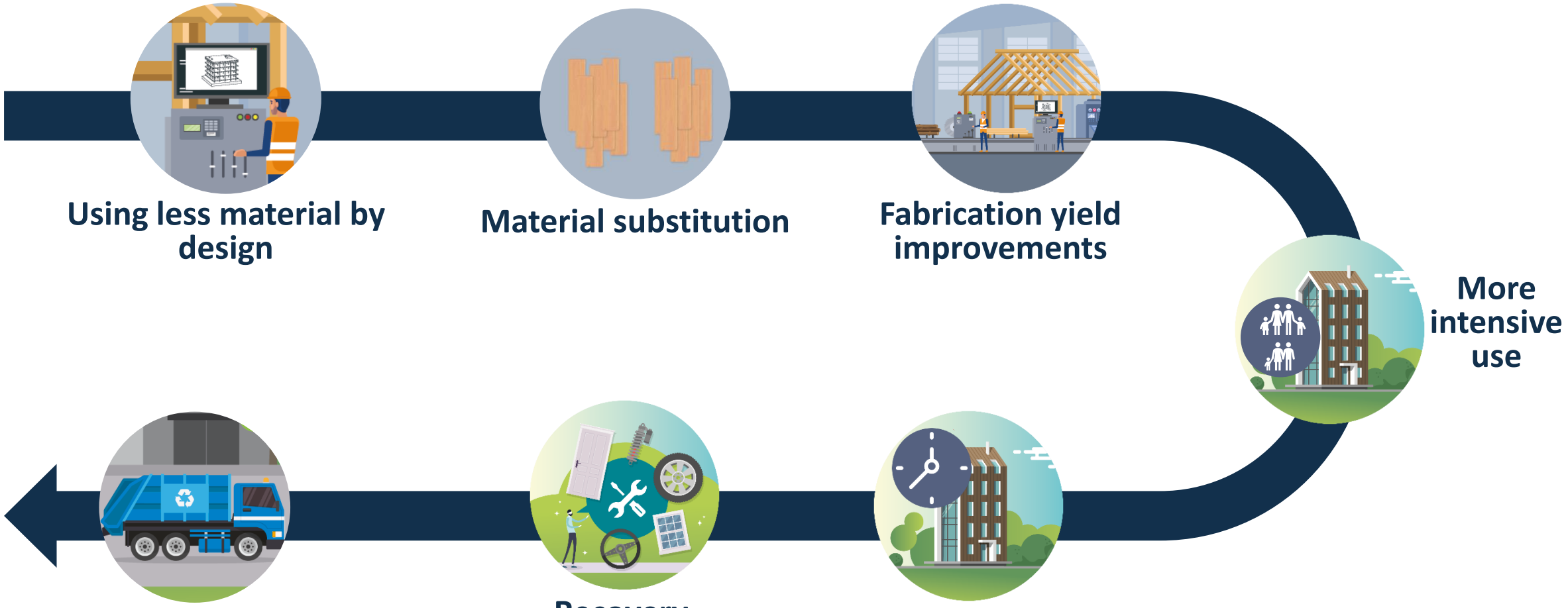
Insights from science for business leaders

The production of materials causes 23% of global GHG emissions

Global GHG emissions from a value-chain perspective

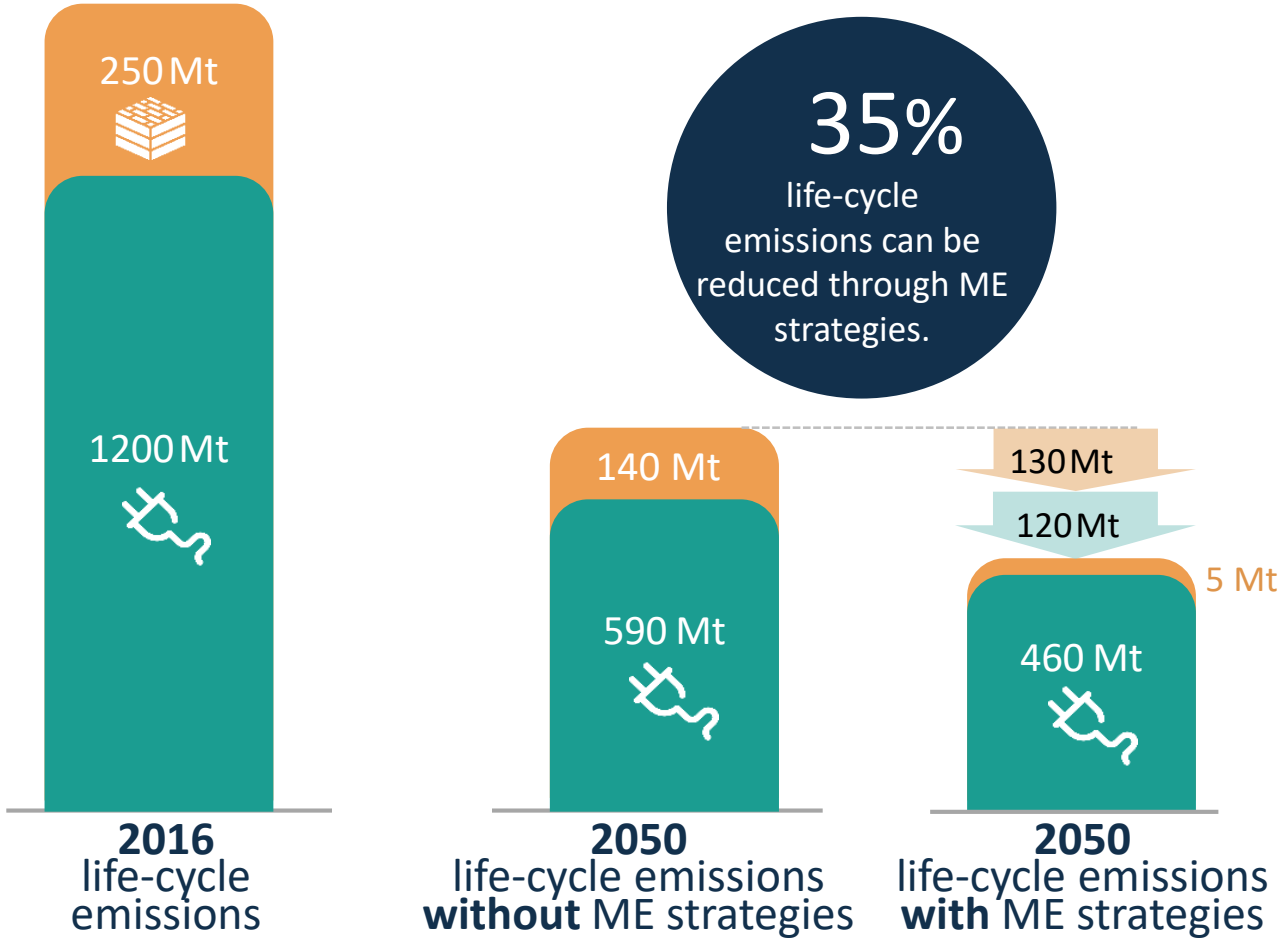


Report assesses seven crucial Material Efficiency Strategies to reduce emissions



Material Efficiency Strategies can reduce **35-40%** of lifecycle emissions from **homes** in **G7 countries** in 2050

- Material cycle emissions
- Emissions from operational energy use
- Material cycle emission reductions
- Operational energy use emission reductions



Material Efficiency Strategies can reduce **60-70%** of lifecycle emissions from **homes** in **China and India** in 2050

- Material cycle emissions
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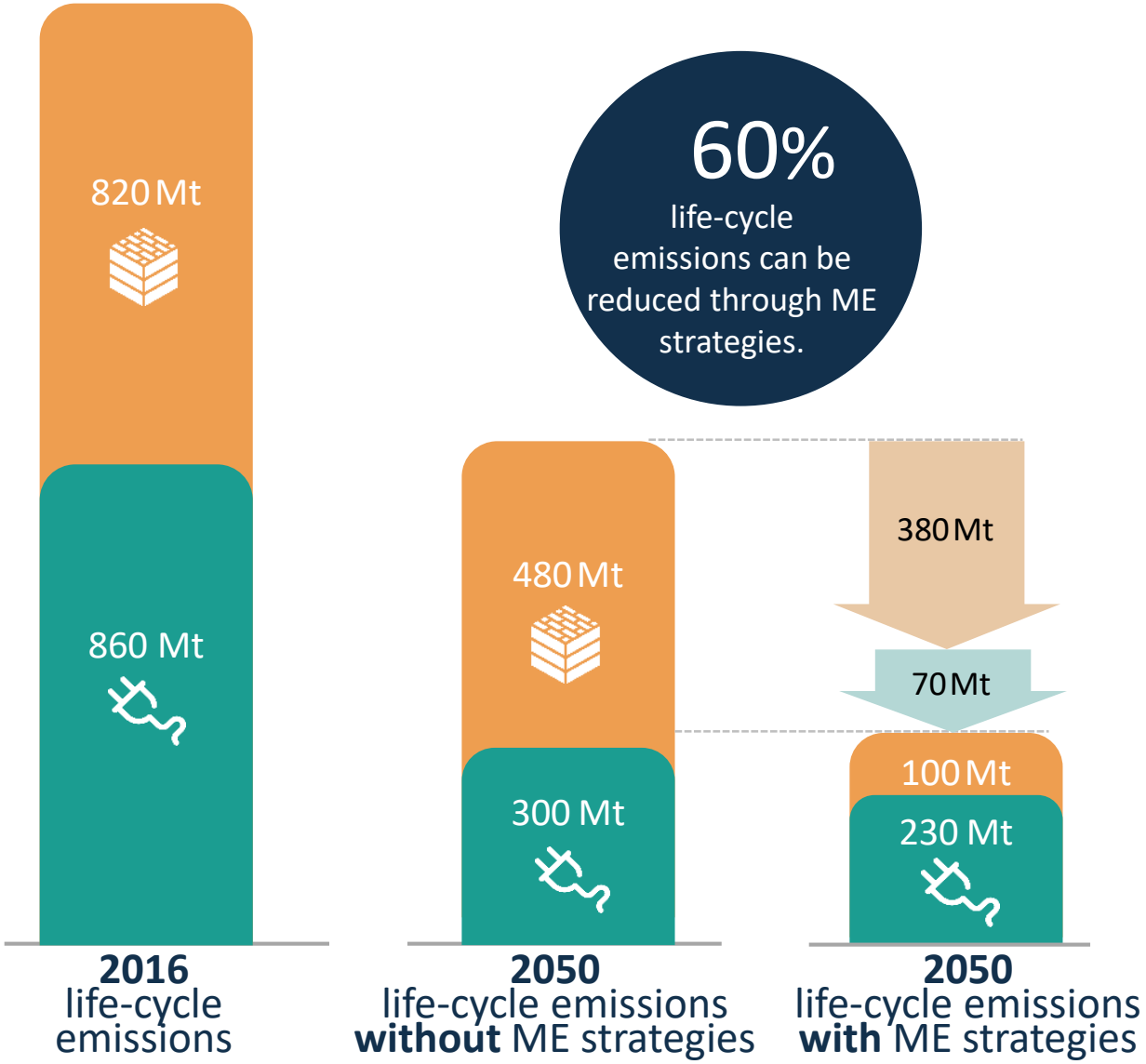
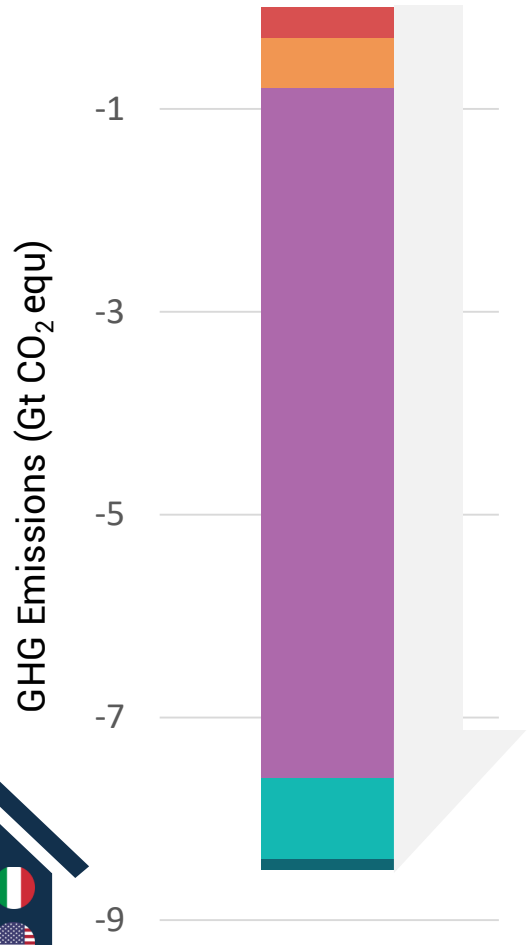


60%
life-cycle emissions can be reduced through ME strategies.

More intensive use and recycling are the most important strategies

Potential GHG savings from material efficiency strategies for homes in G7 (2016-2060)



- Using less material by design
- Material substitution
- More intensive use
- Enhanced end-of-life recovery and fabrication yield improvements
- Product lifetime extension and reuse

**The reduction potentials shown here are for strategy cascades, i.e. implementing one strategy after the other, therefore having synergetic effects.*

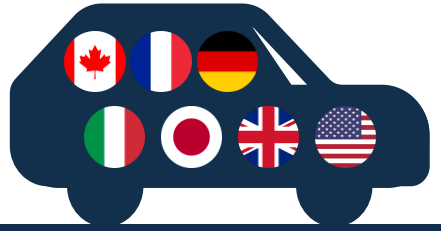
Most of the strategies reduce predominantly material related emissions

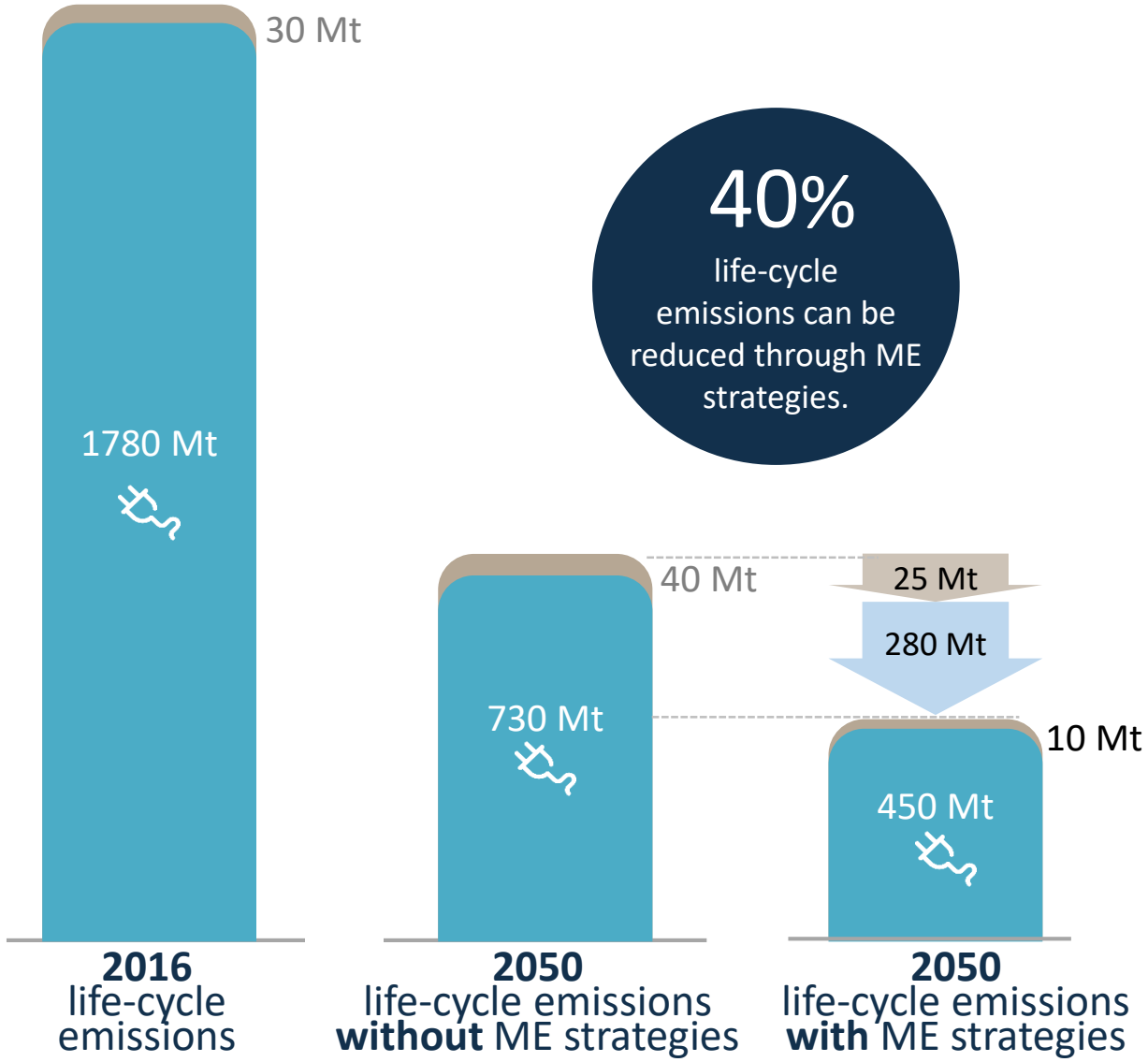
Some affect materials and operational energy use

✓ Particularly **More intensive use** **reduces materials and heating/cooling needs**

Material Efficiency Strategies can reduce **40%** of lifecycle emissions from **cars** in **G7 countries** in 2050

- Material cycle emissions
- Emissions from operational energy use
- Material cycle emission reductions
- Operational energy use emission reductions





Material Efficiency Strategies can reduce **35%** of lifecycle emissions from **cars** in **China and India** in 2050

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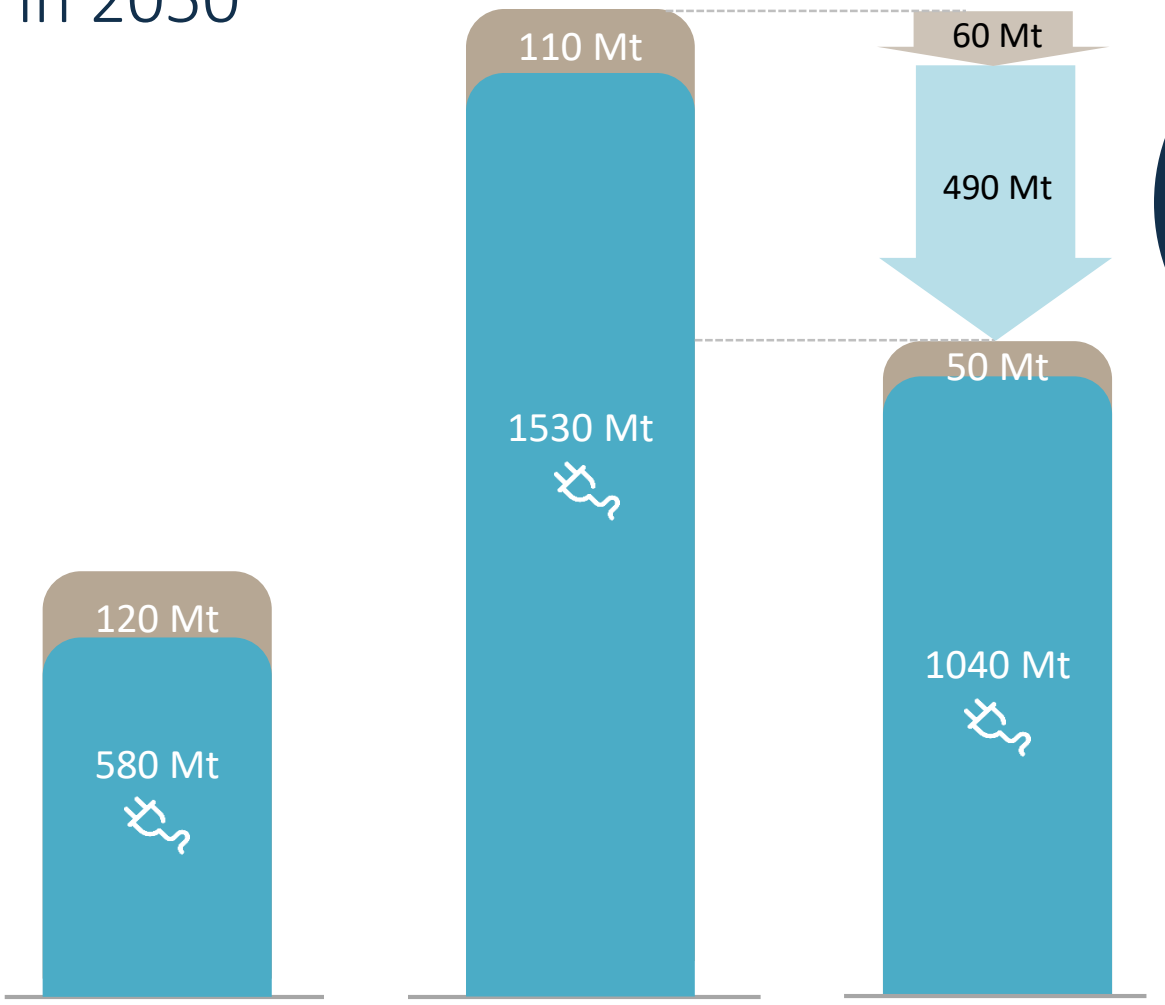


2016 life-cycle emissions

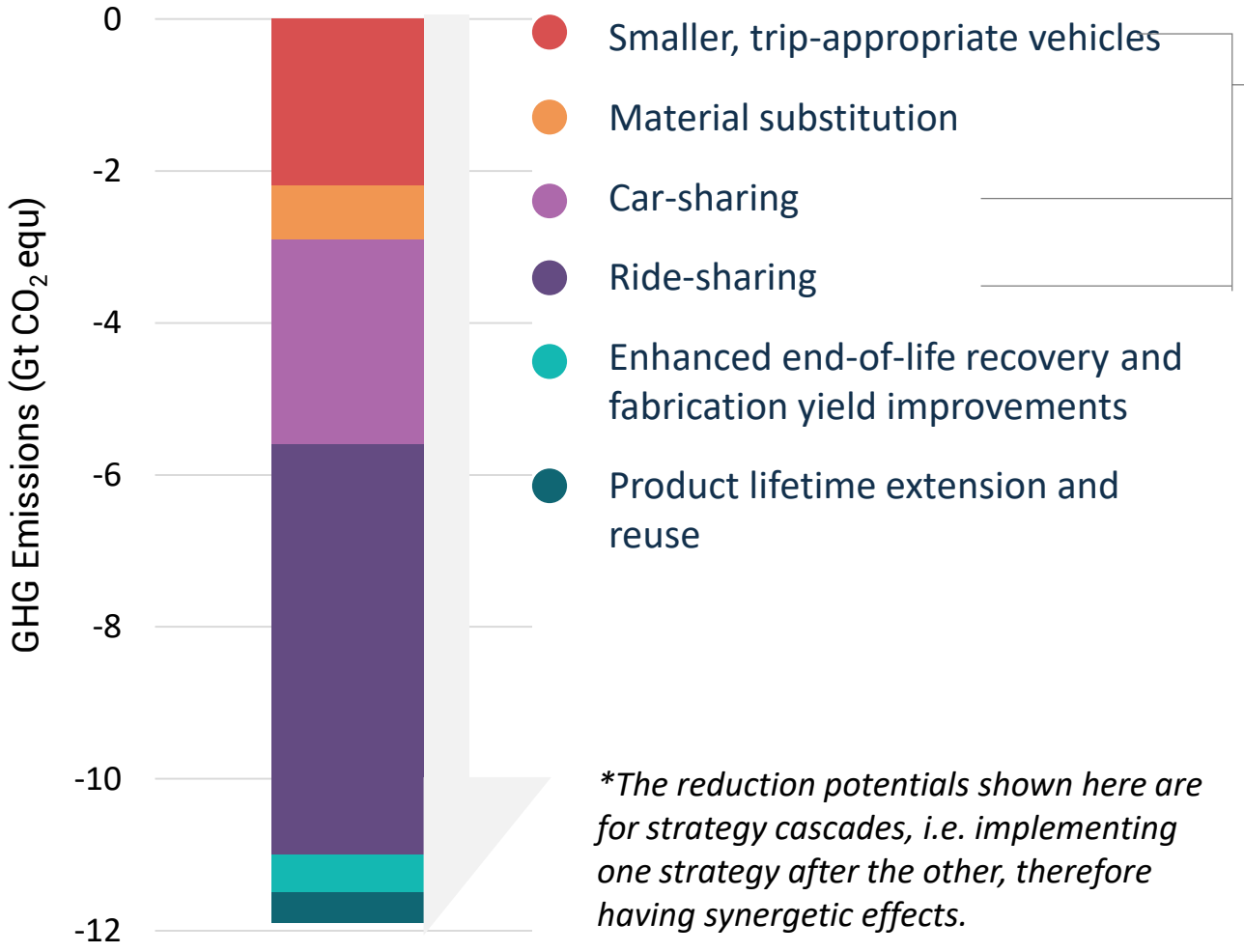
2050 life-cycle emissions **without** ME strategies

2050 life-cycle emissions **with** ME strategies

35% life-cycle emissions can be reduced through ME strategies.

More intensive use, leaner vehicles and recycling are crucial

Potential GHG savings from material efficiency strategies for cars in G7 (2016-2060)



**The reduction potentials shown here are for strategy cascades, i.e. implementing one strategy after the other, therefore having synergetic effects.*

Most promising strategies reduce materials AND operational emissions through

Intensive Use

Making vehicles lighter

Ca. 25% cumulative savings

reduce material dependence

reduce costs

Meet consumer demands

Enhance innovation and productivity

generate environmental and societal benefits

Ideas from business for business

Business opportunities for material-efficient housing: Examples

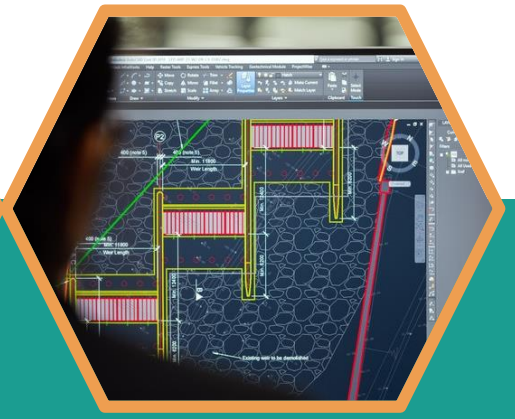
Ideas from IRP partners and business stakeholders

High quality and space-efficient residences in multi-unit buildings

Enabling downsizing in new service models

Modular and prefabricated components and flexible design

Sustainably harvested timber



Efficient design and production with tools like building information modelling (BIM)

Business opportunities for material-efficient mobility: Examples

Ideas from IRP partners and business stakeholders

Reduce trip cost and ownership efforts through shared mobility.

Increased investment in technology through higher utilization and shorter product cycles .

As manufacturers, provide efficient, durable, easy-to maintain and designs for fleets

Provide integrated multi-modal services

Facilitate data sharing, securing a “social license to operate”

Realizing these opportunities needs fundamental business model change and significantly better policies

Fundamental business model change

Business models that base their revenue on the performance of residential and mobility solutions over their life cycles can **benefit from the savings and more innovative design of material efficiency strategies**.

Better policies

The extensive IRP RECC policy review identifies **a gap of material efficiency policies** in the G7.

Current policy and market conditions are not incentivizing the uptake of material efficiency strategies, and in some cases even actively disincentivizing them.

Material efficiency policies: Implications for business

Material efficiency policies are scarce and mostly lack the climate impact perspective

Current material-related policies focus mostly on end-of life landfill diversion.

However, use and design are key points of leverage for GHG impact.

For houses, e.g., building codes and standards are a central policy instrument for changes in design.

For cars, policies on shared mobility are evolving rapidly, but need to emphasize net climate impacts.

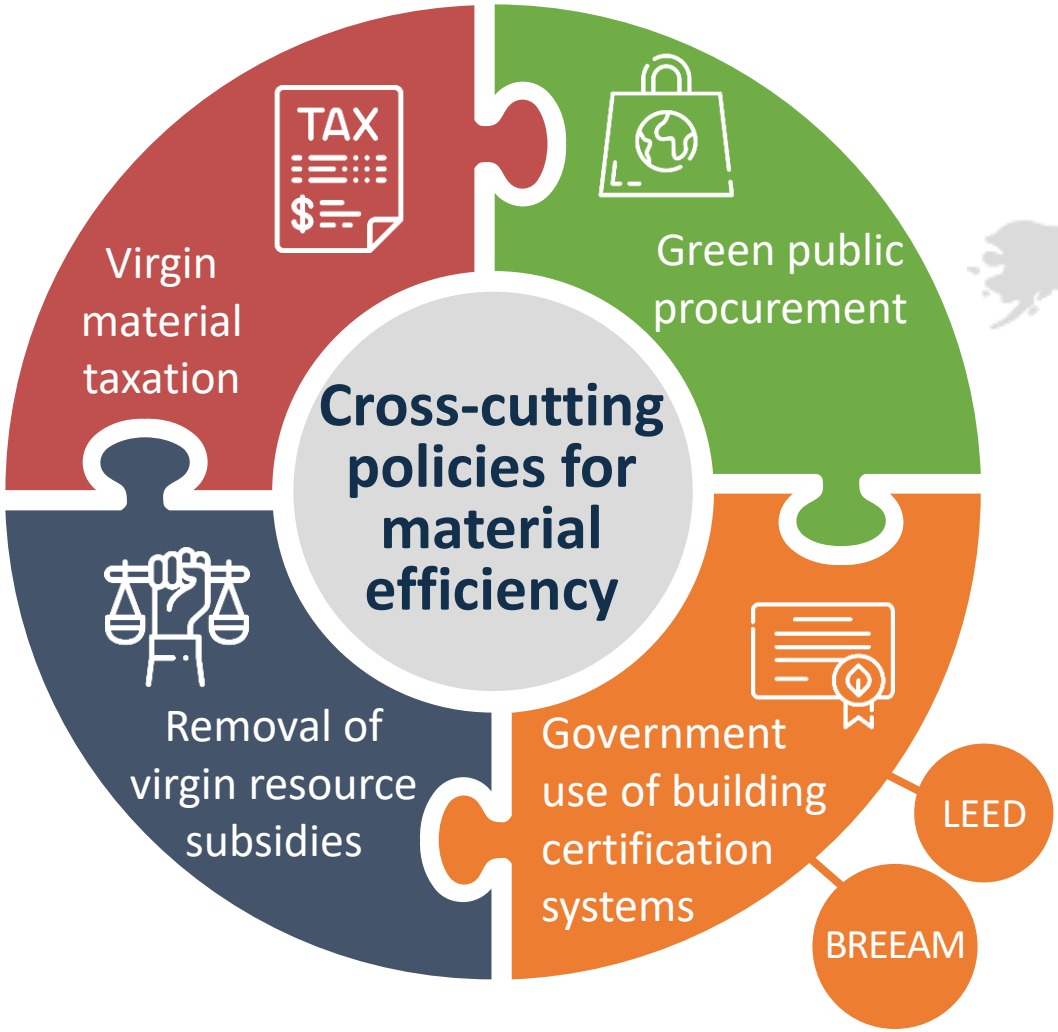
Some policies pose direct barriers against material efficiency

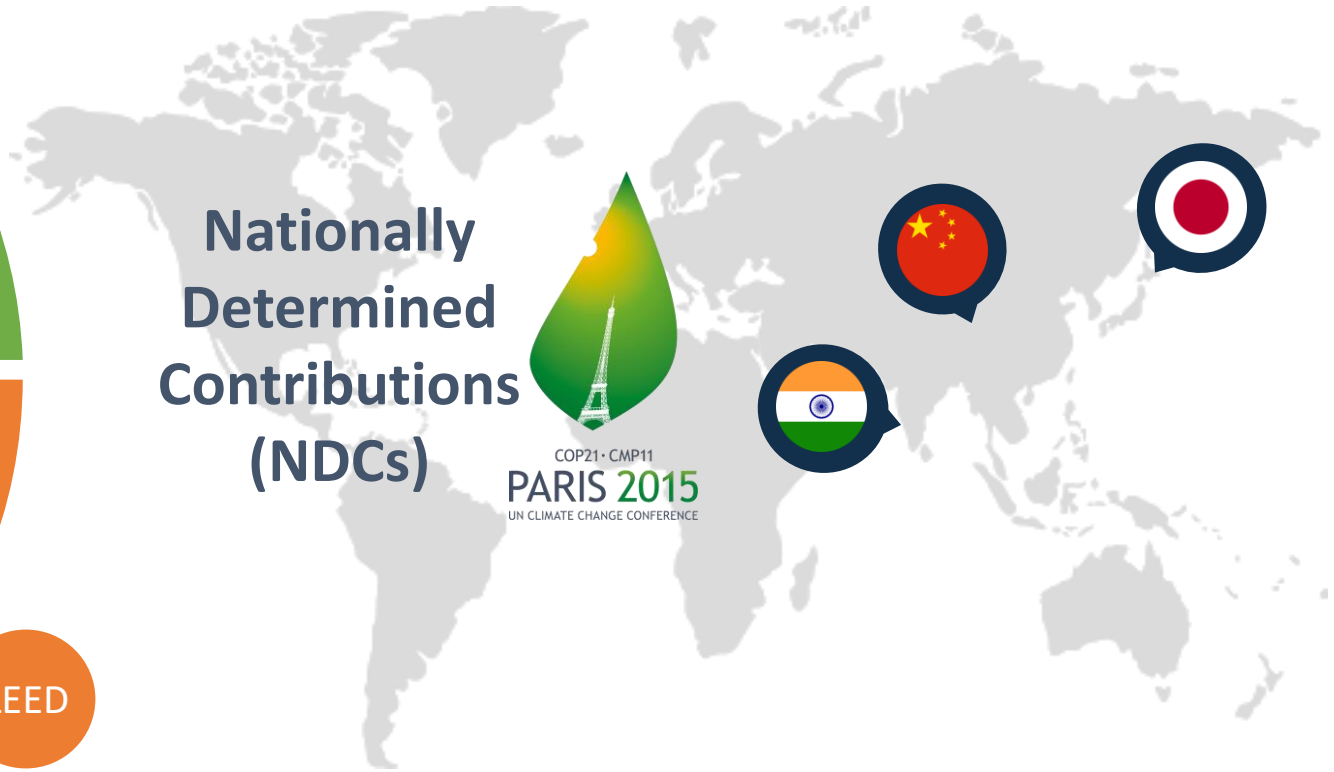
Current policies typically hinder greater intensity of use

Zoning and land use regulation **often specify minimum lot and dwelling size.**

Tax provisions **incentivize larger homes and slow the shift of households to smaller and larger homes as needed.**

Policies that apply across sectors or building life cycle stages may have broader impact than those focusing specifically on one sector





Icons/Freepik

Next steps for business leaders to turn Material Efficiency opportunities into real benefits

1

Anchor business vision in material efficiency and climate science

2

Invest in innovative pilots

3

Demand and support policy development

Ideas from IRP partners and business stakeholders

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THANK YOU

Download the report and summaries at:

www.resourcepanel.org/reports

For questions and engagement please contact

unep-irpsecretariat@un.org

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