

# A Policy Perspective Achieving Carbon Neutrality by 2050

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# Abstract

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1. Governments have the primary role to decarbonize. Policies must focus on internalizing externalities.
2. While HK's current aim is focused on accessing non-fossil fuels from the mainland and explore hydrogen in electricity generation locally, that is insufficient.
3. To keep cost affordable and to maximize decarbonization, reducing energy use is critical. This requires a revolution in energy use in HK's buildings.
4. Policy needs to stimulate industry and societal engagement to innovate and solve problems. Decarbonization requires hard infrastructure, technology, soft skills, and considerable leadership in government and business.
5. It also requires consistent messaging for the long-term.
6. Universities have a special role.



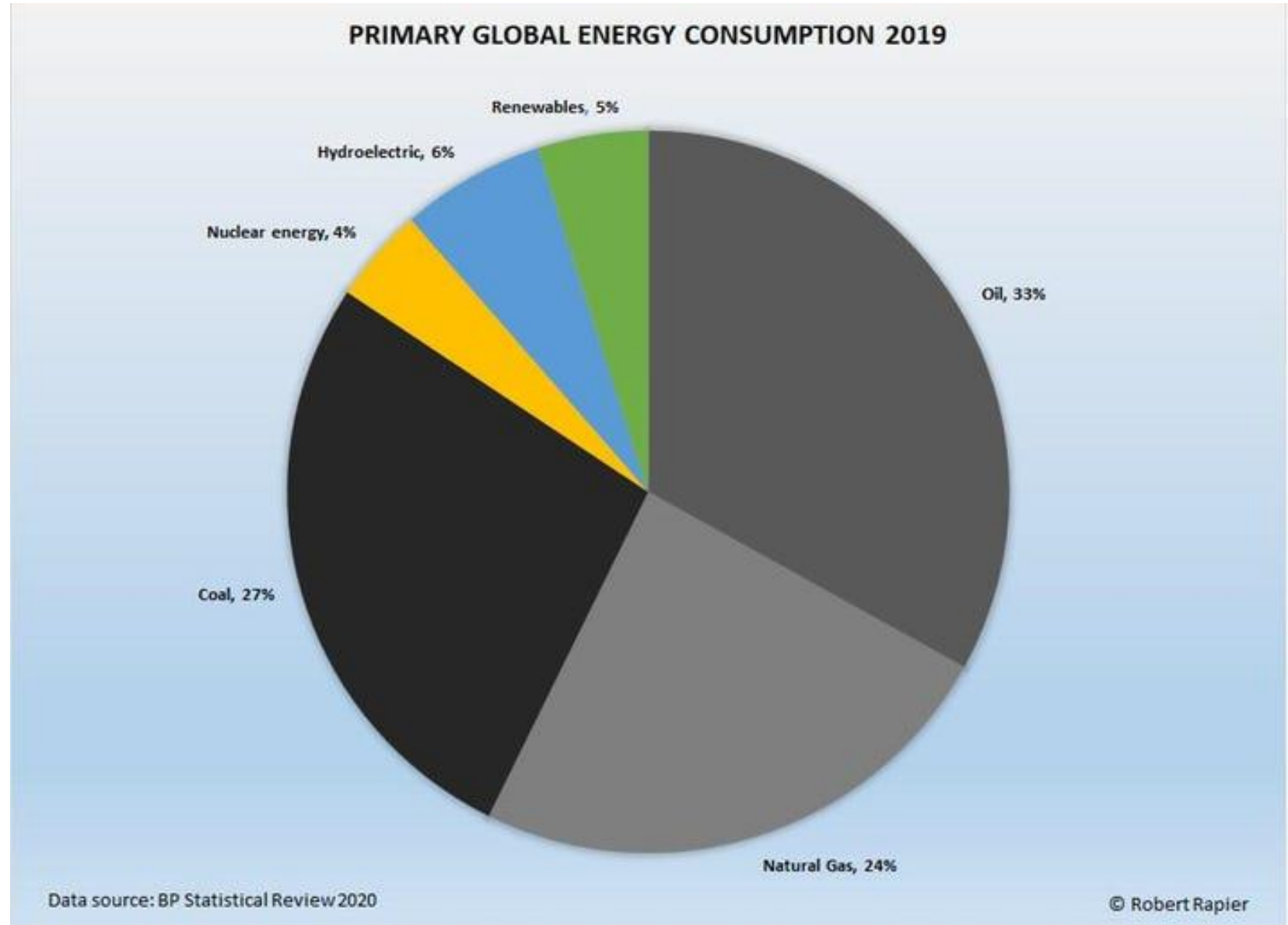
# Key Points

1. Carbon Neutrality = REVOLUTION
2. Fossil Fuels – extremely challenging
3. Role of Government – “internalize externalities”
4. China Matters – Mitigation, Adaptation & Biodiversity

1

# Decarbonization is a Revolution

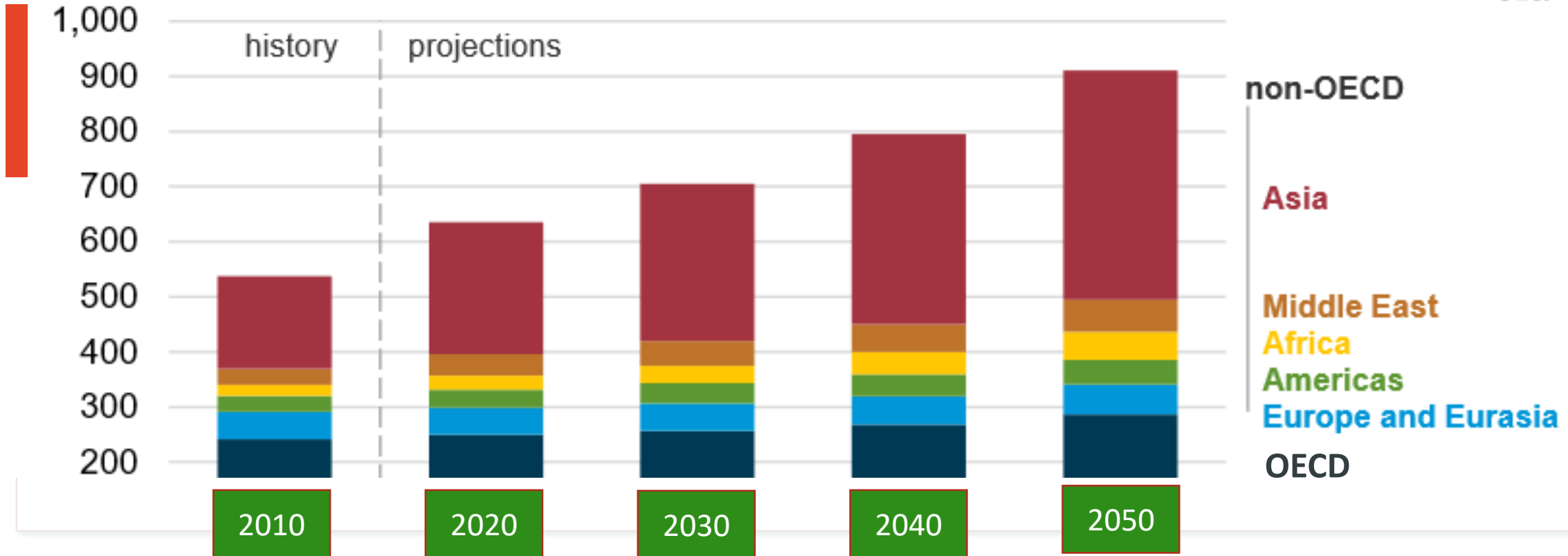
Fossil fuels supplied  
84% of world energy  
in 2019



# EIA projects ~50% increase in world energy usage by 2050, led by growth in Asia

**Global primary energy consumption by region (2010-2050)**

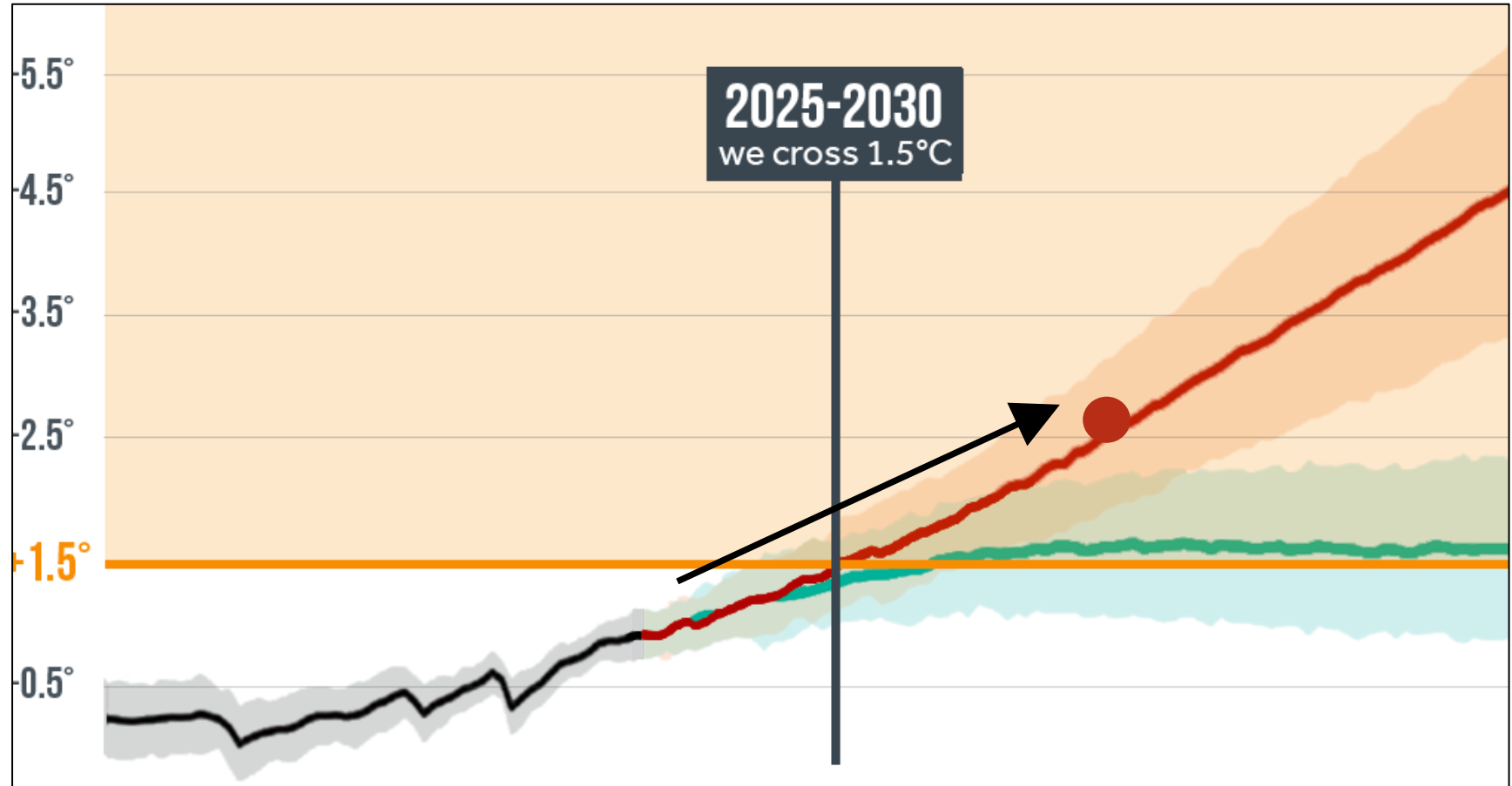
quadrillion British thermal units



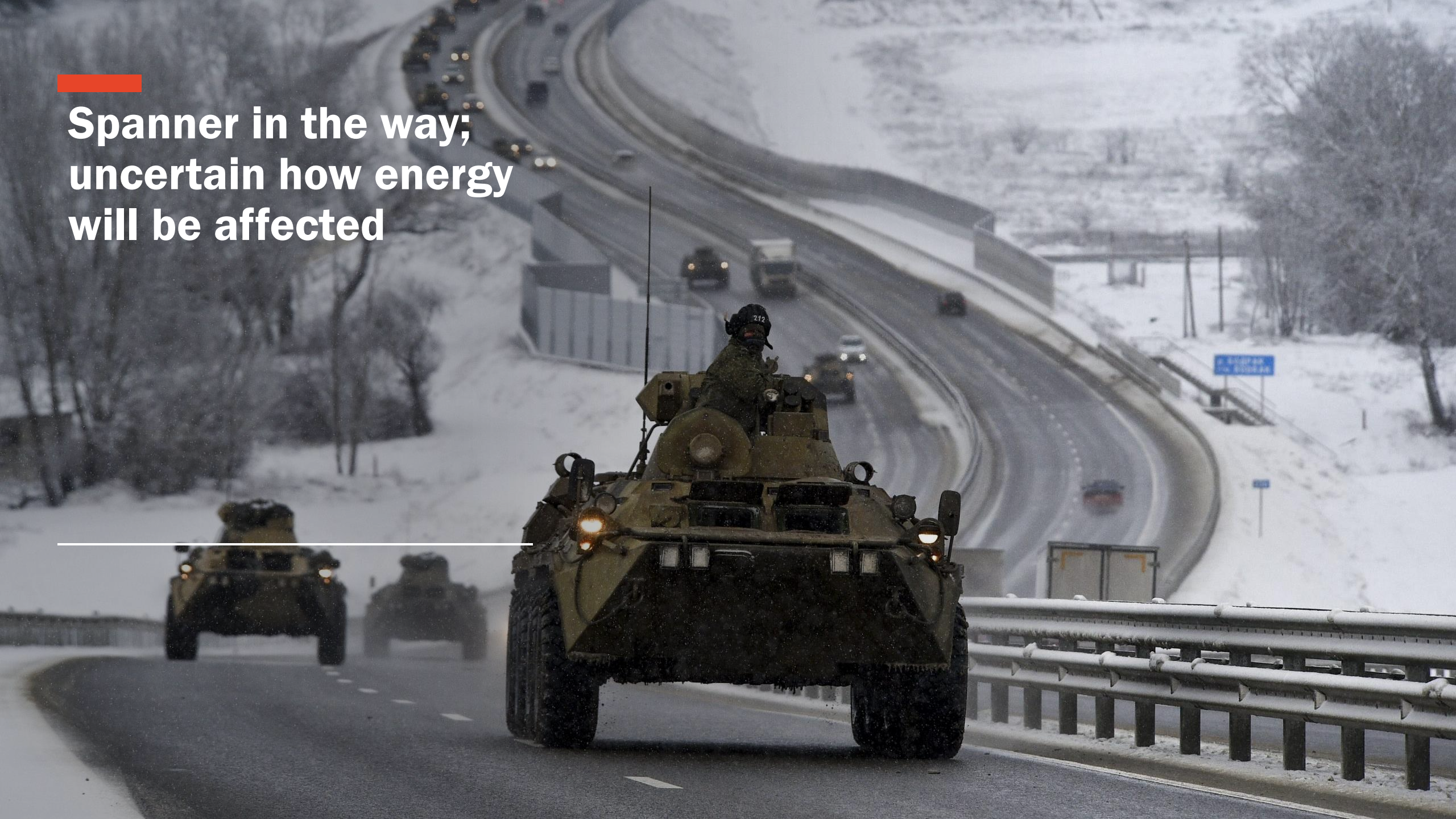
2

## Time is of essence

Probably miss halving emissions by 2030 to stay within 1.5°C



**Spanner in the way;  
uncertain how energy  
will be affected**



3

## Governments must lead

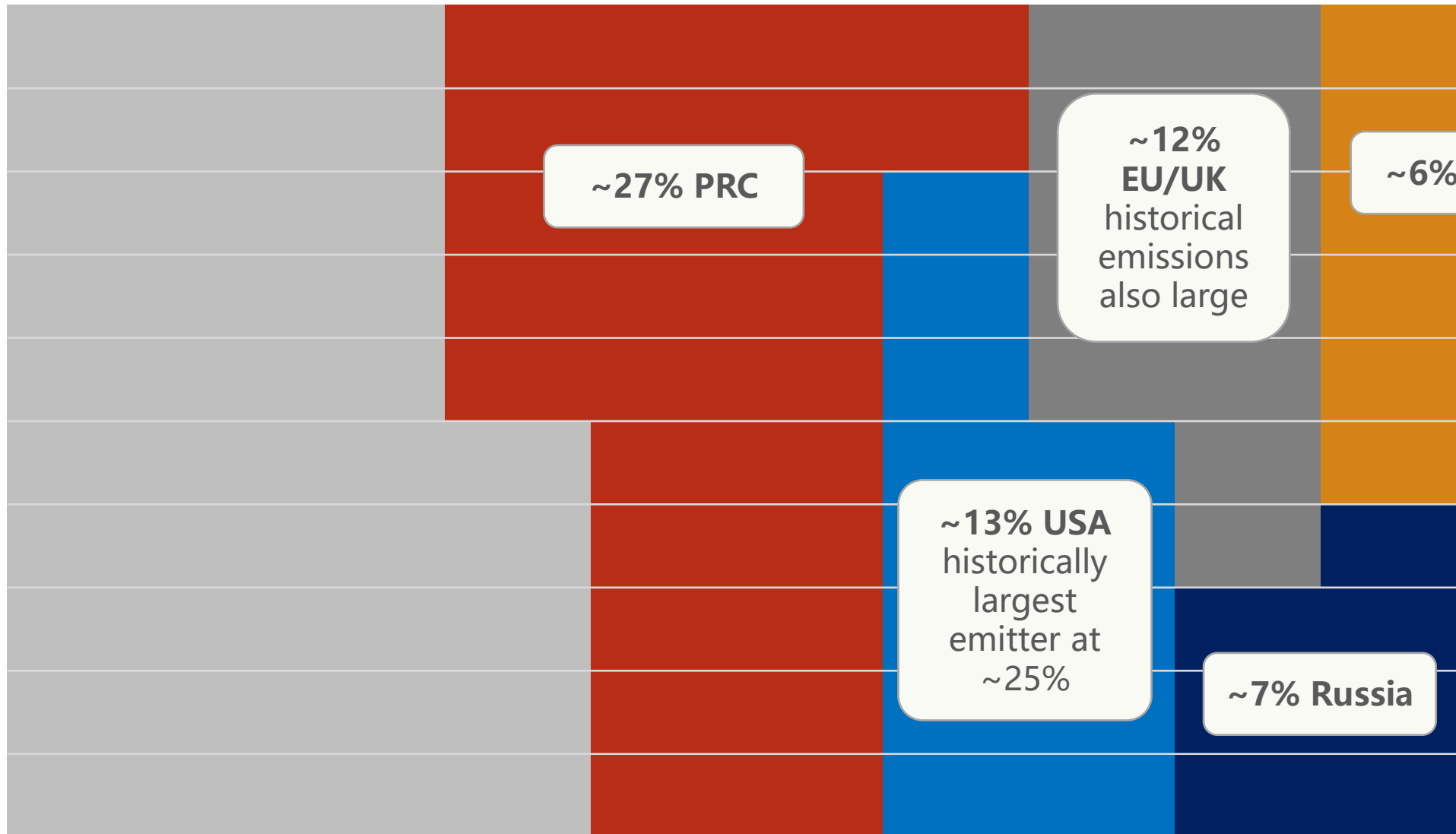
Only governments have the tools to internalize externalities to price carbon





# Especially Top 5 Emitters: ~65% of world CO<sub>2</sub> emissions

... but difficult geopolitics



China + India = 33%  
Asia = 50%  
Hong Kong is part of  
China & Asia



4

## China matters

Massive national decarbonization efforts across the board, engaging science, technology, industry, engineering, ETS and finance





**China's massive  
biodiversity efforts**

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# China's Decarbonisation Pathway ... what can Hong Kong learn from the mainland?

## Electricity



Coal to Gas  
Much more RE  
New Fuels  
Nuclear



Grid & Price Reforms  
Storage  
CCS

## Industry



Electrify energy intensive industries



Electrify transportation

## Efficiency



Maximise energy efficiency & conservation



Insulation, Buildings, Technology etc

## Production



Circular economy;  
reduce resources & waste

## Agriculture



Soil and land;  
Reduce food waste;  
Reduce meat consumption

An aerial photograph of a dense urban skyline, likely Hong Kong, showing a vast number of skyscrapers and high-rise buildings. The buildings are packed closely together, creating a complex, textured landscape of vertical structures. The colors of the buildings range from light grays and whites to darker blues and blacks. The perspective is from a high angle, looking down and across the city. In the top left corner, there is a small red horizontal bar. The text 'Retrofitting Hong Kong's buildings must be a policy priority' is overlaid on the left side of the image in a large, white, sans-serif font. A thin white horizontal line is positioned below the text.

**Retrofitting  
Hong Kong's  
buildings must  
be a policy  
priority**

A photograph of a modern urban park. In the foreground, a river flows through a landscaped area with stone-lined banks and various green plants. A white crane stands on a small island of vegetation in the water. In the middle ground, a concrete bridge spans the river. The background is filled with lush green trees and a tall, modern apartment building under a clear blue sky. A small red horizontal bar is located in the top left corner.

# Nature-based Solutions in cities

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# R&D&C in Circular Reindustrialization

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## Let's remake

Next 8 steps, our textile recycling system  
turns old garments into new ones. Never  
again a kilo of waste. From old to new  
waste. From old to new.

- 01. Cleaning
- 02. Shredding
- 03. Fibering
- 04. Carding
- 05. Dyeing
- 06. Spinning
- 07. Twisting
- 08. Knitting

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## Creating environmental commodities & exchange

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**CO2  
NEUTRAL**



# HKSAR Government 2022-27



Wants to work  
with universities  
and think tanks



# Messages for new HKSAR Government

1. Make climate & biodiversity overarching policies; restructure B/Ds; and all B/Ds deliver on targets.
2. Make power utilities share energy data.
3. Establish policy for 30 years of building retrofits.
4. Plan and design adaptation infrastructure together within GBA.
5. Reindustrialize with circular production in mind.
6. Create carbon assets to serve China & Asia.
7. Make food waste reduction a major GBA campaign.
8. Allow R&D funding to apply beyond Hong Kong on GBA/mainland.

# What universities could Rethink

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Education – what skills do students need?

Research – what and how to encourage?

Campus – are there funds for buildings retrofits?

Campus usage and management – what to do with the campus?

Collaboration – what and how to cooperate and with whom?