Circular economy towards net zero: Modelling the impact of circularity on Asia Pacific's economies

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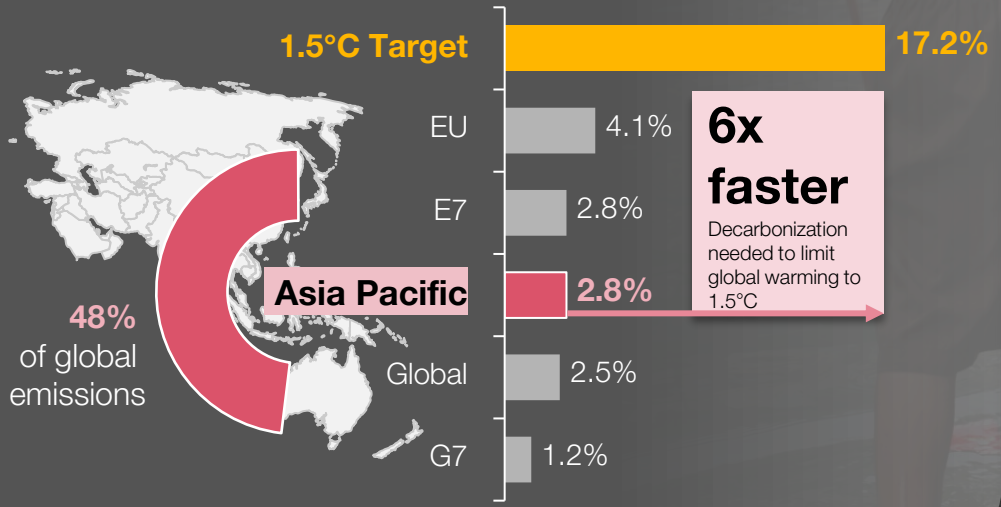
Asia Pacific is at the epicenter of the triple planetary crisis

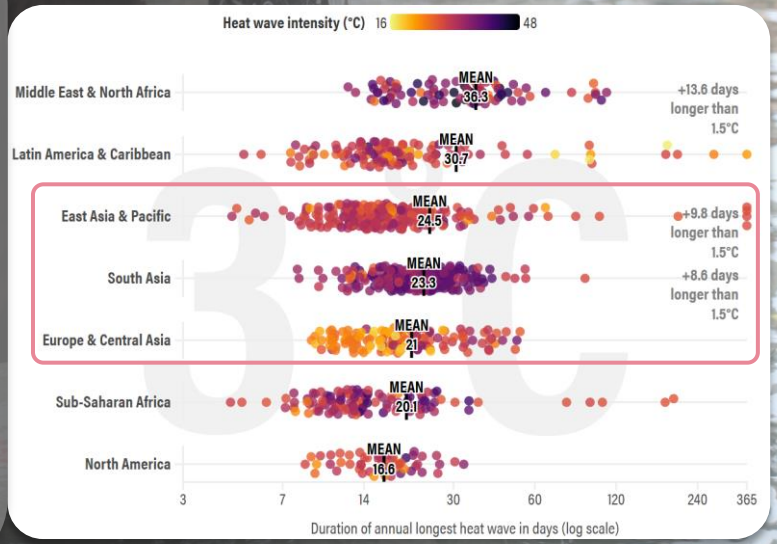
Climate change

Decarbonization rate, 2022



Source: PwC Net Zero Economy Index 2023

State of heat waves at 3°C scenario



Source: WRI

This has a knock-on effect on human health and economic prosperity

Biodiversity and pollution

60%

decline in biodiversity ecosystem health from 1970 to **2020**

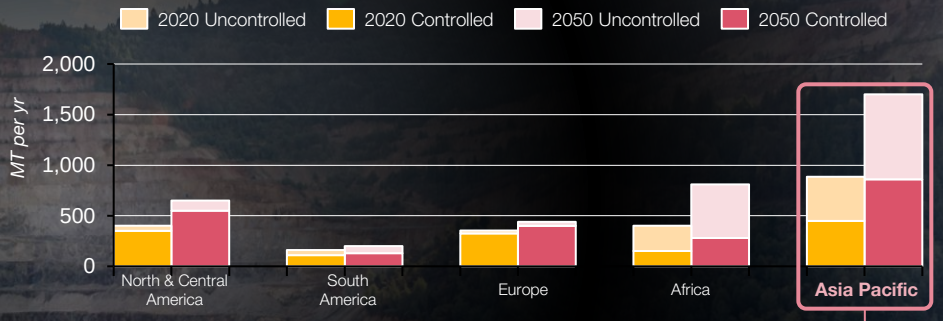
Source: WWF Living Planet Reports

53%

economic value is highly or moderately dependent **on nature**

Source: PwC analysis

MSW generation and control, 2020 and 2050 projections



US$2 billion of damage to ASEAN's blue economy by marine plastics each year

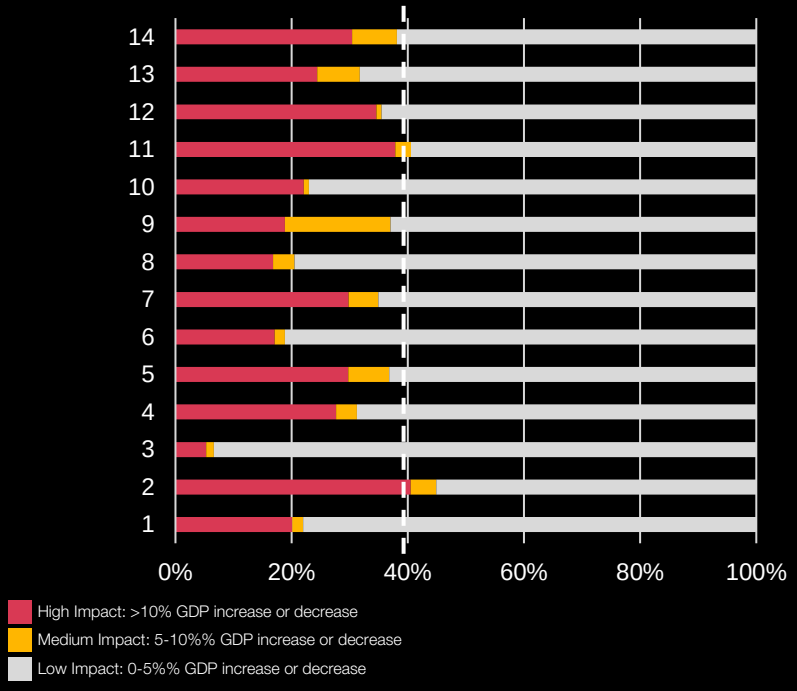
US$6 billion recyclable plastic value lost each year in TH, PH, MY

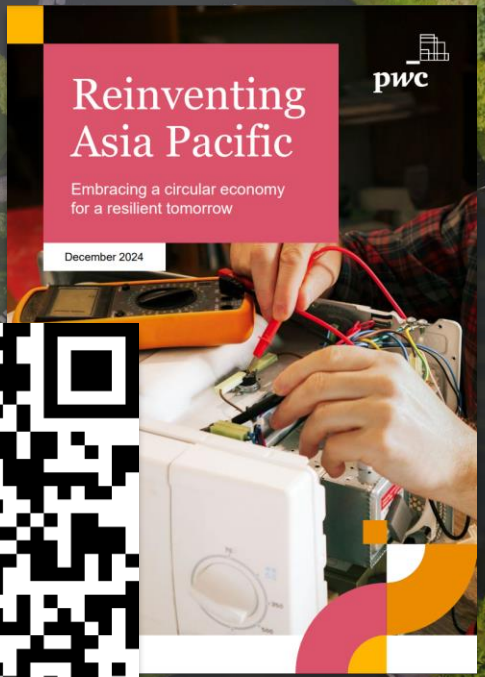
59x increase in ingestion of microplastics by Southeast Asians from 1990 to 2018

Source: UNEP, UNESCAP ,World Bank, Straits Times

A circular solution modelled for Asia Pacific

Percentage of GDP impacted (high, medium, low) by CE transition





Source: PwC Analysis

GDP, jobs and emissions impact of the circular economy on our region

Net GDP increase of US$ 340bn / EUR 324bn

Net employment increase of 15m

Net emission reduction of 7.2% (1.7 gigatonnes CO2e)

Source: PwC analysis

Recycled steel reduces CO_2 emissions by **58%** compared to use of virgin metal ores

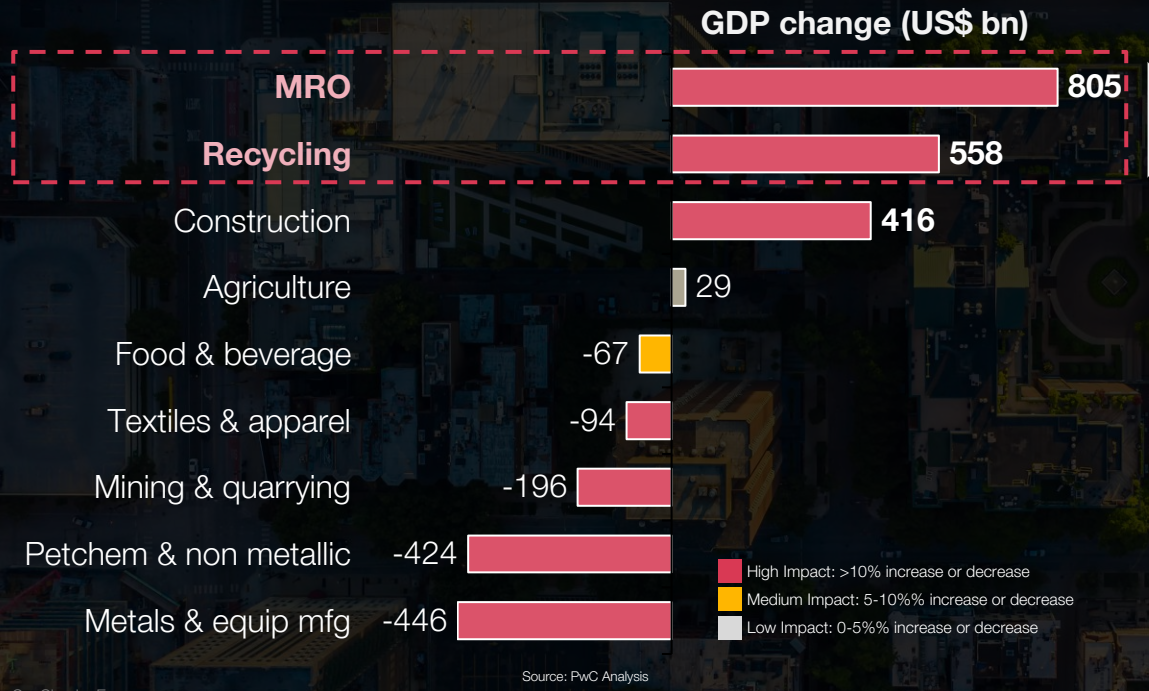
Recycled aluminum generates **95%** less CO_2 emissions

Slag cement emits **63%** less CO_2 emissions compared to Portland cement

Source: STENA, ICCT, Osmanovic et al.

Transition planning is critical to manage the impact on key sectors of the economy

Asia Pacific sector level impact of CE on economies

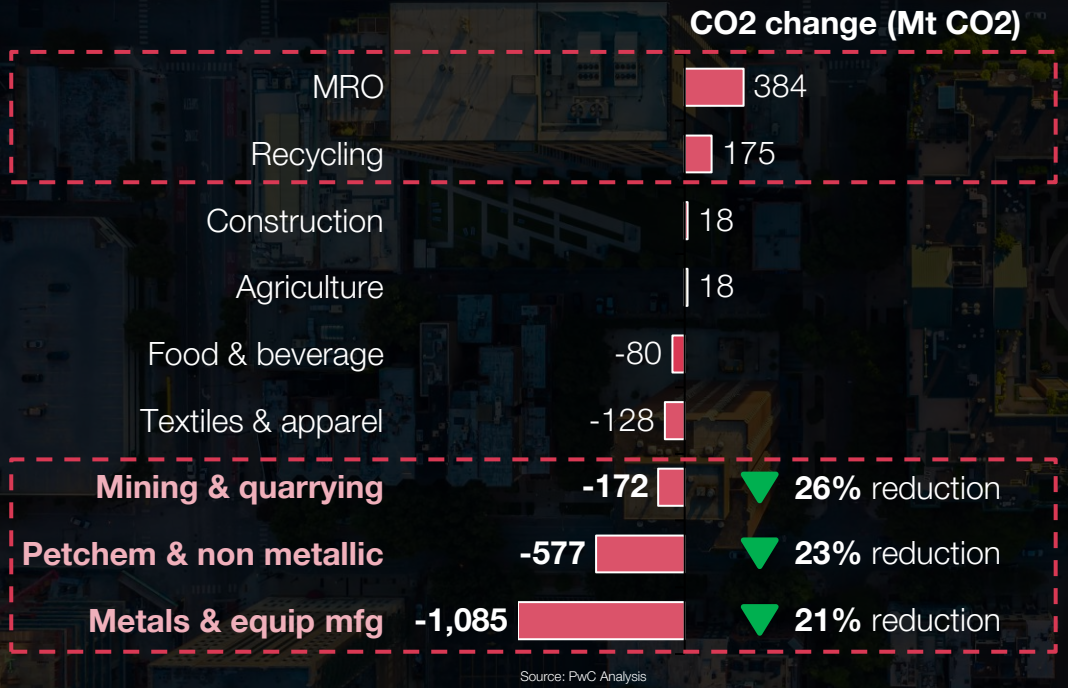


Source: PwC Analysis

The circular opportunity can be captured by manufacturing & extractive industries through vertical integration of MRO & recycling

Significant CO_2e ↓ from transitioning emissions intense sectors to circularity

Asia Pacific sector level impact of CE on emissions



Source: PwC Analysis

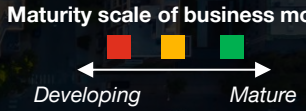
50-70%

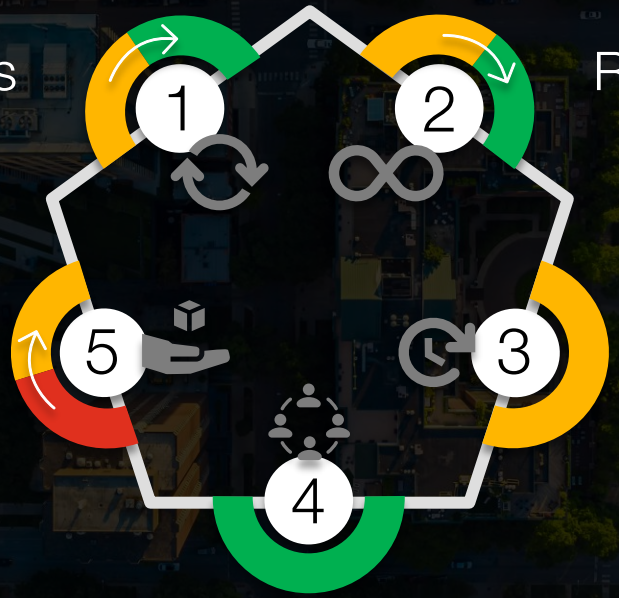
Lower carbon intensity from MRO and recycling at current energy mix (without RET)

40%

CO_2e emissions generated by three sectors in AP baseline

Circular Business Models are emerging in the region





Circular supplies

Resource Recovery

Product-as-a-Service

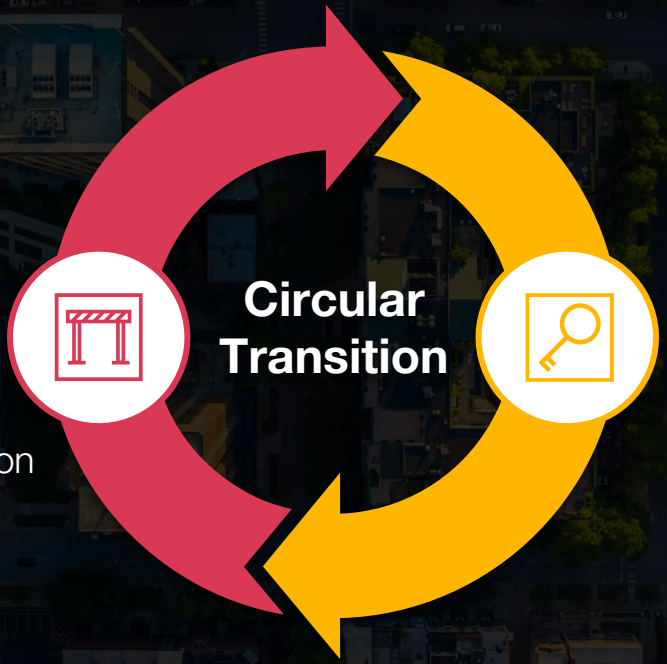
Product Life Extension

Sharing

Challenges and enablers of the circular transition

Challenges

1. Changing mindset and perceptions
2. Scaling-up
3. Economic and labour displacement vs just transition
4. Costs of circular materials



Enablers

1. Building awareness and communication
2. Standards, incentives and sustainable financing
3. Designing and using technology and data
4. Collaboration, ecosystem thinking and integration
5. Developing capabilities and supporting a just transition

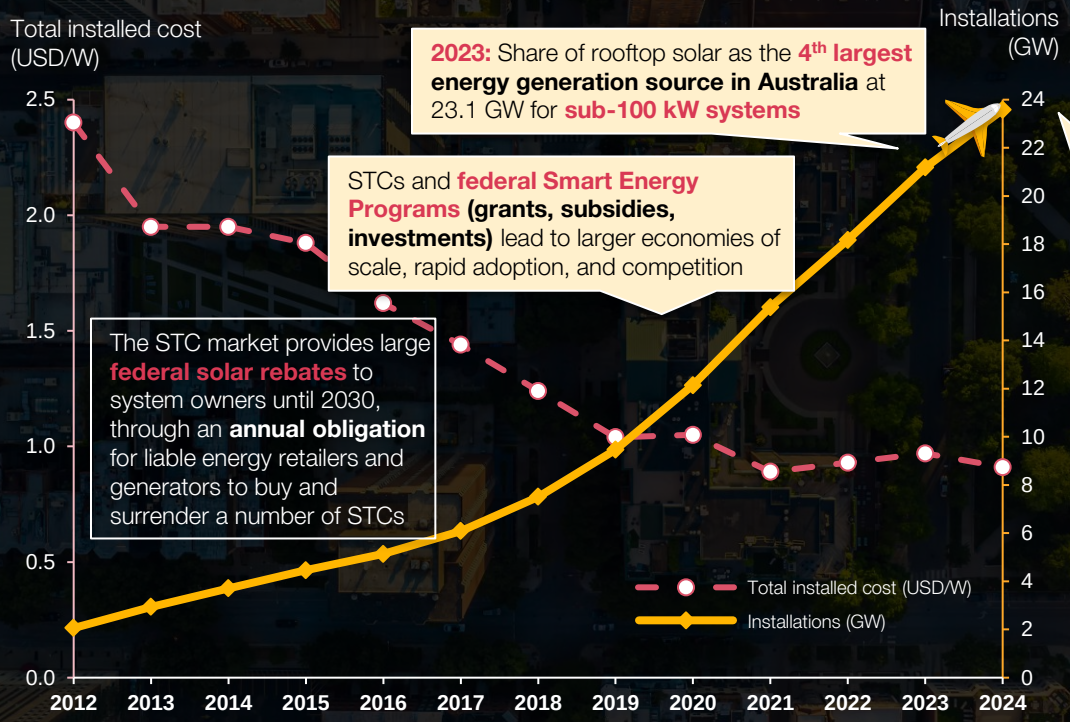
The policy – finance – innovation nexus

Australia: A rooftop solar powerhouse driving the 82% RE generation target by 2030

2008: High feed-in-tariffs (FIT) were promoted to increase solar uptake

2011: The **Small-scale Renewable Energy Scheme (SRES)** incentivizes installation of RE systems in households and businesses through **Small-scale technology certificates (STC)**

The other RET scheme: **Large-scale Renewable Energy Target (LRET)** aims for 33,000 GWh of extra RE generation/yr



2023: Share of rooftop solar as the **4th largest energy generation source in Australia** at 23.1 GW for **sub-100 kW systems**

STCs and **federal Smart Energy Programs (grants, subsidies, investments)** lead to larger economies of scale, rapid adoption, and competition

The STC market provides large **federal solar rebates** to system owners until 2030, through an **annual obligation** for liable energy retailers and generators to buy and surrender a number of STCs

2024: To further energy independence against rising energy prices, the **Solar SunShot Programme (AUD 1 bn/~USD 652 mn)** was introduced with the goal of **accelerating local manufacturing of solar panels** from 1% to 20% market share

How can we replicate this for circularity?

Source: Clean Energy Regulator, Solar Choice, Clean Energy Council, Australian Prime Minister

Thank you

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