



# Long-Term Energy Scenarios to support national energy transition plans in Asia

## The Philippines

02 August 2023

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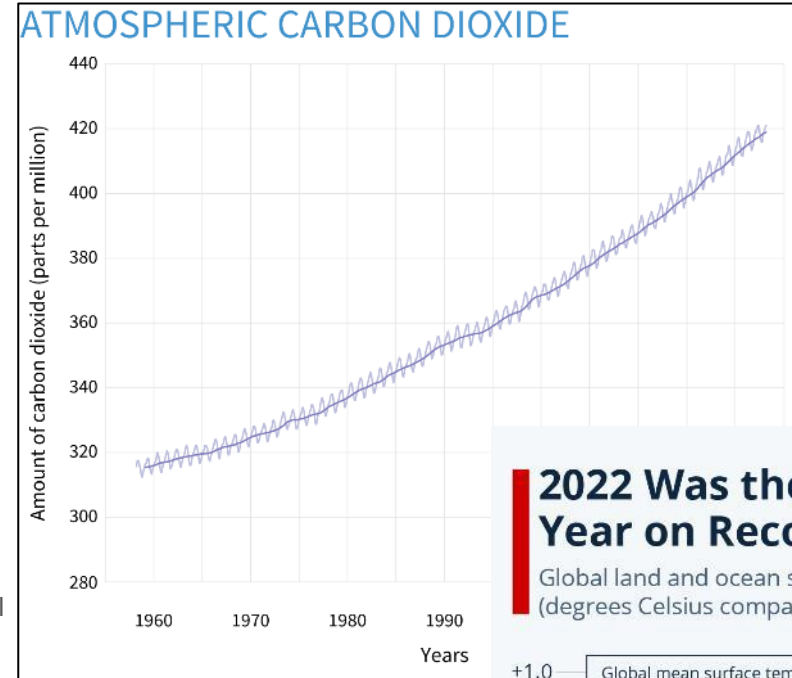
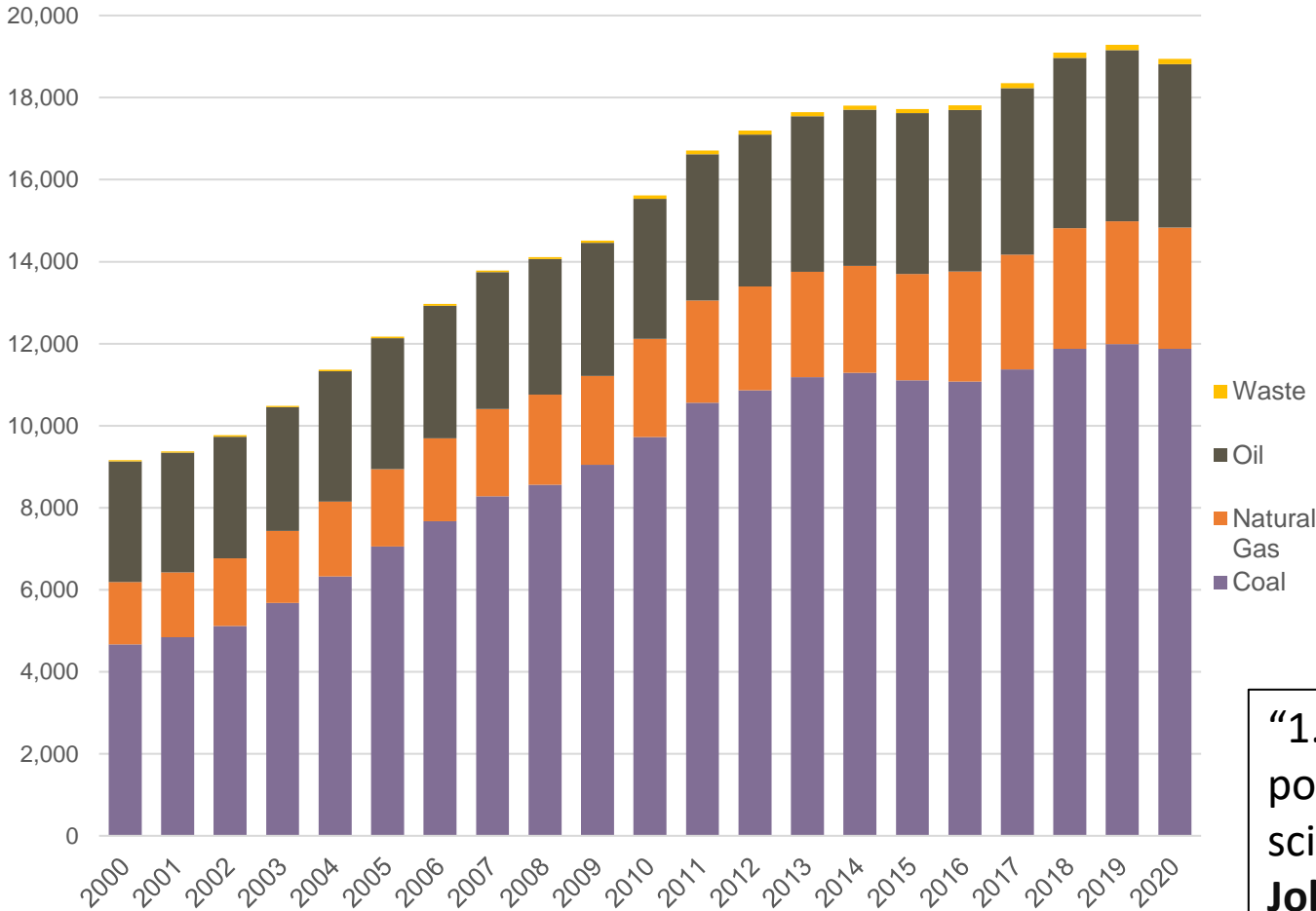




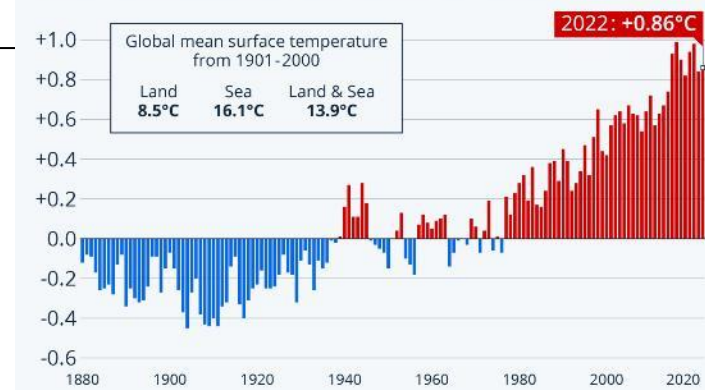
# Asia-Pacific Emissions Trajectory – our KPIs look poor

*Regional GHG emissions continue to grow...*

CO<sub>2</sub> Emissions from Fuel Combustion, by Source, 2000-2020



**2022 Was the Sixth Warmest Year on Record**  
Global land and ocean surface temperature anomalies (degrees Celsius compared to the 20th century average)



**“1.5 degrees is not a political target, it’s a scientific target...” Prof. Johan Rockström**

# A Nested Series of Concepts

**Net Zero 2050** – voluntary efforts by countries to reach zero emissions on a national level by mid-century in order to stabilize emissions on a 1.5 deg pathway.

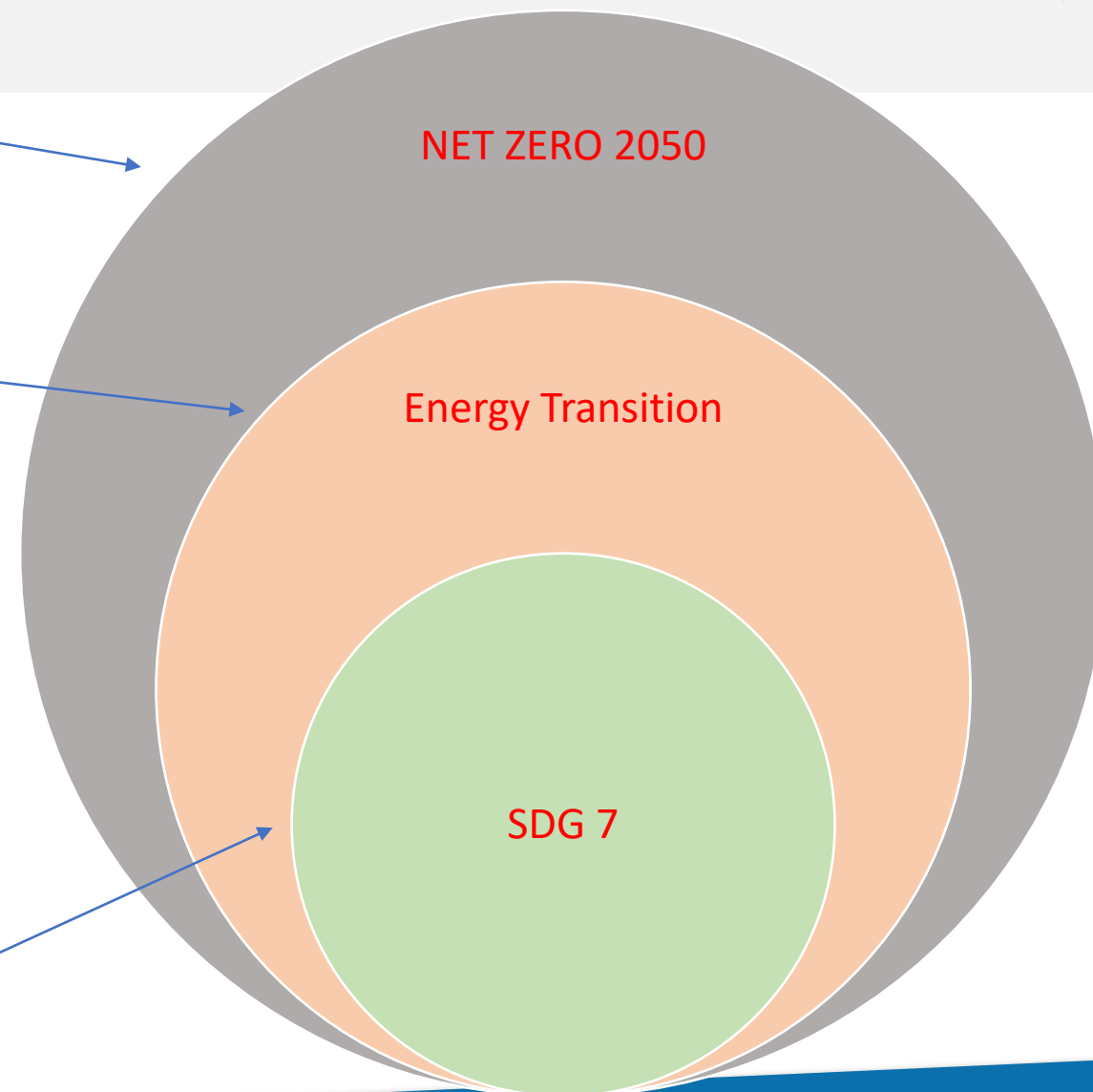
**The Energy Transition** – commonly used terms to describe multiple transitions in the energy sector towards sustainability – origins in the German *Energiewende*

## SUSTAINABLE DEVELOPMENT GOAL 7

**Target 7.1:** By 2030, ensure **universal access** to affordable, reliable and modern energy services

**Target 7.2:** By 2030, **increase substantially the share of renewable energy** in the global energy mix

**Target 7.3:** By 2030, **double** the global rate of improvement in **energy efficiency**



7 AFFORDABLE AND CLEAN ENERGY



## *SDG 7 – why it is the “keystone” SDG:*

### **1. Energy justice**

....clean cooking fuels and electricity – health, education and economic opportunities.

### **2. Energy productivity**

....improve economic productivity while reducing GHG emissions.

### **3. Renewable energy for low carbon transformation**

....the key plank in the transition away from fossil fuels towards a low carbon energy system.

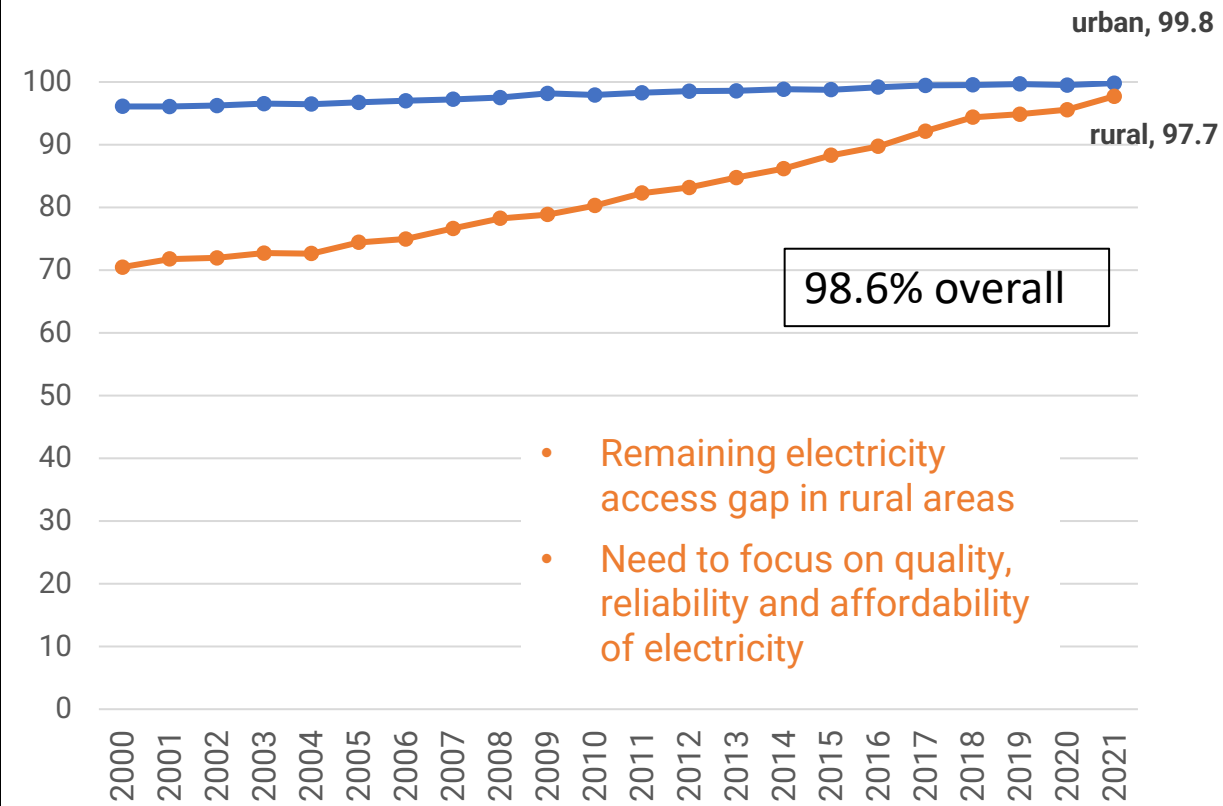




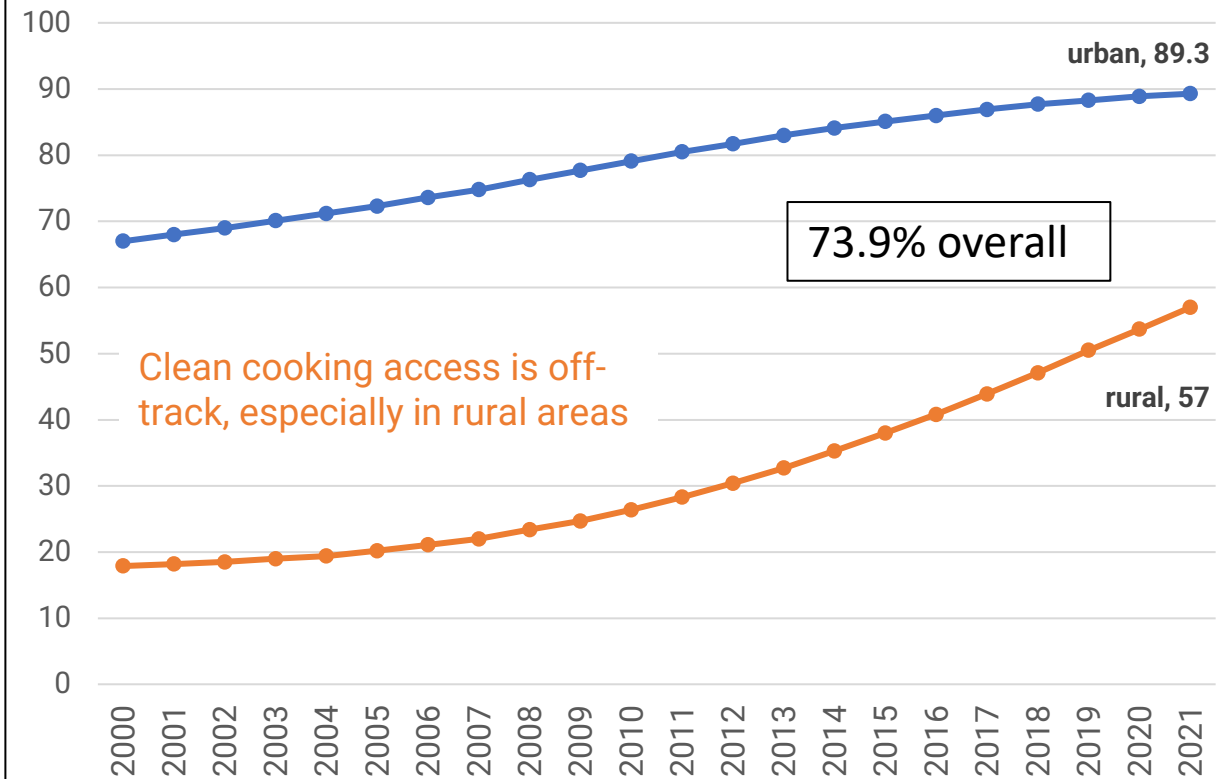
# How is Asia-Pacific faring on SDG 7?

## 1. Energy Access

Access to electricity (% of population) in the Asia-Pacific, 2000-2021



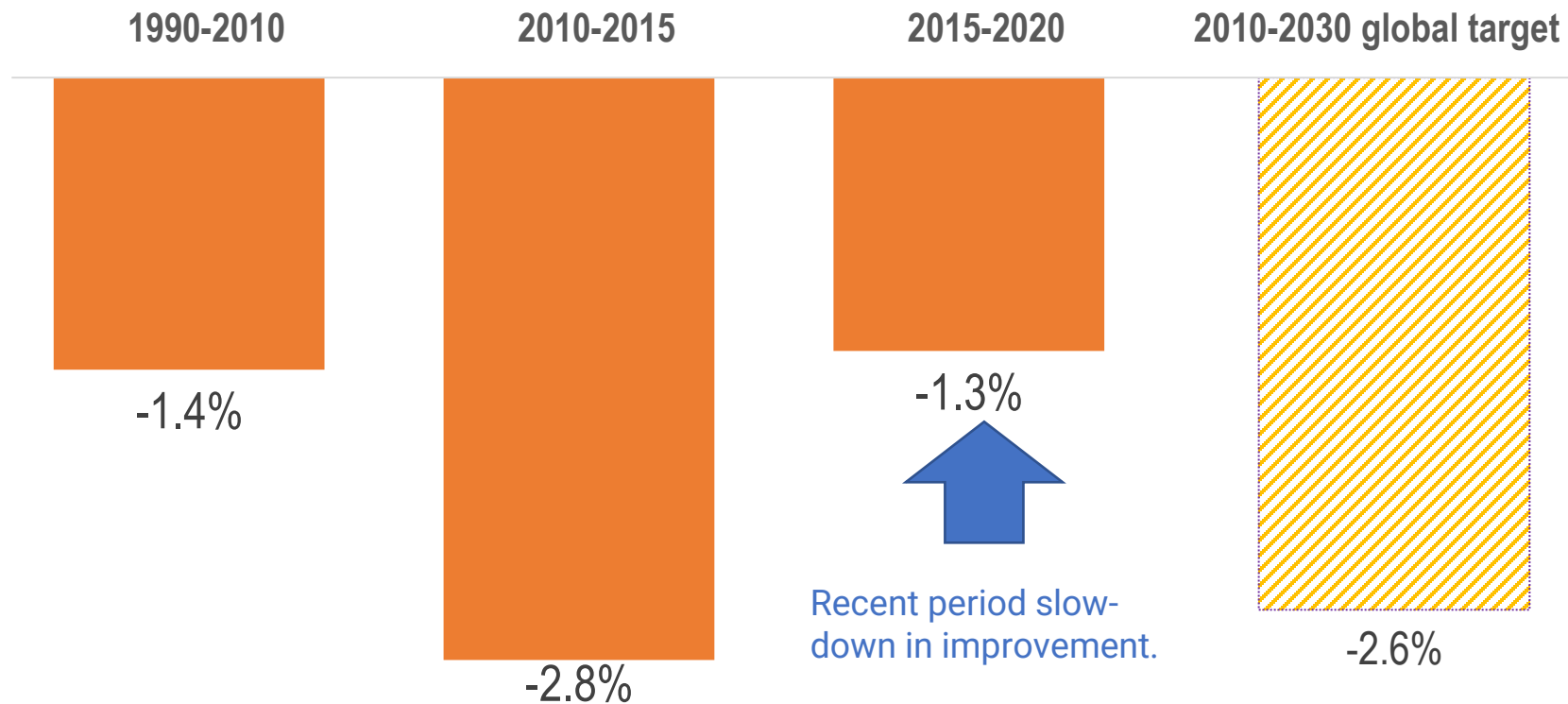
Primary reliance on clean fuels and technologies - Asia and the Pacific (% of population) 2000-2021





## 2. Energy Efficiency

Growth rate of primary energy intensity in Asia-Pacific by period, global target rate



- Pace of energy intensity improvement in the region - not on track with 2010-2030 global target rate of 2.6%. From 2020 to 2030 improvement will need to accelerate to 3.2% improvement rate per annum to meet the SDG 7.3 target.
- To bring the global SDG 7.3 target within reach, energy efficiency policies and investment need to be scaled up significantly.

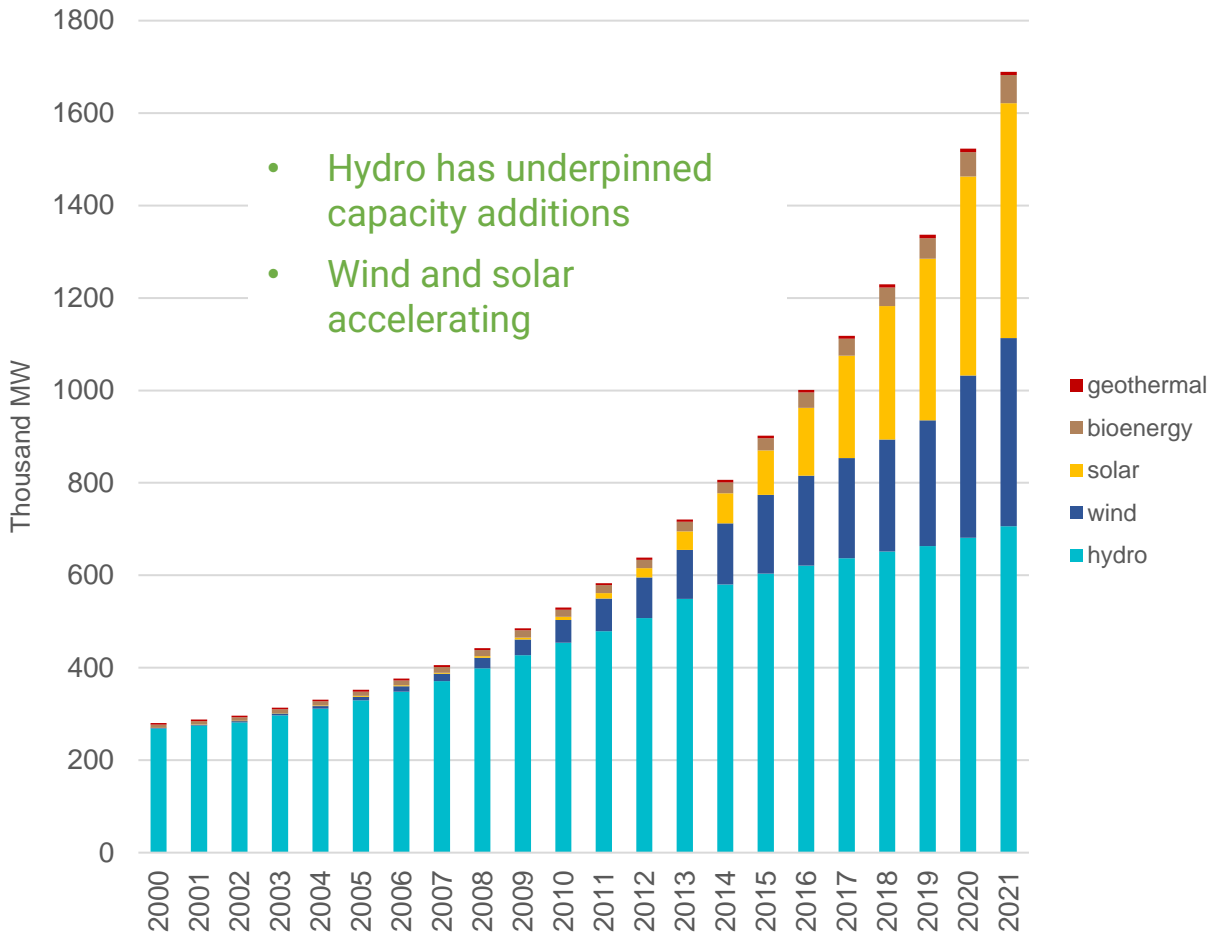
**Target 7.3: By 2030, double the global rate of improvement in energy efficiency**



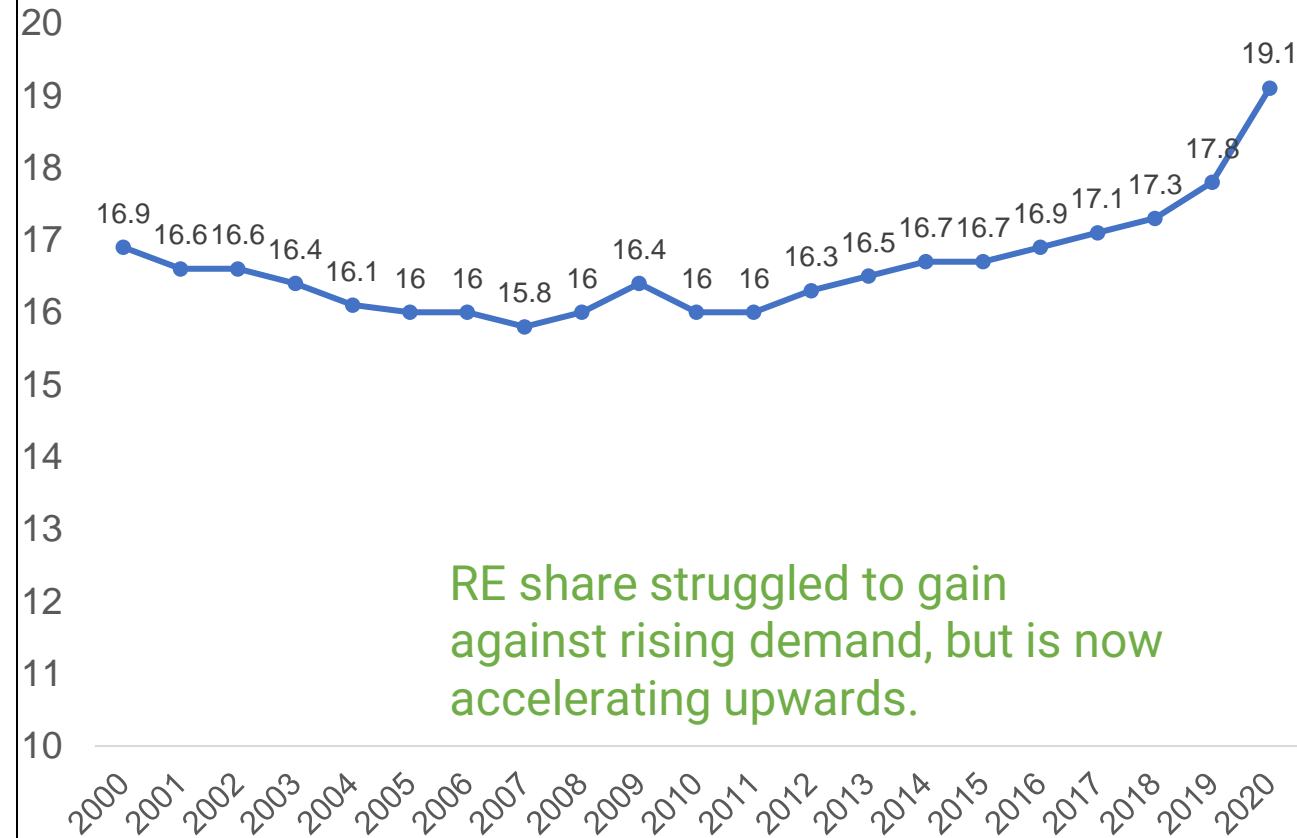
### 3. Renewable Energy

Renewable Installed Capacity in Asia and the Pacific, by Resource

- Hydro has underpinned capacity additions
- Wind and solar accelerating



Renewable energy share (%) of total final energy consumption in Asia and the Pacific, 2000-2020



RE share struggled to gain against rising demand, but is now accelerating upwards.





# ESCAP SDG 7 Roadmaps

## National SDG 7 roadmaps

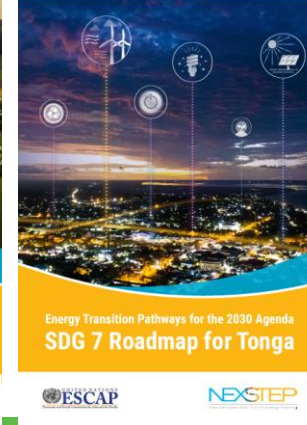
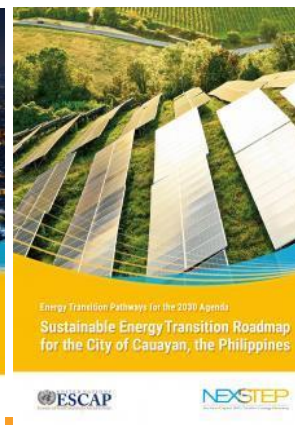
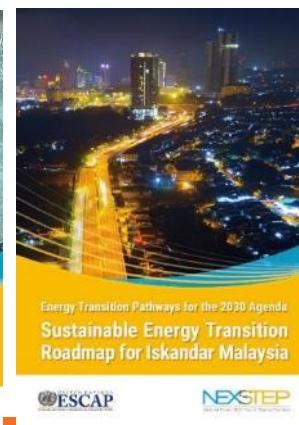
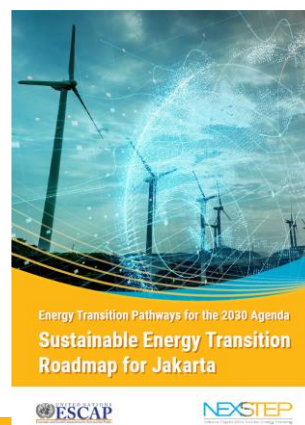
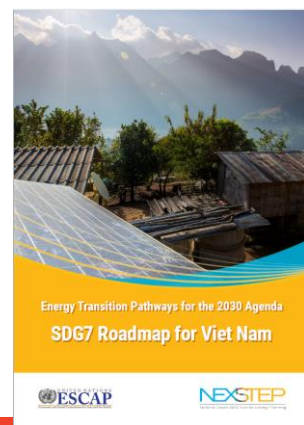
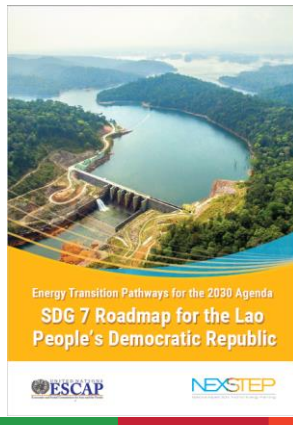
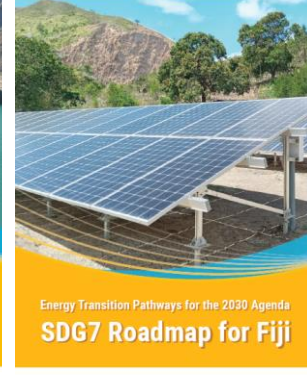
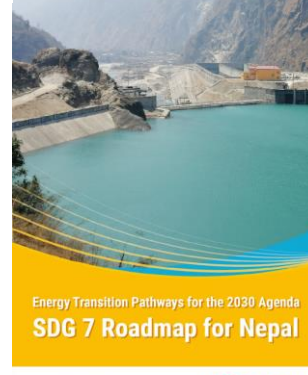
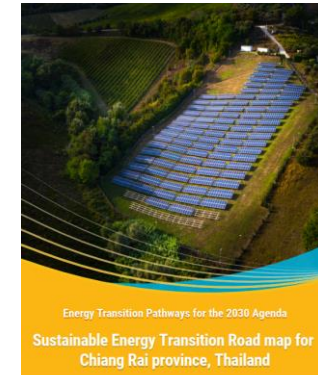
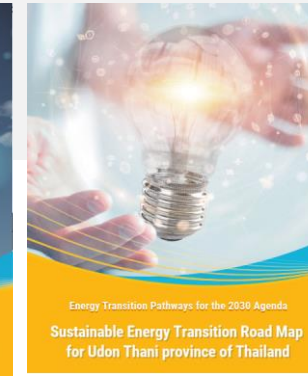
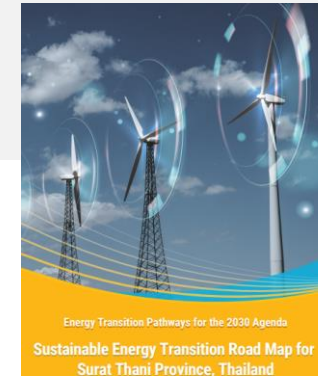
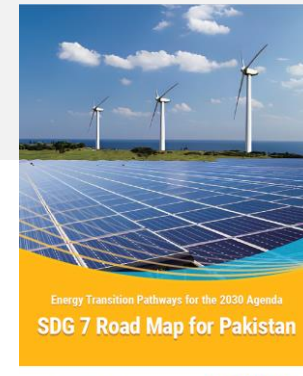
- Bhutan
- Fiji
- Georgia
- Indonesia
- Lao PDR
- Nepal
- Tonga
- Viet Nam
- Kyrgyzstan
- Kiribati
- Pakistan

## Sub-national Sustainable energy transition roadmaps

- City of Jakarta, Indonesia
- Iskandar, Malaysia
- Cities of Borongan, Cauayan and Ormoc of Philippines
- Provinces of Thailand - Surat Thani, Udon Thani and Chiang Rai

## Ongoing

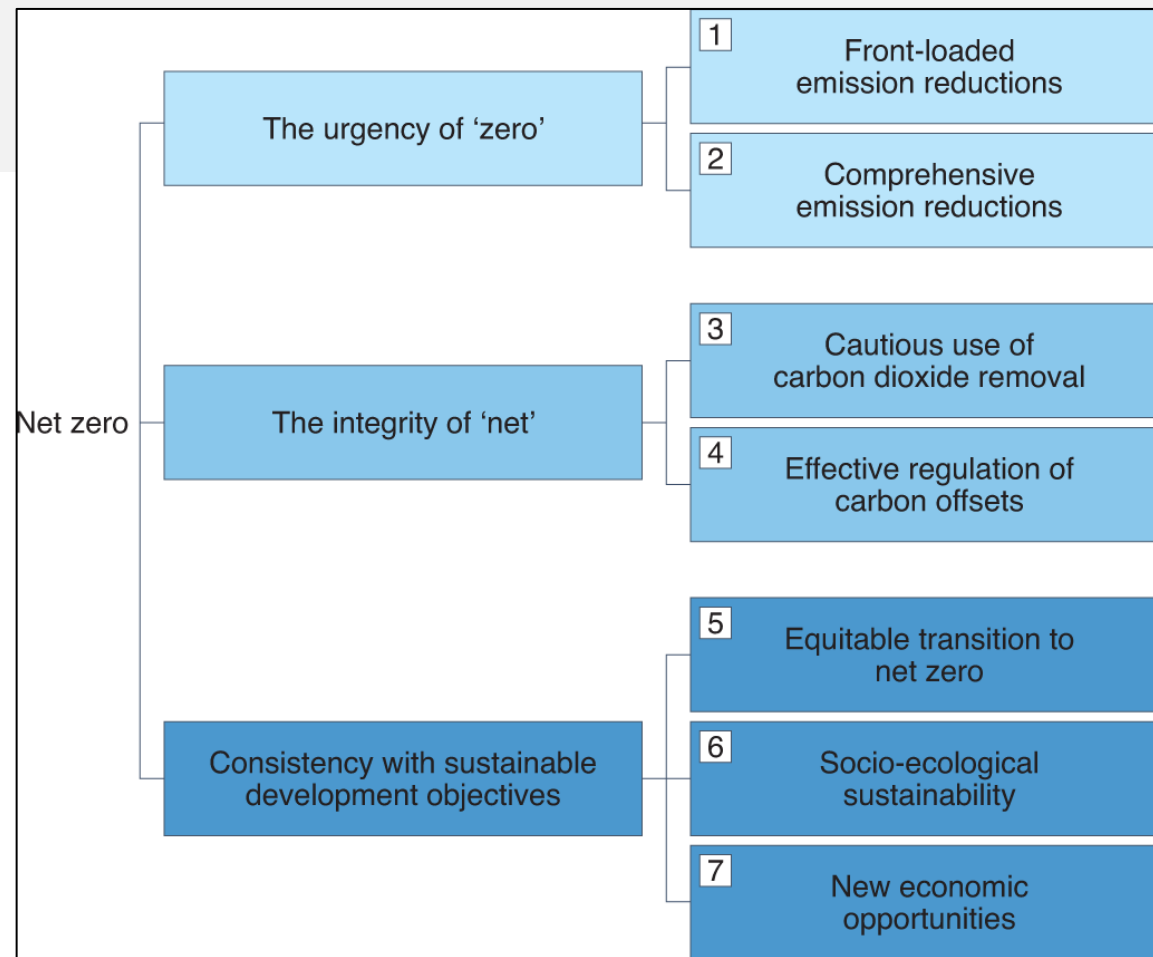
- Armenia
- Kazakhstan
- Micronesia
- Brunei Darussalam
- Mongolia
- Thailand
- Timor Leste
- Uzbekistan
- City of Quezon, Philippines





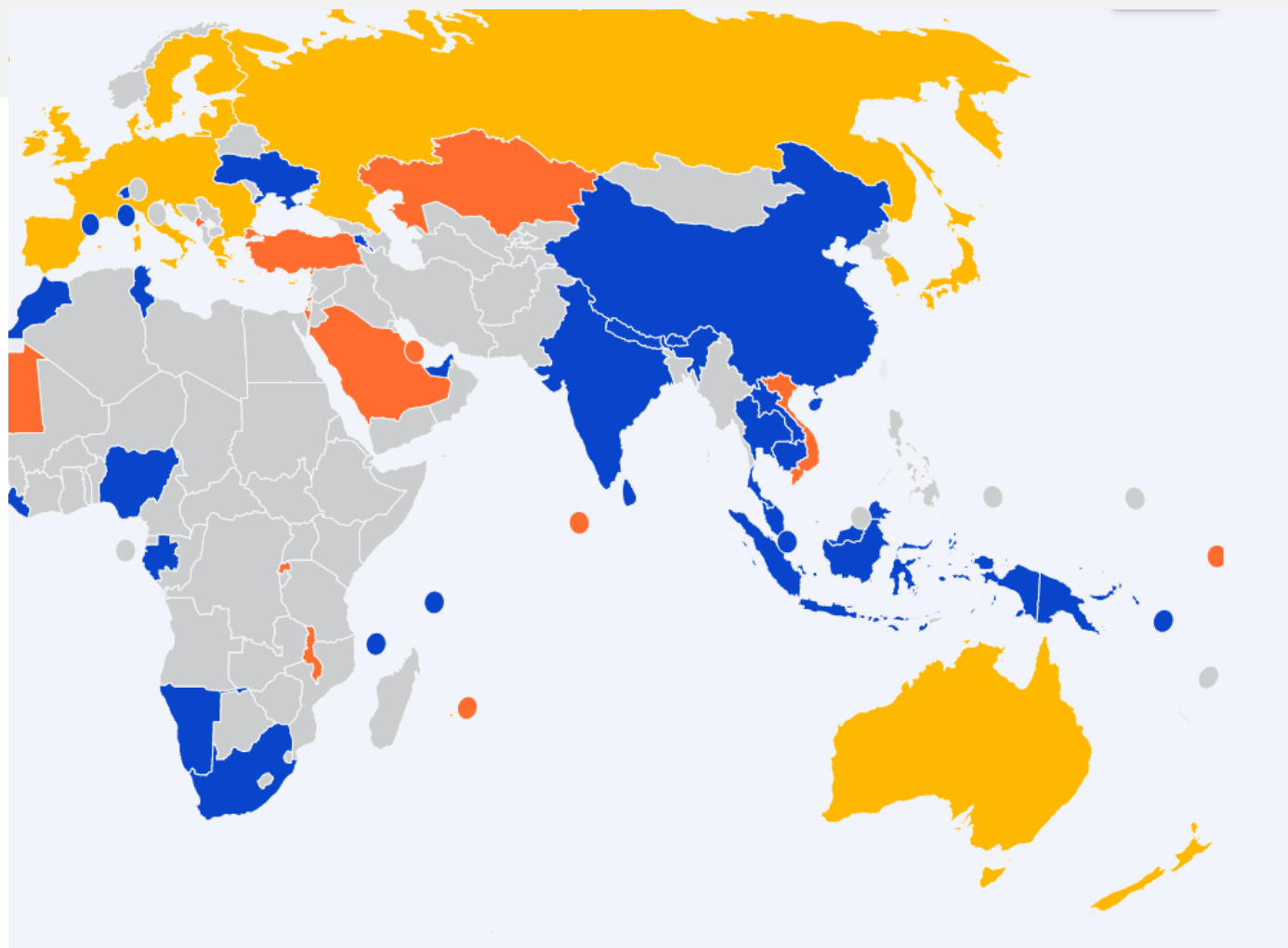
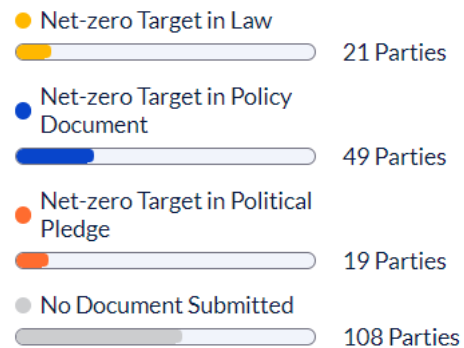
# Implementation of Net Zero Targets Across the Asia-Pacific Region

- Complex implementation challenge - uncertainties in future technology and costs; tradeoffs; socioeconomic impacts.
- Matrix of technology/policy solutions – zero and low carbon energy, energy efficiency, carbon sequestration.
- Strong link to “just transition” needed.
- Regional cooperation will be key to implementation.



Fankhauser, S., Smith, S.M., Allen, M. *et al.* The meaning of net zero and how to get it right. *Nat. Clim. Chang.* **12**, 15–21 (2022). <https://doi.org/10.1038/s41558-021-01245-w>

# Commitments to Net Zero Targets Across the Asia-Pacific Region



*An increasing number of countries are making net zero commitments by mid-century.*

*Energy represents 72% of the region's GHG emissions*

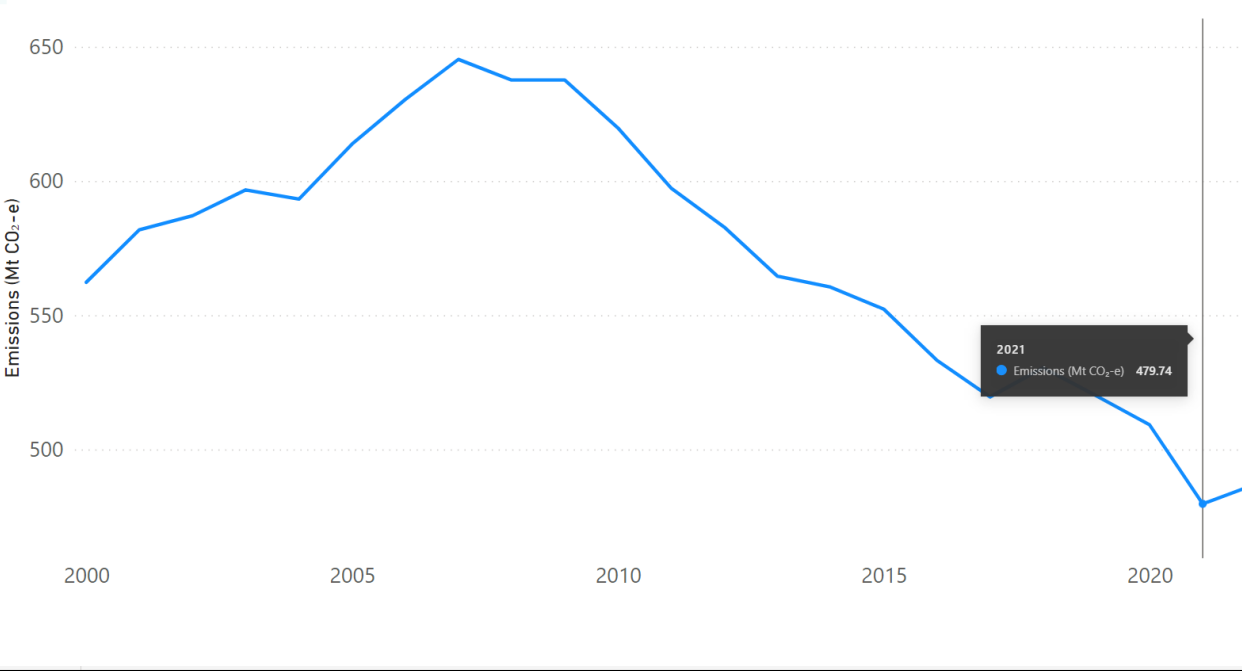


# Developed countries are moving to other side of the emission curve

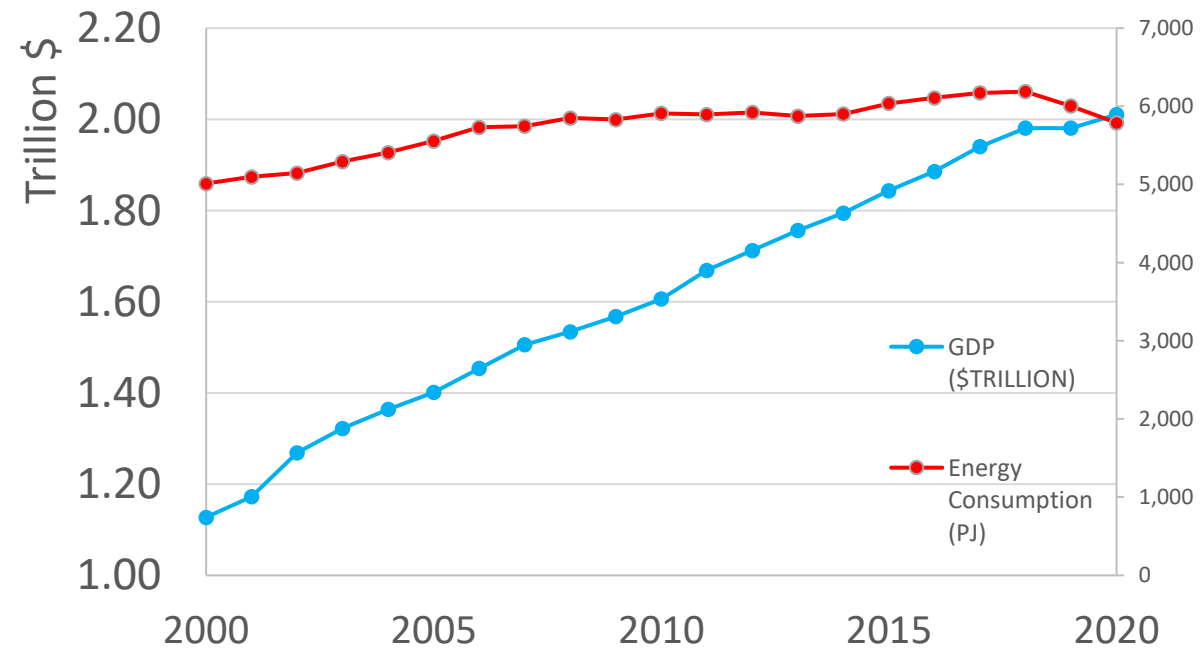


Change in Emissions

-13.4% (or -75.2 Mt CO<sub>2</sub>-e) from 2000 to 2022



## GDP and Energy Decoupling - Australia



# Thoughts on Energy Transition

## **Risks**

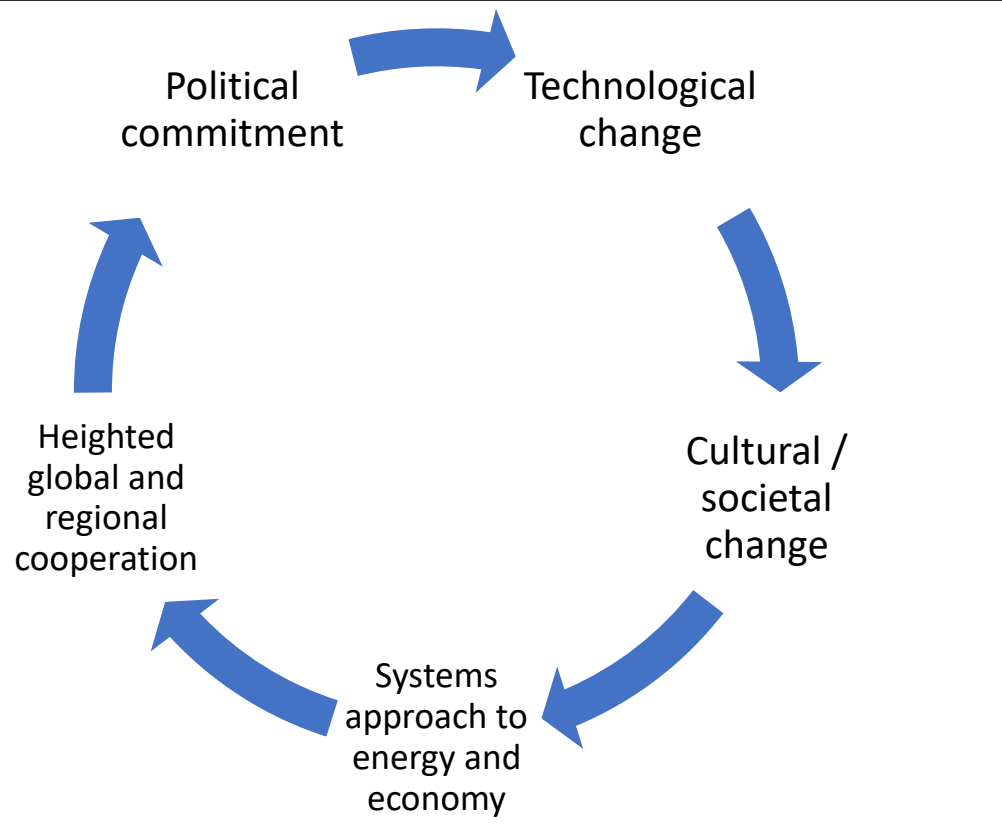
- National ambitions too low, weak political will.
- Energy efficiency faltering.
- Clean cooking remains invisible and underfunded.
- Coal too prominent in the power sector – bringing multiple risks.
- “Wishful thinking”, “false dichotomies” and “circular references” on energy technology still present.
- We run out of Critical Raw Materials.
- COVID-19 recovery a missed opportunity – preparations for future crises?

## **Opportunities and Entry Points**

- Renewables (RE) policy can spur economic activity and jobs – falling cost of RE.
- Energy efficiency (EE) - counteract high fuel costs, e.g., appliances, cooling efficiency.
- JETP (Indonesia, Viet Nam), Article 6 climate financing. Capacity building and project preparation.
- Air pollution – clean energy nexus.
- Cross border grid interconnection, boosting RE, creating export revenue for LDCs.
- Electric vehicles esp. public transport – RE and EE benefits, manufacturing industry.
- Clean cooking – digitization through eCooking technology a gamechanger.



# Net Zero – are we ready for the fundamental change needed?



- National skillsets - modelling, scenario planning, managing synergies and tradeoffs.
- Ensuring a just transition - narrow inequalities within and between countries.
- Finance, capacity, technology.
- Systems approach - “Joined-up” policy making.
- Sustained political commitment over successive governments.
- Cultural changes – diet, transport, live/work patterns.
- Recasting global value chains to optimize carbon?
- Regional cooperation – technology, transport, energy, trade, knowledge.
- Who are the new winners and new losers in the region? How can we avoid a zero-sum game?

**Net Zero Challenges – National, Regional and Global**

# Thank You



Image courtesy NASA