



Asia-Pacific  
Economic Cooperation



# APEC Energy Demand and Supply Outlook 8th Edition **2022**

Launch event  
Tokyo Prince Hotel, 29 September 2022

# Scenarios

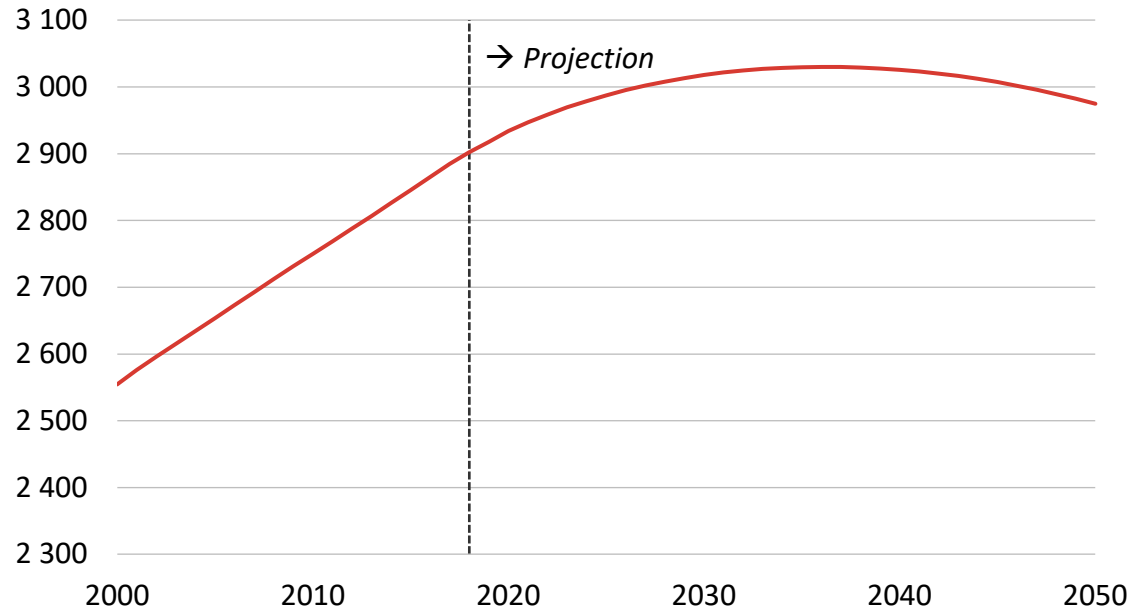
	Reference (REF)	Carbon Neutrality (CN)
<b>Definition</b>	Recent trends and current policies.	Hypothetical decarbonisation pathways for each APEC economy.
<b>Purpose</b>	Provides a baseline for comparison with the Carbon Neutrality scenario.	Additional energy sector transformations that support decarbonisation objectives.
<b>Key assumptions</b>	Current policies and trends continue.	Increased levels of energy efficiency, electrification, behavioral changes, fuel switching, and CCS deployment.
<b>Limitations</b>	Assumes that recent trends, including relevant decarbonisation measures continue.	Does not consider non-energy impacts on CO <sub>2</sub> or removal.

*Note: does not represent APERC's recommendation or advocacy for a pathway or set of policies.*

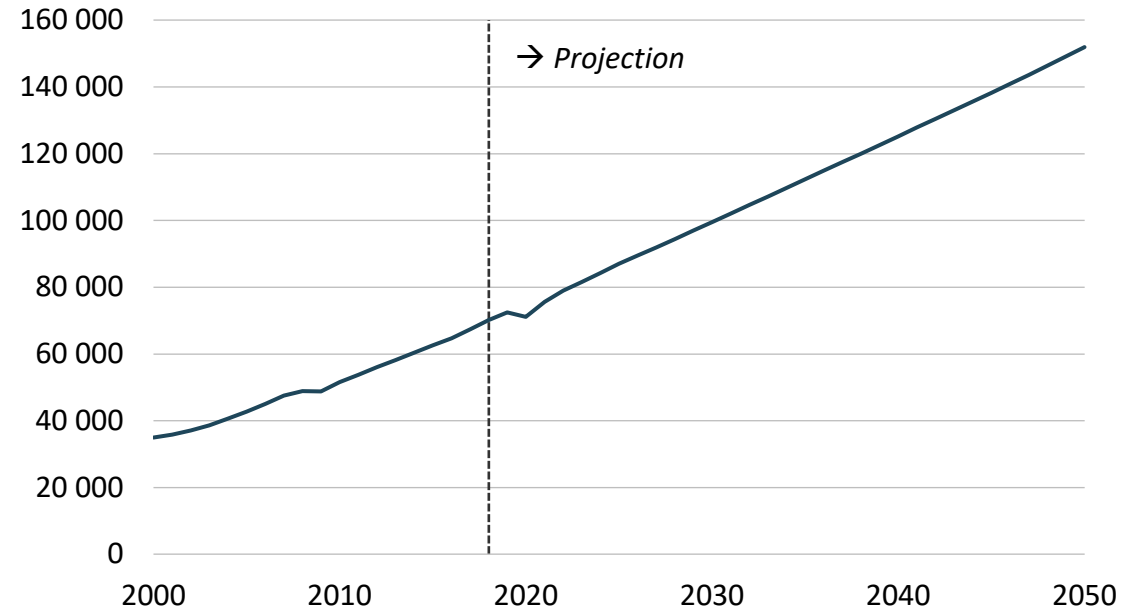
*The analysis was performed prior to March 2022 and does not include current disruptions to international energy markets.*

# Macroeconomic assumptions

**GDP in billion 2018 USD PPP**



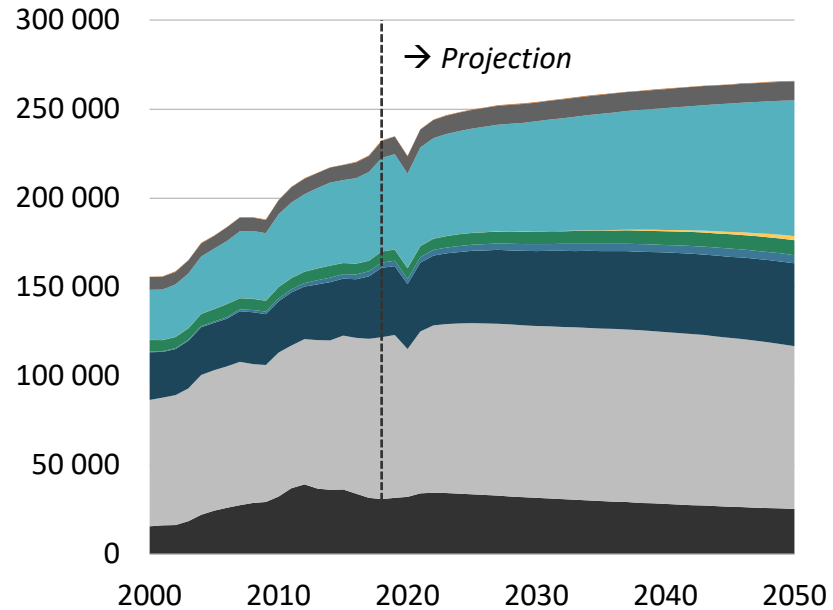
**Population in millions**



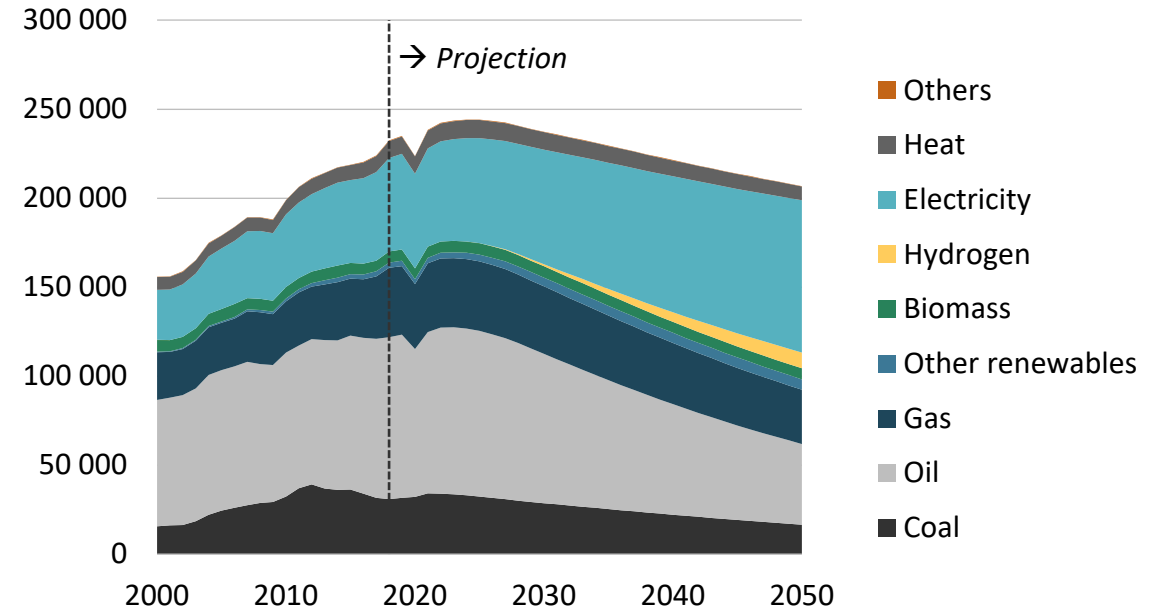
- Macroeconomic trends are expected to drive energy demand through 2050
- Trends vary by APEC sub-region and economy

# Energy demand decouples significantly from economic activity

Energy demand by fuel in REF (PJ)



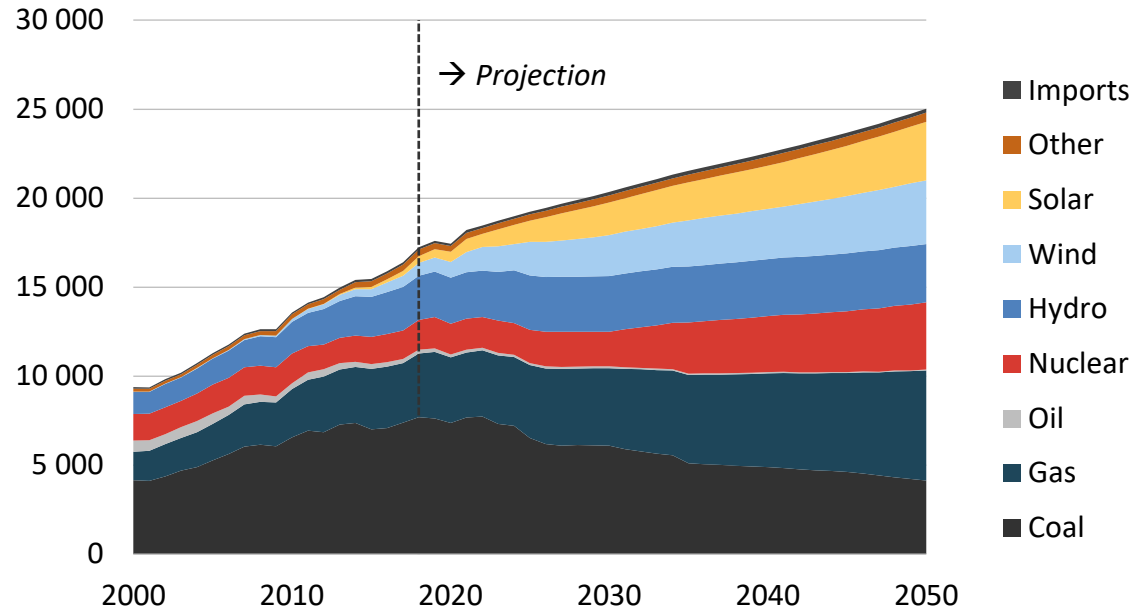
Energy demand by fuel in CN (PJ)



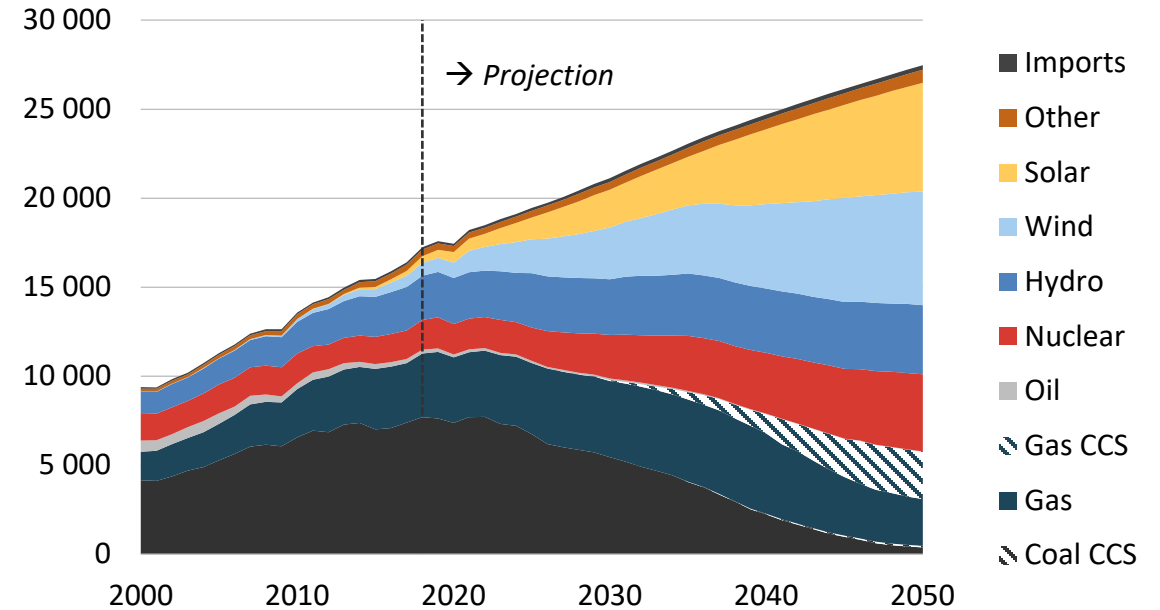
- Energy efficiency gains and electrification lead to energy demand being almost one-quarter lower by 2050 (CN vs REF).
- Substantial fossil fuels demand remains even in CN.

# Electricity demand is increasingly met with generation from wind and solar . . .

Electricity generation in REF (TWh)



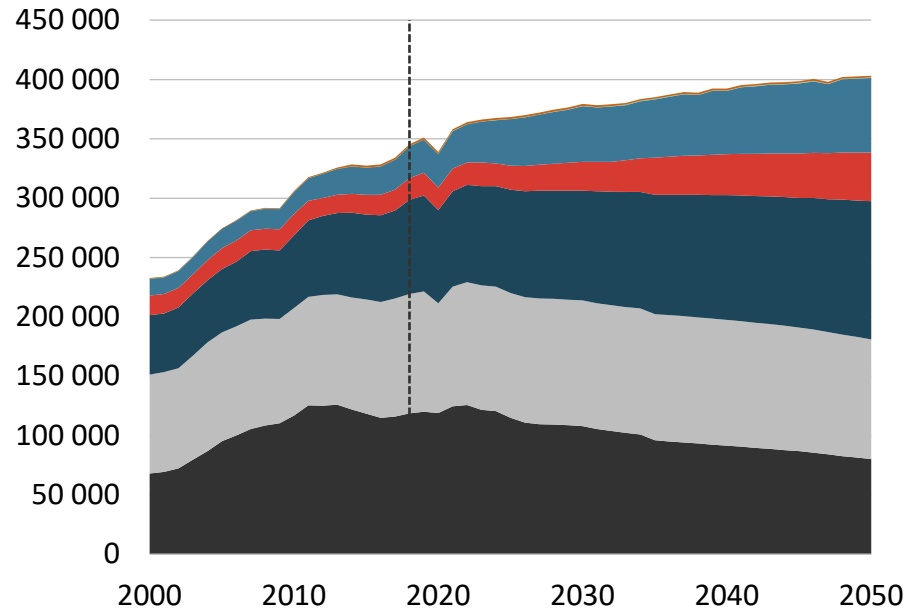
Electricity generation in CN (TWh)



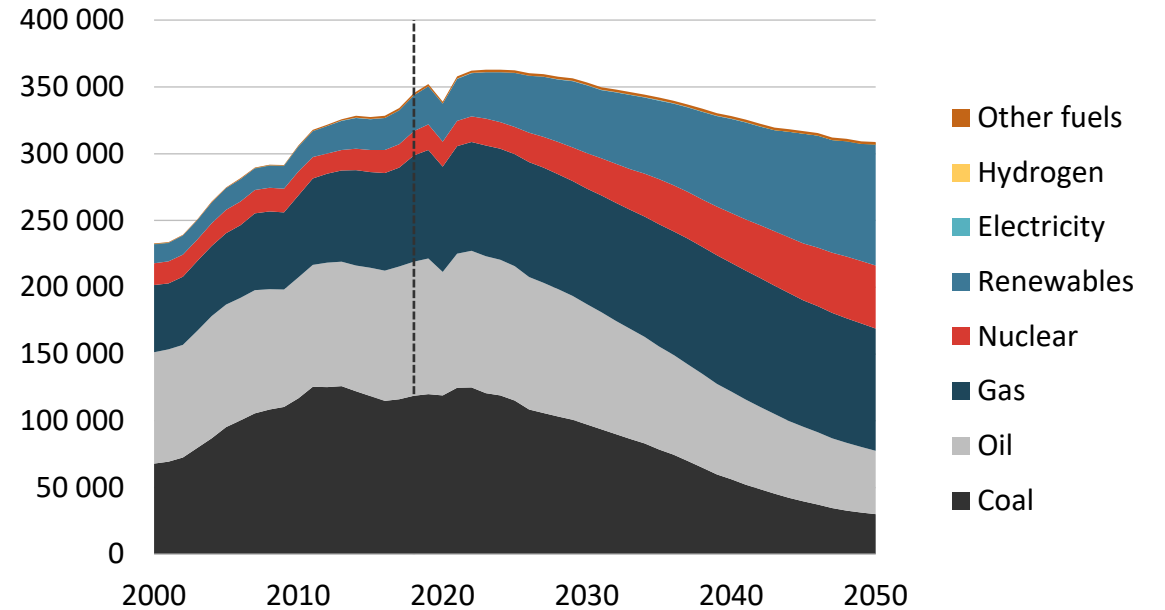
- Growth in electricity generation to meet increased buildings and transport demand.
- Natural gas substitution for coal continues and provides balancing and ancillary services to the electric grid.

# Yet, fossil fuels remain a large share of APEC energy supply

Energy supply in REF (PJ)



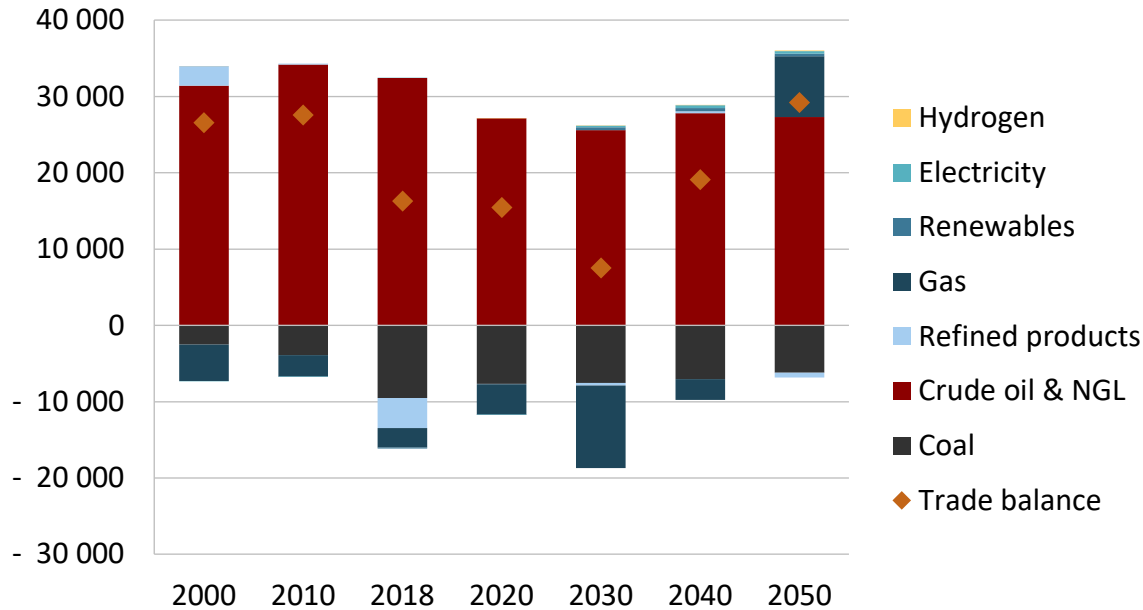
Energy supply in CN (PJ)



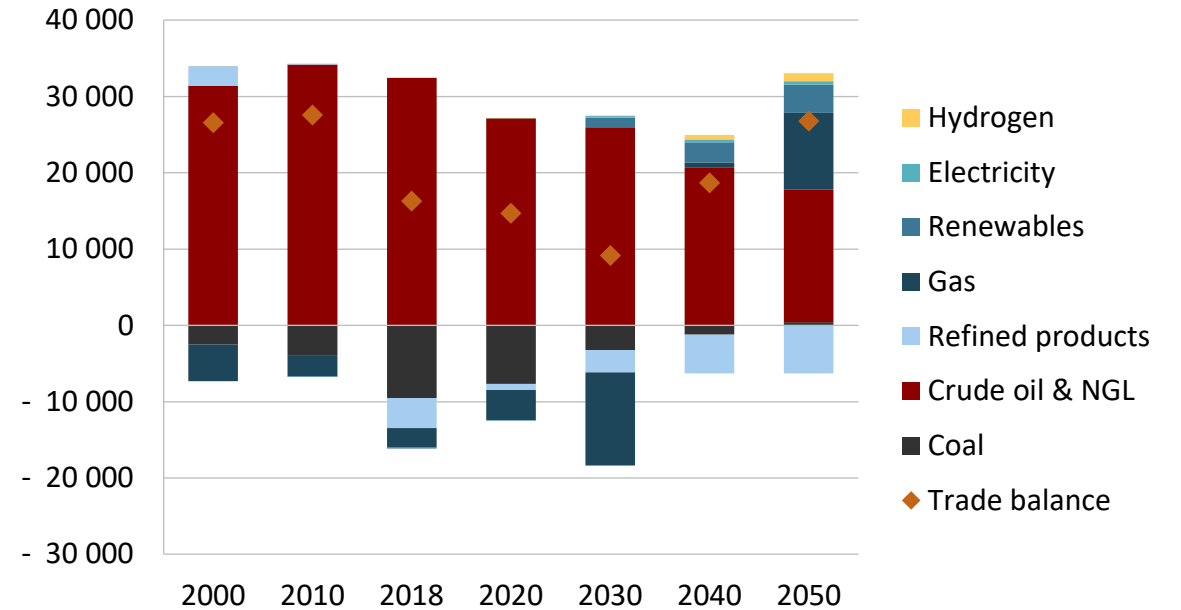
- Natural gas supply increases in both scenarios as coal declines.
- Oil supply is level in REF and declines in CN as APEC and global oil use declines.

# Natural gas and oil import growth driven by China and southeast Asia

Net energy trade in REF (PJ)



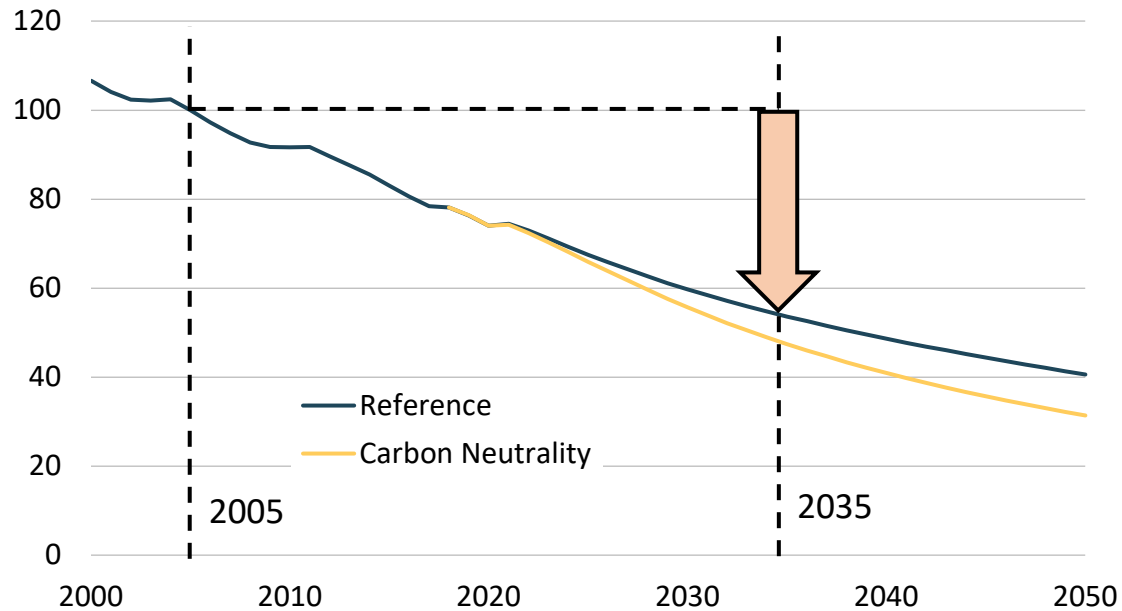
Net energy trade in CN (PJ)



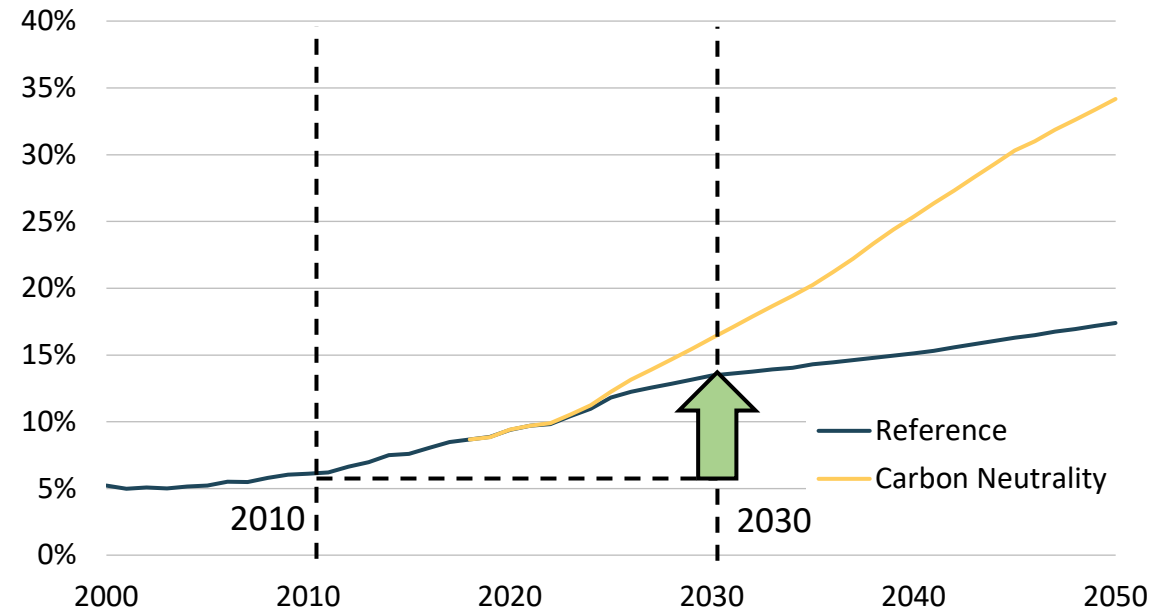
- USA, China, Russia, and Canada account for essentially all the production growth in REF.
- Natural gas production declines at a faster rate than consumption in the 2040s.
- Interfuel and regional competition are key factors.

# APEC projected to meet dual energy goals

Final energy intensity (2005 = 100)



Share of modern renewable energy

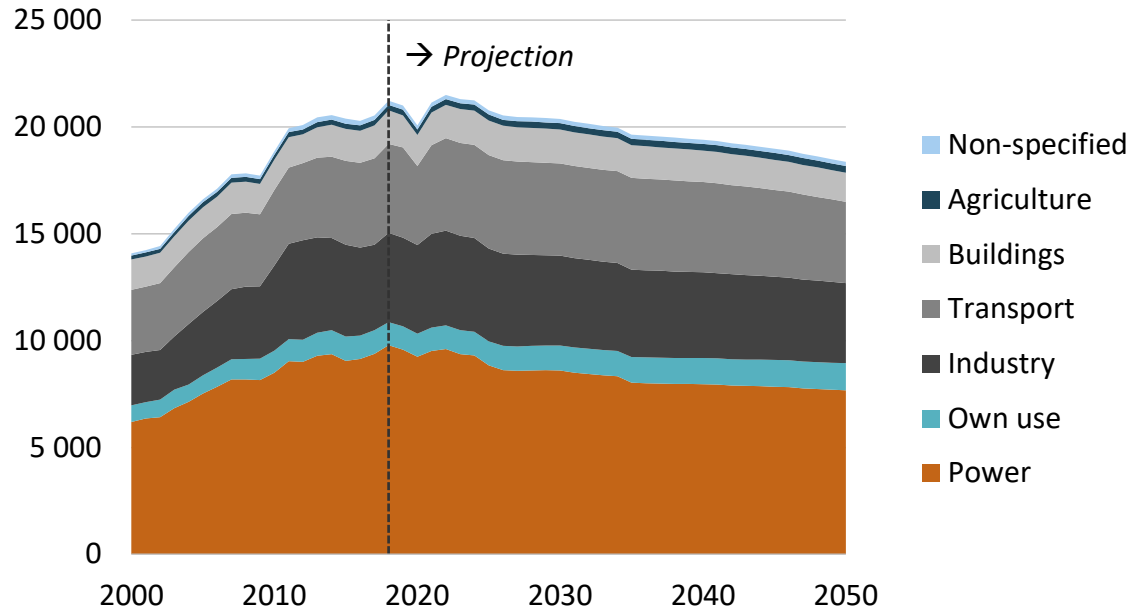


- Final energy intensity on track to decline 45% by 2034 (REF)
- Modern renewable energy share doubles by 2026 (REF)

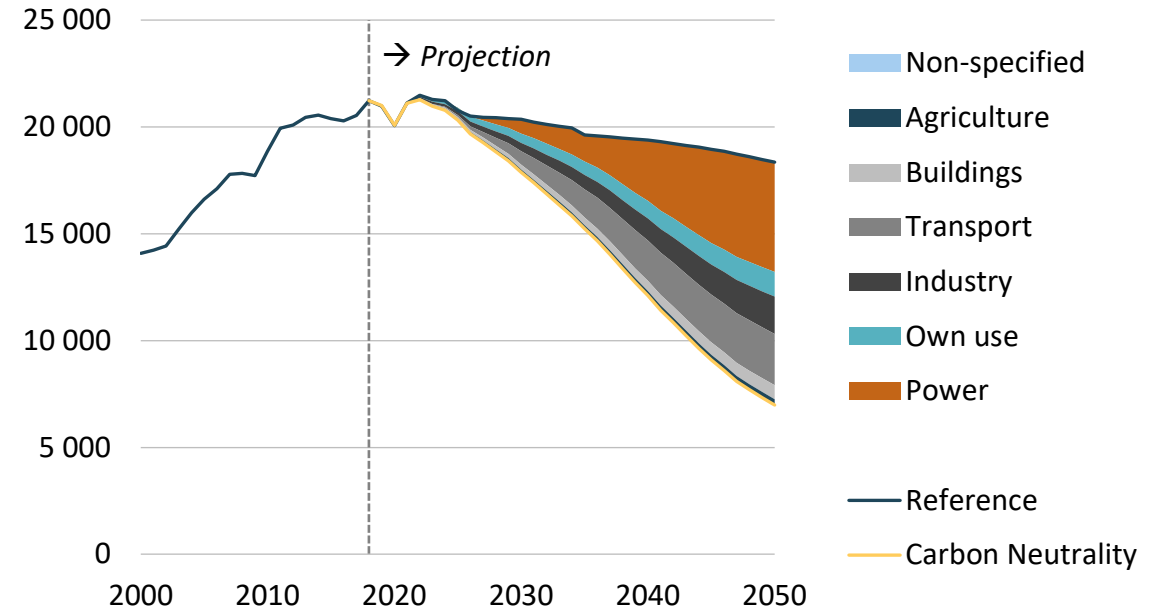


# CN delivers ambitious CO<sub>2</sub> emissions reductions...

Energy-related CO<sub>2</sub> emissions in REF (million tonnes)

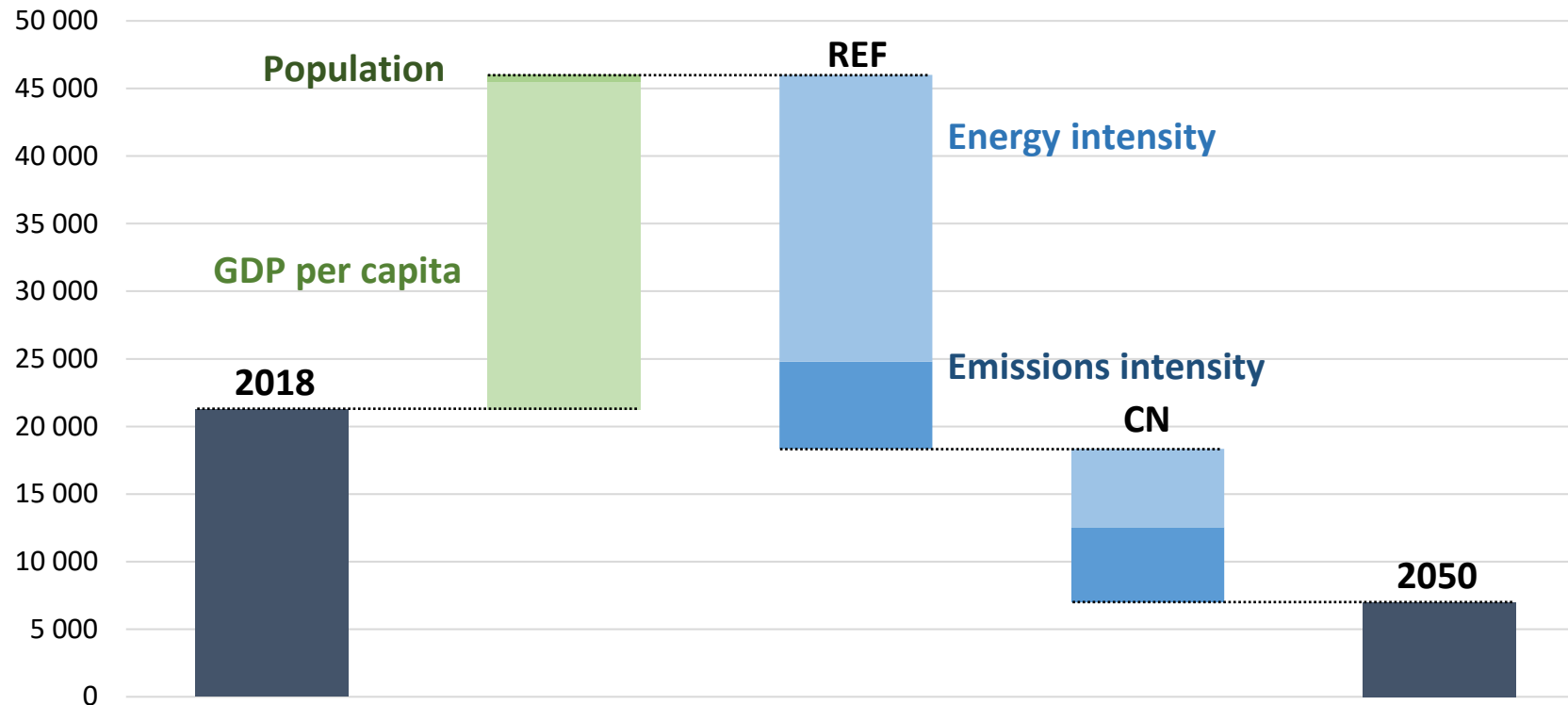


Decrease between REF and CN (million tonnes)



- APEC-wide CO<sub>2</sub> emissions decline by 14% in REF and by 66% in CN.
- The power and transport sectors are the most influential in driving emissions lower in CN.

# ...through energy and emissions intensity improvements



- Lower energy intensity delivers almost 70% of the emissions reductions in CN.
- Emissions intensity, such as from switching to less carbon intensive fuels (and energy carriers), power, industry, hydrogen, and own-use sectors delivers the remaining 30% of emissions reductions.

# Summary

Energy demand decouples from economic growth

Increased efficiency and electrification reduce demand

Wind and solar generation grow

But fossil fuels remain

APEC on track to meet its energy goals

Need both energy and emissions intensity reductions

# Thank you.

Read the report at

<https://www.aperc.or.jp/reports/outlook.php>

