Relevant Data for a Discussion on New APEC Goals and Areas of Collaboration Among Expert Groups

The Joint Meeting of Four Expert Groups of the APEC EWG

10 April 2025 – Hong Kong, China

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Relevant Data

- Final energy intensity
- Renewable energy generation
- APEC CO_2 emissions
  - Total
  - Power Sector
- Components of power generation
- Importance of “dispatchable” energy sources

APEC's final energy intensity continues to decline

Annual change in APEC final energy intensity, 2006-22

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2005-22
Change in Final Energy Consumption (FEC)	2.5%	3.5%	0.8%	-1.0%	5.6%	4.2%	1.9%	1.4%	0.8%	0.6%	0.5%	1.2%	2.8%	0.2%	-4.6%	5.0%	2.3%	30.9%
Change in GDP (PPP, constant 2021 US dollars)	5.3%	5.5%	3.0%	-0.3%	5.7%	4.2%	4.2%	3.9%	3.8%	3.7%	3.4%	4.0%	4.1%	3.4%	-1.3%	6.2%	2.5%	82.3%
Change in final energy consumption intensity	-2.7%	-1.9%	-2.1%	-0.7%	-0.1%	0.0%	-2.2%	-2.4%	-2.9%	-2.9%	-2.8%	-2.8%	-1.3%	-3.1%	-3.3%	-1.2%	-0.2%	**-28.2%**

- *GDP growth in 2022 was lower than all except two years since 2006.*
- *The drop in energy intensity was also considerably lower than the historical average.*
- *We still expect APEC to meet its energy intensity goal by 2035.*

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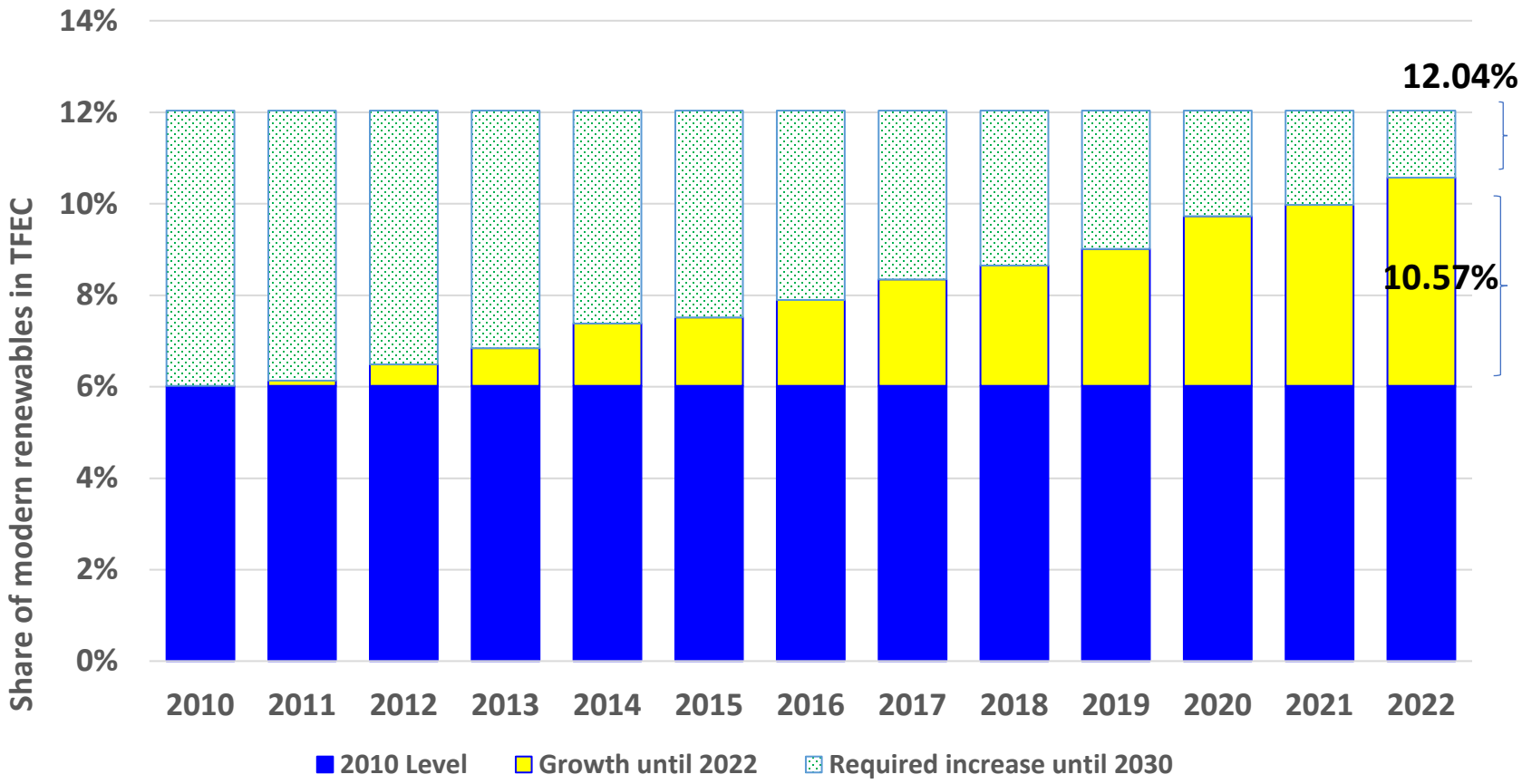
APEC is close to meeting its renewable energy doubling goal

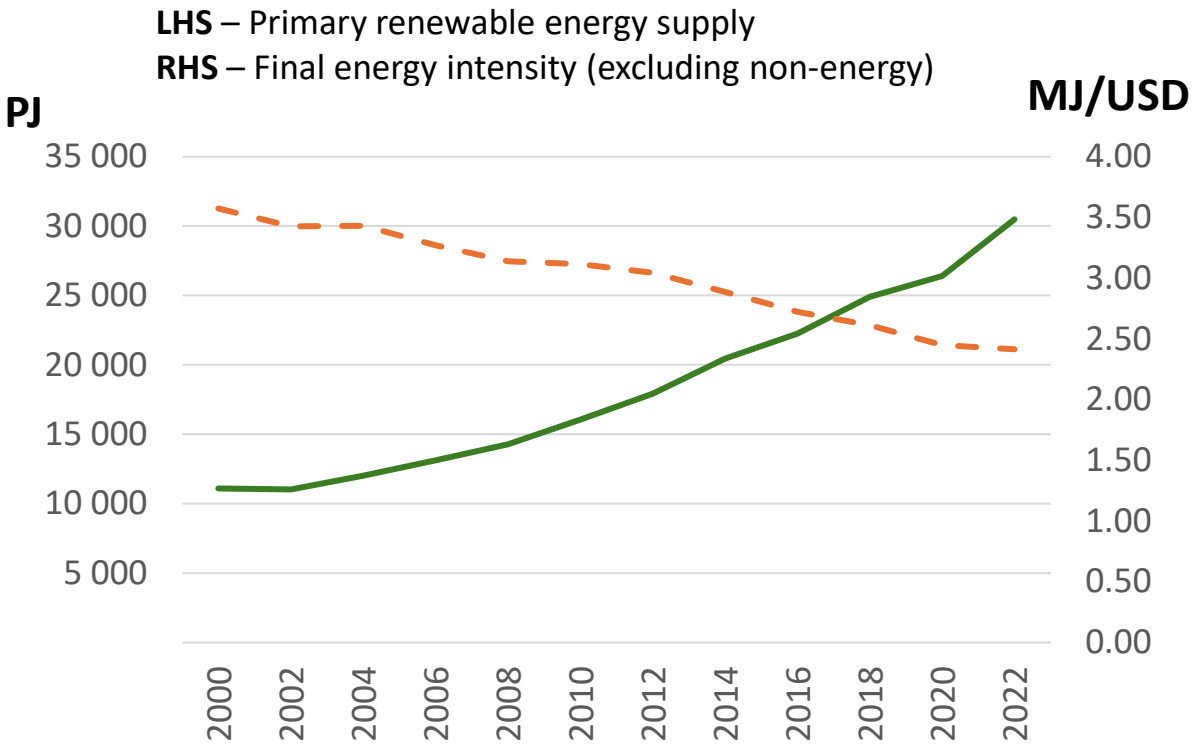


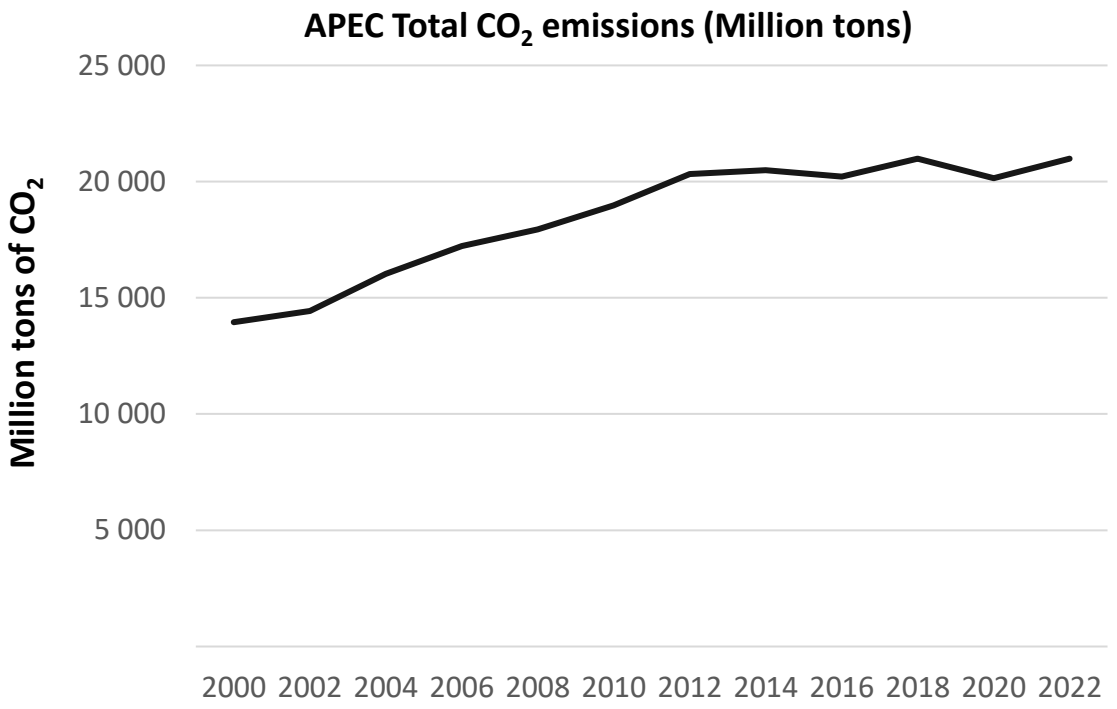
Just 1.47 percentage points more in the next 8 years

3.23 percentage points increase in the last 12 years

- *In 2022, just eight years to 2030, APEC increased RE share in final energy consumption by 3.2 percentage points, needing to increase by just 1.5 percentage points more in the next eight years (2022 to 2030).*

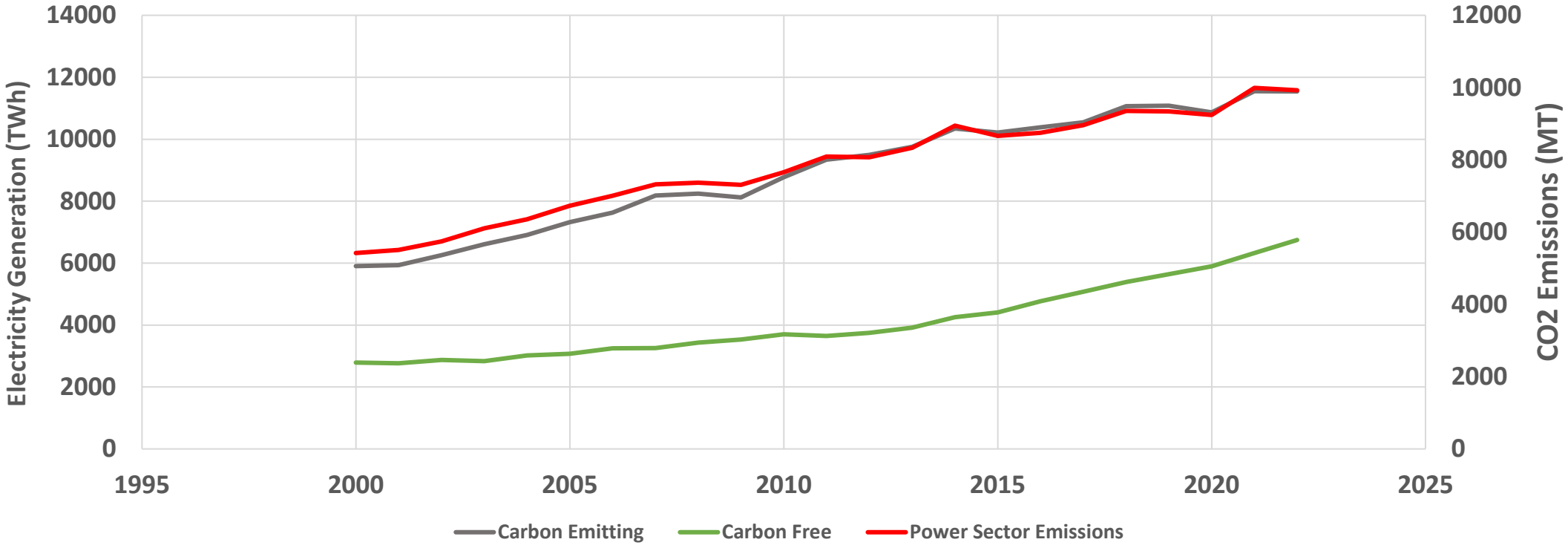
The energy transition quandary





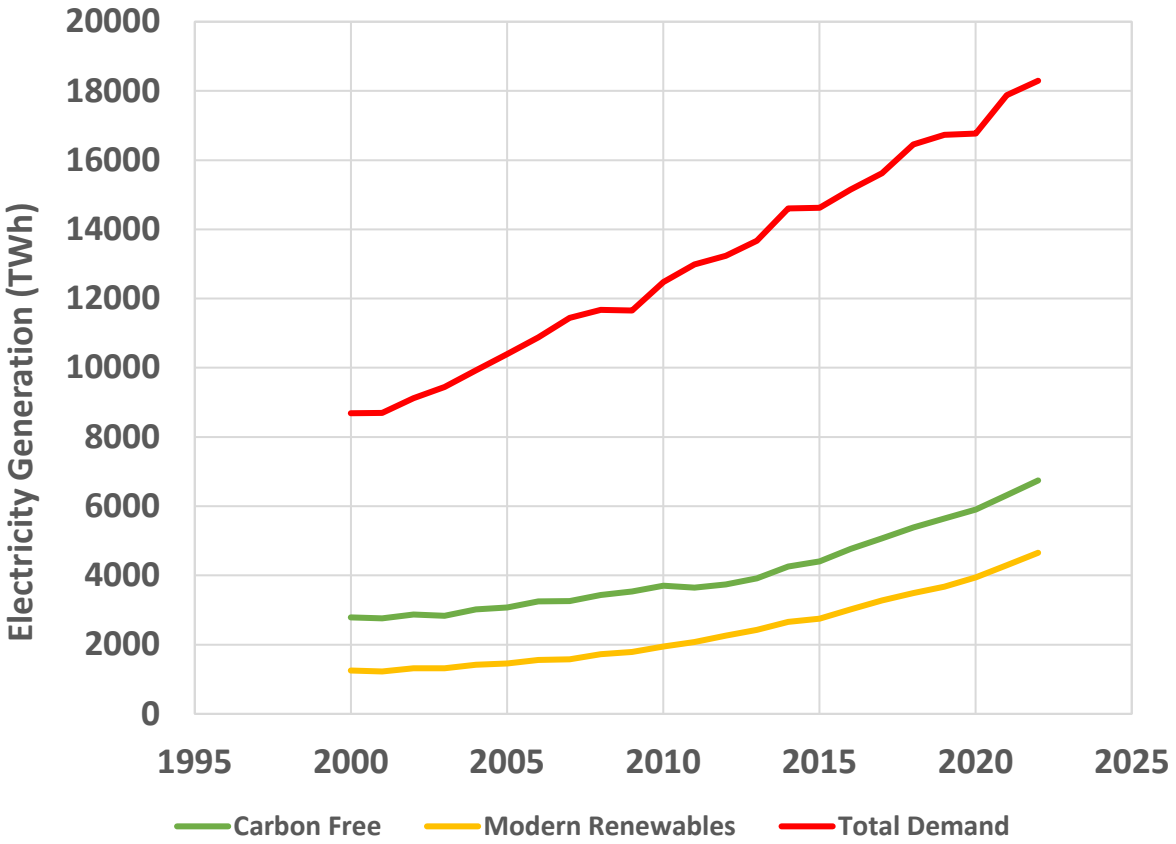
- *APEC energy intensity continues to decline and the growth in renewable energy supply is accelerating.*
- *APEC is on track to meet or exceed its energy goals on both renewable energy and energy intensity, yet from 2012 to 2022 CO_2 emissions have remained relatively constant.*

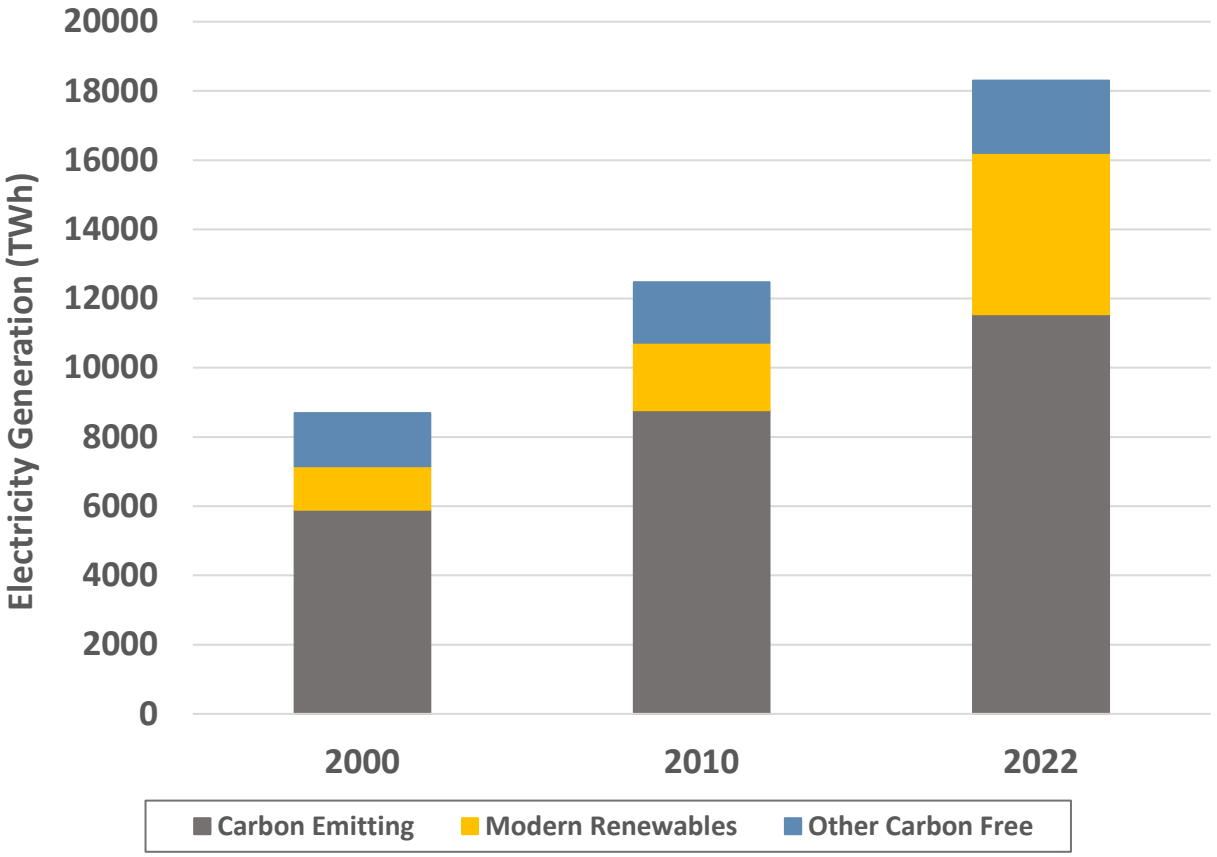
CO_2 emissions track carbon emitting generation



- *Although carbon free generation is accelerating, carbon emitting generation continues to grow steadily.*
- *CO_2 emissions are strongly correlated with carbon emitting generation.*

Electricity Demand Growth & Carbon-Free Generation

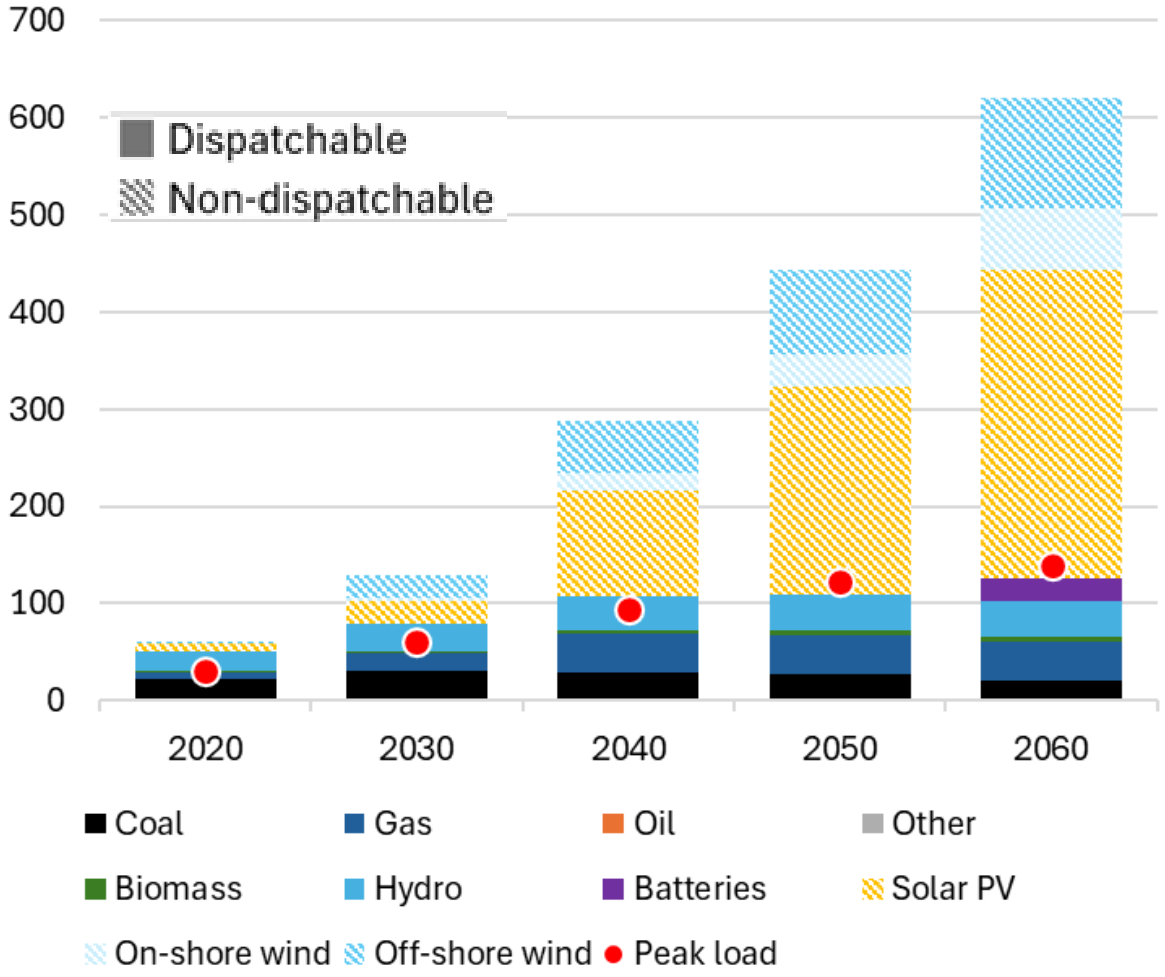




- *Although renewable energy has been accelerating, other carbon free generation has not.*
- *Total APEC electricity demand is increasing more rapidly than carbon free generation.*

Note: Modern renewables is a subset of carbon free generation. Carbon-free also includes nuclear,, biomass, biofuels, low-carbon hydrogen, and fossil-fired generation with CCS.

Grid reliability requires “dispatchable” generation



- Electrical grid reliability will become an increasingly important issue as the share of non-dispatchable energy increases.
- Non-dispatchable energy sources cannot be relied to meet peak load under all conditions.
- Carbon-free generation includes both dispatchable and non-dispatchable energy sources.

Summary

- APEC's energy intensity is declining approximately 2% per year.
- APEC's renewable generation is accelerating.
- Despite being on track to meet or exceed its energy intensity and renewable energy goals, APEC CO2 emissions have been approximately constant since 2012.
- Total electricity demand is growing more rapidly than carbon free electricity generation so CO_2 emissions from the power sector continue to grow.
- Grid reliability requires dispatchable generation.
- Carbon-free generation includes both dispatchable and non-dispatchable energy sources.

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Thank you.

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