2-3. Energy Supply

APERC Workshop
The 62nd Meeting of APEC Energy Working Group (EWG)
17 October 2021

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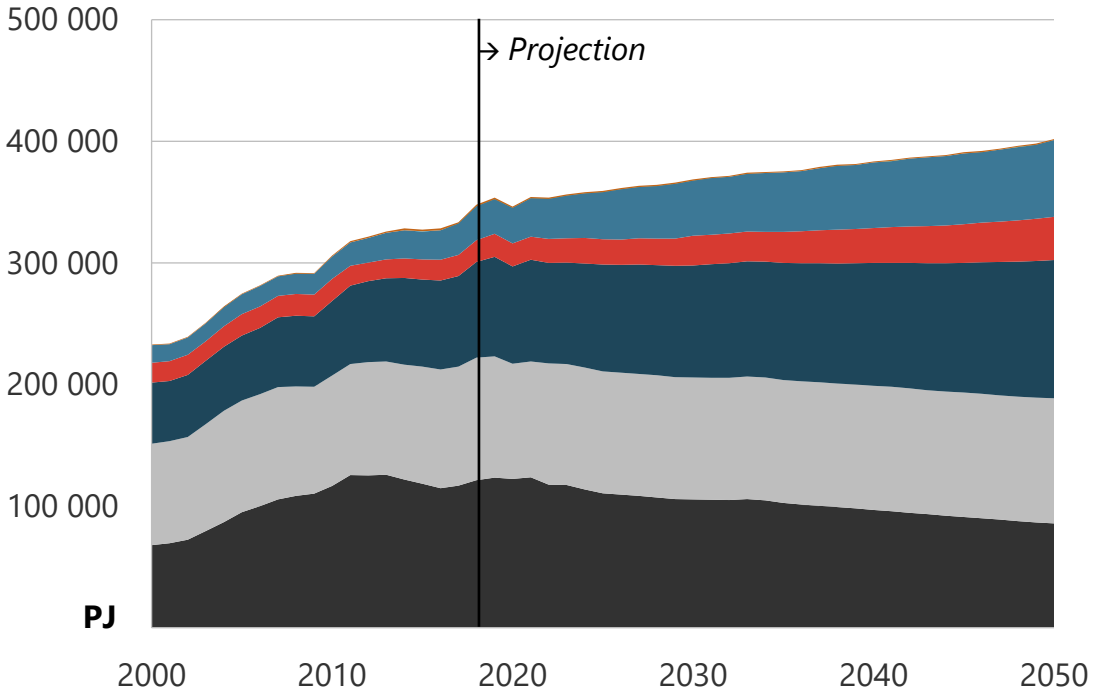
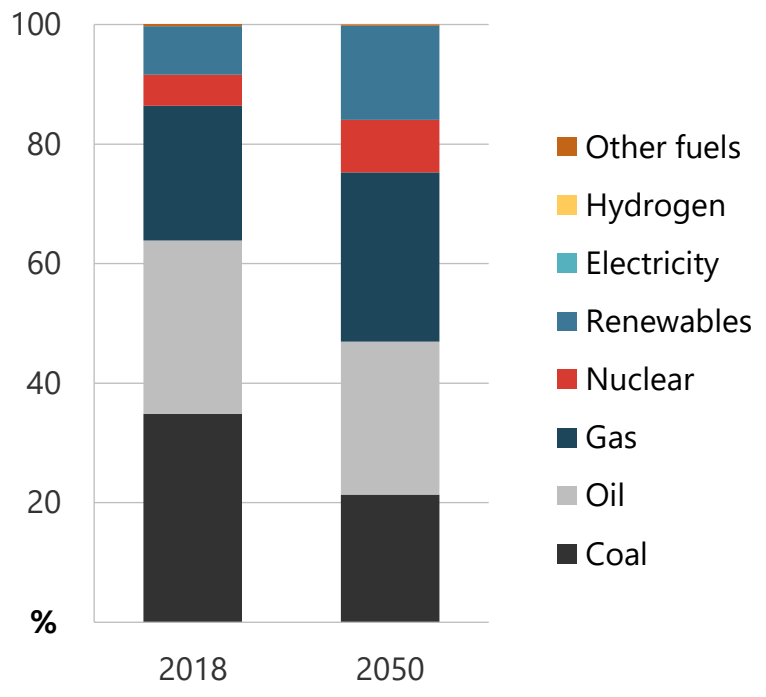
In REF, fossil fuels continue to dominate supply

Total primary energy supply by fuel in the Reference Scenario (**REF**), 2000-2050



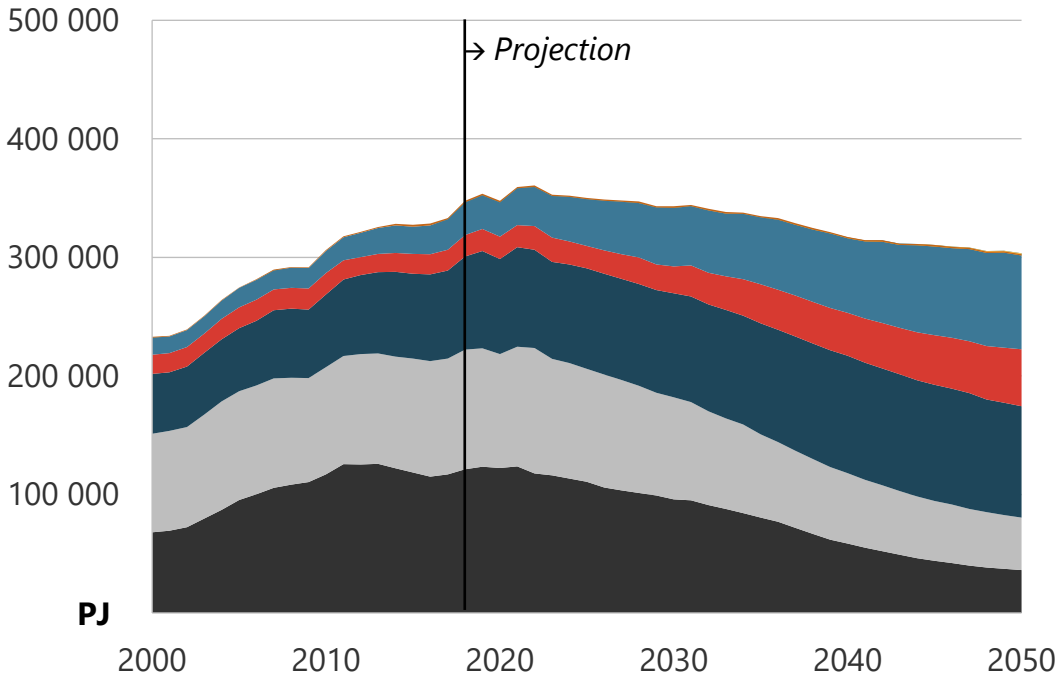


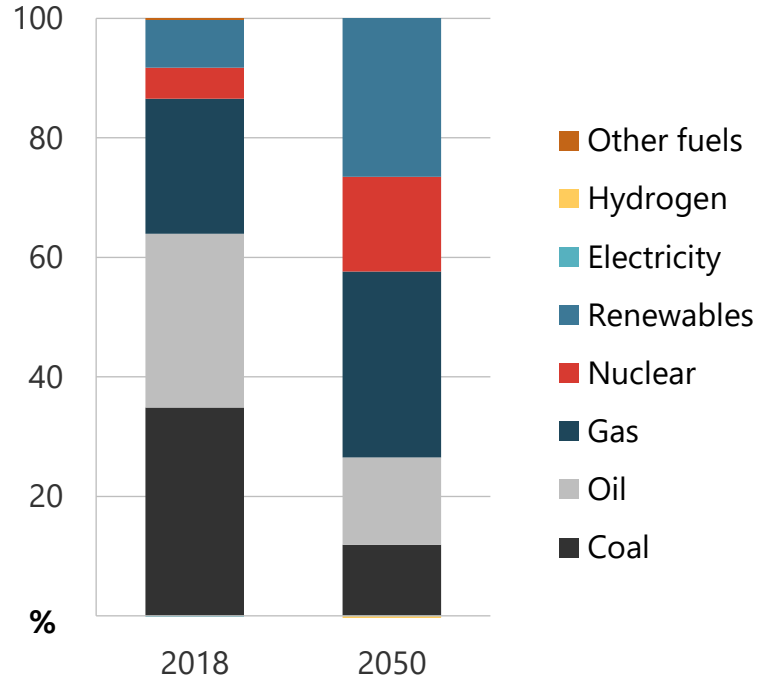
Sources: EGEDA and APERC analysis.

- *Total energy supply increases by 15.6% from 348 000 PJ in 2018 to about 402 000 PJ in 2050. South-East Asia economies record the highest energy supply growth of 111% from 2018 to 2050.*
- *The share of fossil fuels in total primary energy supply declines from 86% in 2018 to 75% in 2050.*

In NZS, renewables supply increases significantly

Total primary energy supply by fuel in the Net Zero Scenario (**NZS**), 2000-2050



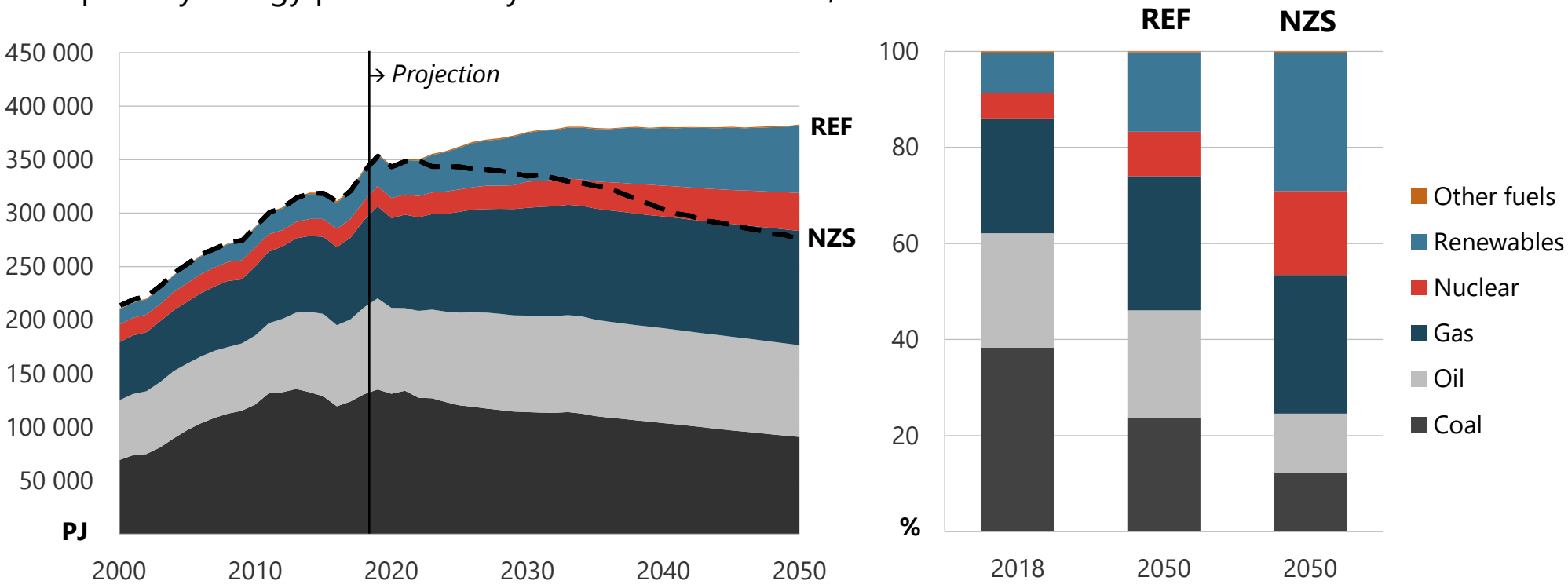


Sources: EGEDA and APERC analysis.

- *In NZS, total energy supply declines by 13% from 348 000 PJ in 2018 to 303 000 PJ in 2050. Hong Kong records the highest reduction in energy supply: down 40% in 2050 compared to REF.*
- *Renewables share of primary energy supply in NZS more than triples from 2018 to 2050. Fossil fuels account for 57% of primary energy supply in 2050.*

Fossil fuel production declines in both scenarios

Total primary energy production by fuel in **REF** and **NZS**, 2000-2050

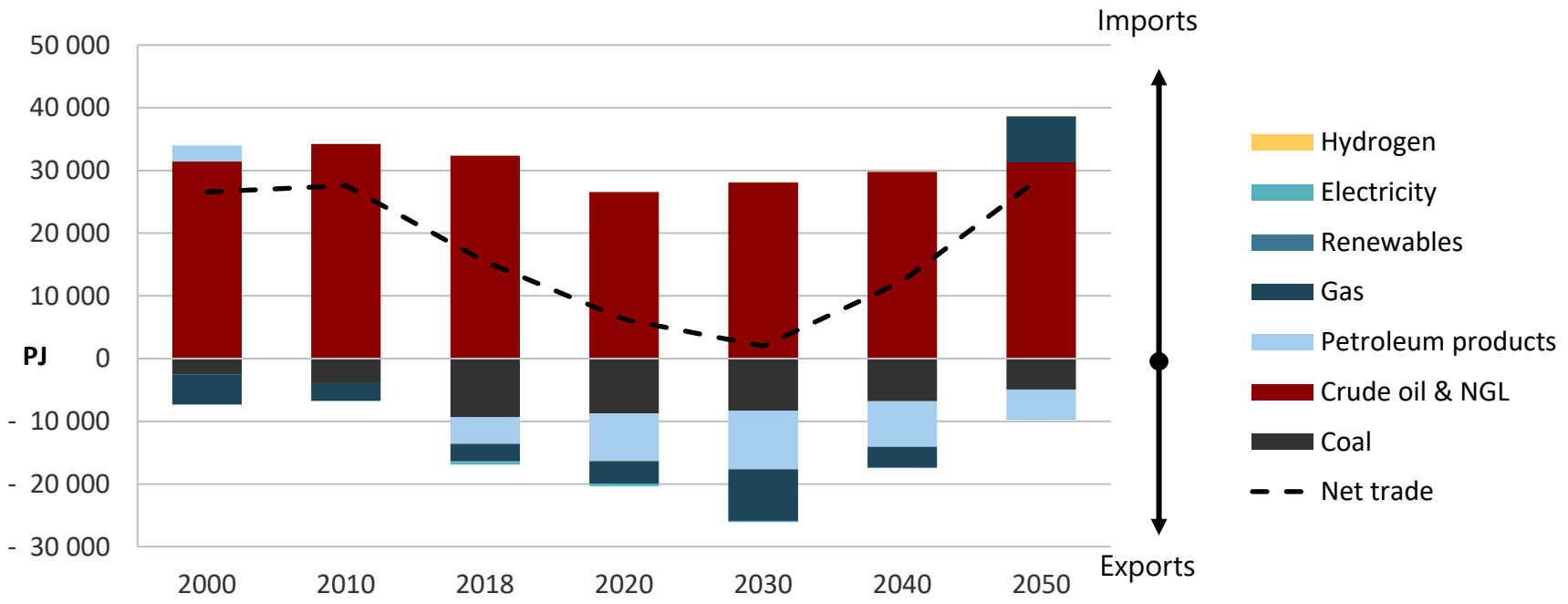


Sources: EGEDA and APERC analysis.

- *Total energy production increases by 12% from 341 000 PJ in 2018 to 383 000 PJ in 2050 in REF but declines by 19% to 275 000 PJ in 2050 in NZS.*
- *In this period, fossil fuel production share declines by 12% in REF and 32% in NZS is mainly due to reducing coal demand. Renewables and nuclear replace most of the decline in the share of fossil fuels in both scenarios.*

APEC remains a net energy importer in REF

Total energy trade by fuel in **REF**, 2000-2050

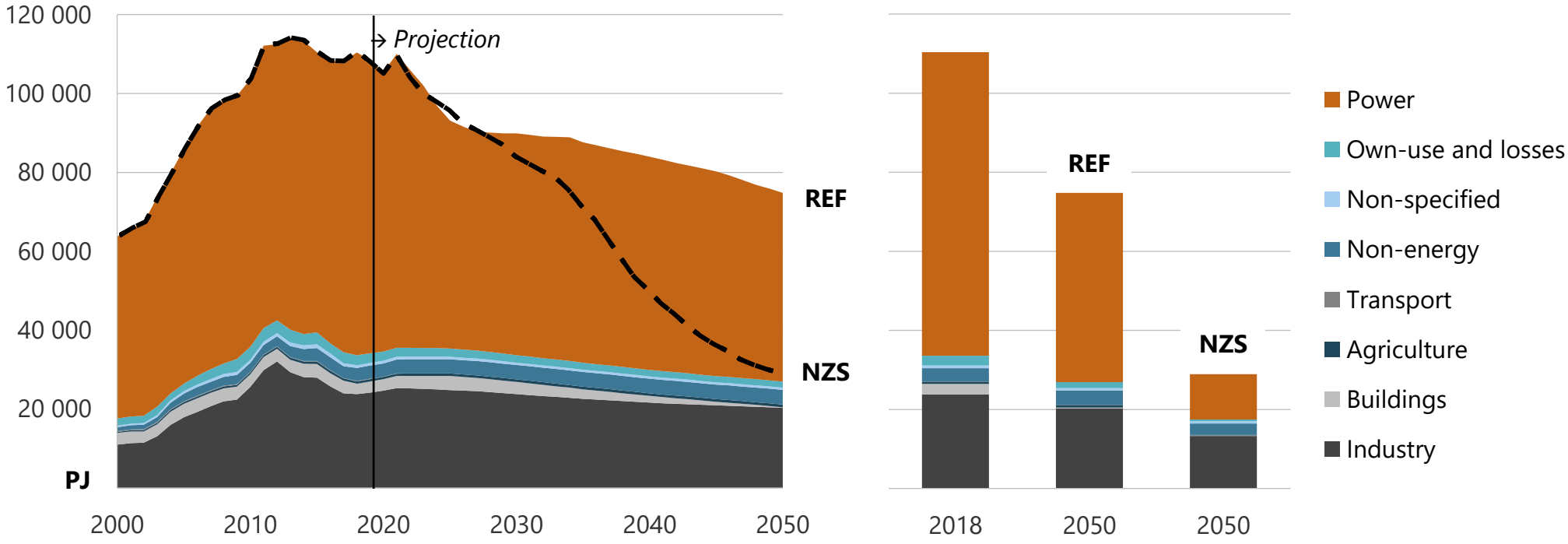


Sources: EGEDA and APERC analysis.

- *APEC became a net petroleum products exporter in 2011 and is expected to remain one through 2050 in REF.*
- *Exports of natural gas decline after 2030 as gas demand grows in the APEC economies. APEC becomes and remains a net natural gas importer starting in 2044.*
- *Although not shown in this chart, APEC also remains a net energy importer in NZS.*

Coal supply declines as decarbonization efforts take effect

Coal supply by sector in **REF** and **NZS**, 2000-2050

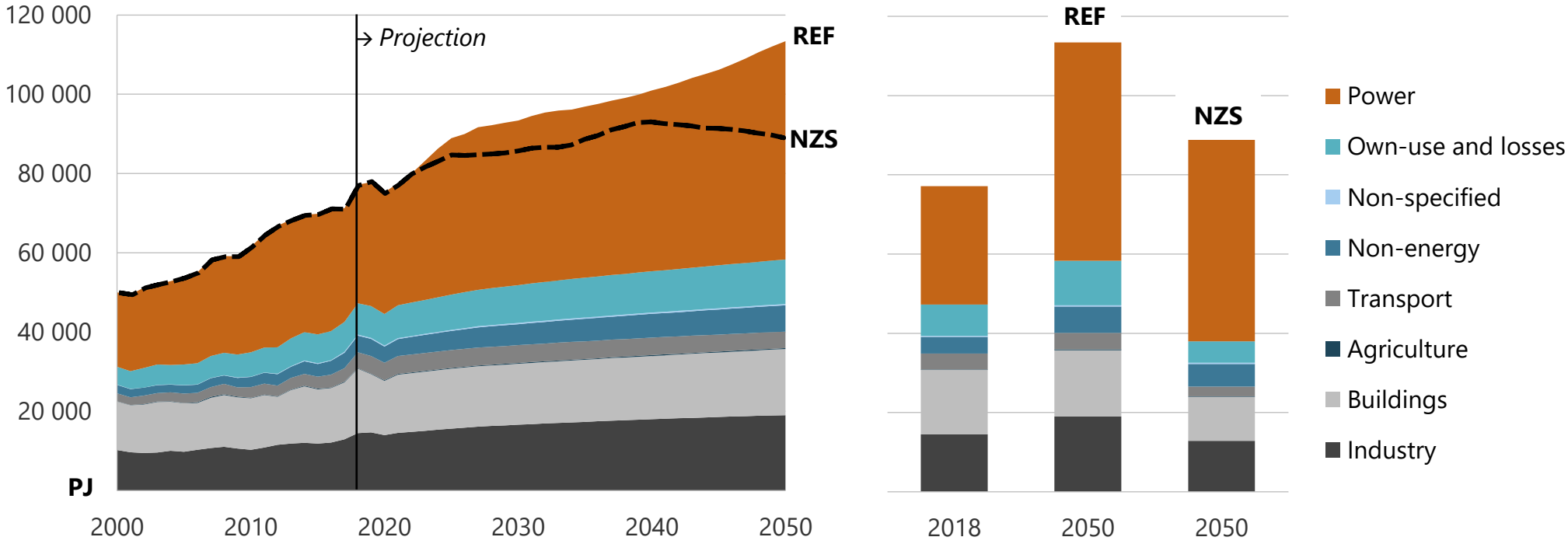


Sources: EGEDA and APERC analysis.

- *Coal supply declines by 32% from 110 400 PJ in 2018 to 74 800 PJ in 2050 in the REF scenario and by 74% to 28 900 PJ in 2050 in the NZS scenario.*
- *Coal supply declines in both scenarios as decarbonisation efforts take hold across APEC, especially in the power sector.*

Natural gas supply increases in both scenarios

Gas supply by sector in **REF** and **NZS**, 2000-2050

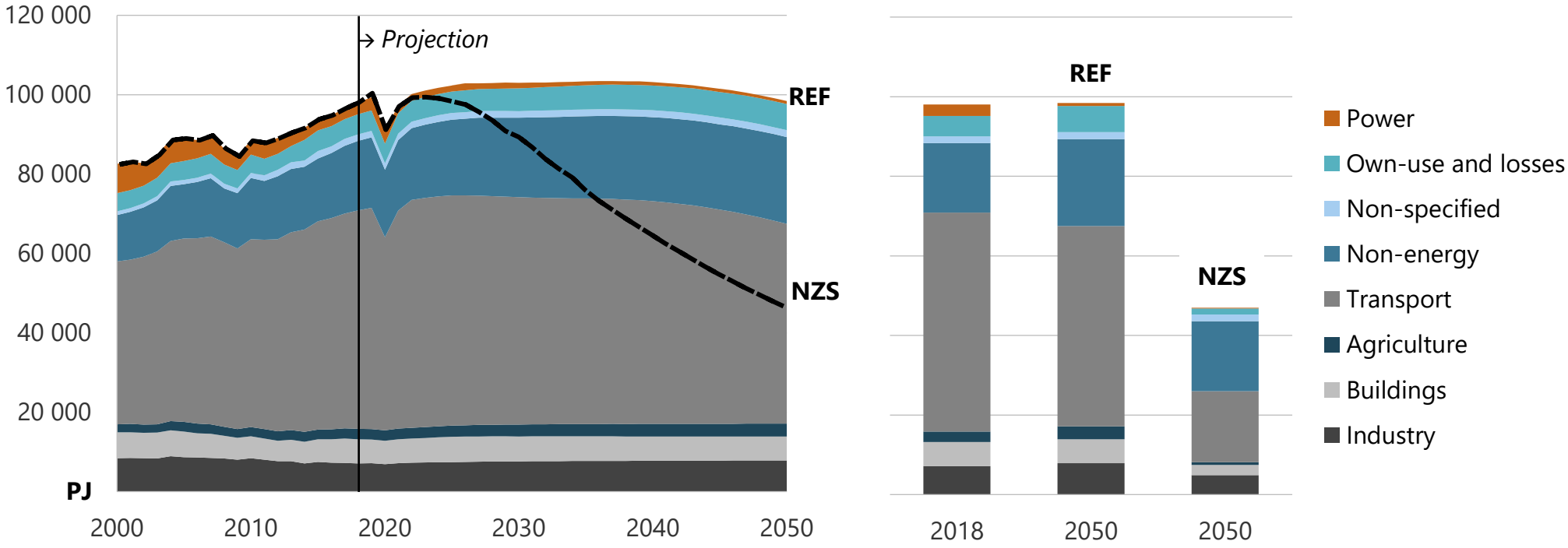


Sources: EGEDA and APERC analysis.

- ***Natural gas supply increases in both scenarios to meet increasing demand, driven by increasing demand from the power sector due to fuel shifting from coal to gas.***

Refined products supply trend similar as crude oil and NGLs

Refined products supply by sector in **REF** and **NZS**, 2000-2050

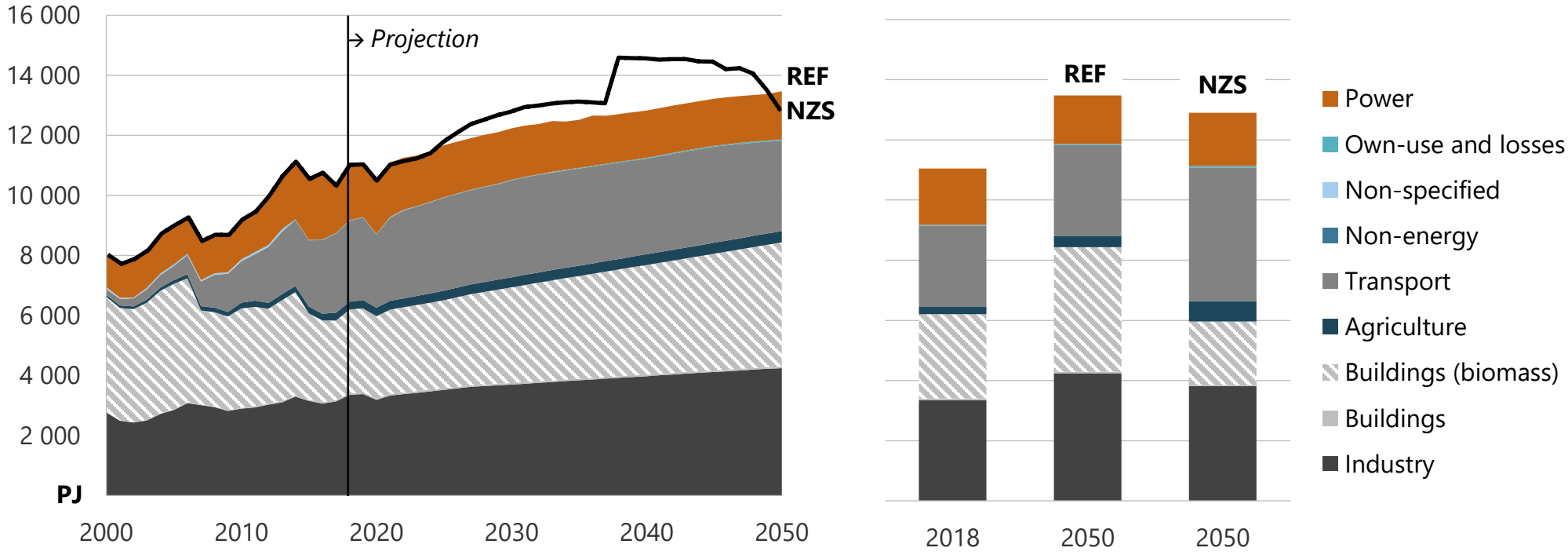


Sources: EGEDA and APERC analysis.

- *Refined products supply grows slowly and peaks in year 2037 in REF and declines significantly in NZS.*
- *In NZS, refined products supply declines in all sectors.*

Liquid and solid renewable supply grow strongly in both scenarios

Liquid and solid renewable energy supply by sector in **REF** and **NZS**, 2000-2050

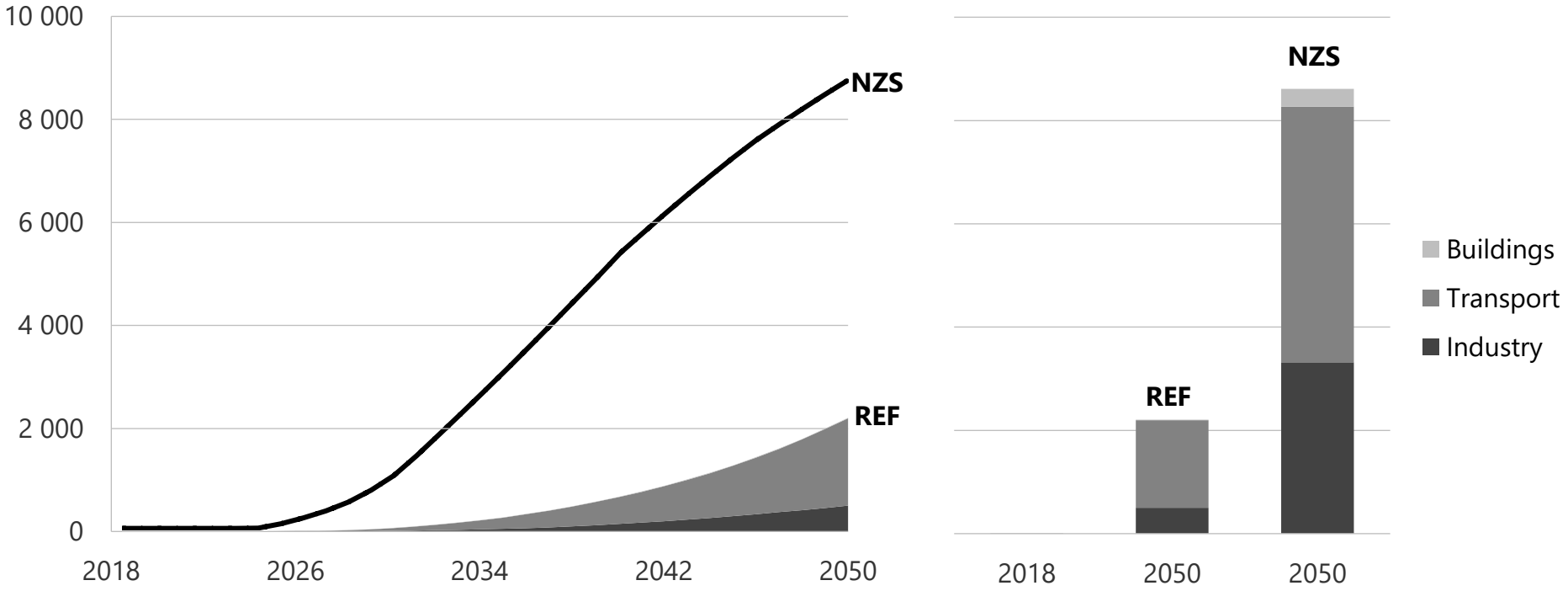


Sources: EGEDA and APERC analysis.

- *Renewables supply increases in both scenarios.*
- *The renewables increase in NZS is mainly due to higher biofuels supply in the transport sector, especially biodiesel.*

Hydrogen supply mostly produced by electrolysis

Hydrogen supply by sector in **REF** and **NZS**, 2000-2050



Sources: EGEDA and APERC analysis.

- *Hydrogen supply increases in both scenarios are driven mainly by growth in the transport and industry sectors.*
- *In the buildings sector, hydrogen is mixed with natural gas and consumed in fuel cells to produce heat. In transport sector, hydrogen is consumed in fuel cells for vehicles while in industry sector, it replaces coal as fuel.*

Summary

- **Total APEC primary energy supply grows by 16% in REF and declines by 13% in NZS.** In REF, the Southeast Asian economies record the highest percentage increase in energy supply (111%) from 2018 to 2050. In NZS, Hong Kong scores the largest decline in energy supply (40%) from 2018 to 2050
- **Fossil fuels remain very important in both scenarios.** In REF, fossil fuels supply 75% of primary energy supply in 2050; in NZS, fossil fuels account for 57% of supply in 2050.
- **Total primary energy production increases by 12% in REF and declines by 19% in NZS.** APEC remains a net energy importer in both scenarios throughout the 2018 – 2050 period.
- **Coal supply declines in both scenarios, especially in NZS in the power sector.** Natural gas supply increases in both scenarios, especially in the power sector where it displaces coal.
- **Hydrogen supply grows very rapidly in NZS.** Hydrogen supply is produced mostly by electrolysis in NZs and provides energy primarily to the transport and industry sectors.

Thank you for your kind attention.

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