



equinor

Energy Perspectives 2018

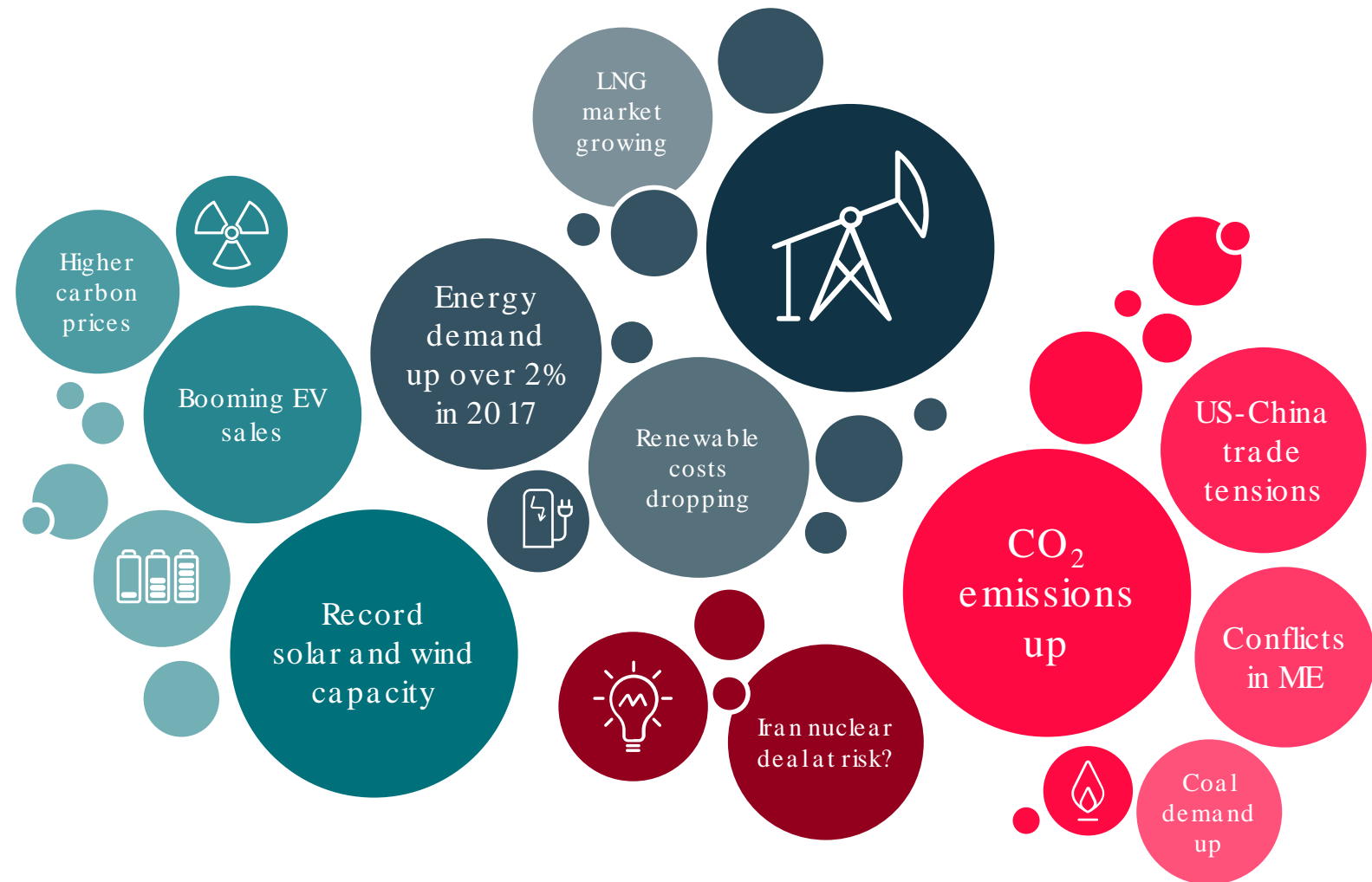
Long-term macro and market outlook

Eirik Wærness, SVP and Chief Economist
Institute of Energy Economics, Tokyo, 27 September 2018

In which direction is the energy world moving?

Recent signposts show diverging paths, in terms of:

- Growth
- Efficiency
- Cooperation
- Technology
- Geopolitics

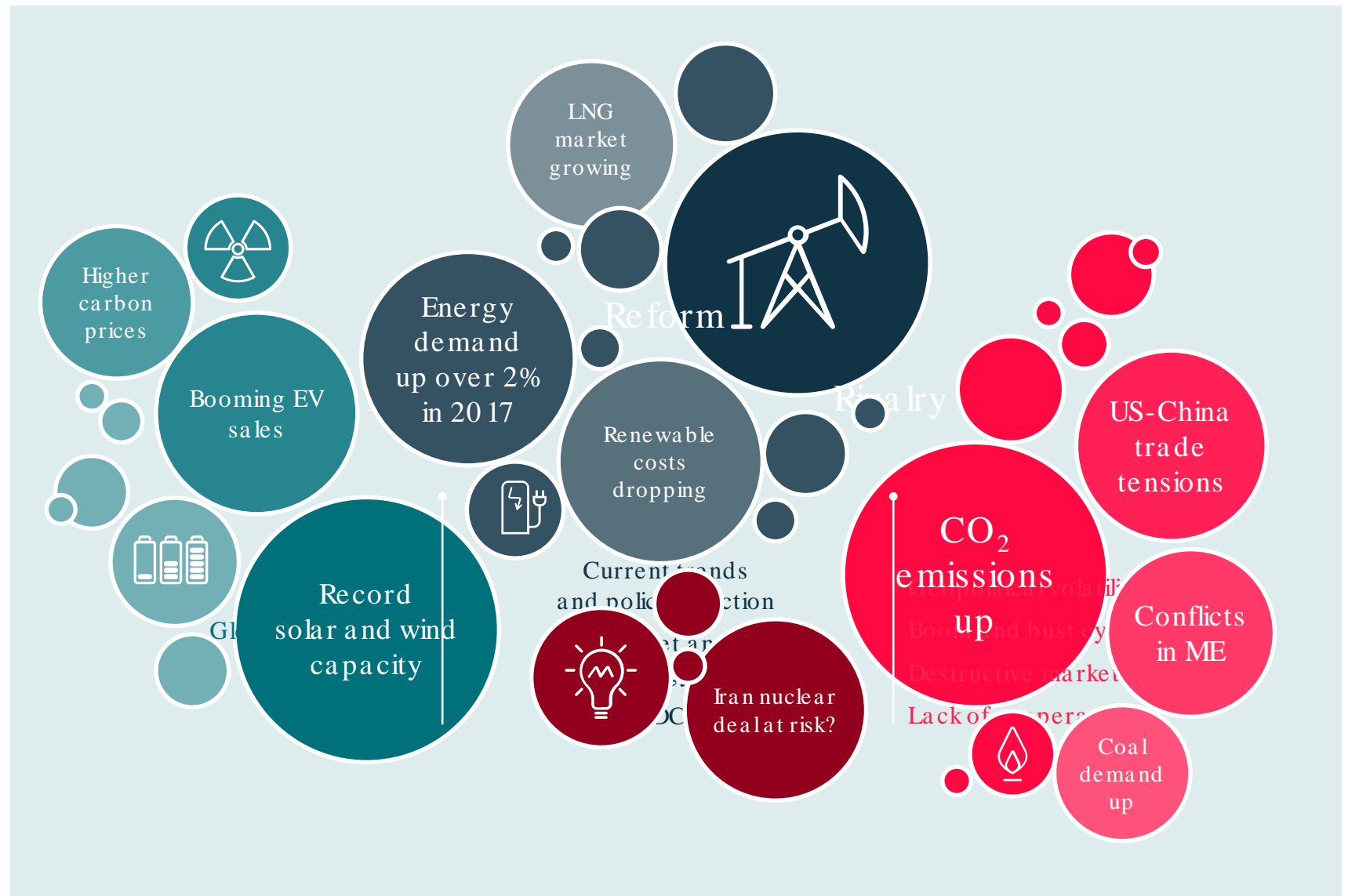


Scenarios

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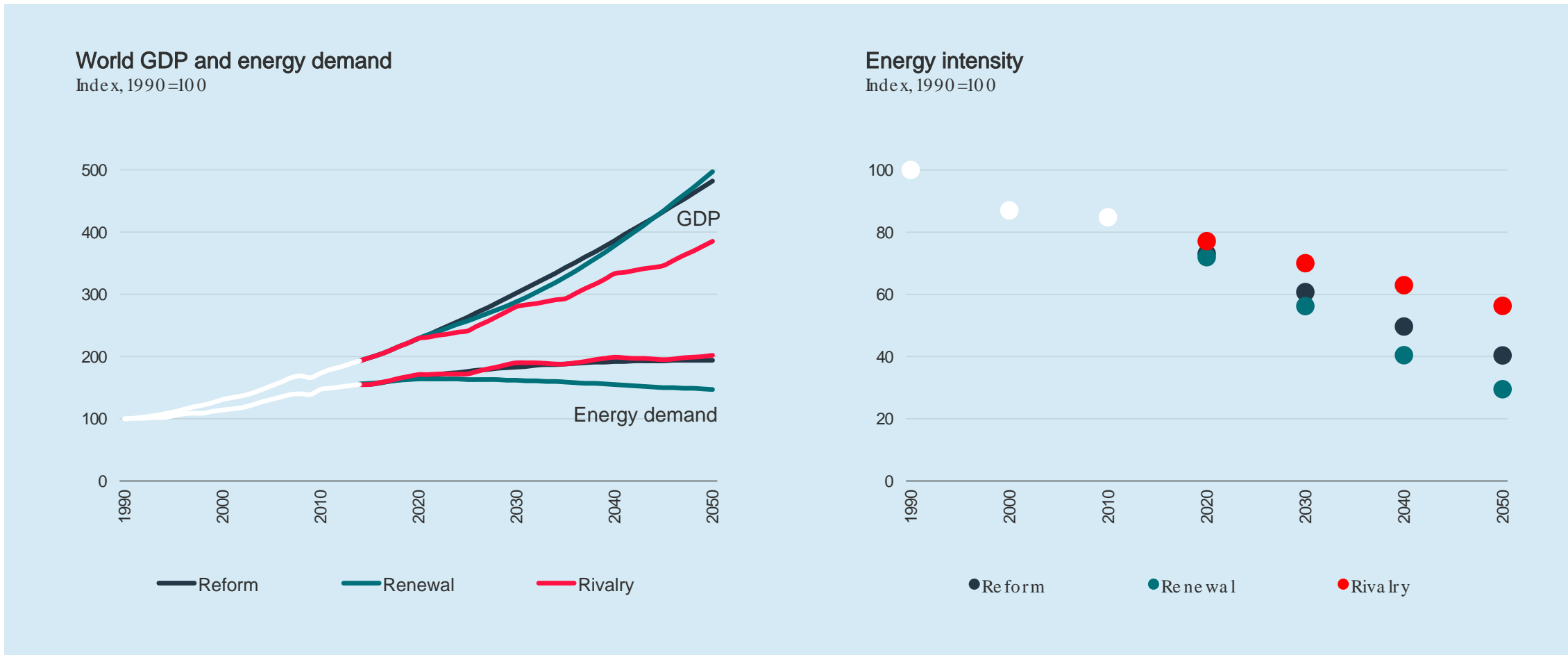
What are common beliefs about the future?

- Global demand for energy dependent goods, services, and activities is growing
- The world is undergoing an energy transition
- Large investments needed in the energy system



How will economic growth and energy demand develop?

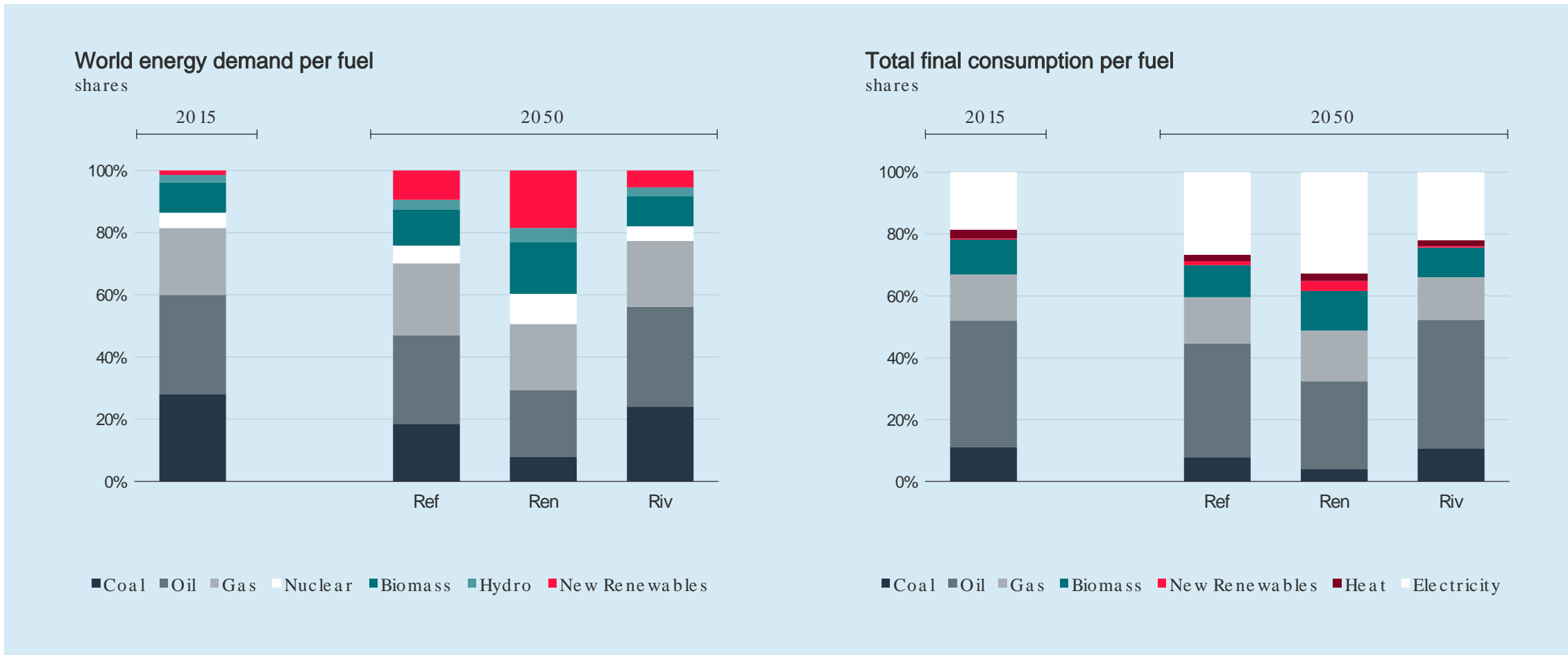
Energy efficiency drives a wedge between economic development and energy demand



Source: IEA (history), Equinor (projections)

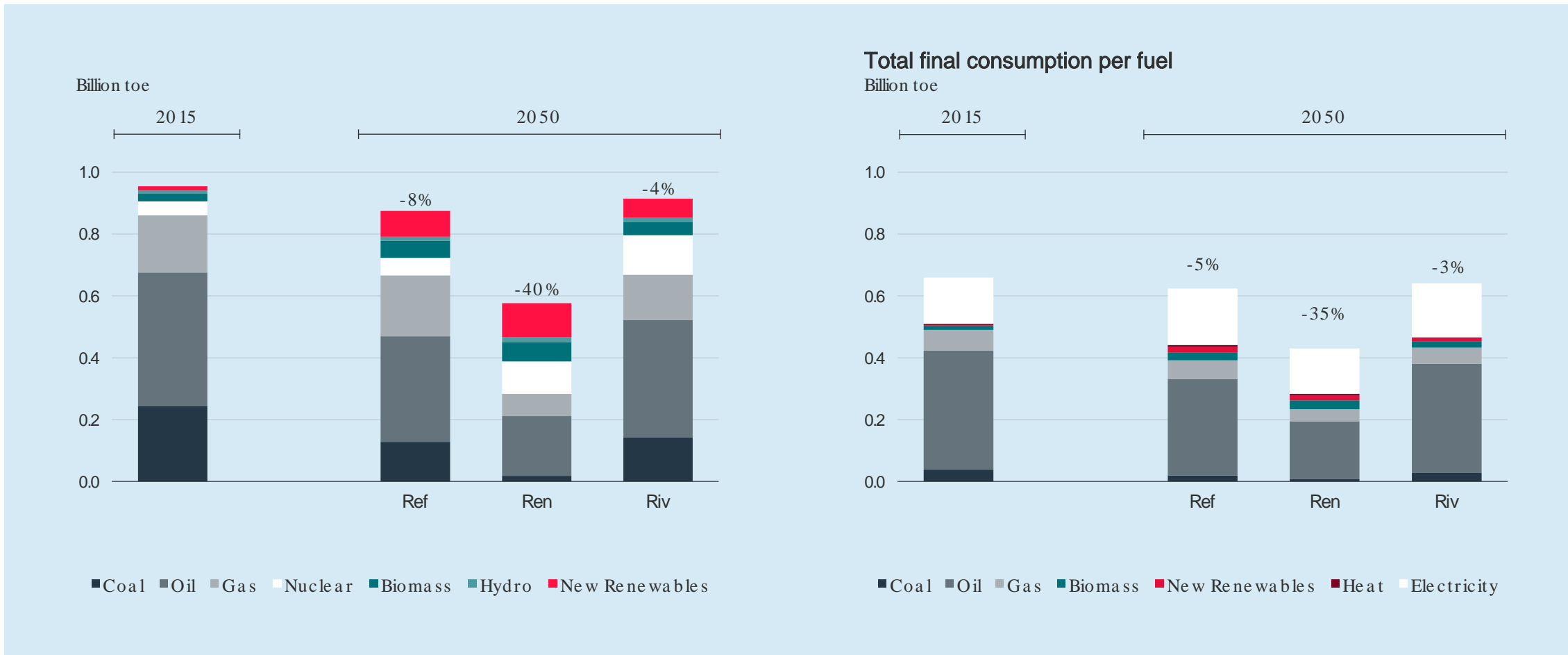
Growth in position of new renewables and electricity across all scenarios

Sufficient speed and scope only in Renewal – fossil fuels keep their share in Rivalry



Source: IEA (history), Equinor (projections)

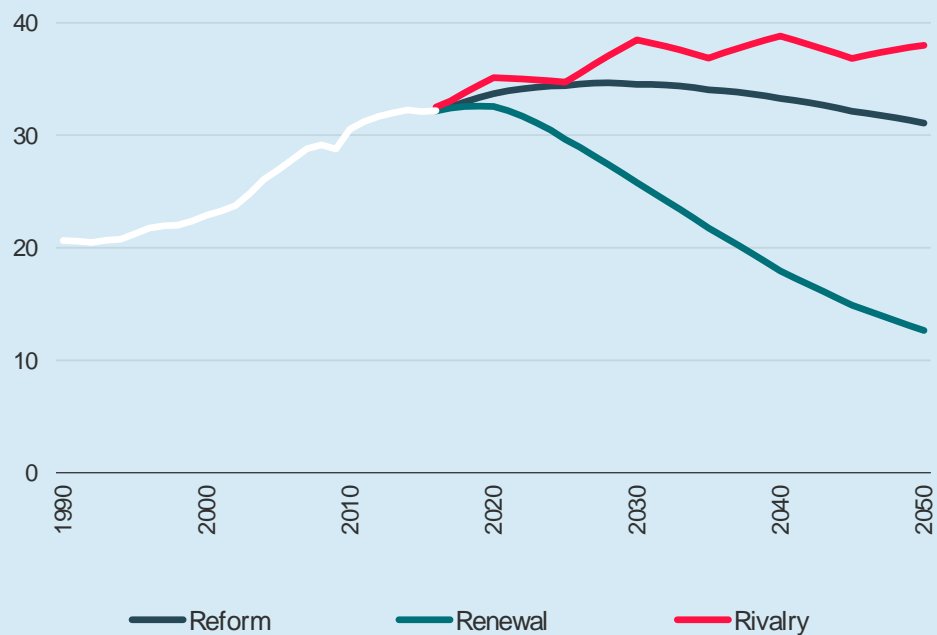
Significant fuel mix changes in all Industrial AP scenarios



Source: IEA (history), Equinor (projections)

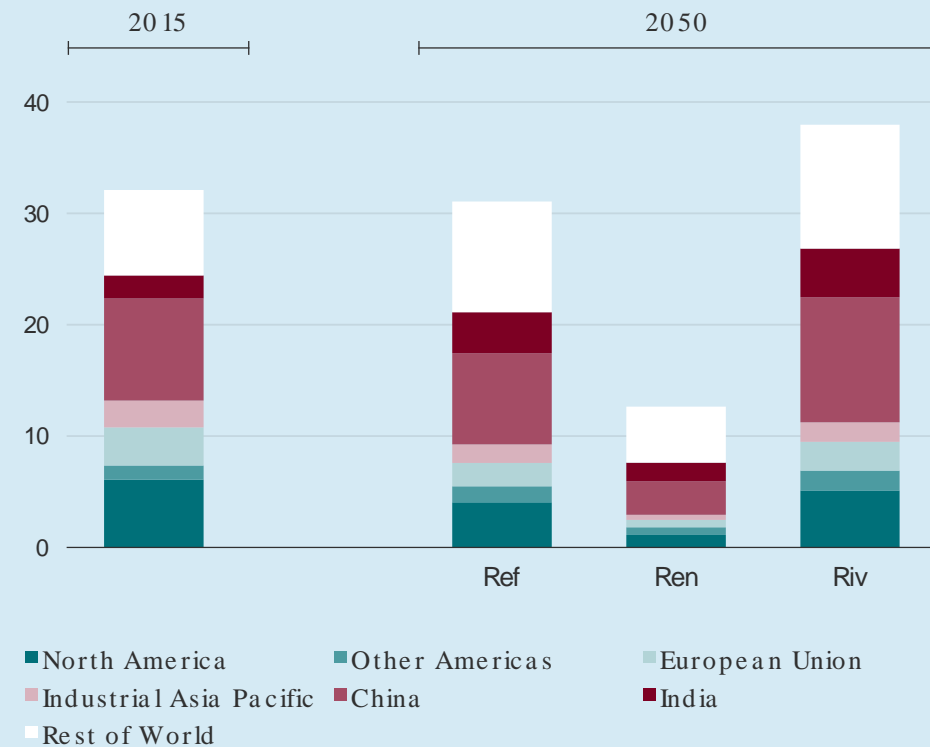
World energy -related CO₂ emissions

Billion tons



Energy-related CO₂ emissions per region

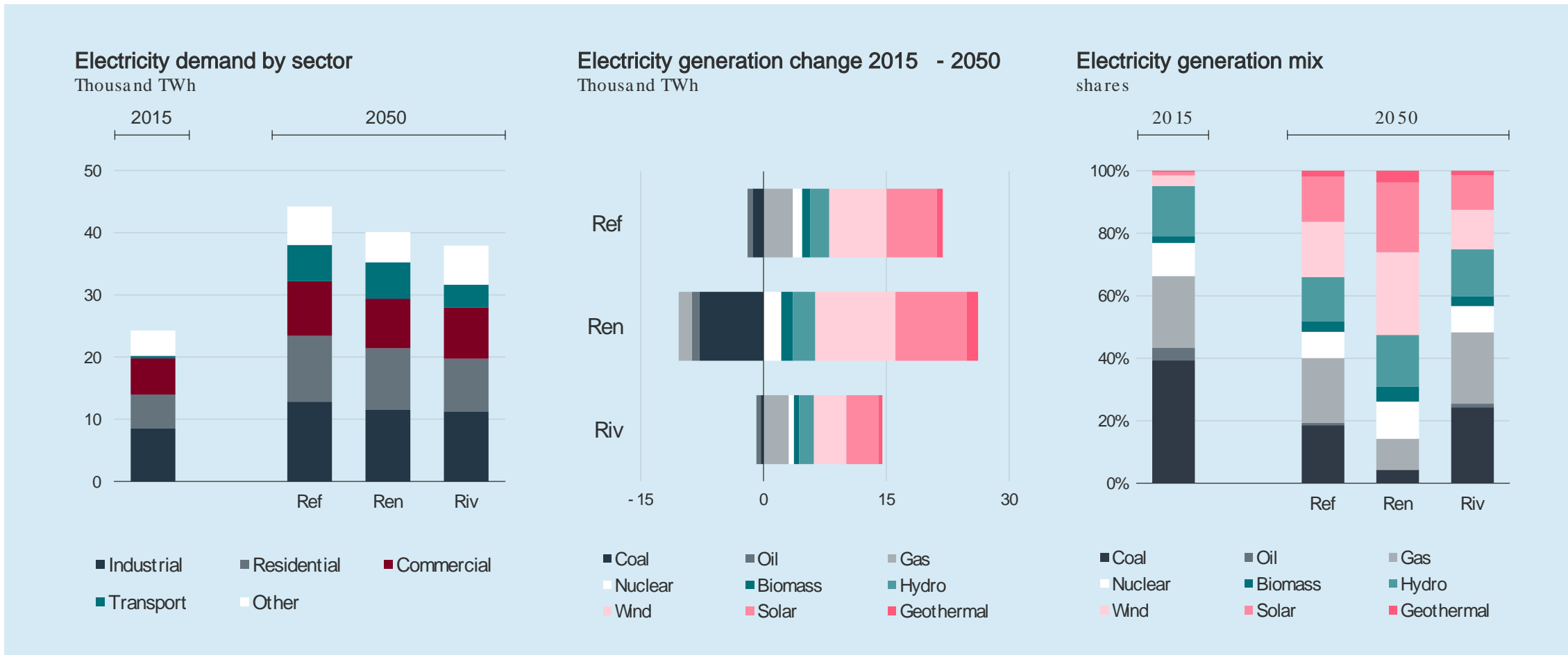
Billion tons



Source: IEA (history), Equinor (projections)

Strong electricity demand growth in all scenarios

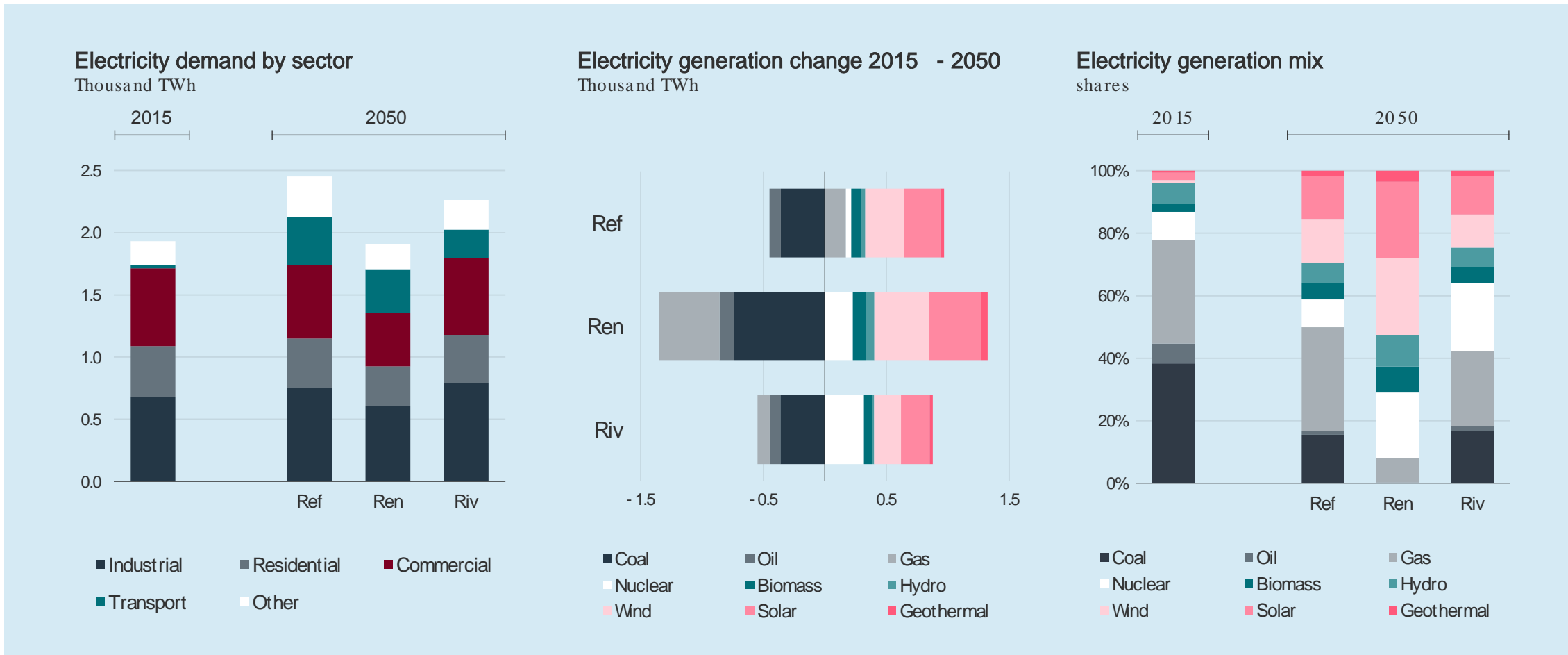
Generation mix develops very differently; solar and wind growing strongly



Source: IEA (history), Equinor (projections)

Electricity demand remains flat or grows moderately in Industrial AP

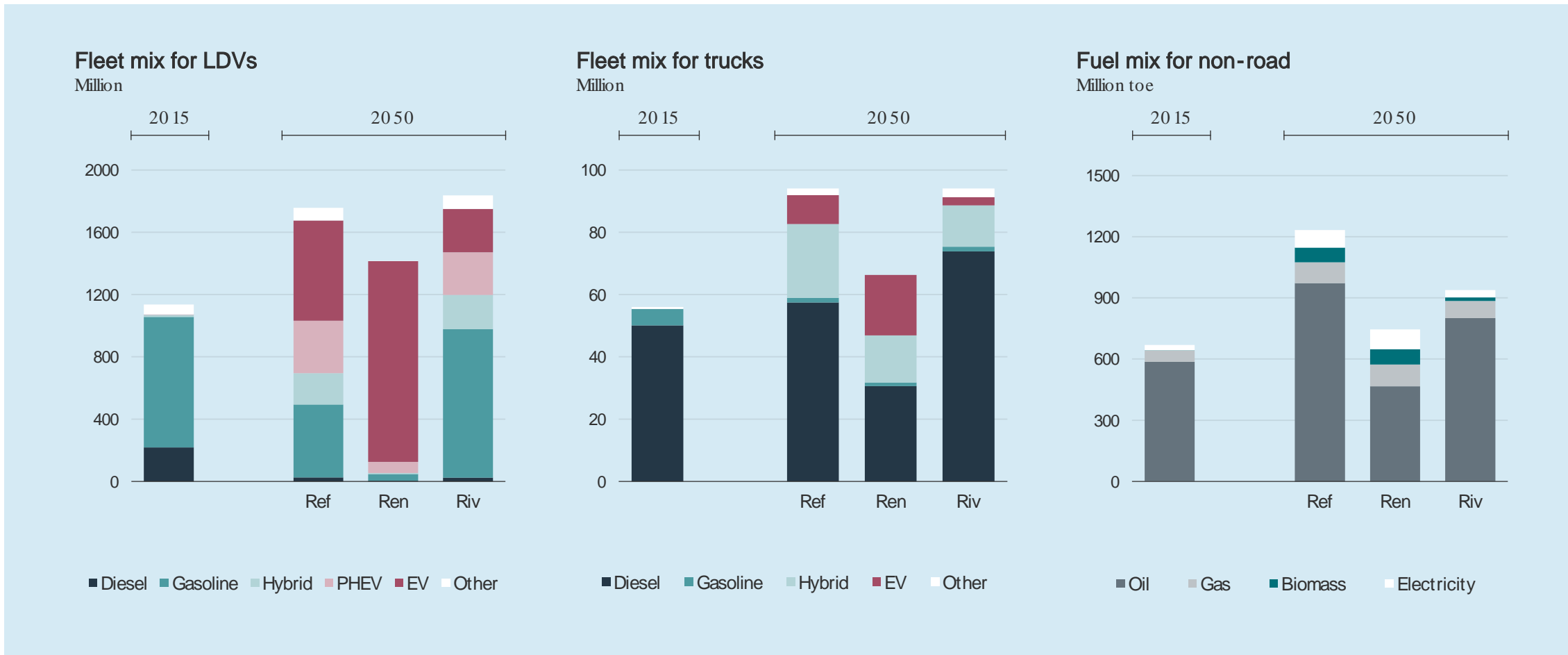
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Massive changes in road transport – efficiency and fuel mix

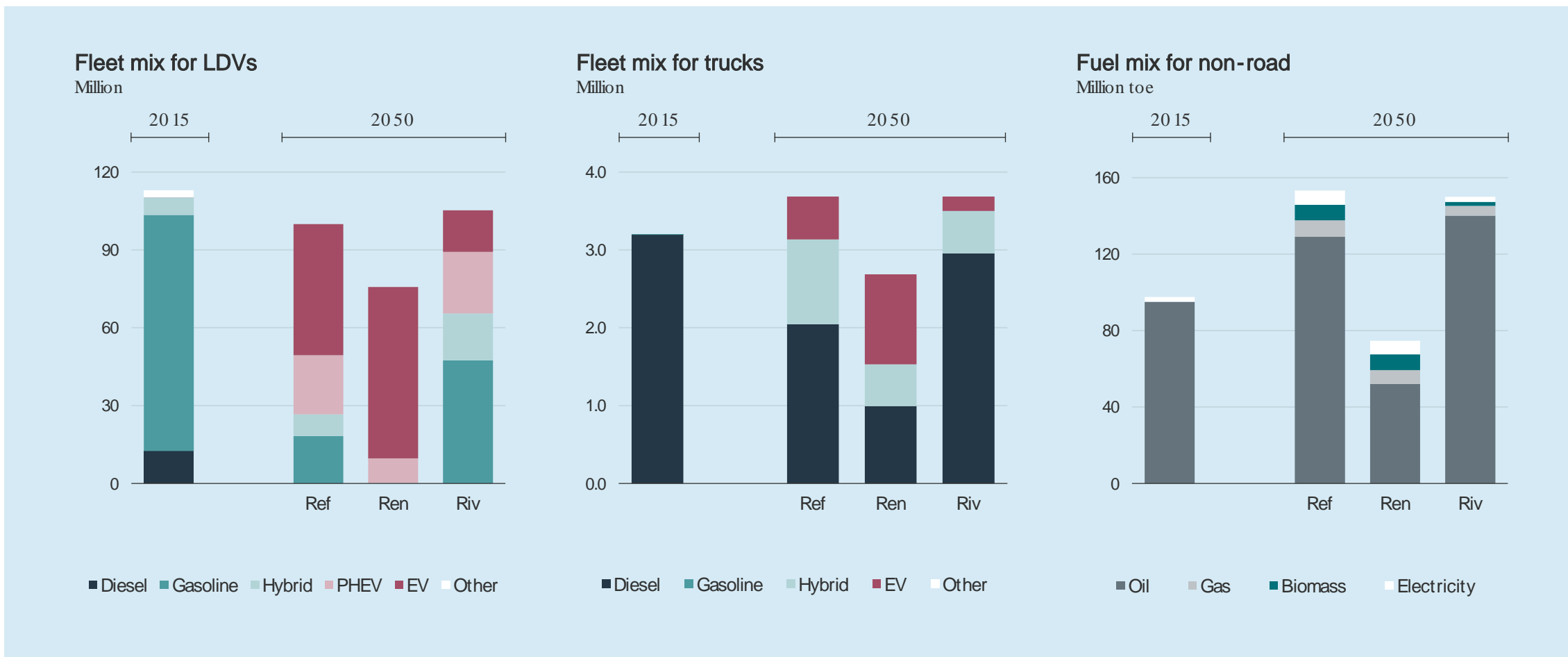
But less certain what is the alternative to oil in shipping and aviation



Source: IEA (history), Equinor (projections)

Massive changes in road transport – efficiency and fuel mix Industrial AP

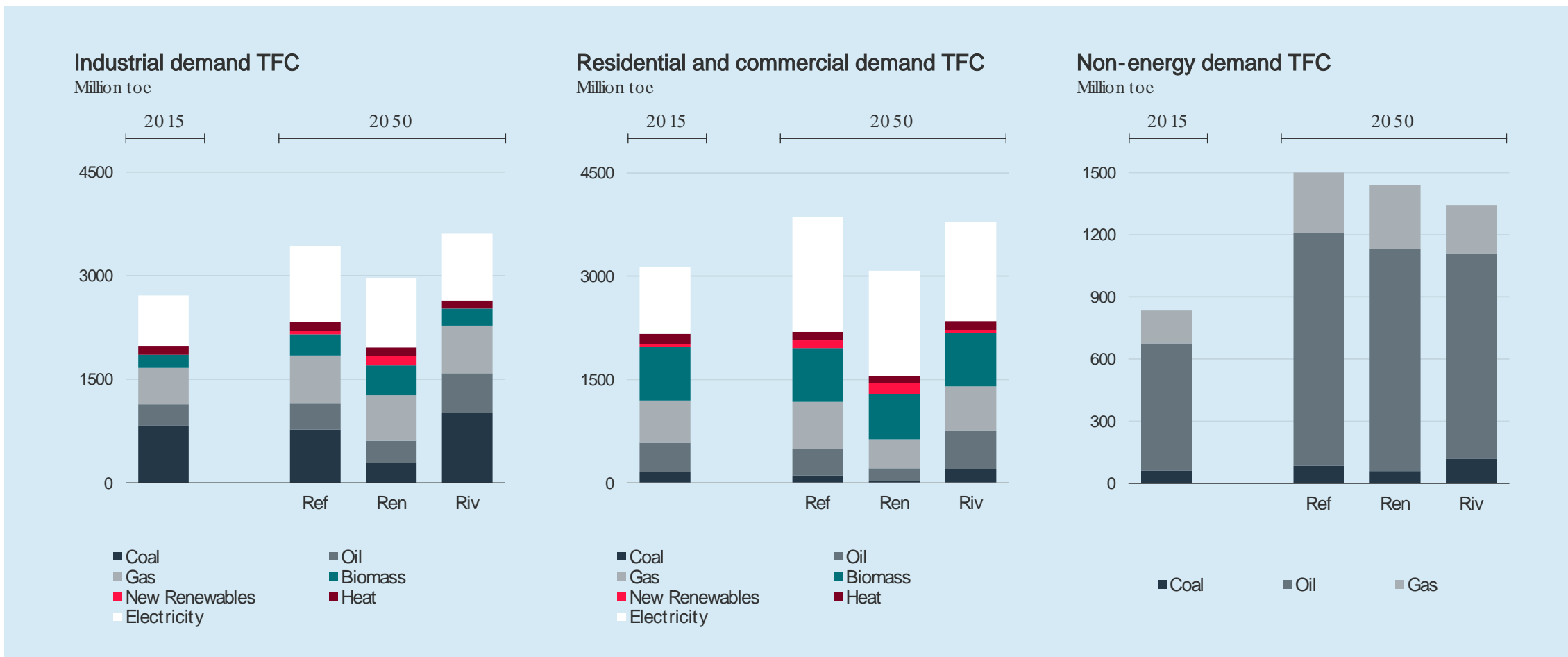
But less certain what is the alternative to oil in shipping and aviation



Source: IEA (history), Equinor (projections)

Transition moving slower in other sectors

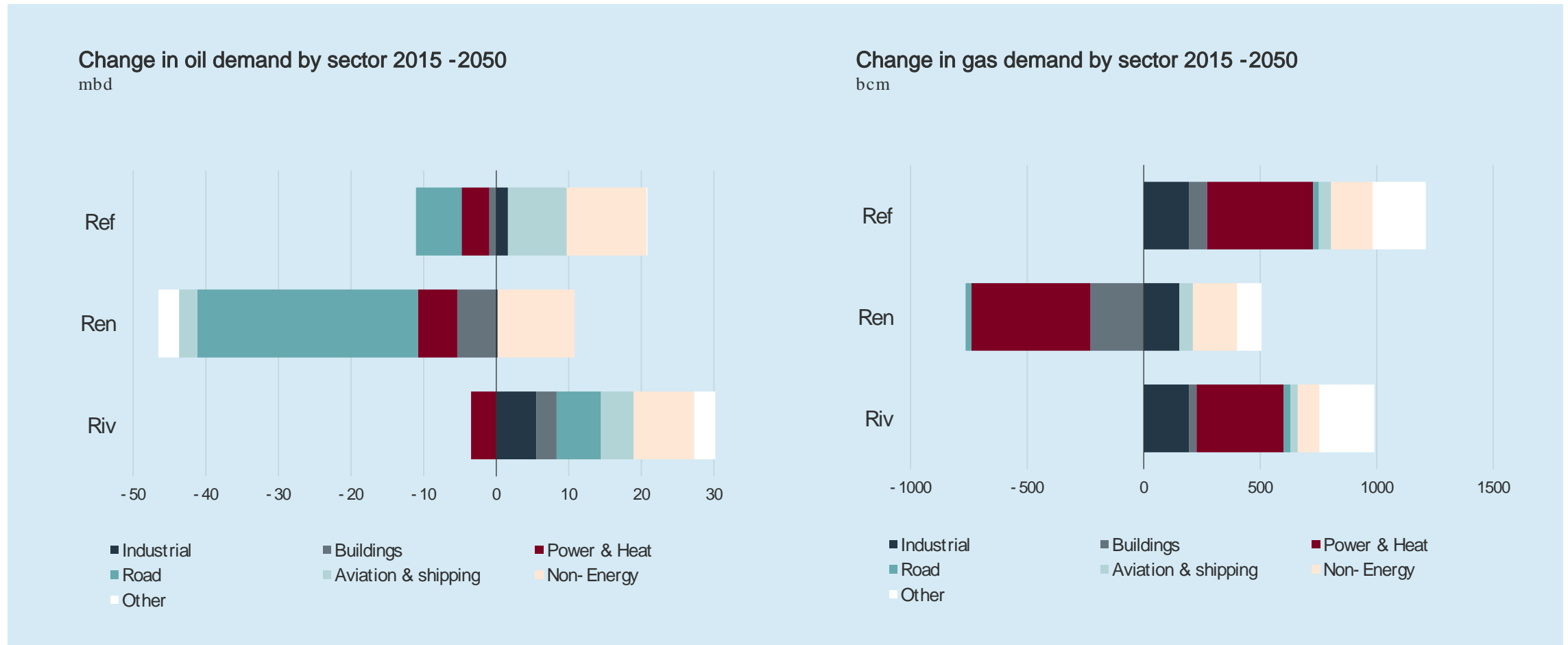
No silver bullet, efficiency and electrification the primary measures



Source: IEA (history), Equinor (projections)

Growth or decline in oil and gas demand growth determined by scenario

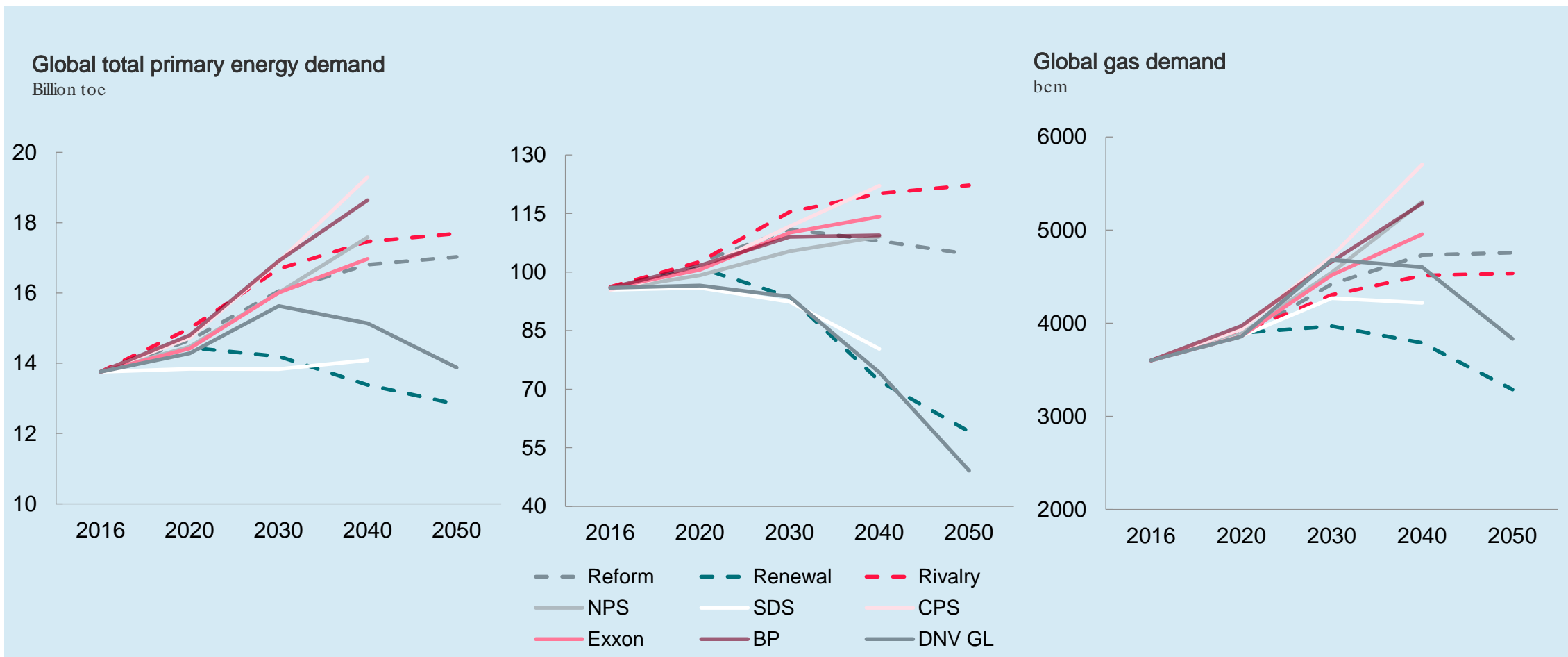
Transport key sector for oil, and power for gas; non-energy demand important for both – growth irrespective of scenario



Source: IEA (history), Equinor (projections)

Benchmarking: How do Energy Perspectives scenarios compare?

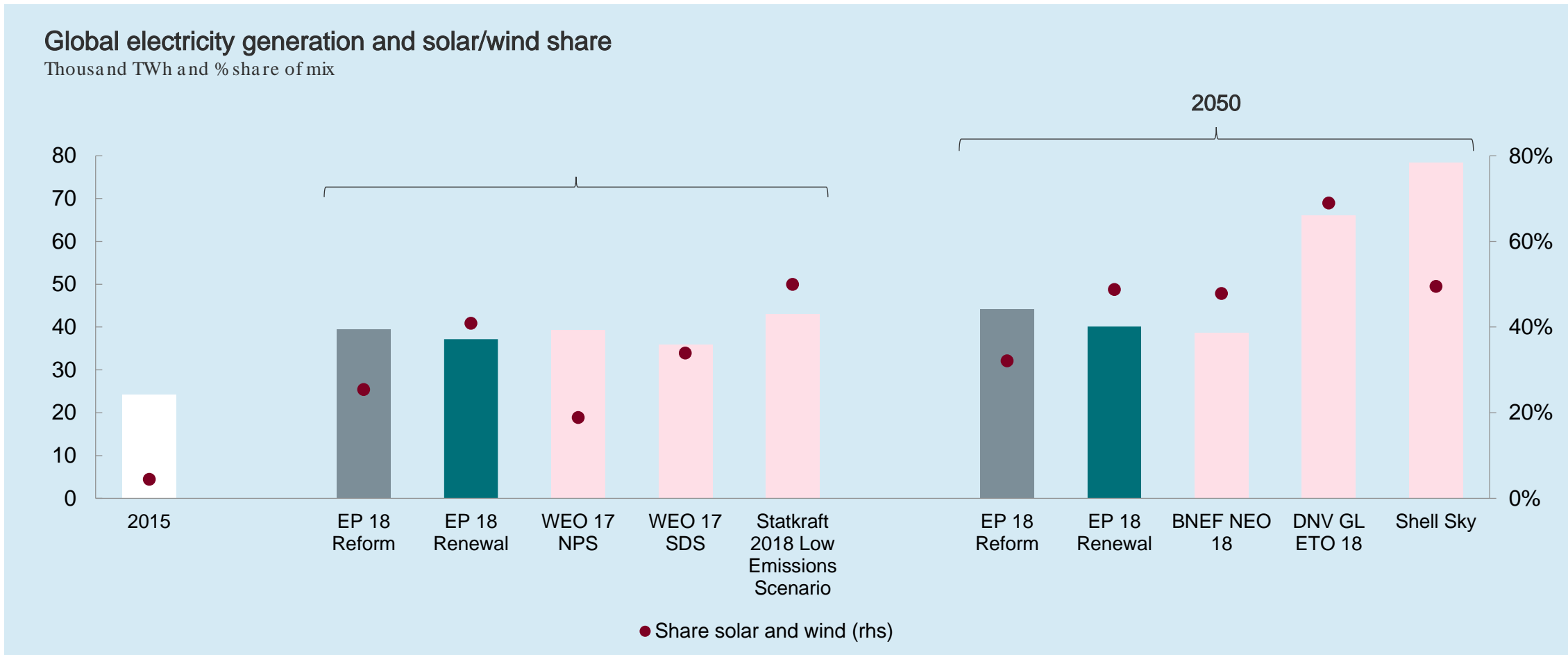
TPED, oil and gas



Source: World Energy Outlook 2017, DNV GLETO 2018, Exxon Outlook 2018, BP Outlook 2018

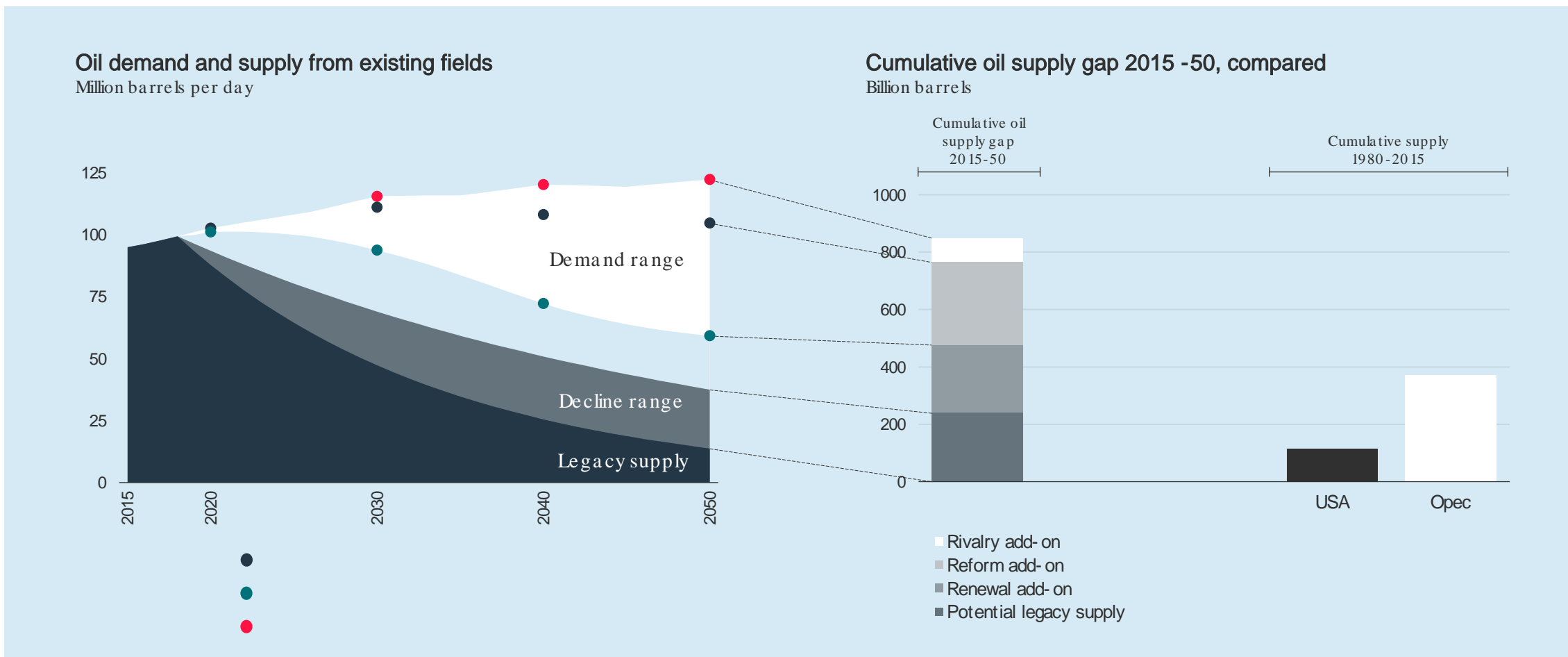
Benchmarking: How do Energy Perspectives scenarios compare?

Electricity generation and solar/wind



What is the need for new oil investments?

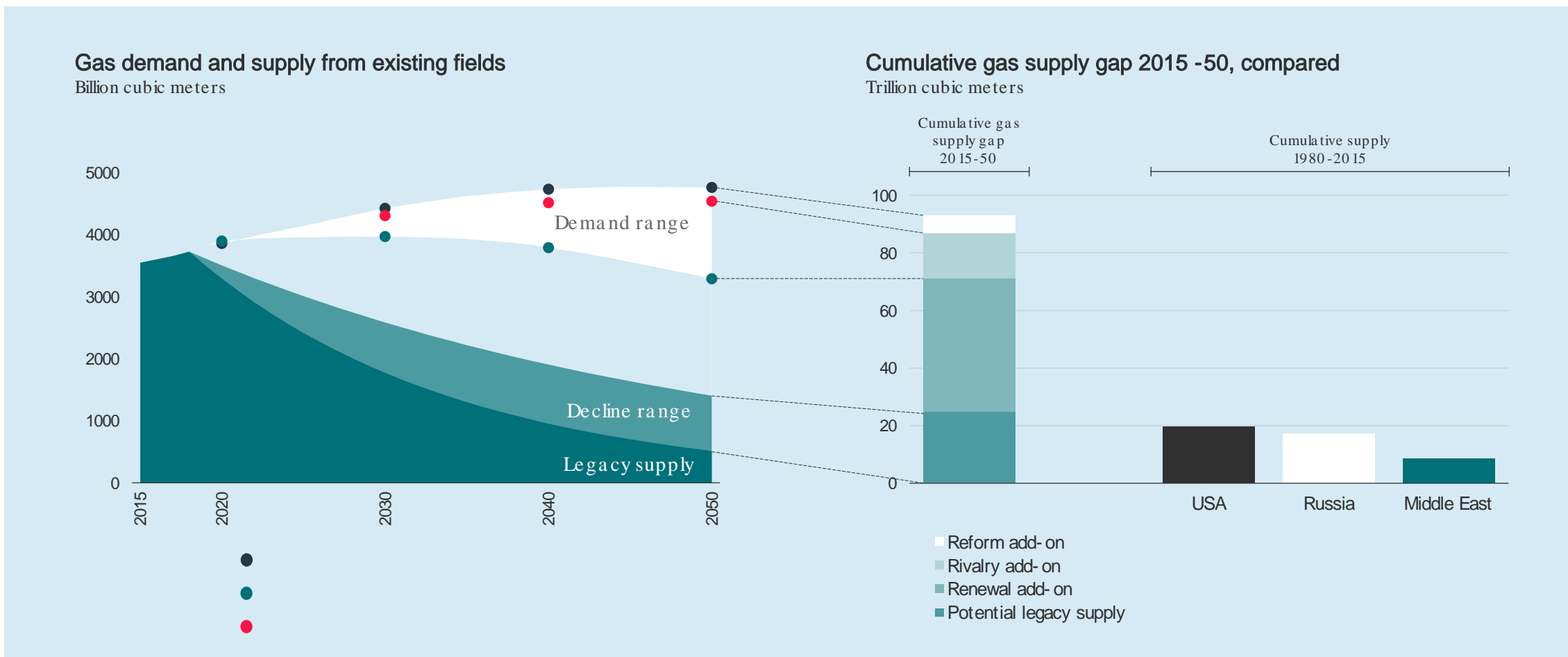
Large investments in all scenarios, although significantly less in Renewal



Source: IEA and BP (history), Equinor (projections)

And what about new gas supply?

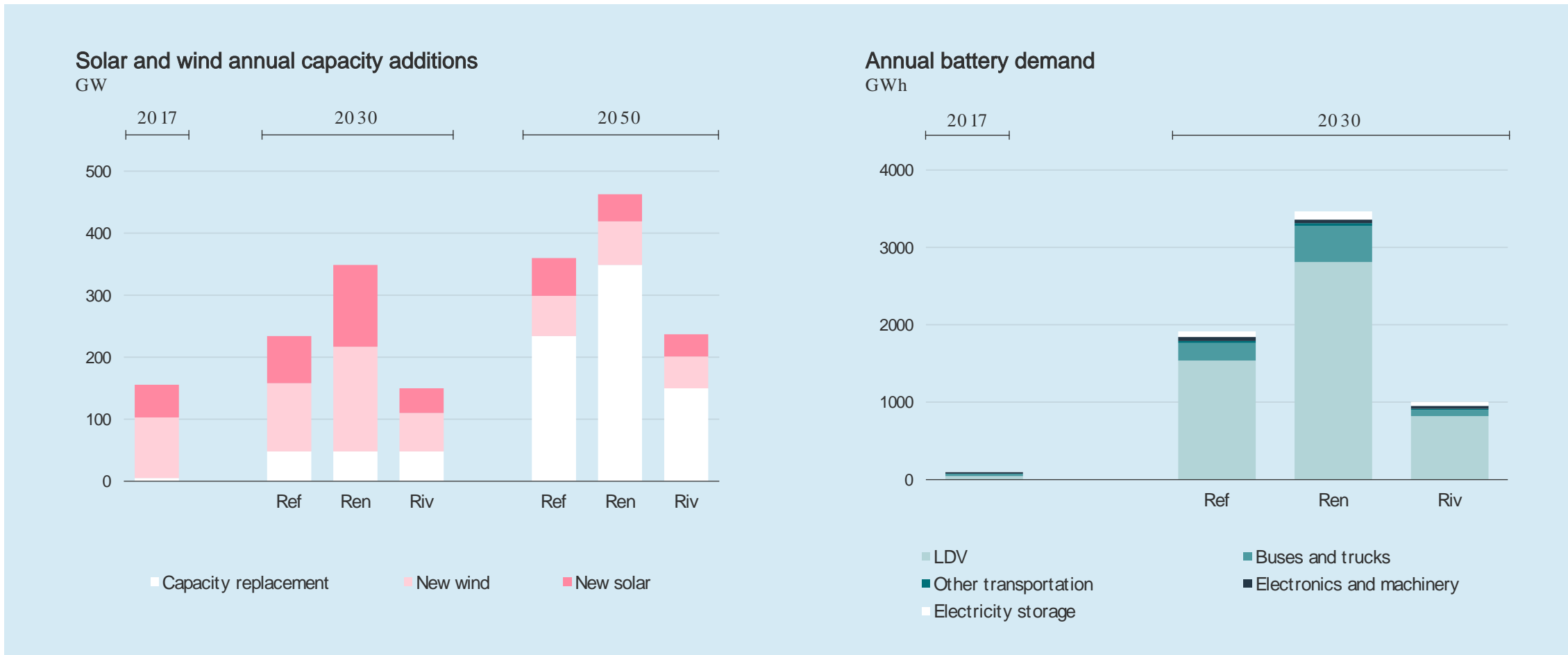
Large investments in all scenarios, although significantly less in Renewal



Source: IEA and BP (history), Equinor (projections)

Enormous investments needed in solar, wind and batteries

Large investments to grow and maintain solar/wind capacity; battery market to expand by 10 to 35 times by 2030



Source: Various sources (history), Equinor (projections)

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Eirik Wærness

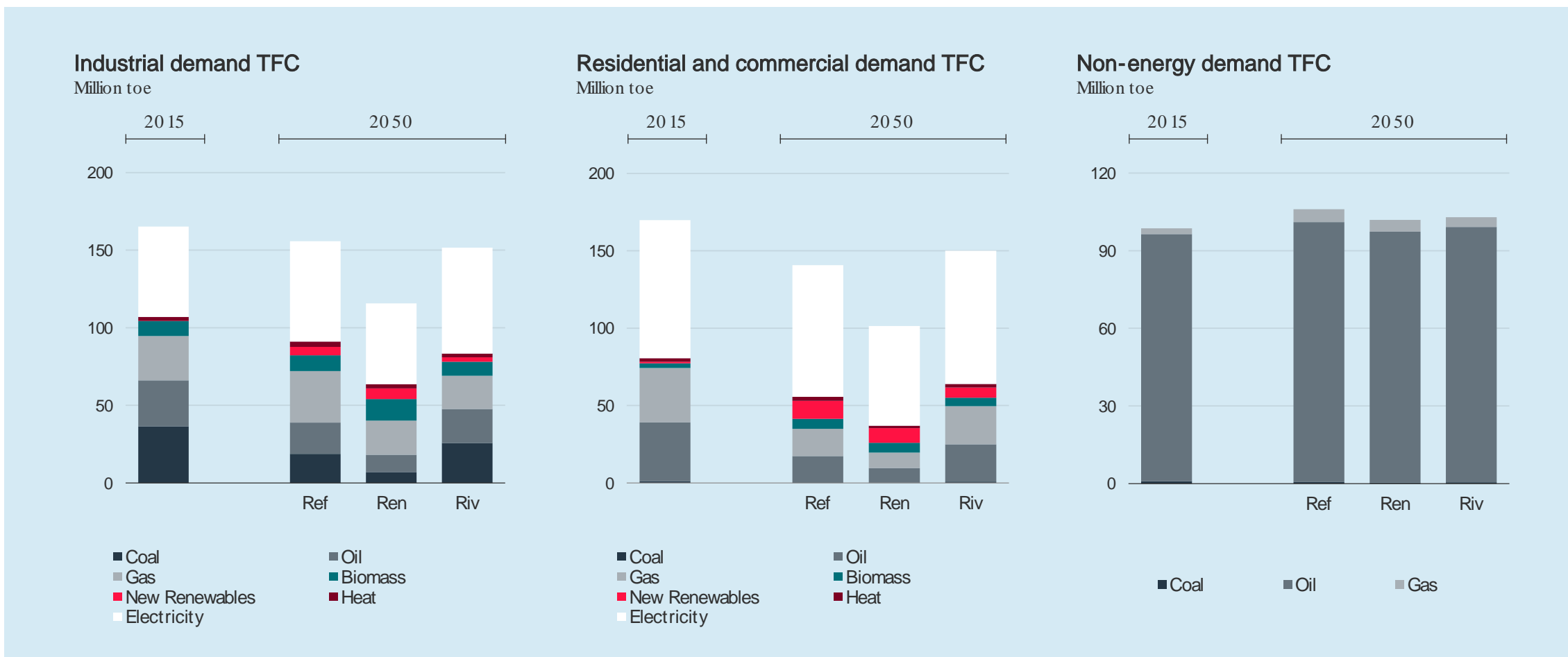
Senior vice president and Chief economist

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Transition moving slower in other sectors – Industrial AP

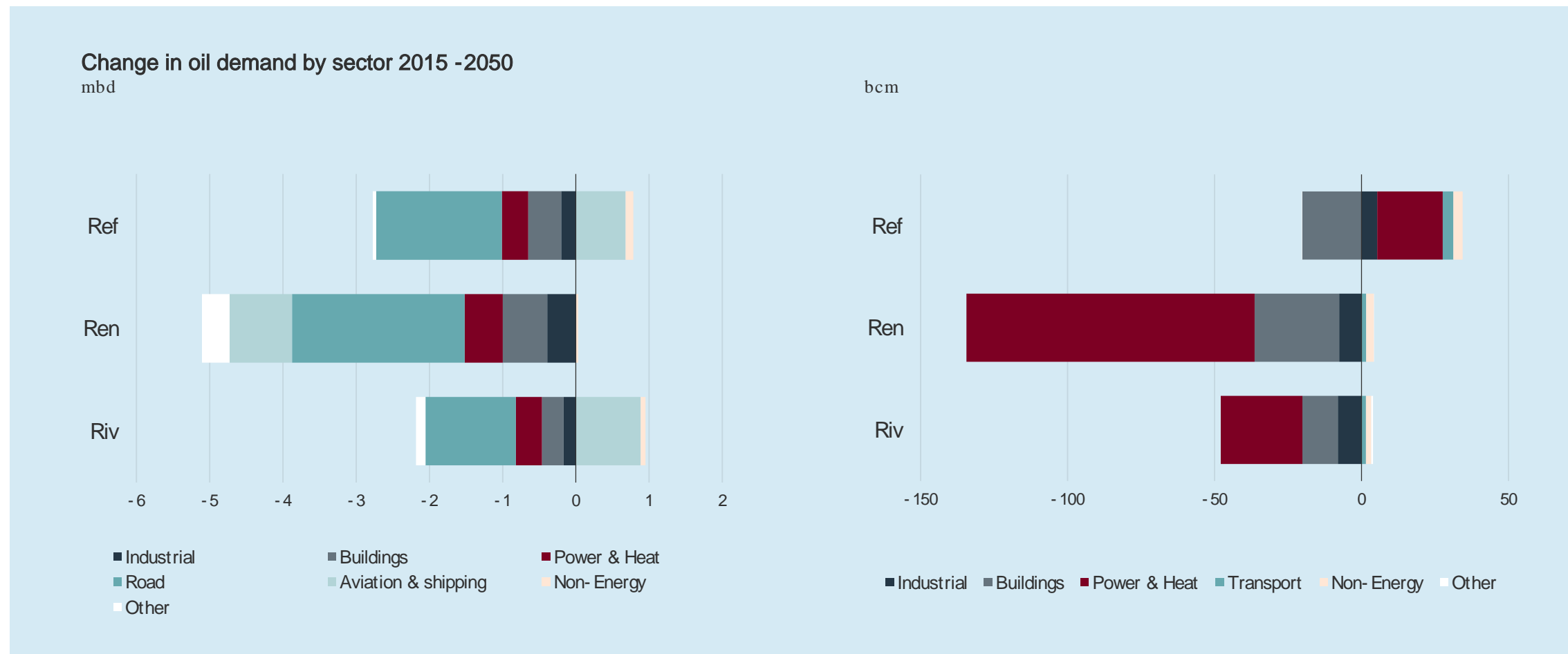
No silver bullet, efficiency and electrification the primary measures



Source: IEA (history), Equinor (projections)

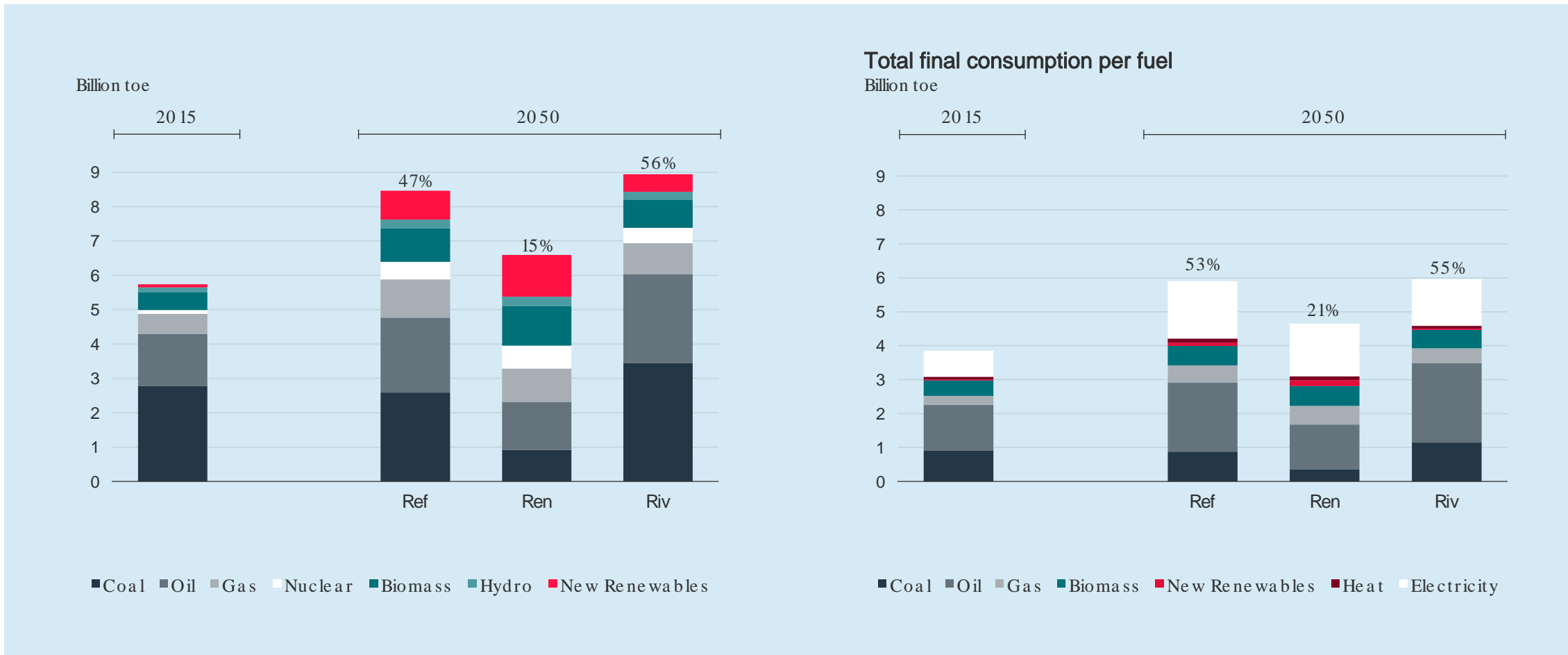
Declining oil and gas demand in Industrial AP

Transport key sector for oil and power for gas; non-energy demand important for both – growth irrespective of scenario



Source: IEA (history), Equinor (projections)

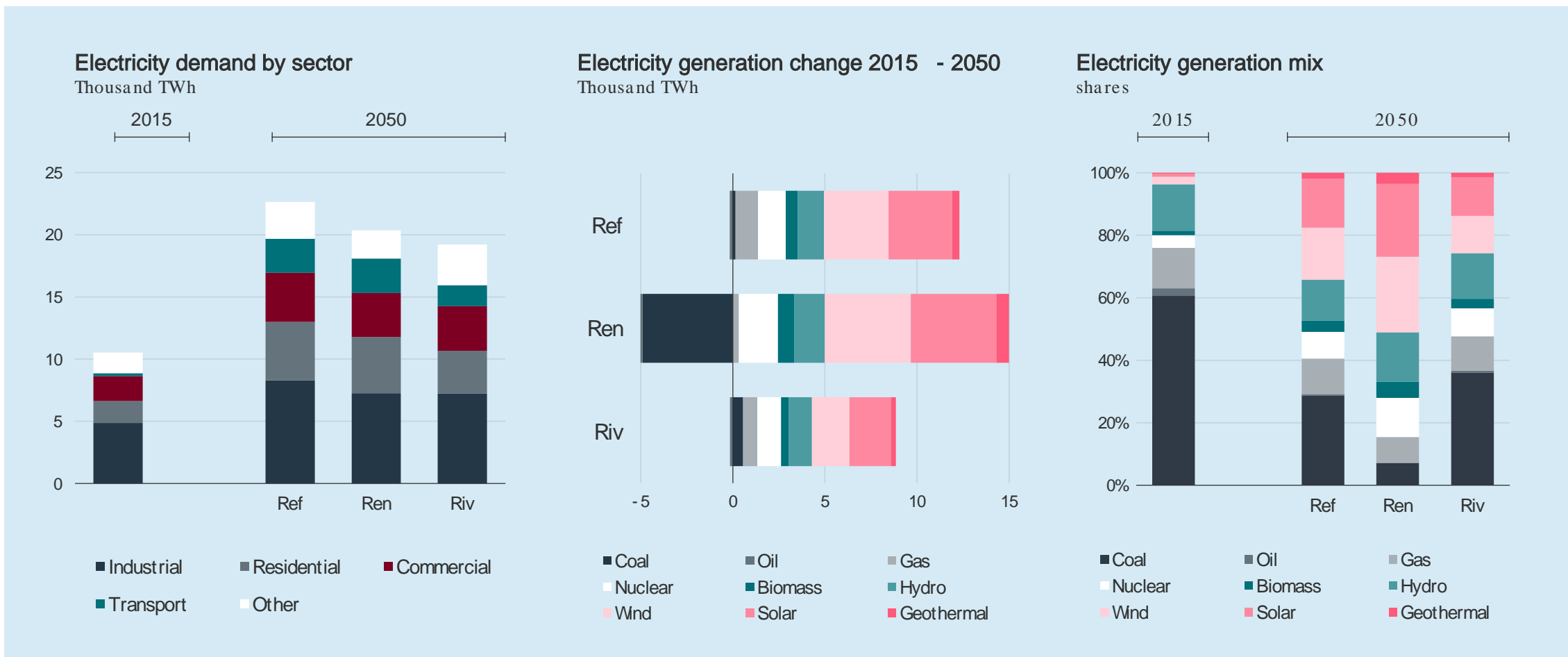
Significant fuel mix changes in all Asia scenarios



Source: IEA (history), Equinor (projections)

Strong electricity demand growth in Asia

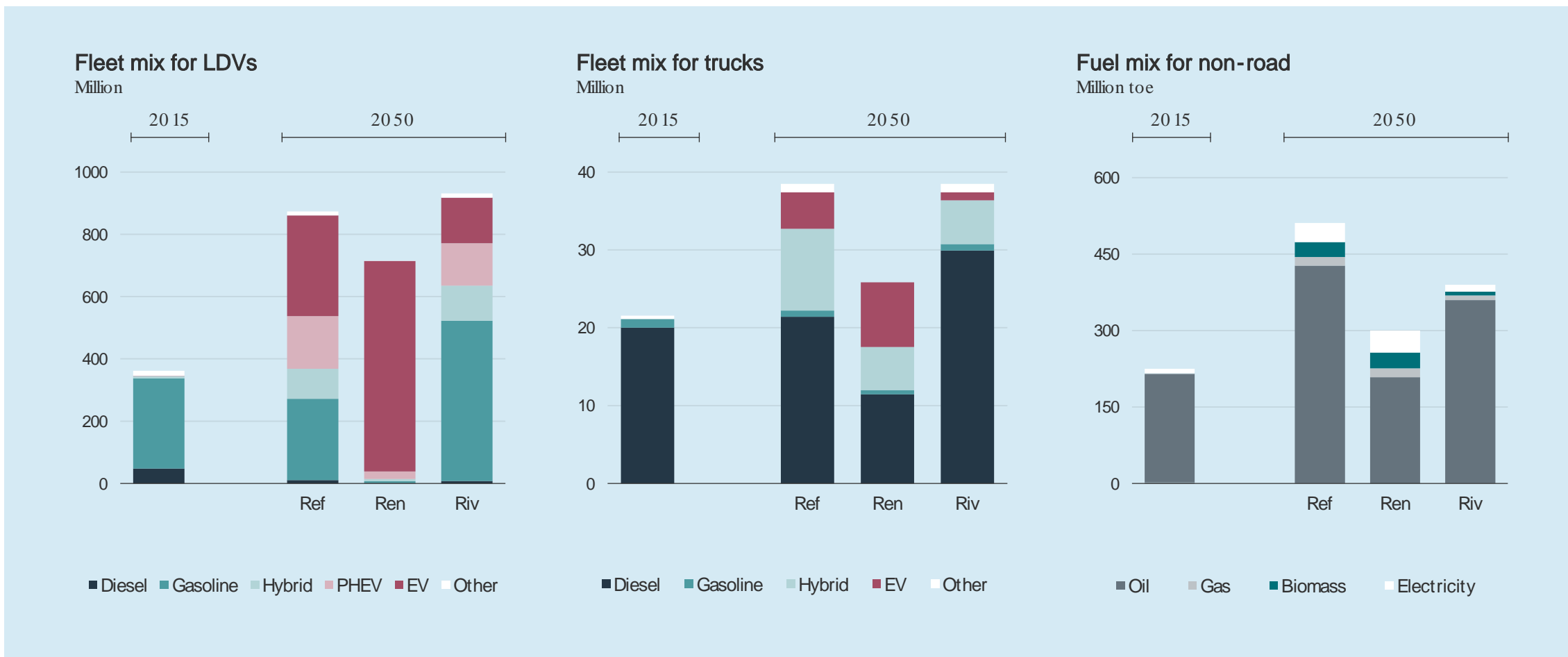
Generation mix develops very differently; solar and wind growing strongly



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Massive changes in road transport – efficiency and fuel mix Asia

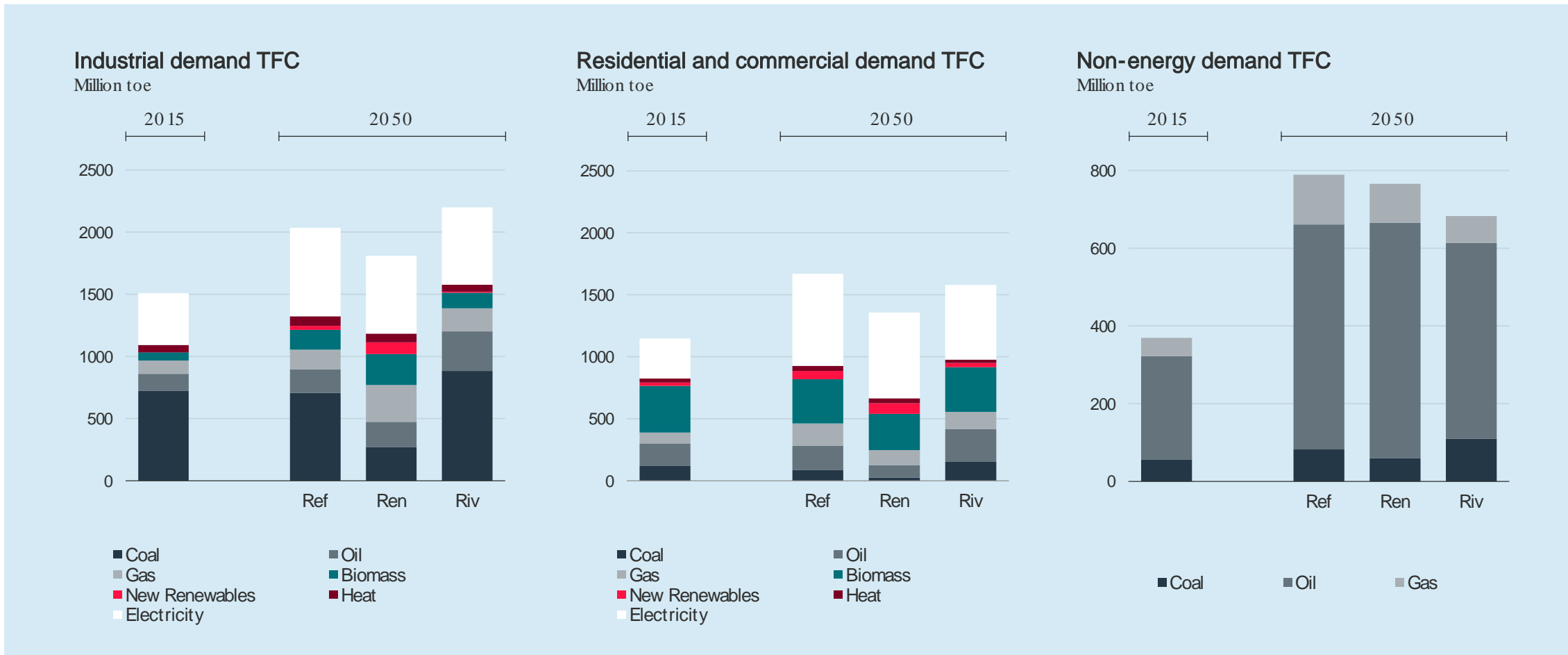
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Transition moving slower in other sectors – Asia

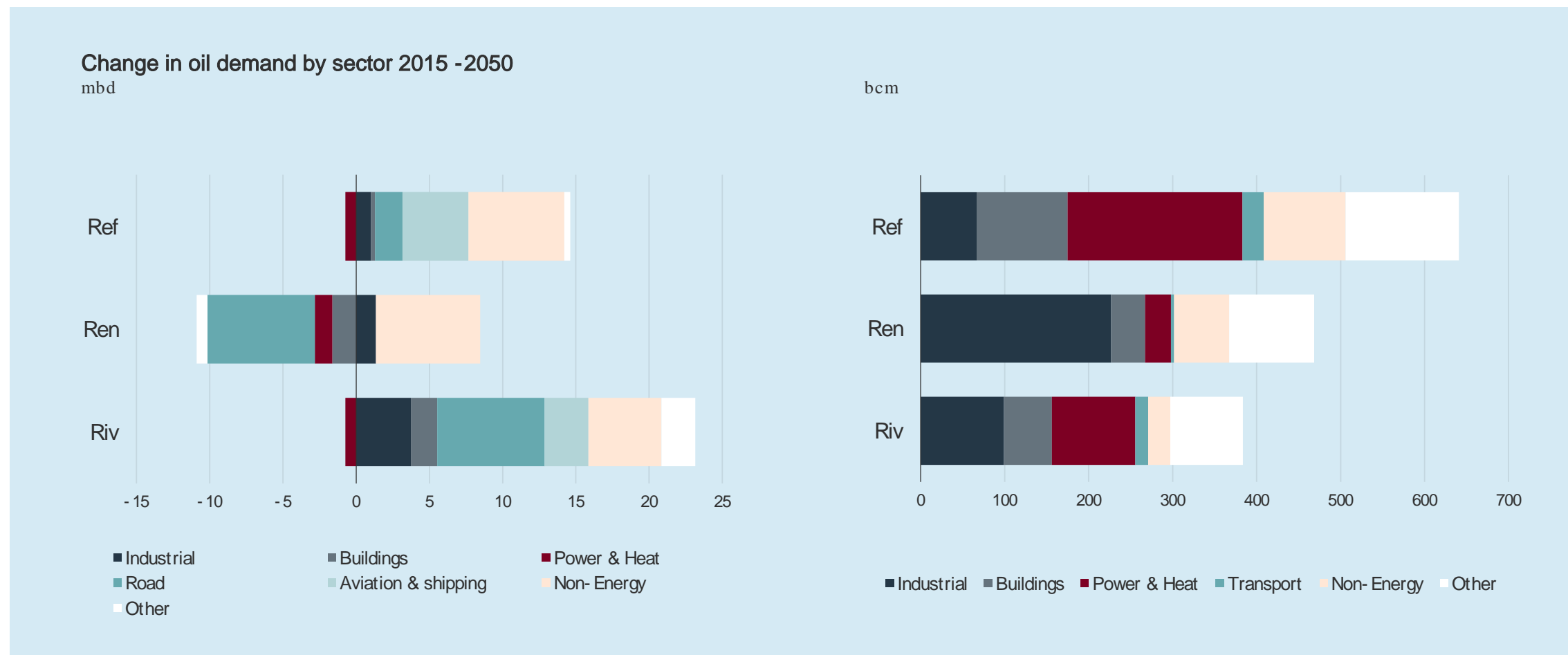
No silver bullet, efficiency and electrification the primary measures



Source: IEA (history), Equinor (projections)

Strong prospects for oil and gas demand in Asia

Transport key sector for oil and power for gas; non-energy demand important for both – growth irrespective of scenario



Source: IEA (history), Equinor (projections)

Contact :report@tky.iej.or.jp