equinor

Energy Perspectives 2018

Long-term macro and market outlook

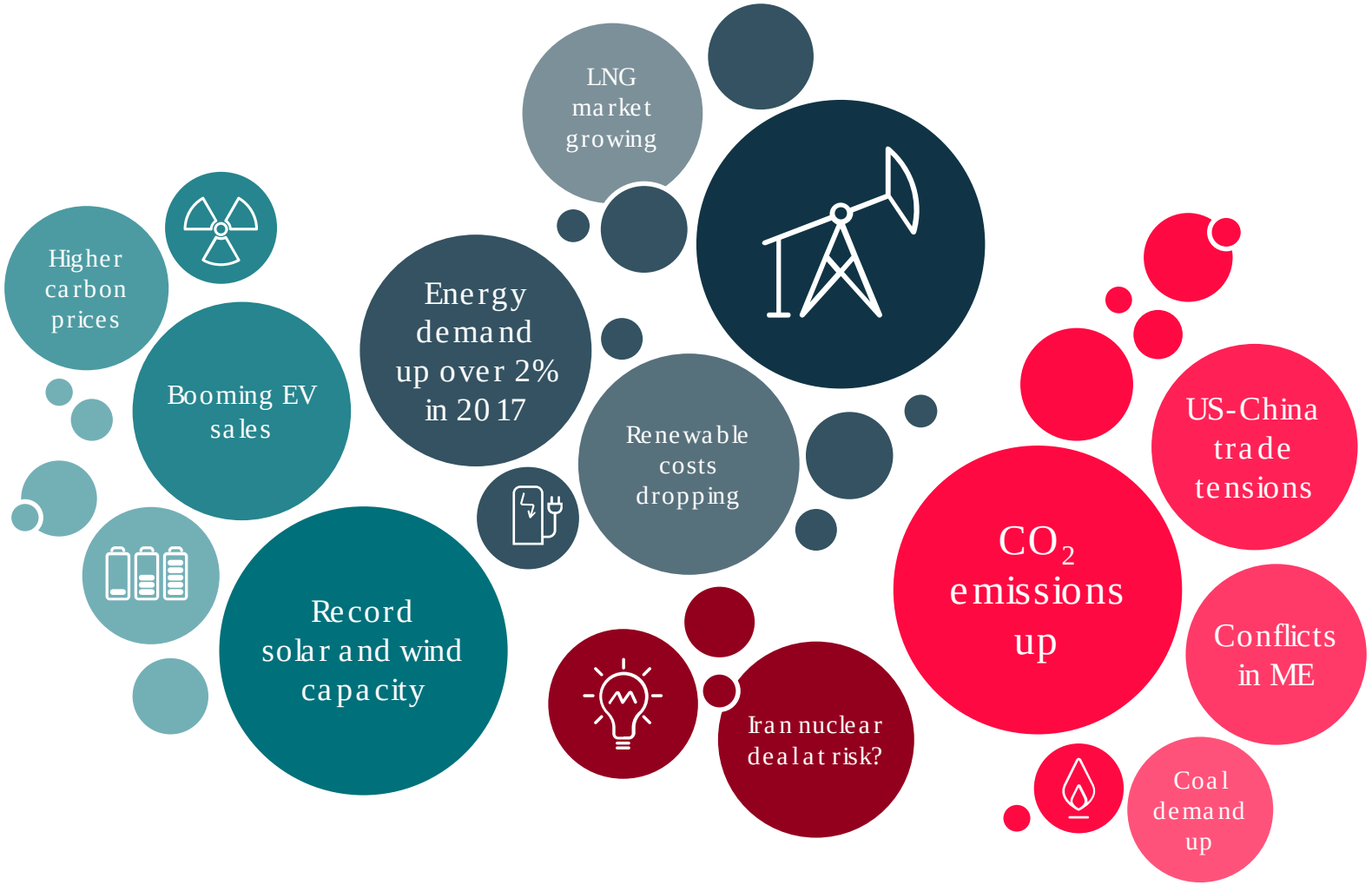
Eirik Wærness, SVP and Chief Economist

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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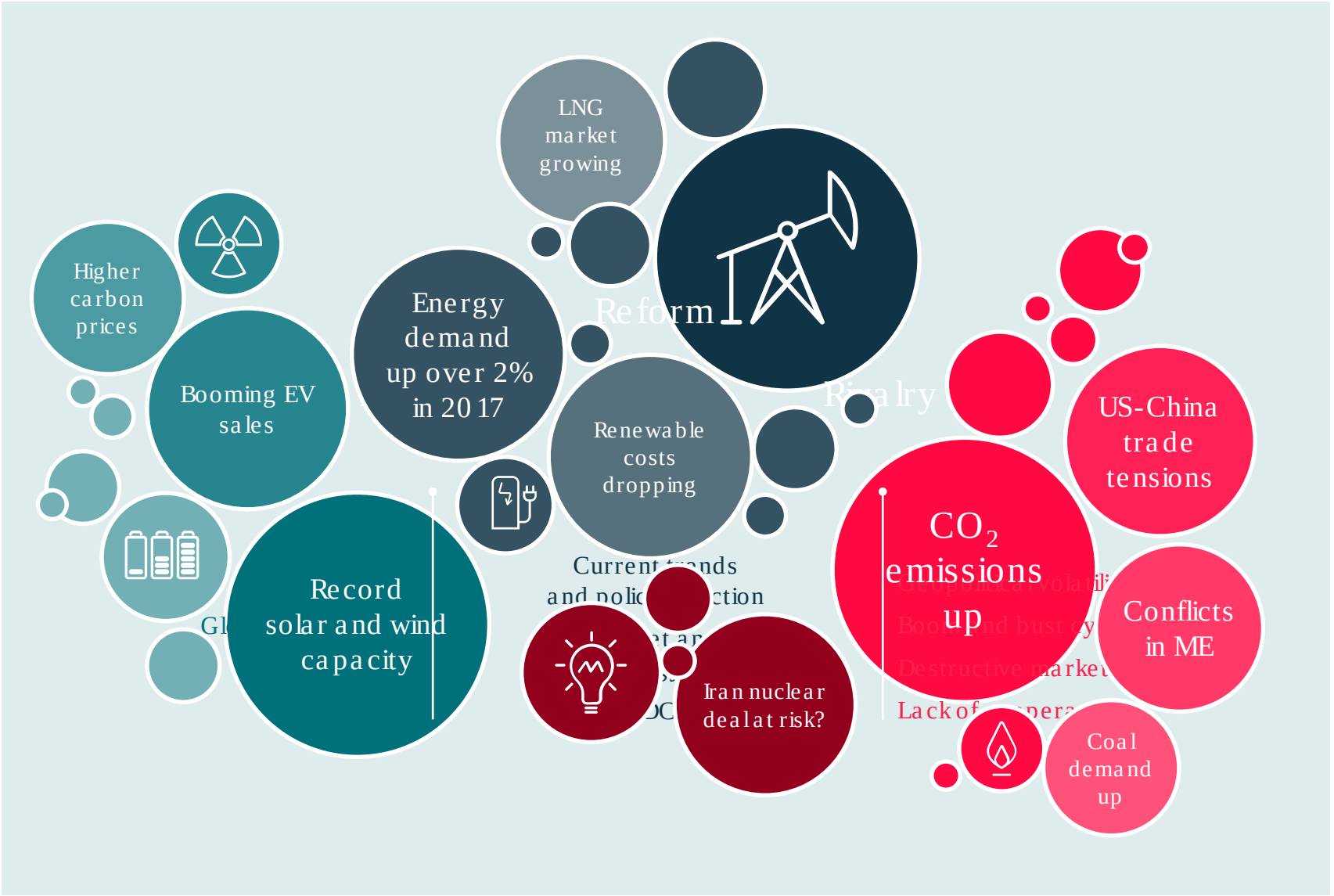
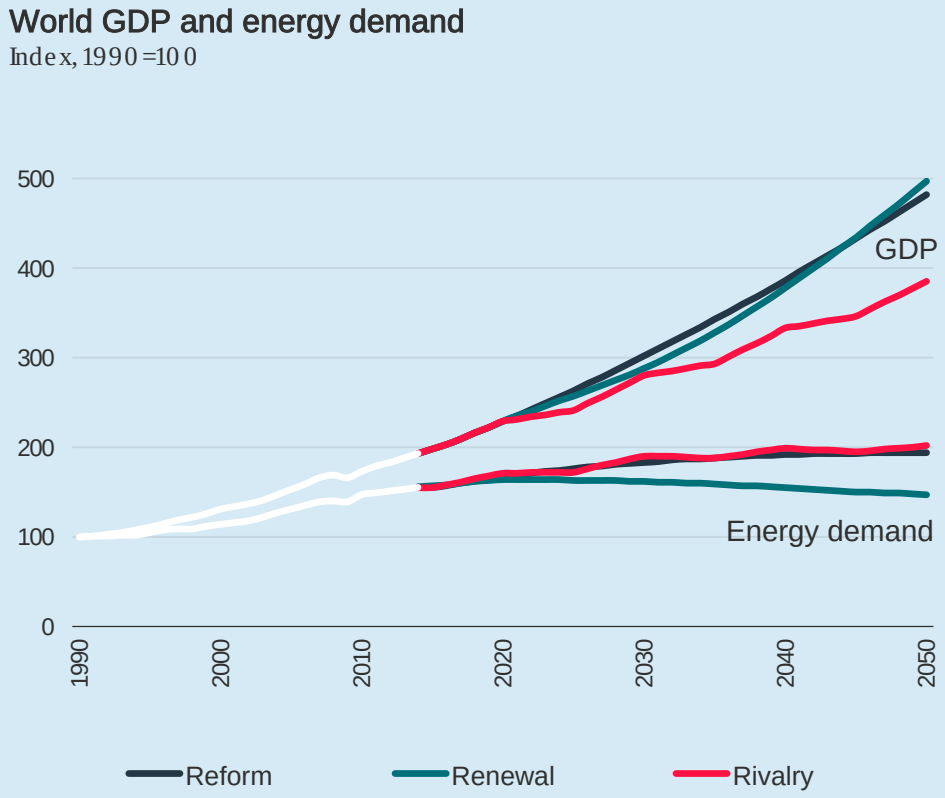


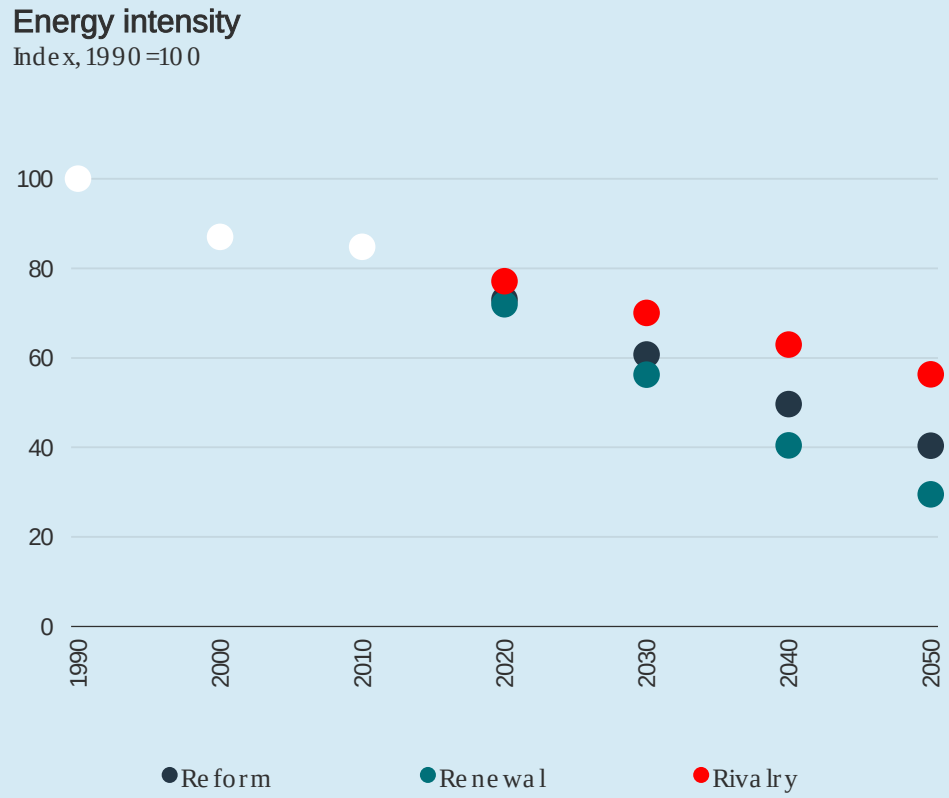
What are common beliefs about the future?

- 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

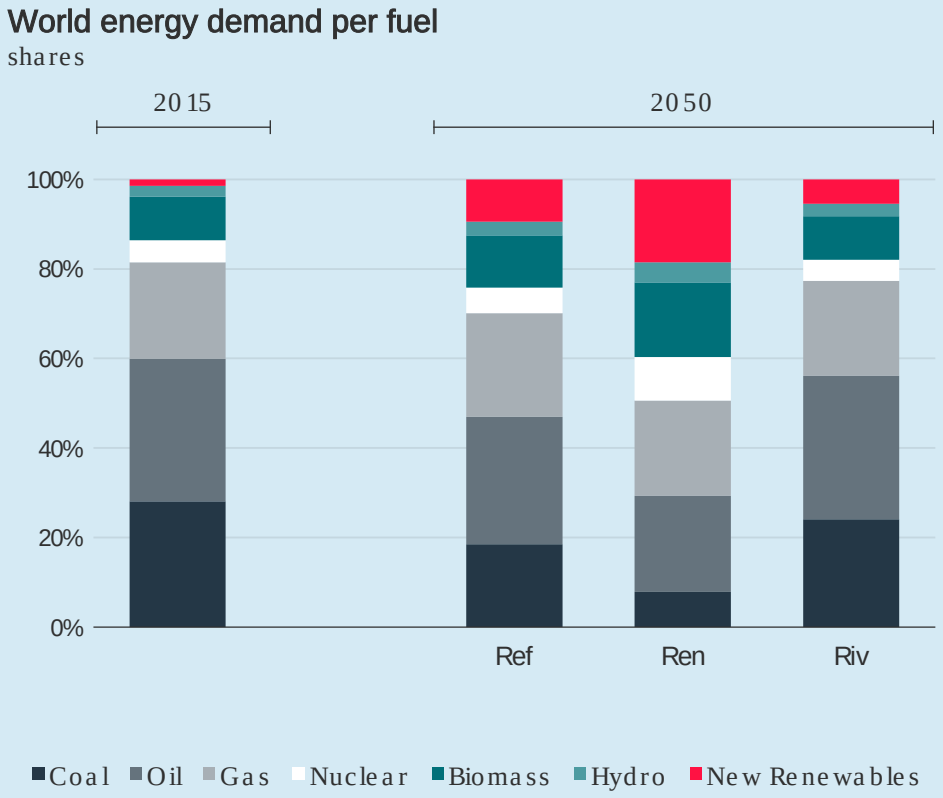


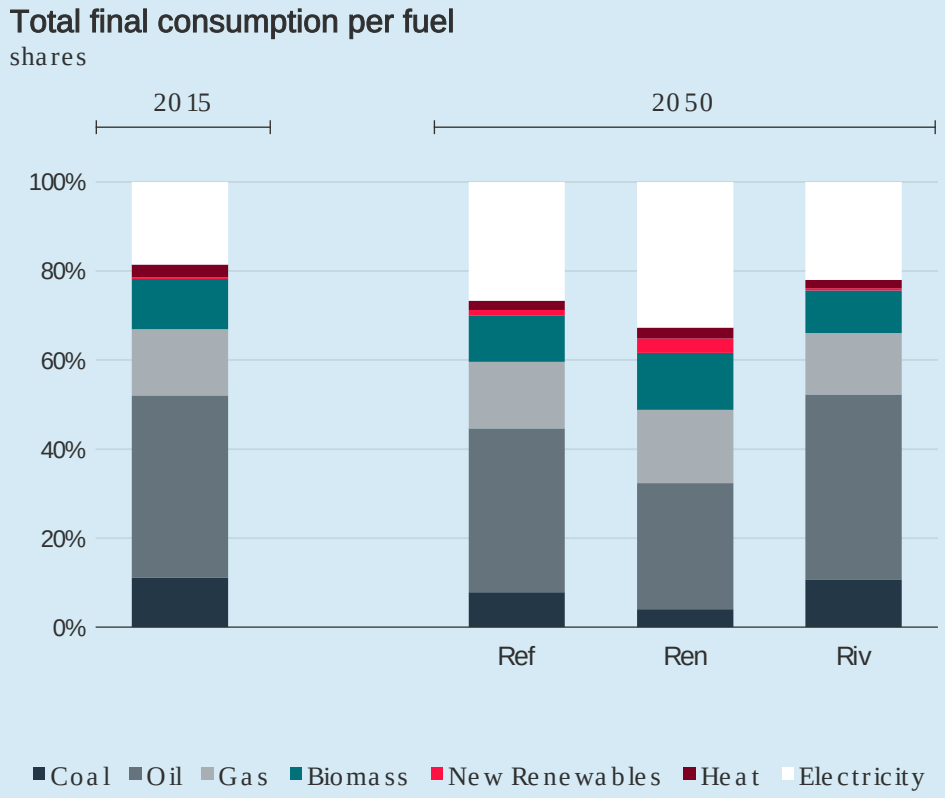


Source: IEA (history), Equinor (projections)

Growth in position of new renewables and electricity across all scenarios

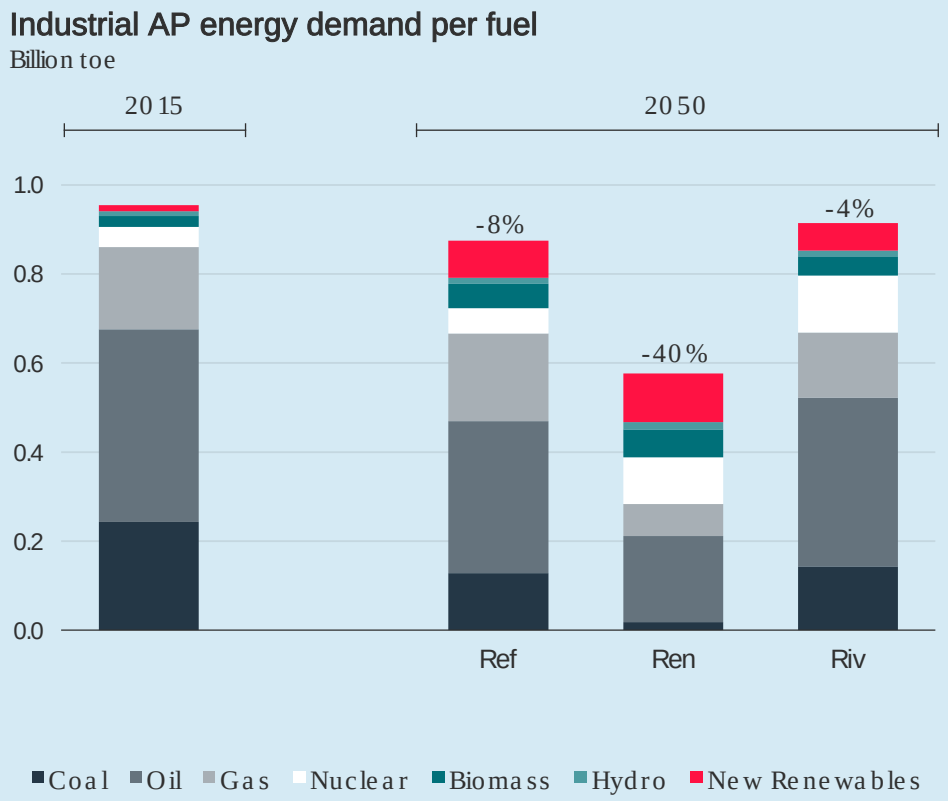
Sufficient speed and scope only in Renewal – fossil fuels keep their share in Rivalry

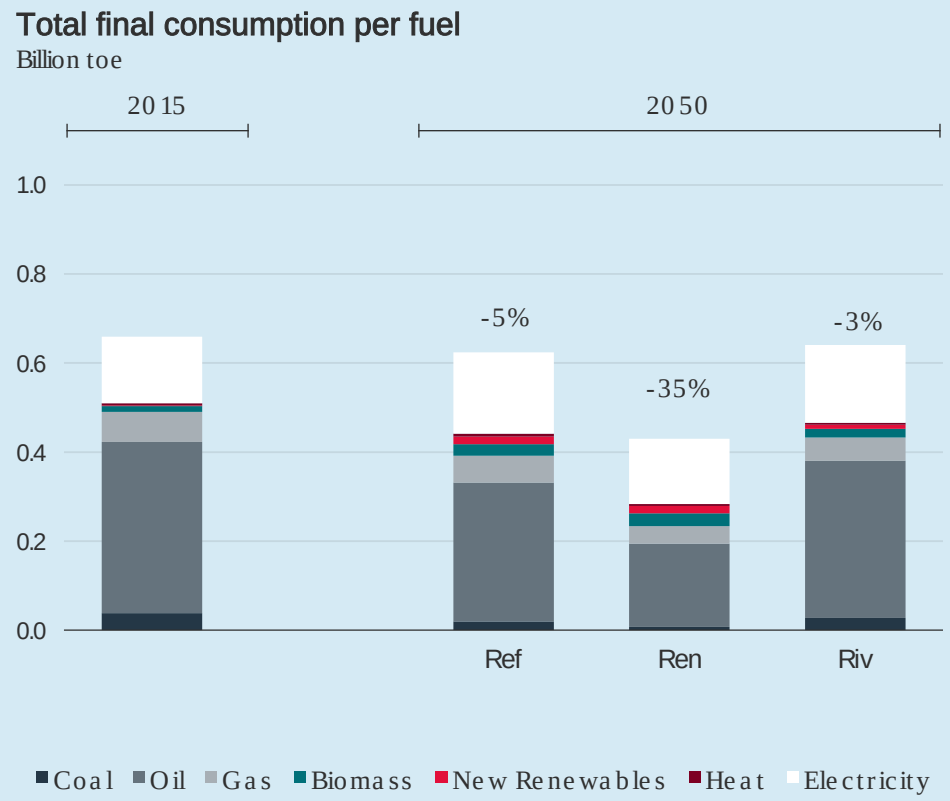




Source: IEA (history), Equinor (projections)

Significant fuel mix changes in all Industrial AP scenarios

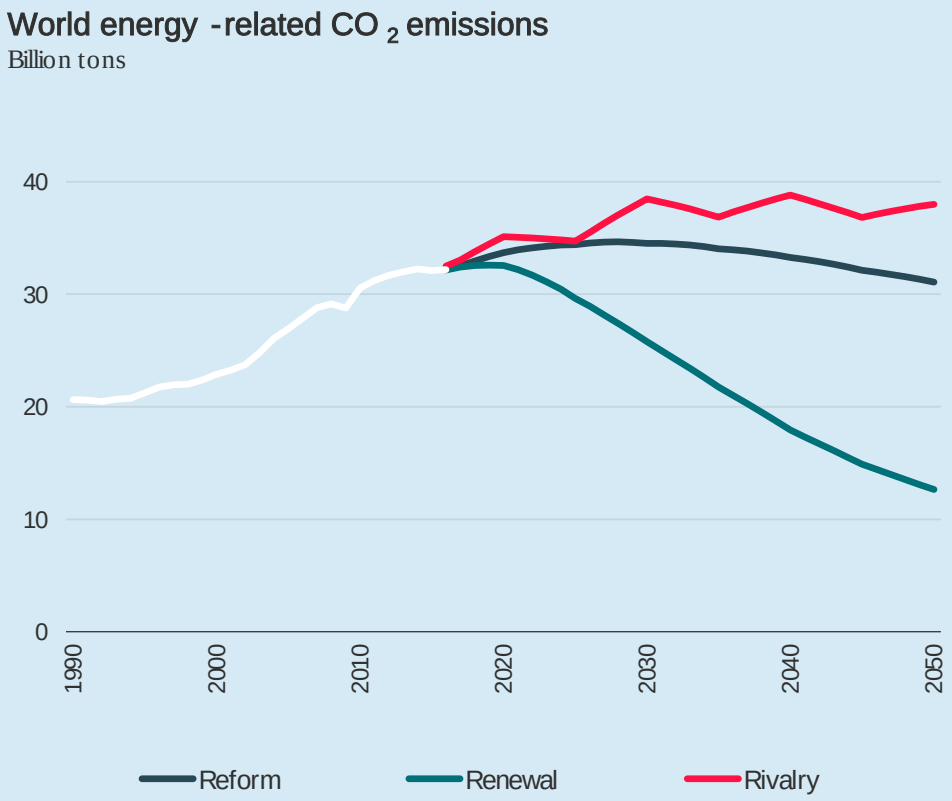


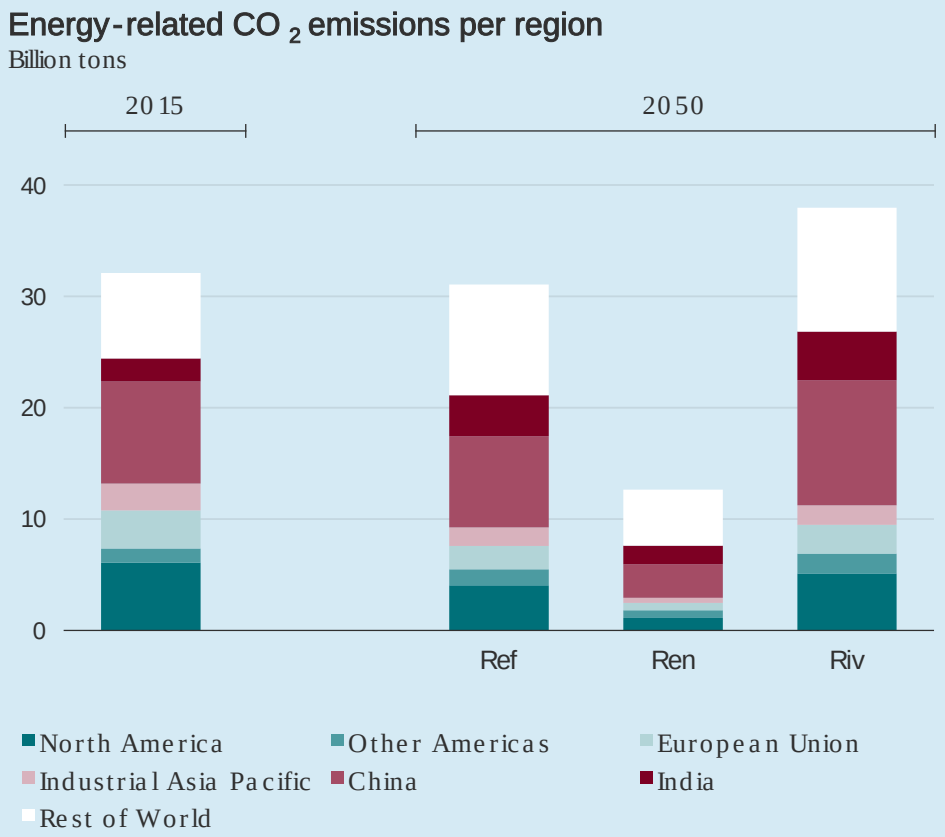


Source: IEA (history), Equinor (projections)

Will the energy transition affect CO_2 emissions?

Yes, but only Renewal shows a sustainable development – and there is an urgent need for action

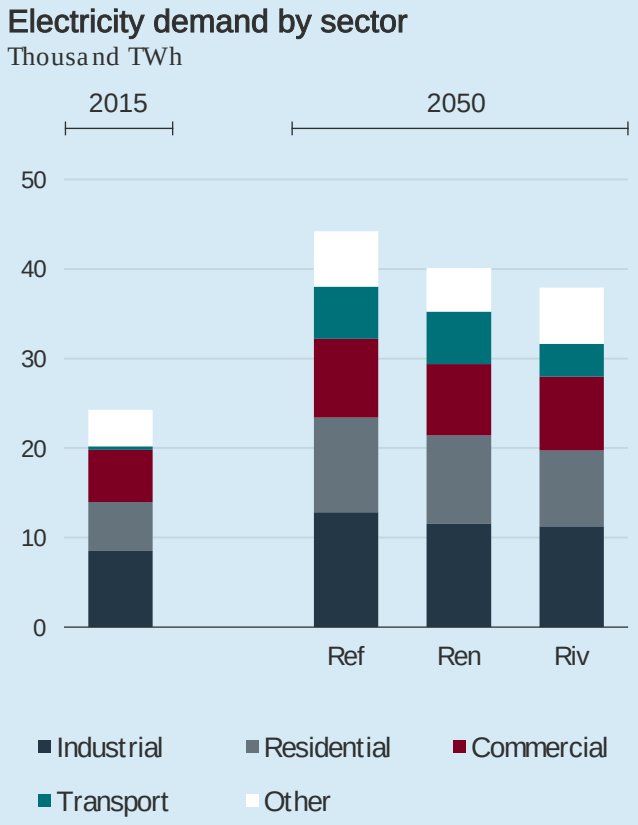


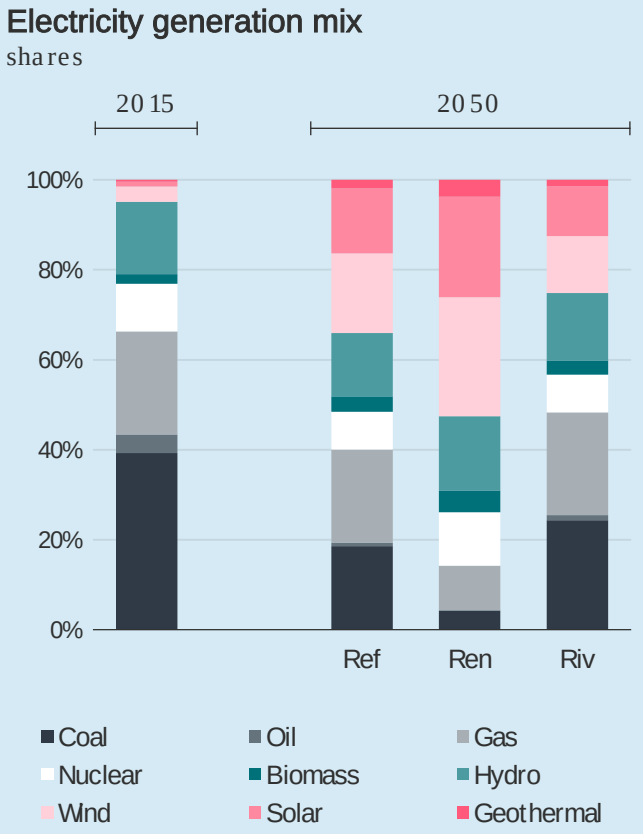


Source: IEA (history), Equinor (projections)

Strong electricity demand growth in all scenarios

Generation mix develops very differently; solar and wind growing strongly

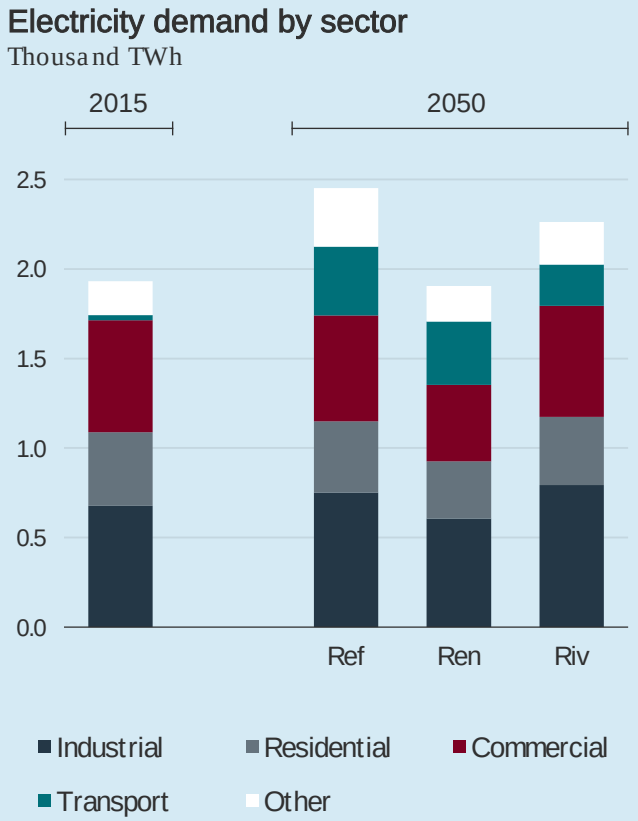


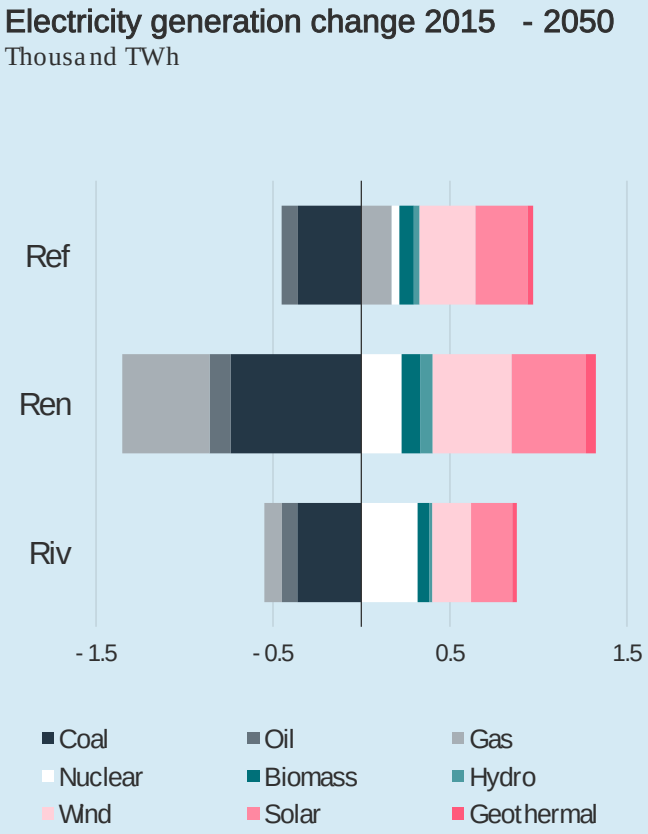


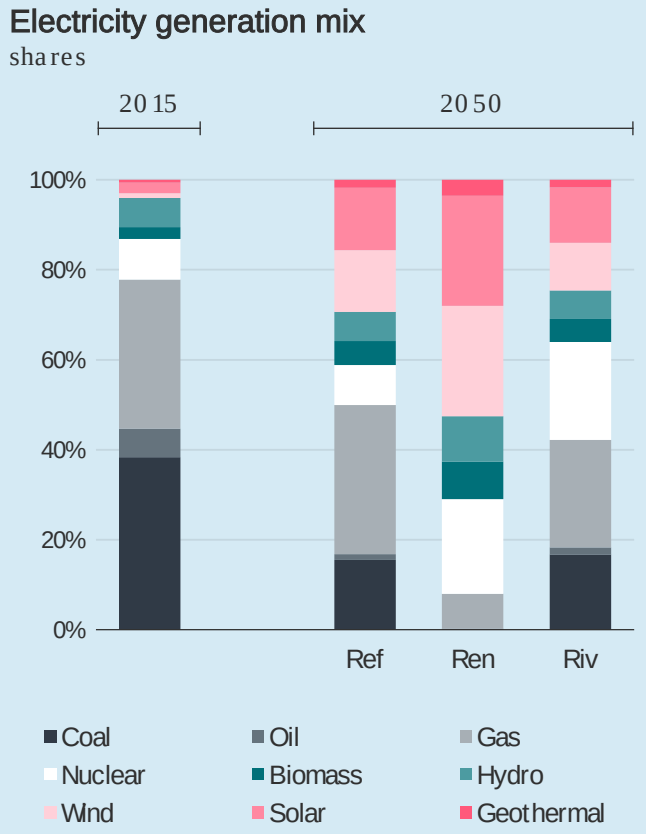
Source: IEA (history), Equinor (projections)

Electricity demand remains flat or grows moderately in Industrial AP

Generation mix develops very differently; solar and wind growing strongly



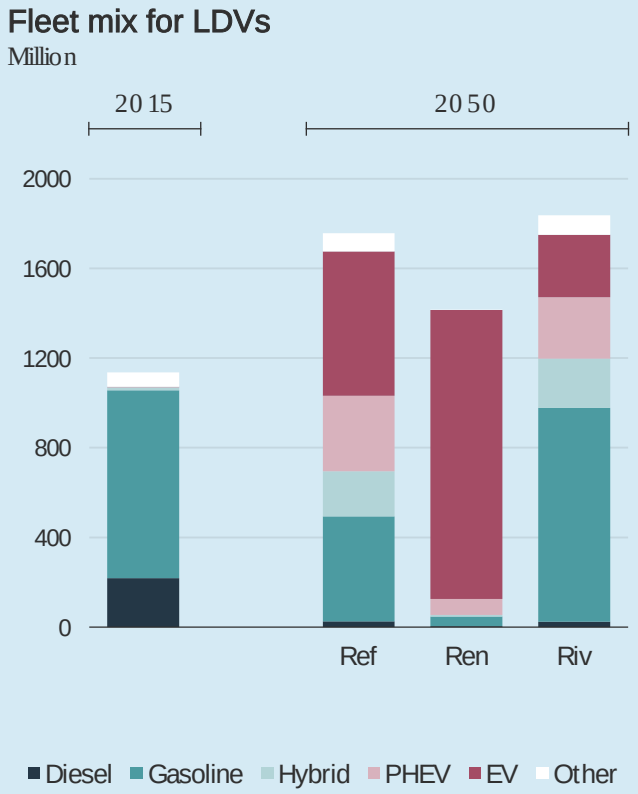


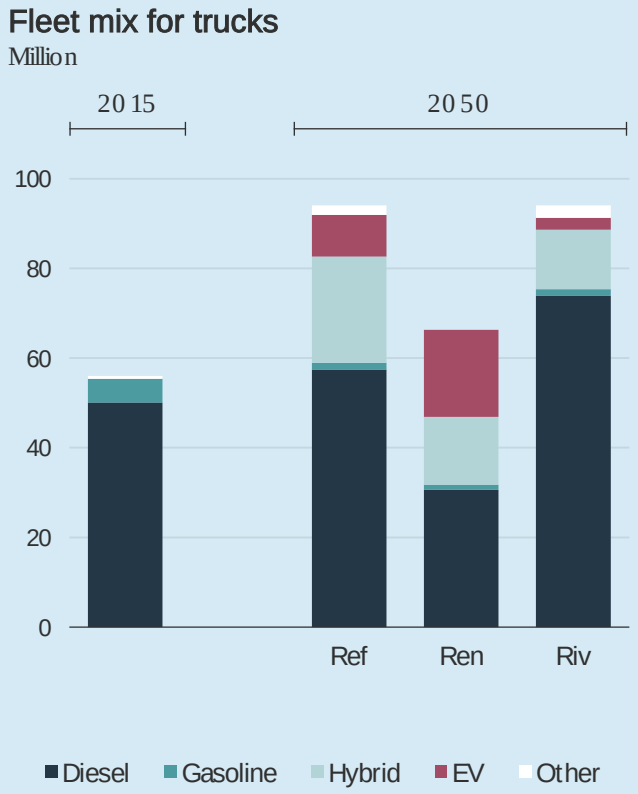


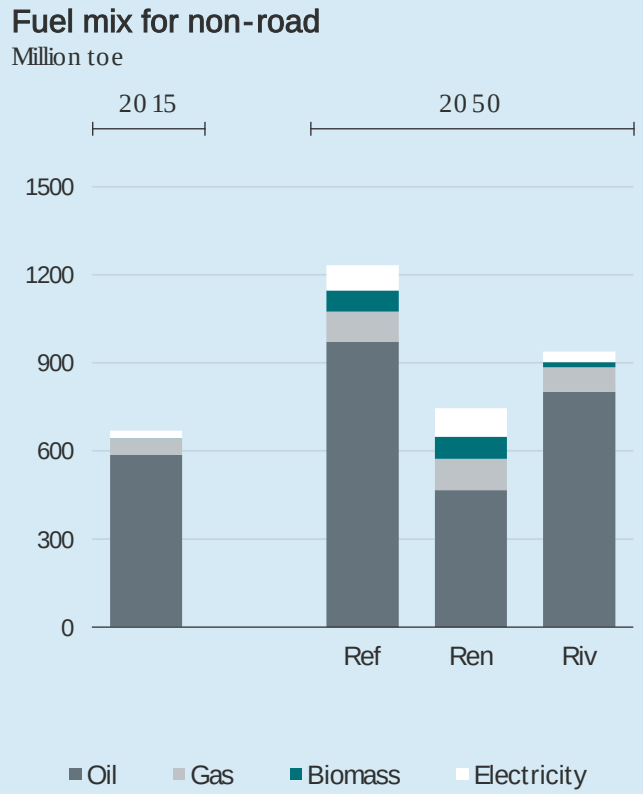
Source: IEA (history), Equinor (projections)

Massive changes in road transport – efficiency and fuel mix

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







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

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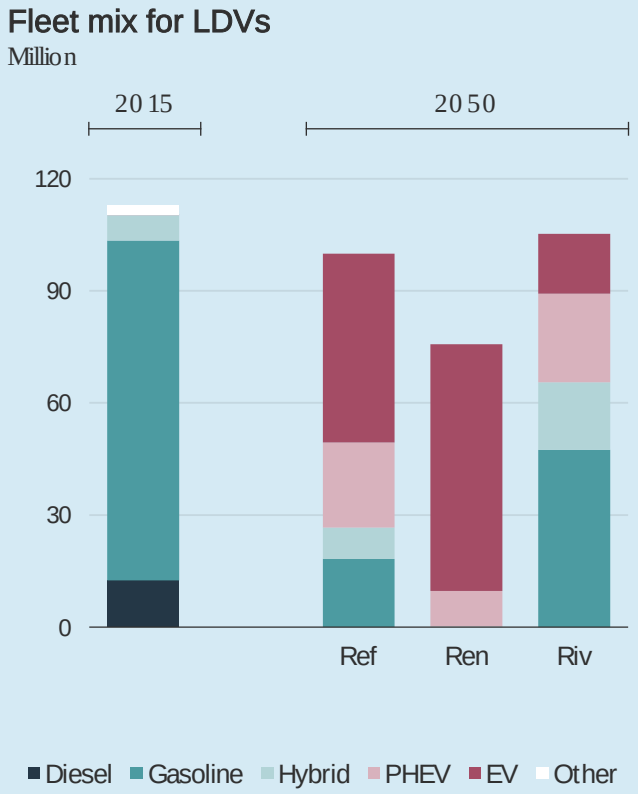

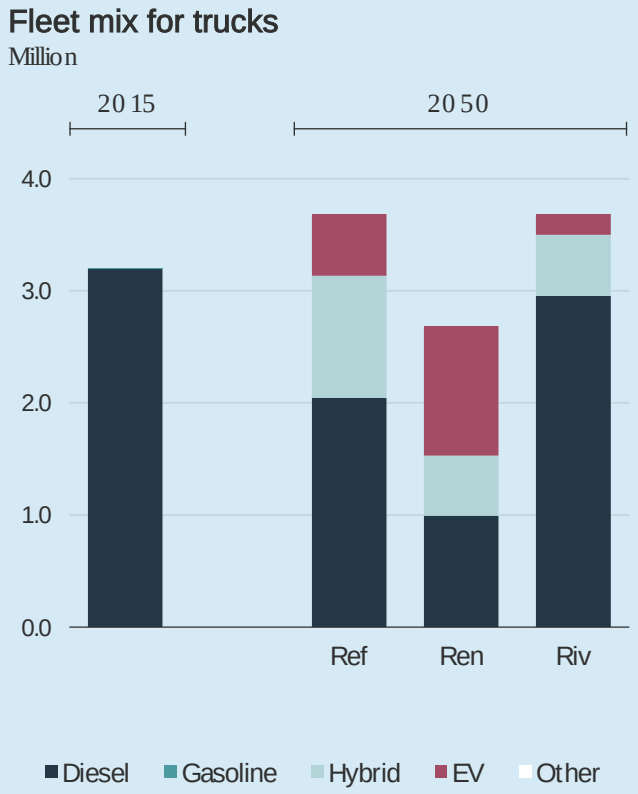

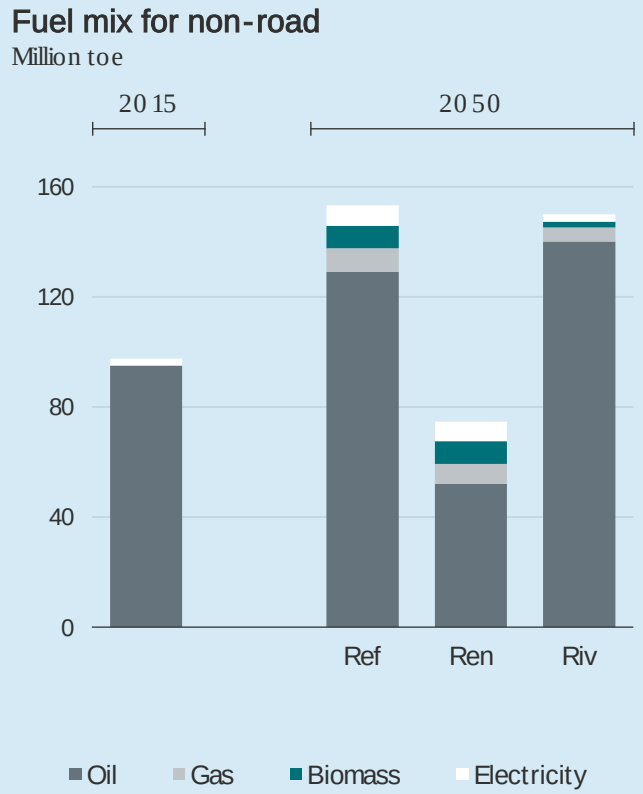

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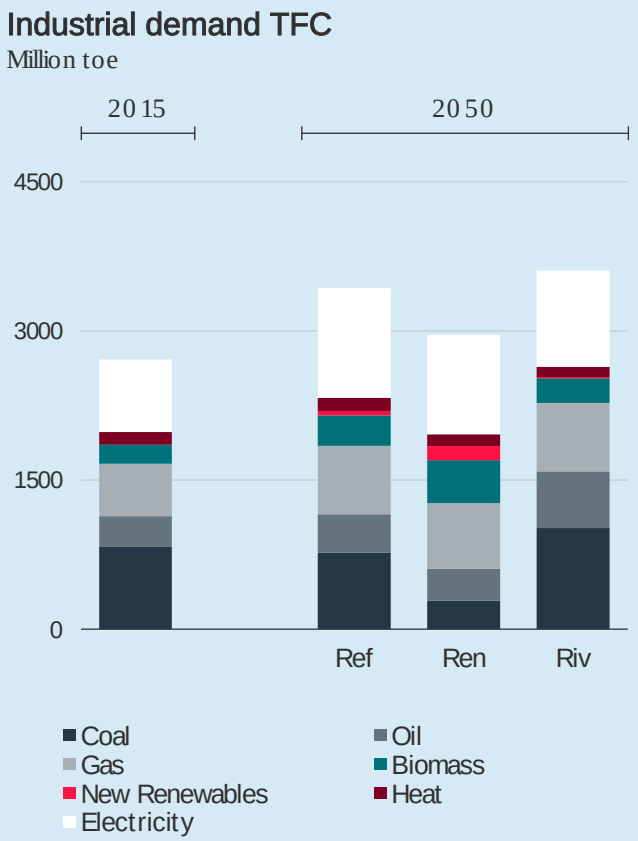
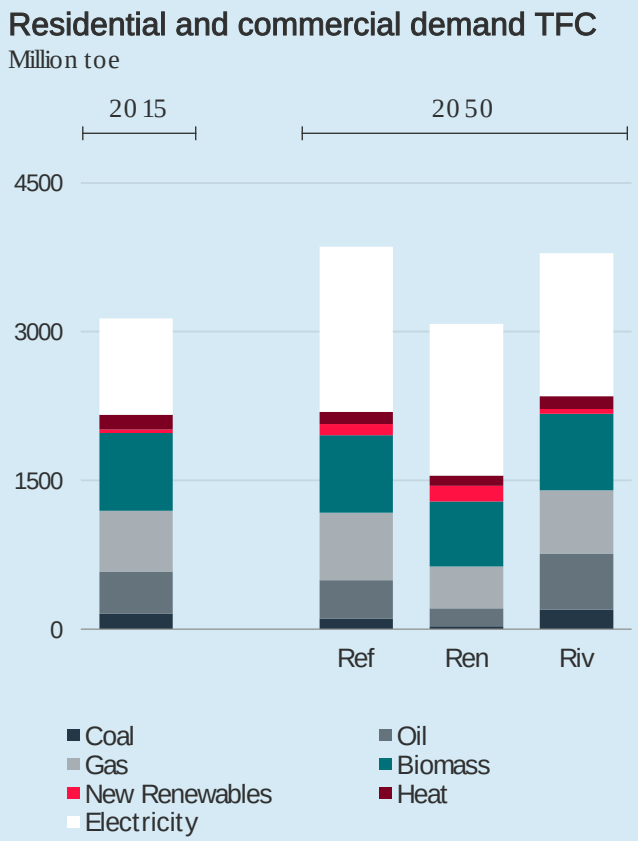
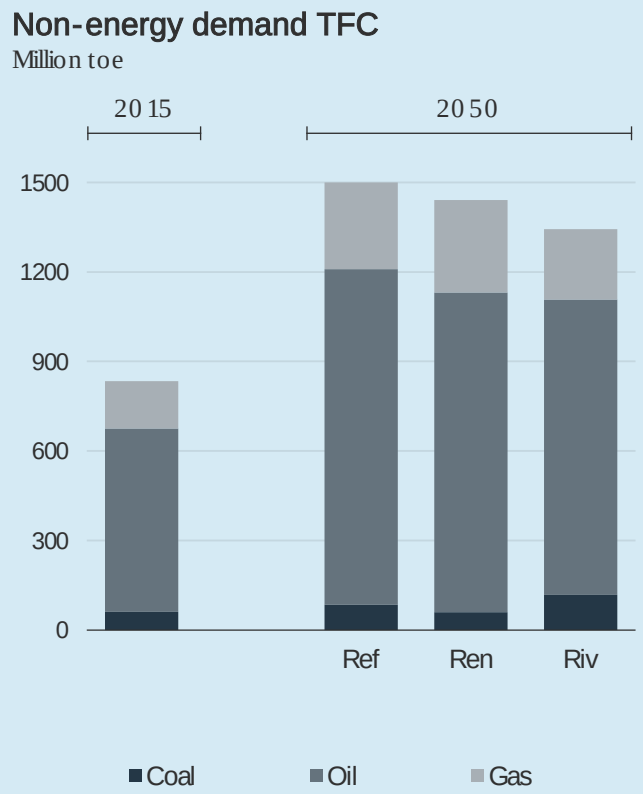
Transition moving slower in other sectors

No silver bullet, efficiency and electrification the primary measures



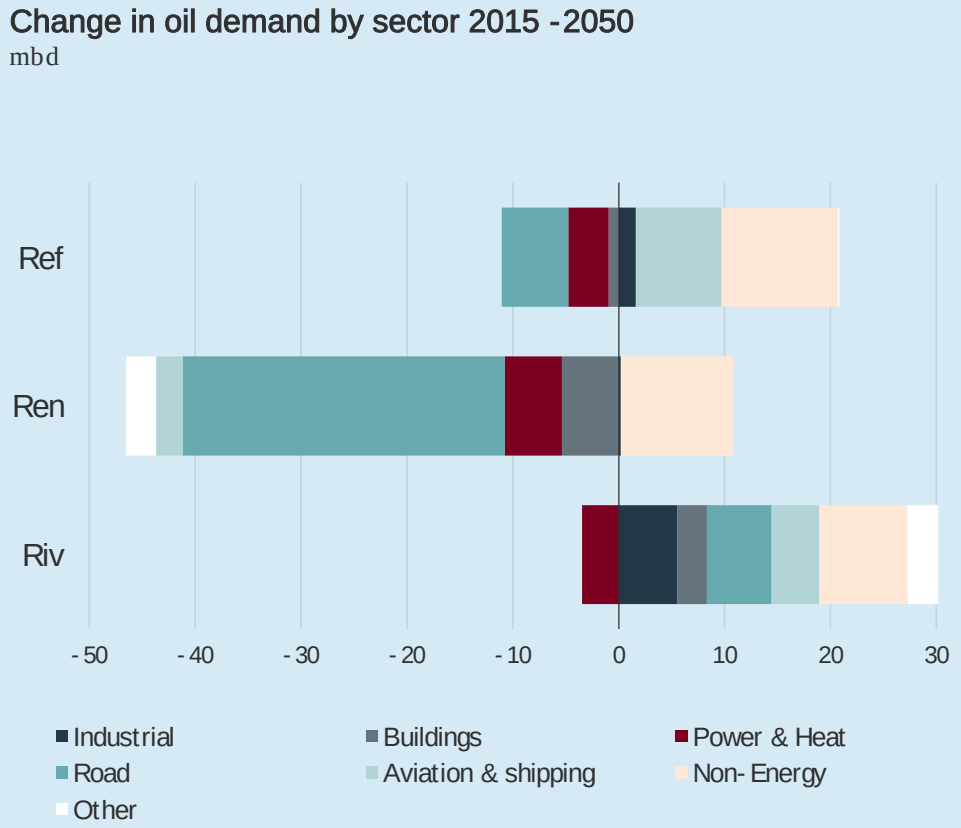


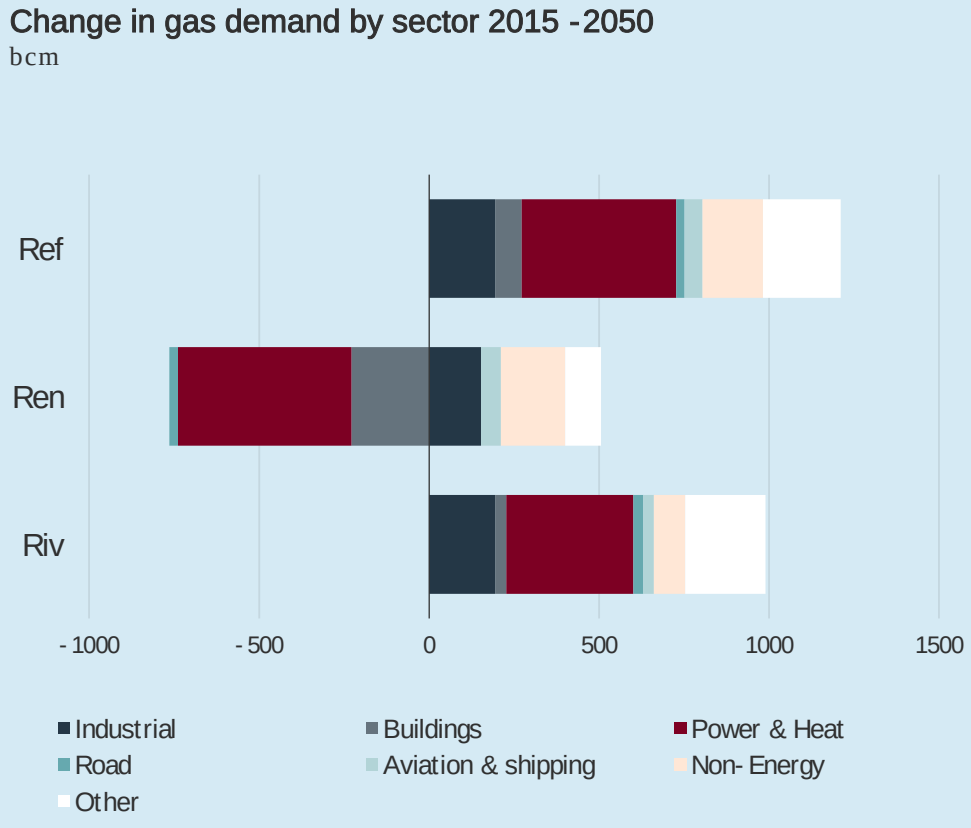


Source: IEA (history), Equinor (projections)

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

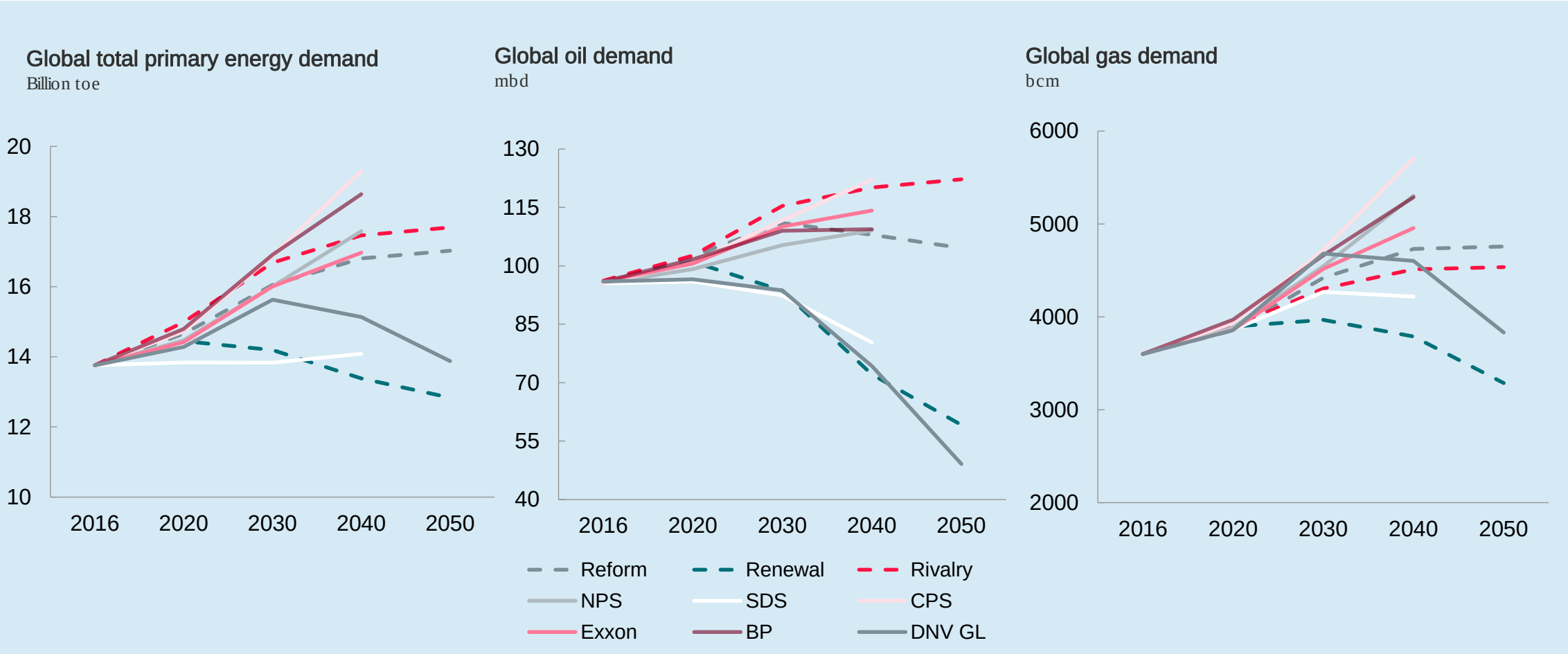




Source: IEA (history), Equinor (projections)

Benchmarking: How do Energy Perspectives scenarios compare?

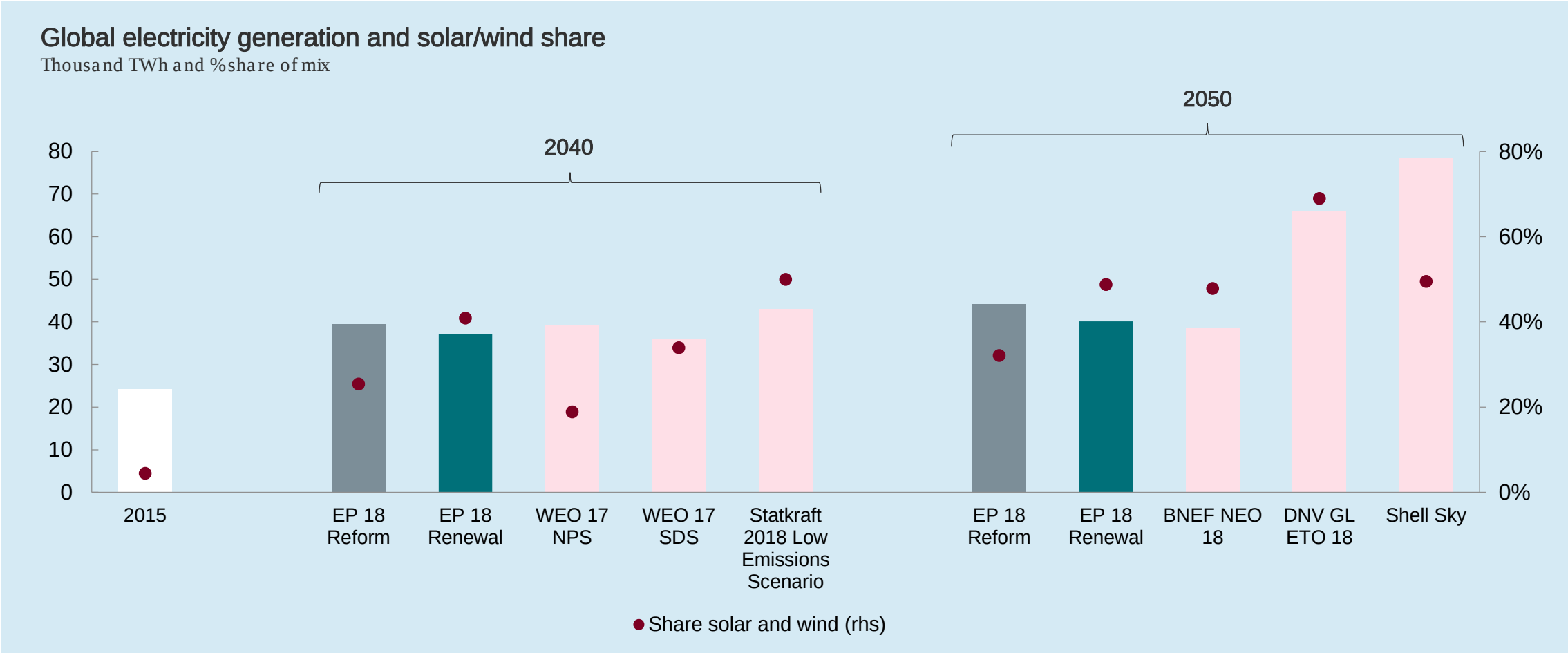
TPED, oil and gas



Source: World Energy Outlook 2017, DNV GL ETO 2018, Exxon Outlook 2018, BP Outlook 2018

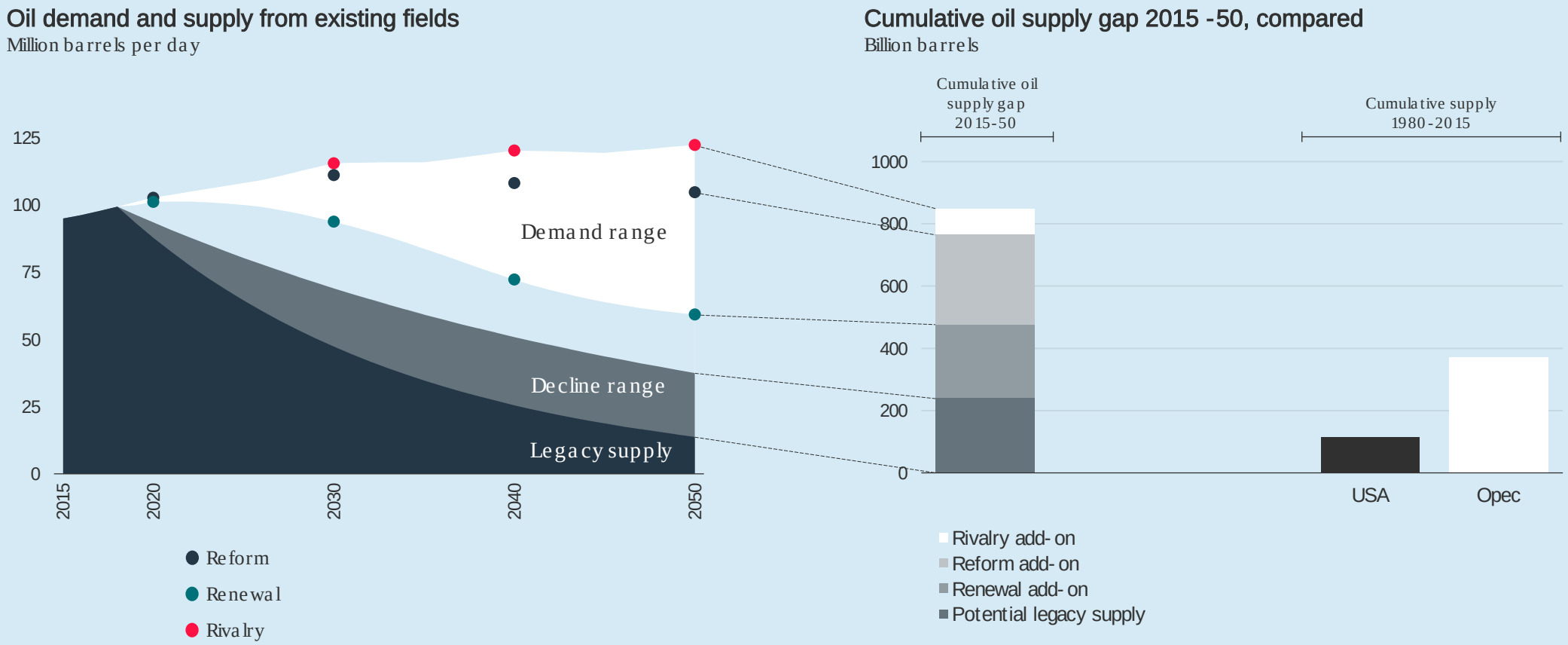
Benchmarking: How do Energy Perspectives scenarios compare?

Electricity generation and solar/wind



What is the need for new oil investments?

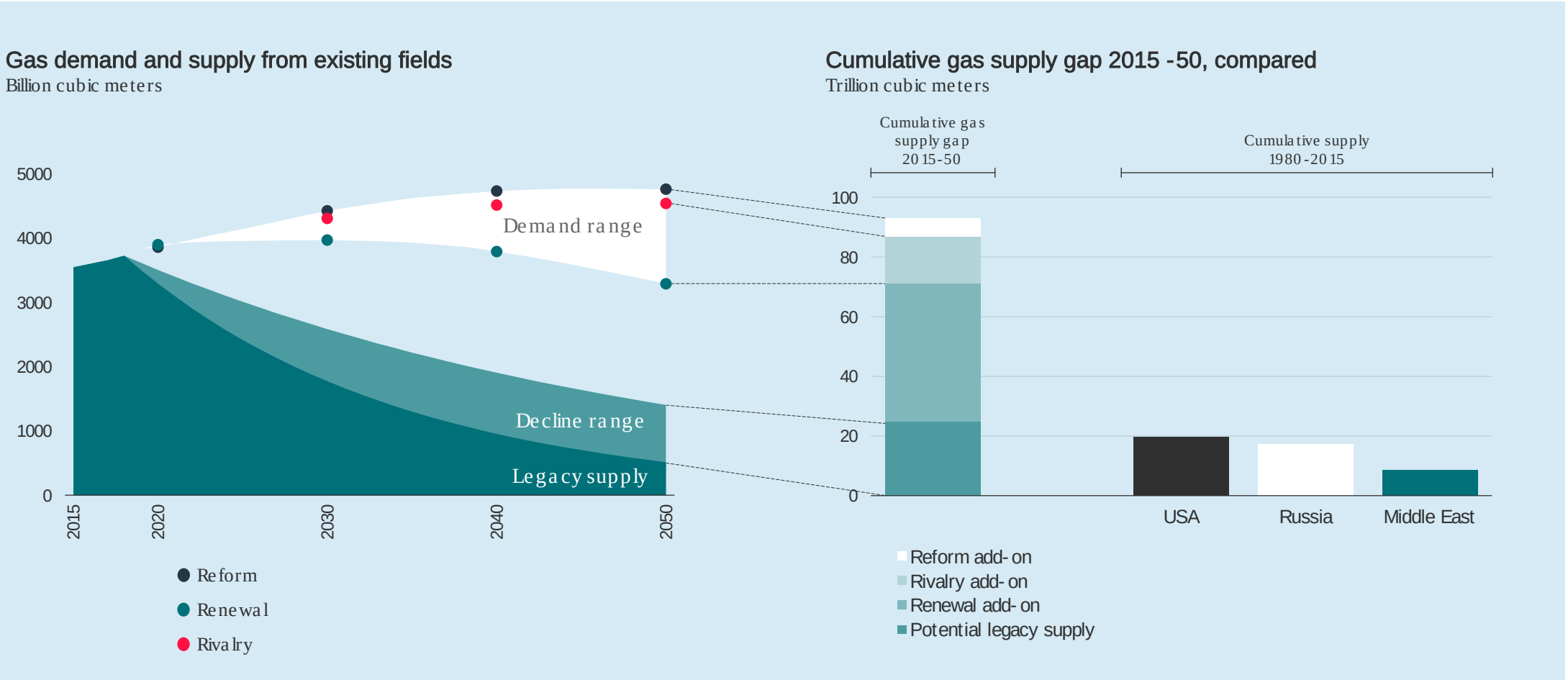
Large investments in all scenarios, although significantly less in Renewal



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

And what about new gas supply?

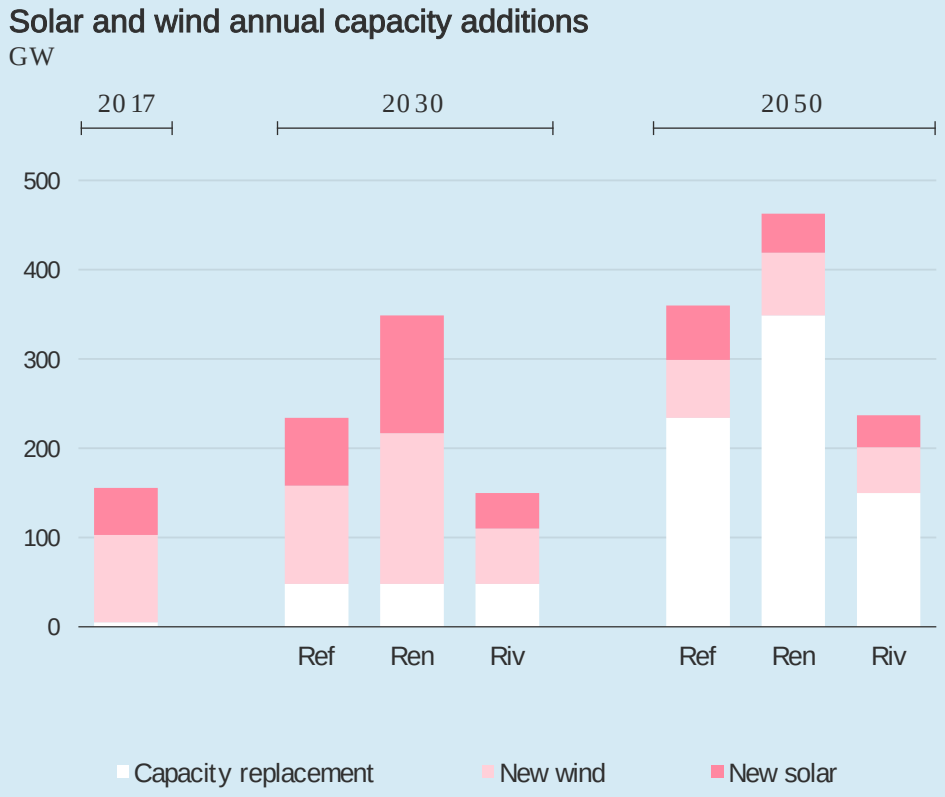
Large investments in all scenarios, although significantly less in Renewal

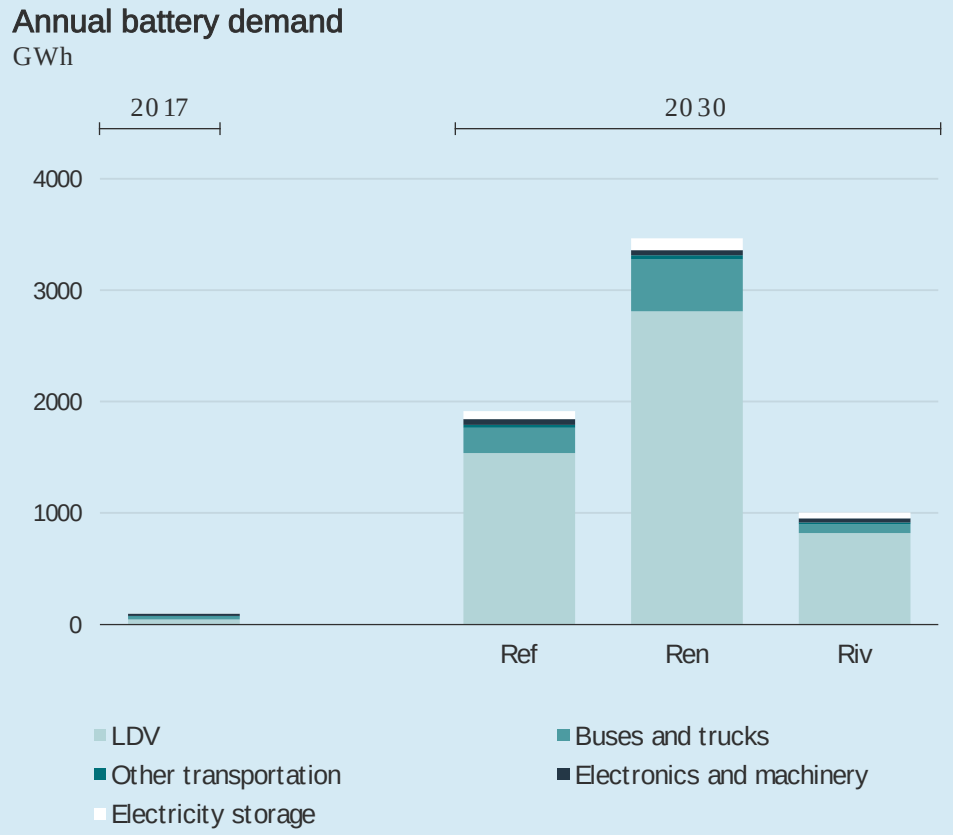


Source: IEA and BP (history), Equinor (projections)

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





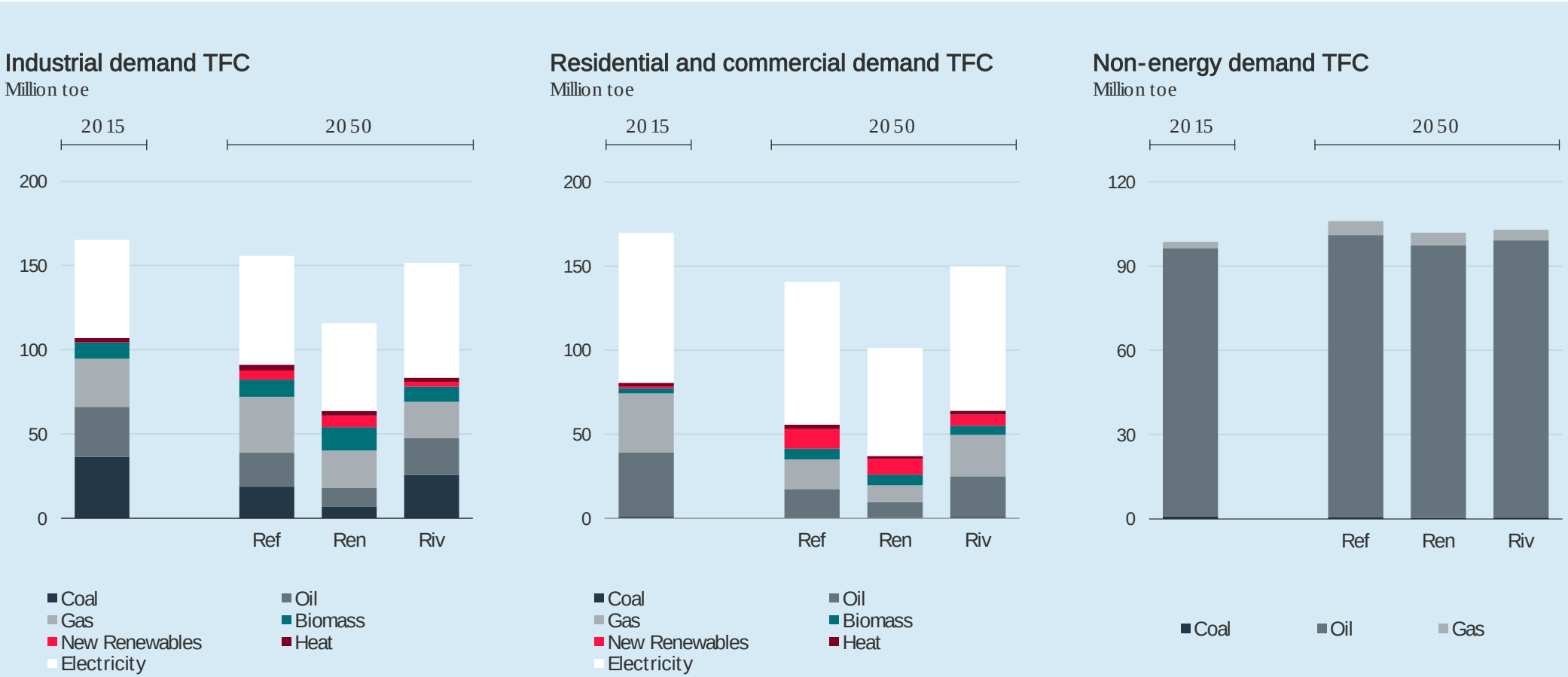
Source: Various sources (history), Equinor (projections)

Energy Perspectives 2018

Eirik Wærness
Senior vice president and Chief economist

Transition moving slower in other sectors – Industrial AP

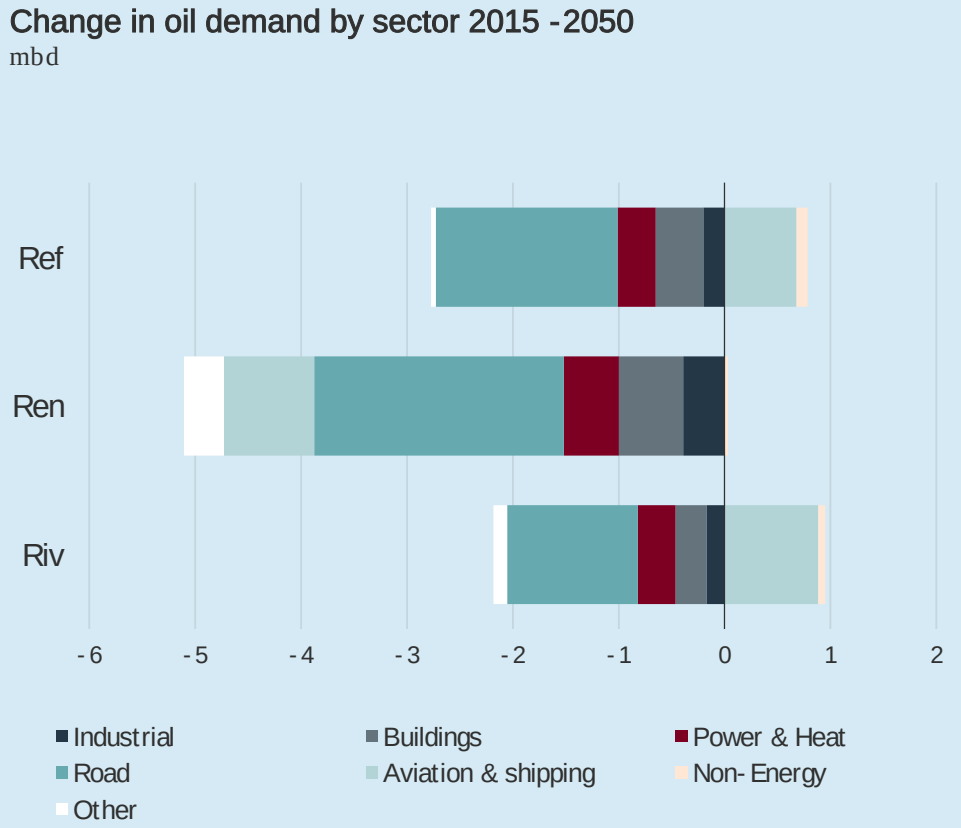
No silver bullet, efficiency and electrification the primary measures

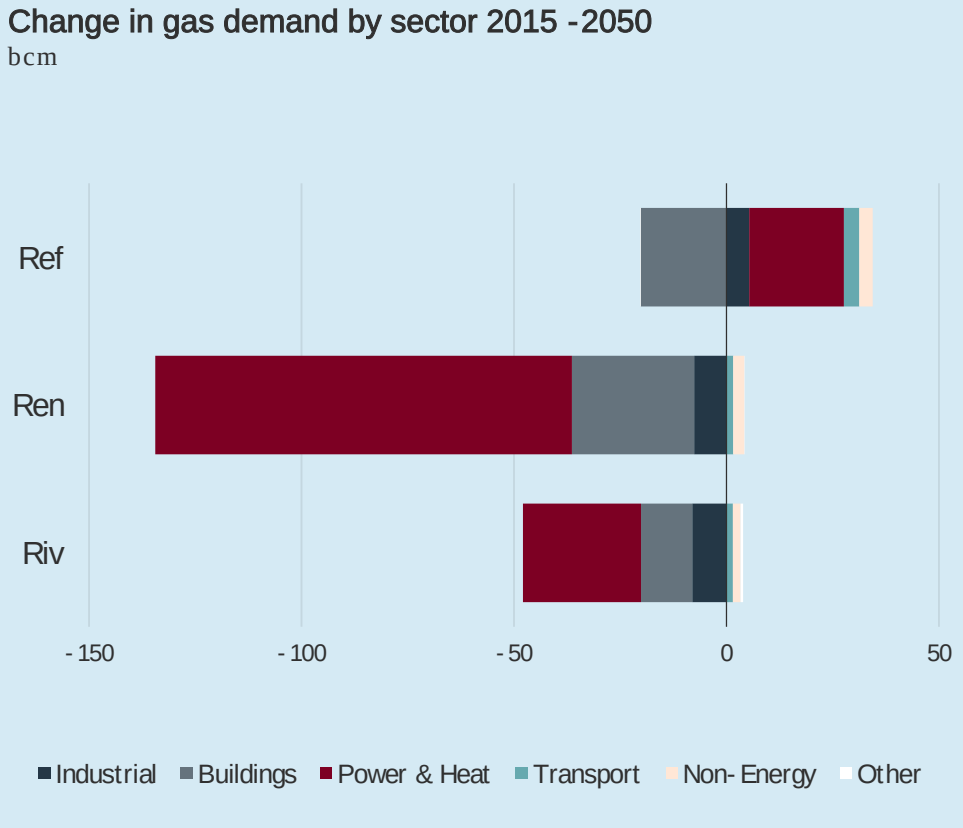


Source: IEA (history), Equinor (projections)

Declining oil and gas demand in Industrial AP

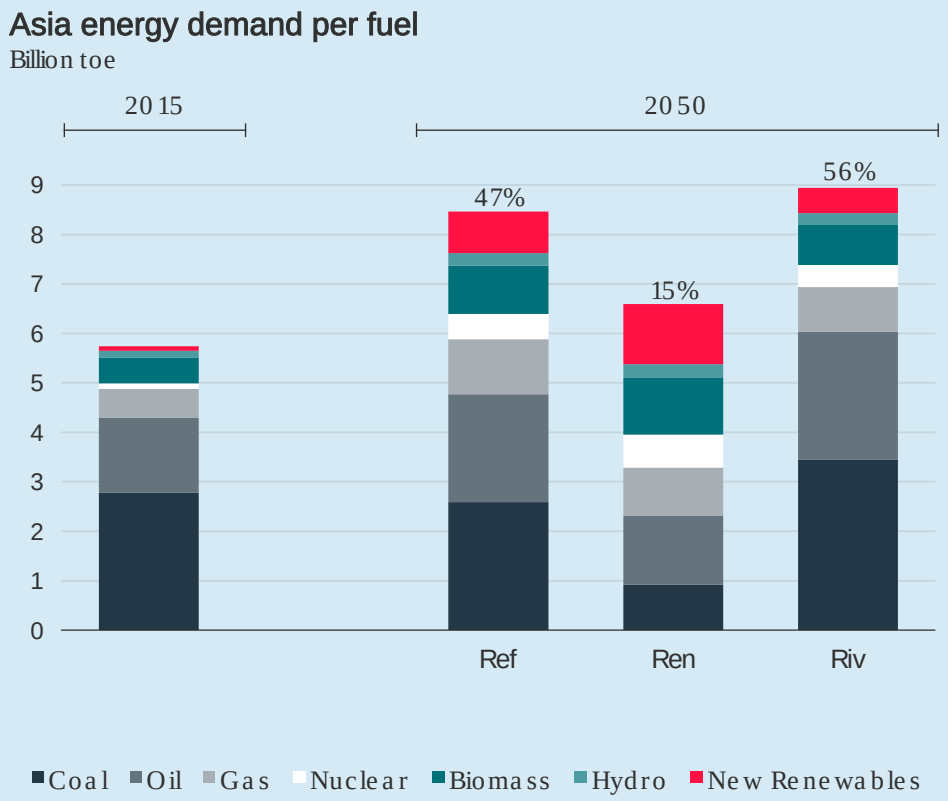
Transport key sector for oil and power for gas; non-energy demand important for both – growth irrespective of scenario

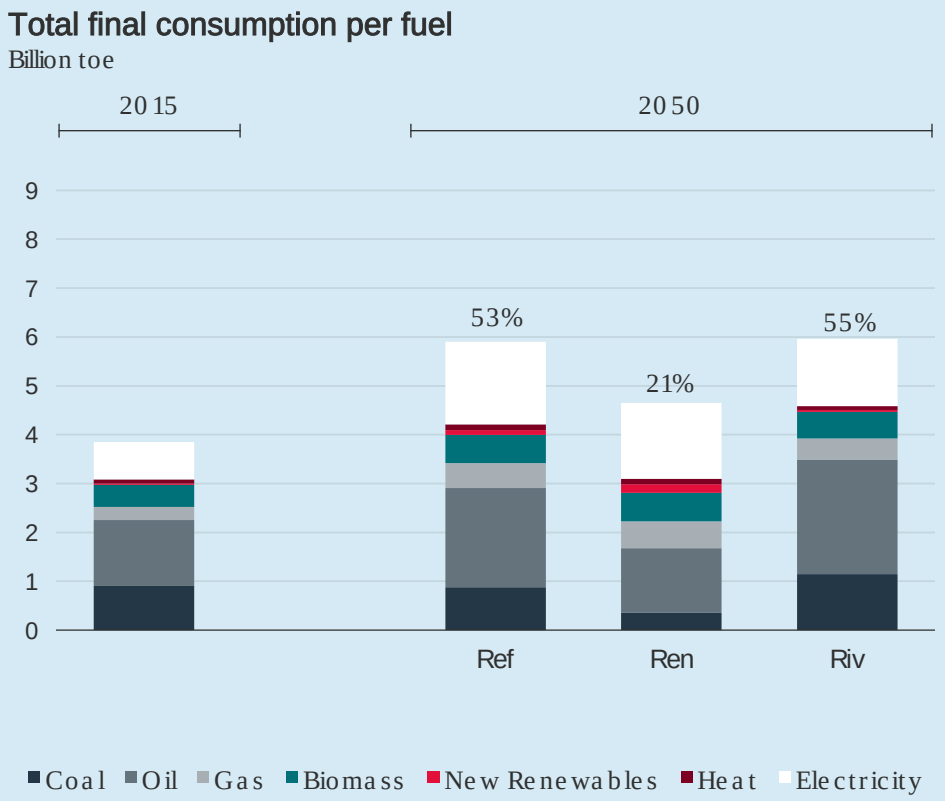




Source: IEA (history), Equinor (projections)

Significant fuel mix changes in all Asia scenarios





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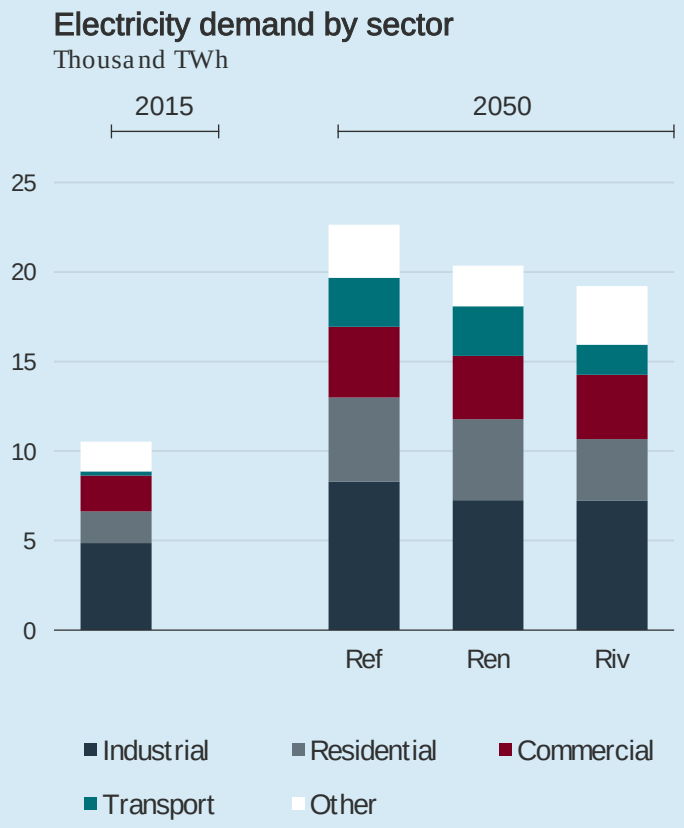
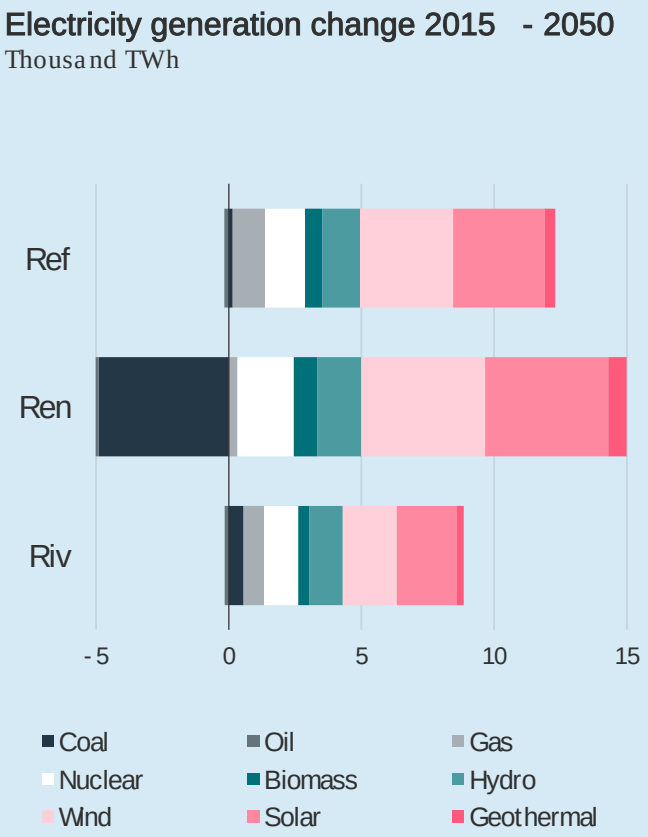
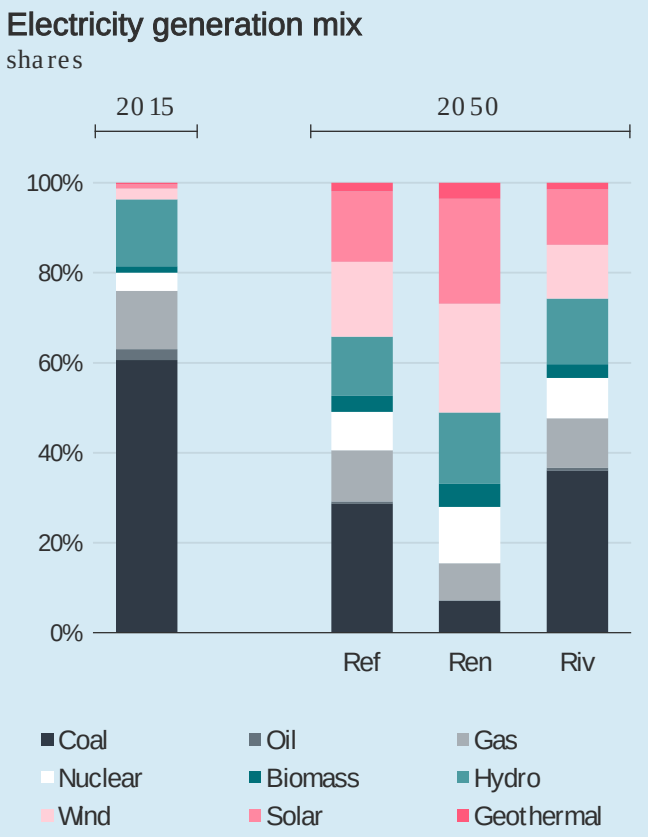
Strong electricity demand growth in Asia

Generation mix develops very differently; solar and wind growing strongly



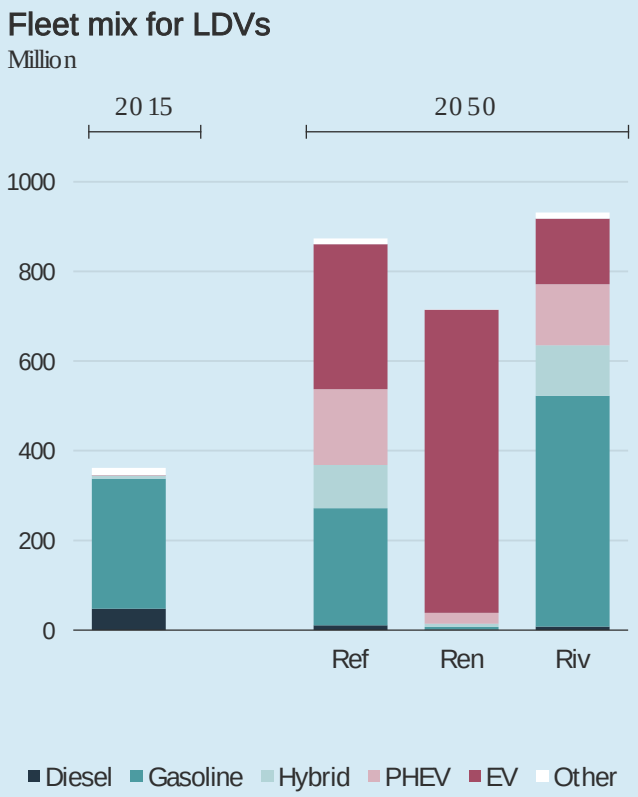


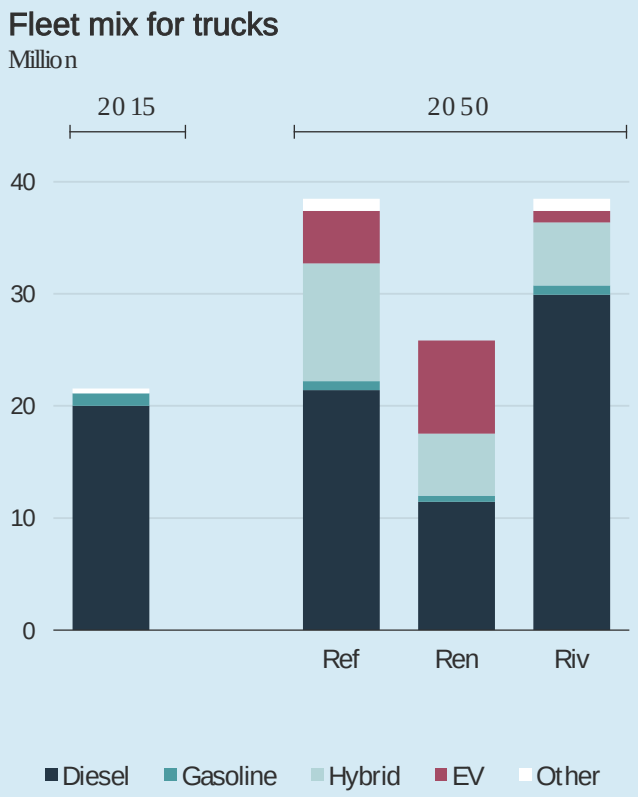


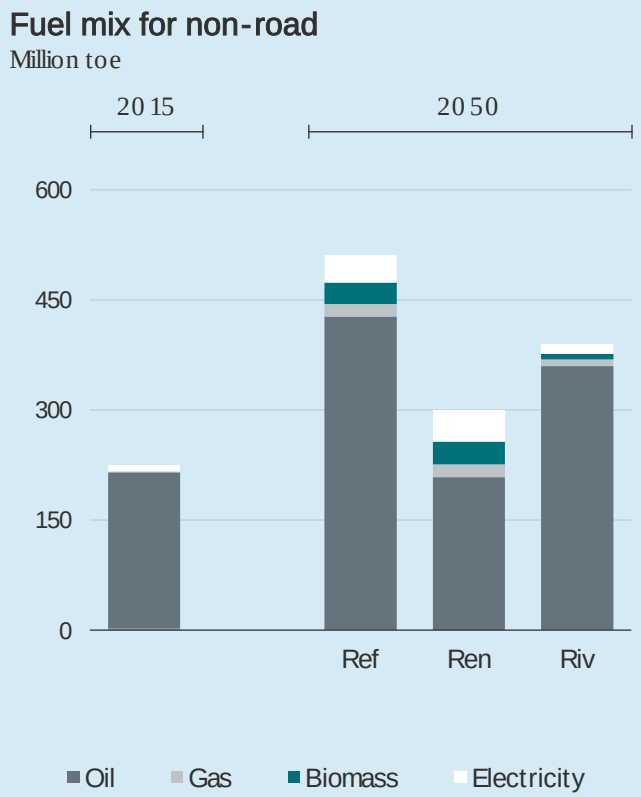
Source: IEA (history), Equinor (projections)

Massive changes in road transport – efficiency and fuel mix Asia

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



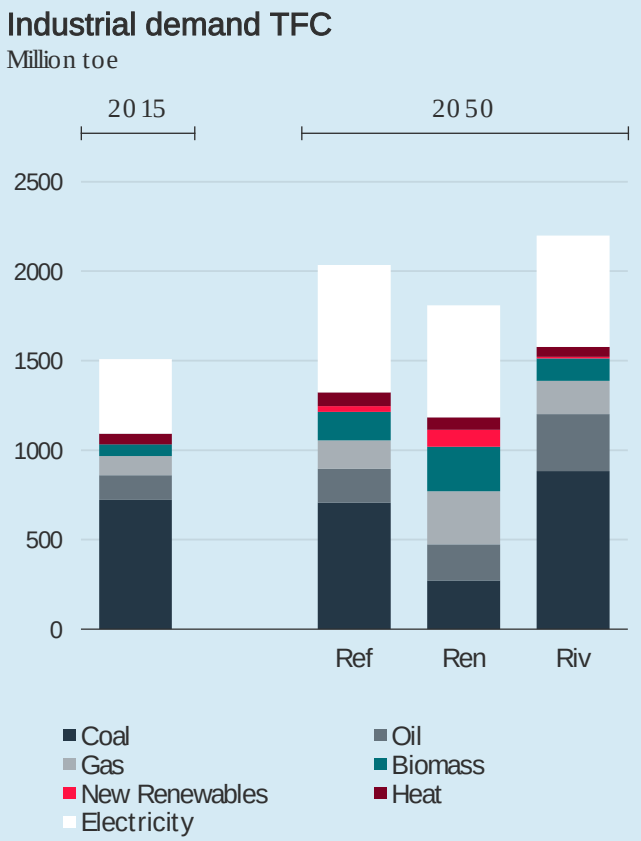


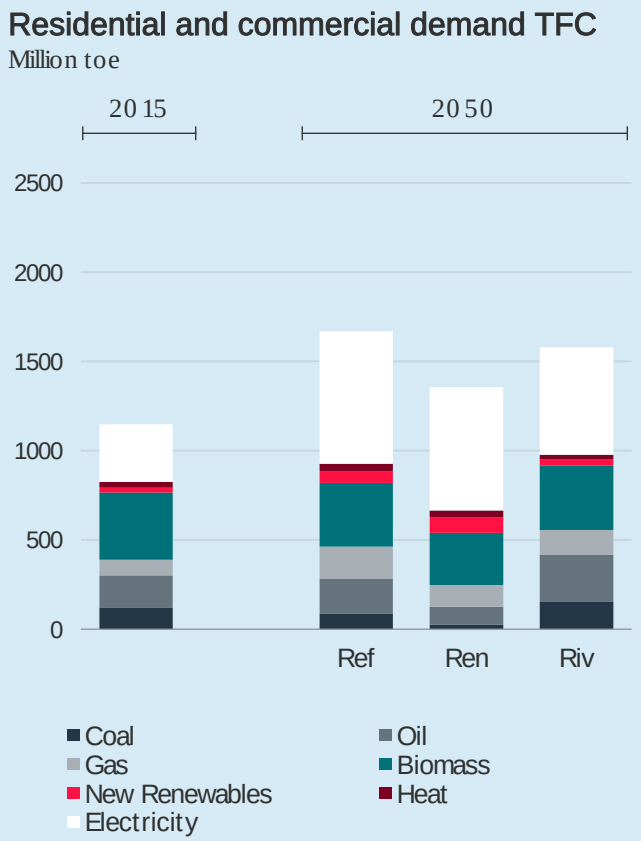


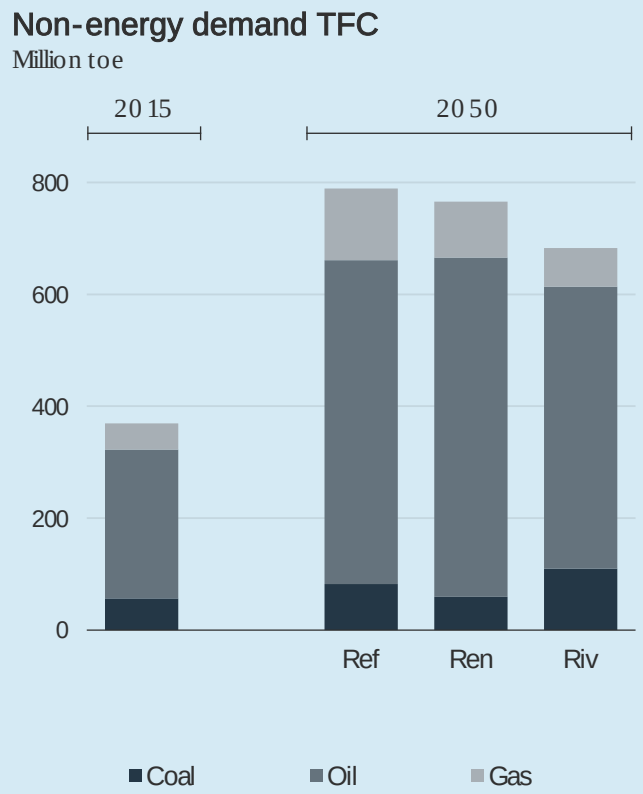
Source: IEA (history), Equinor (projections)

Transition moving slower in other sectors – Asia

No silver bullet, efficiency and electrification the primary measures







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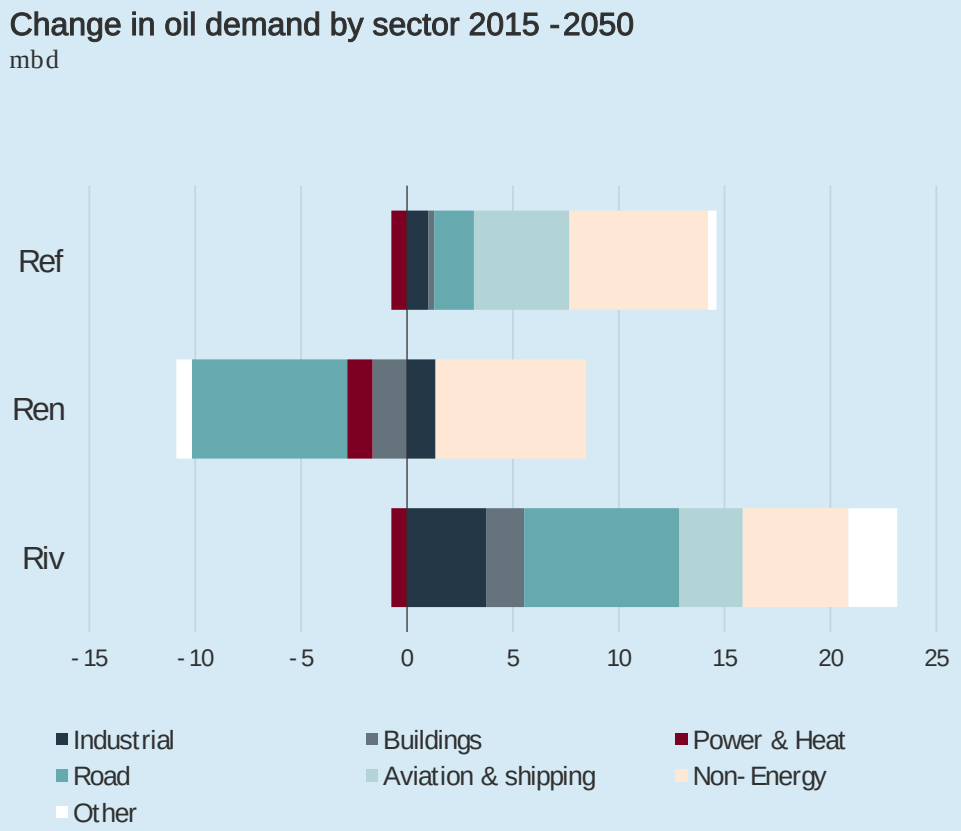
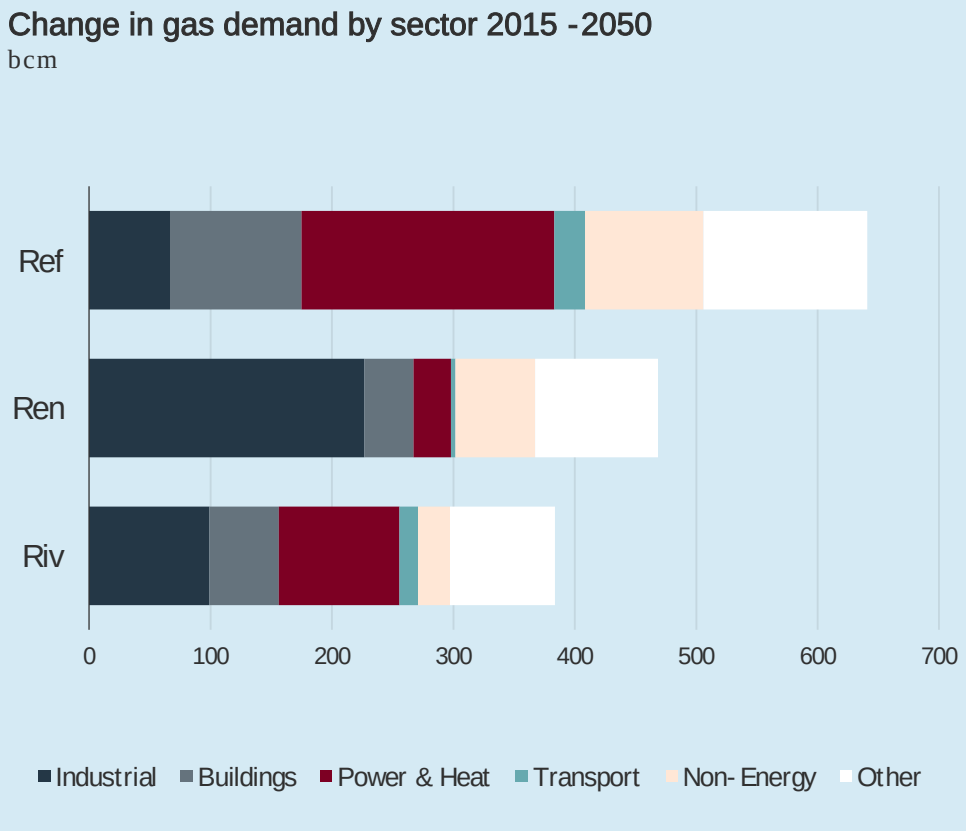
Strong prospects for oil and gas demand in Asia

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.ieej.or.jp