



equinor

# Energy Perspectives 2018

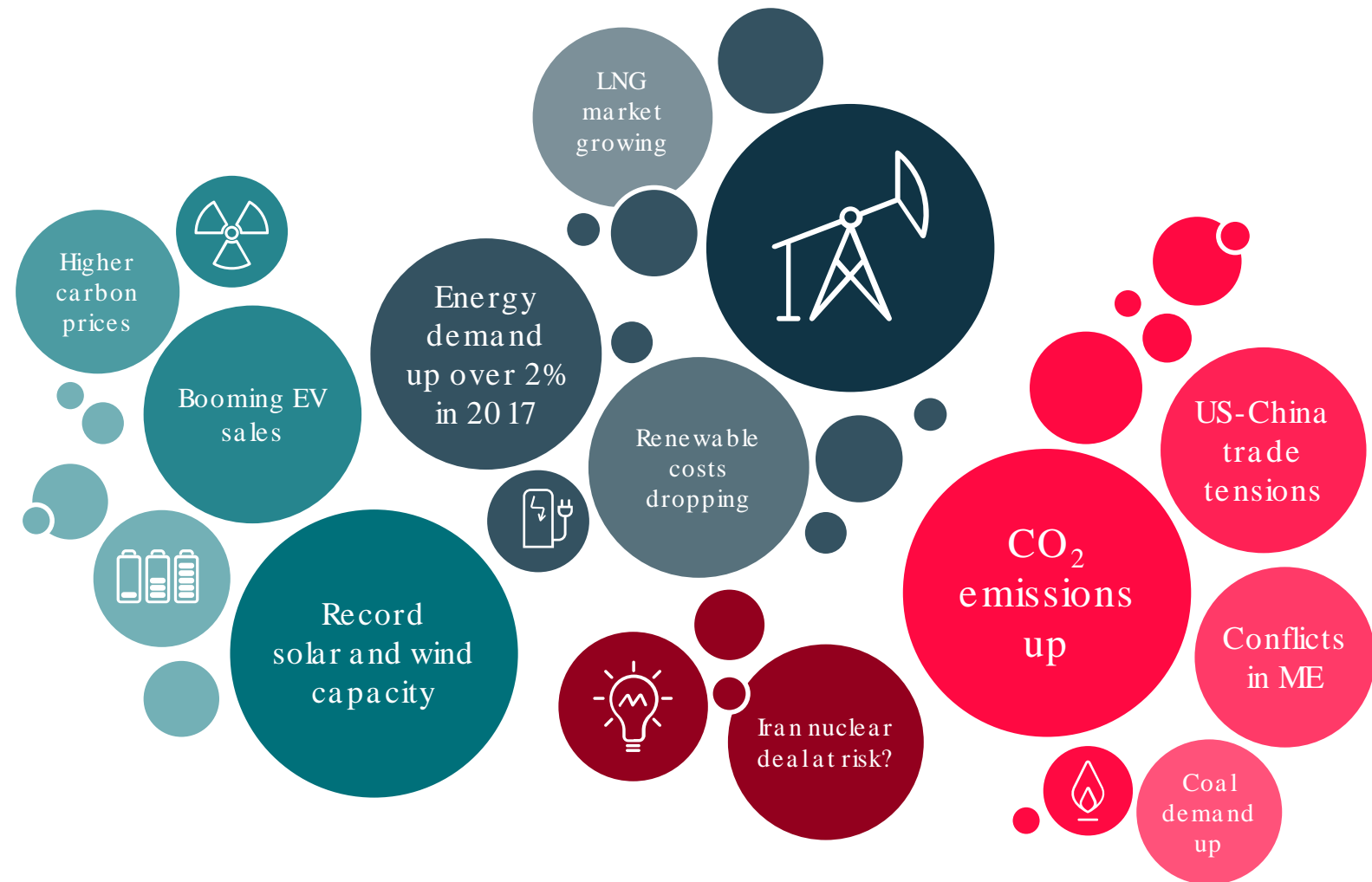
Long-term macro and market outlook

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

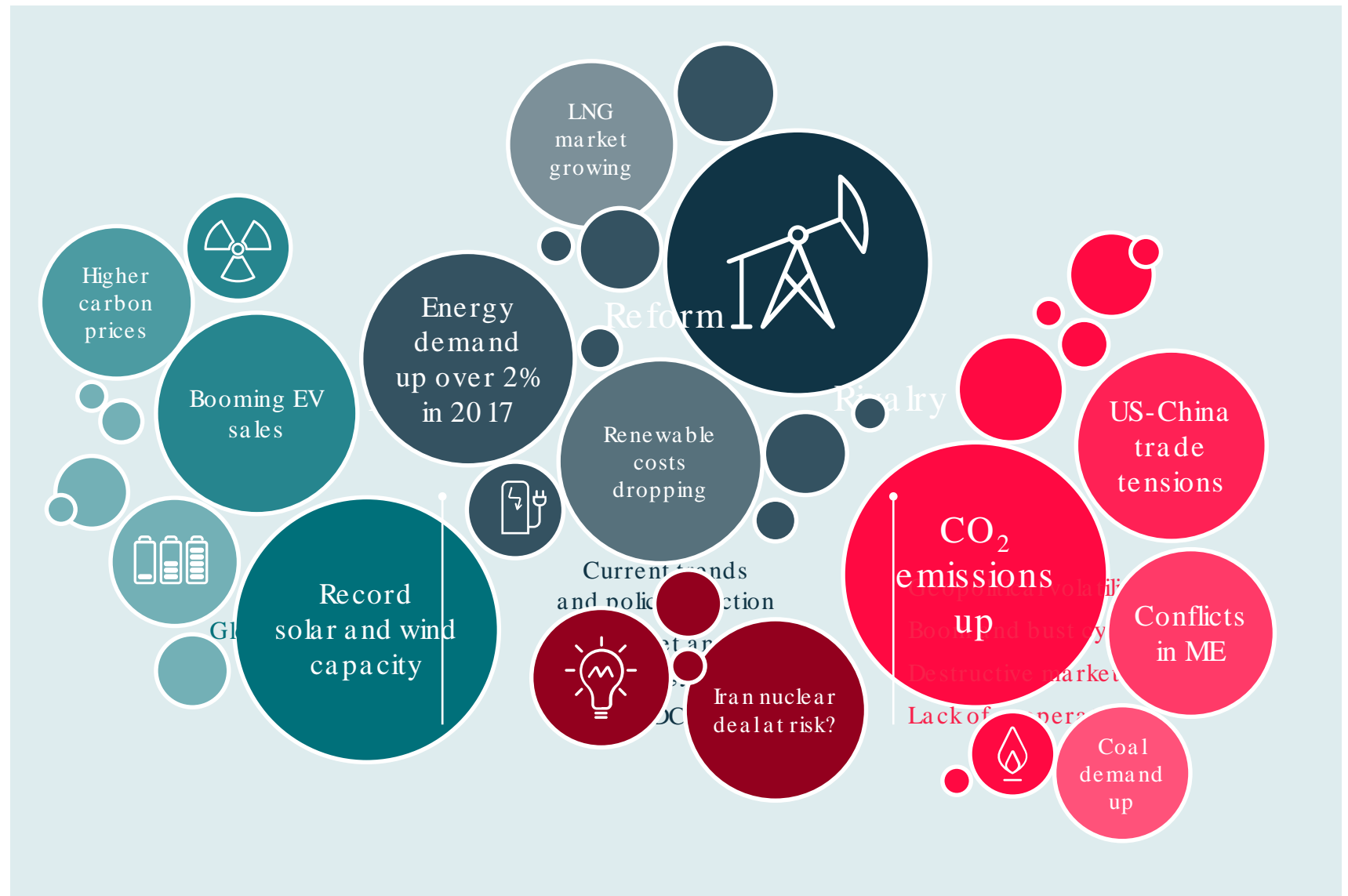


## Scenarios

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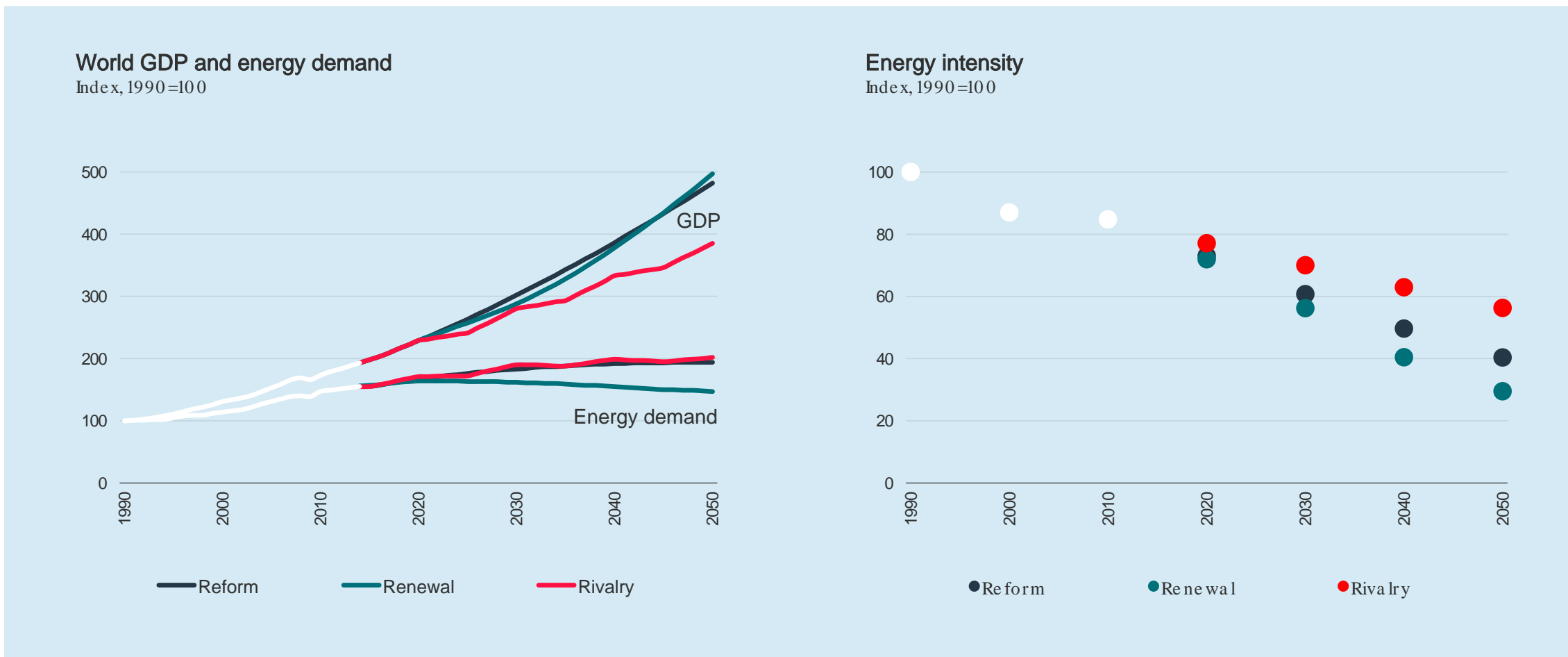
## What are common beliefs about the future?

- 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?

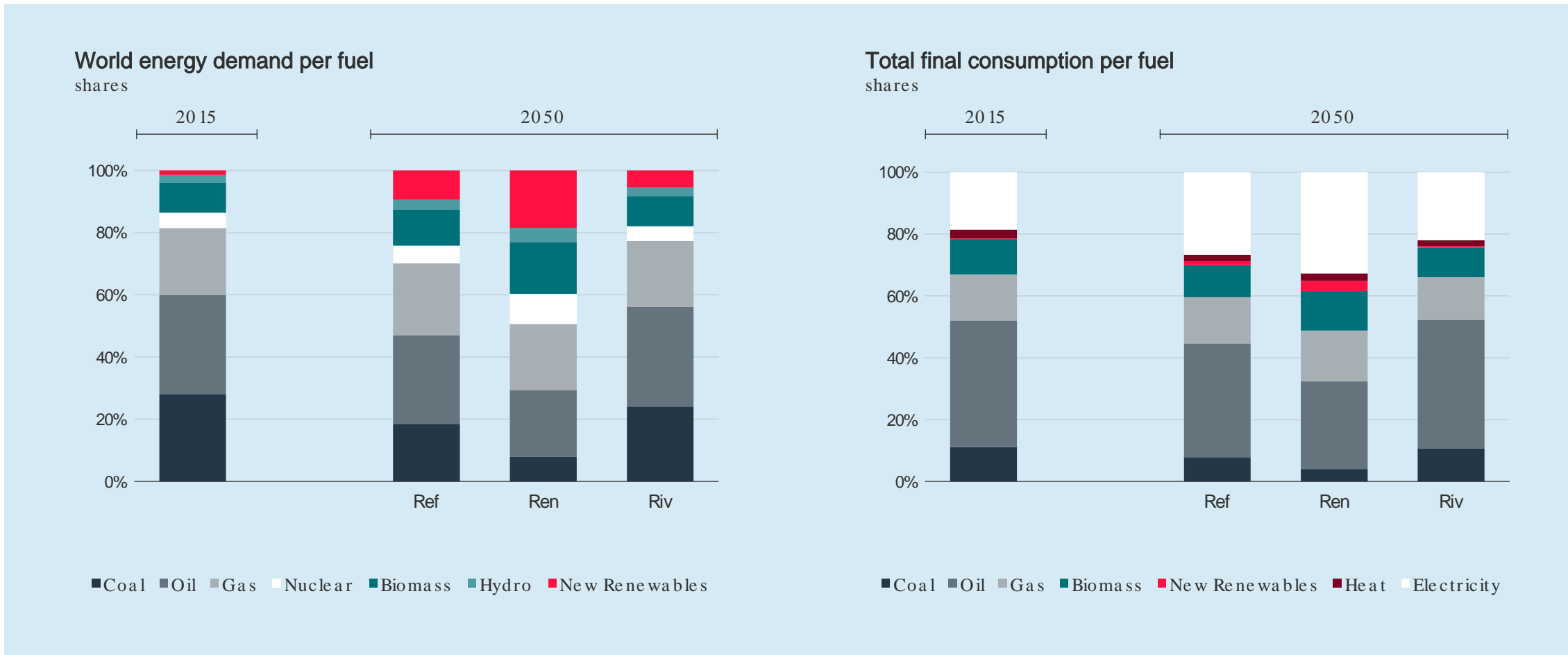
Energy efficiency drives a wedge between economic development and energy demand



Source: IEA (history), Equinor (projections)

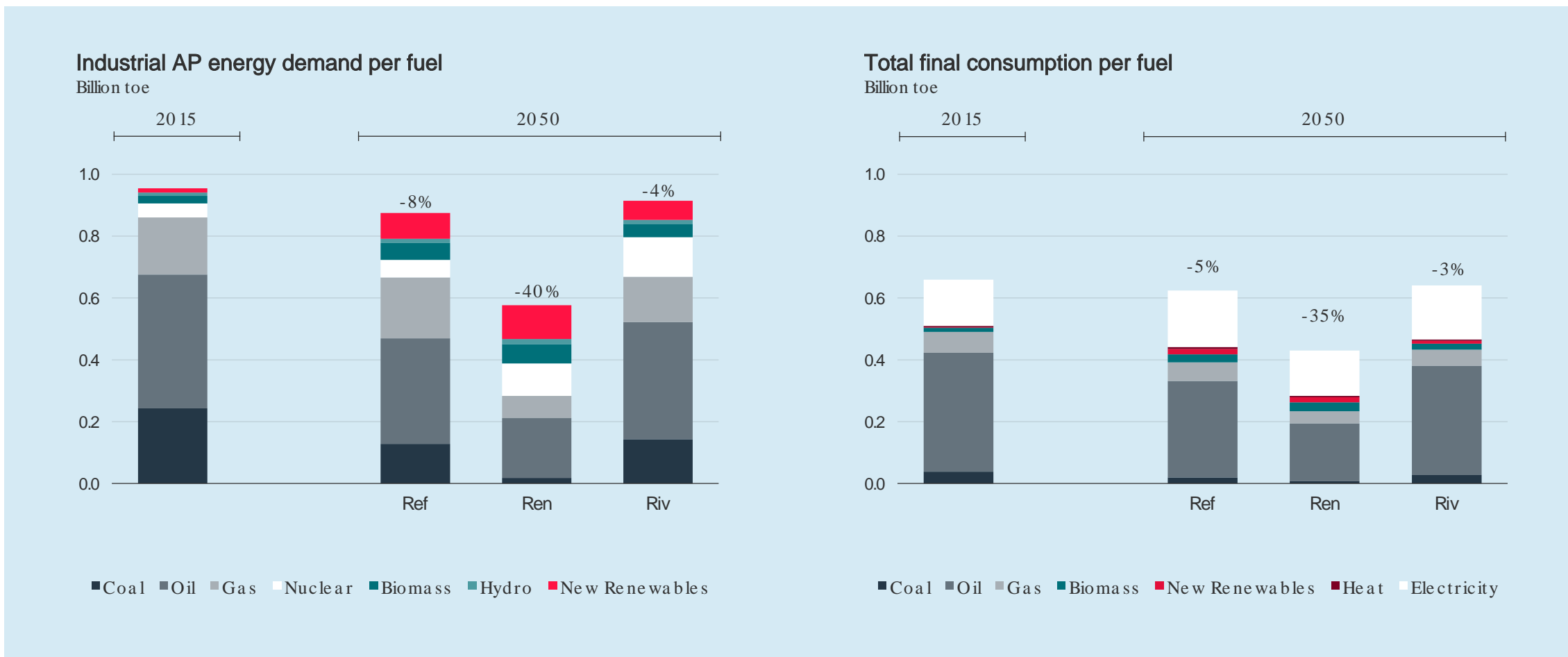
# Growth in position of new renewables and electricity across all scenarios

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



Source: IEA (history), Equinor (projections)

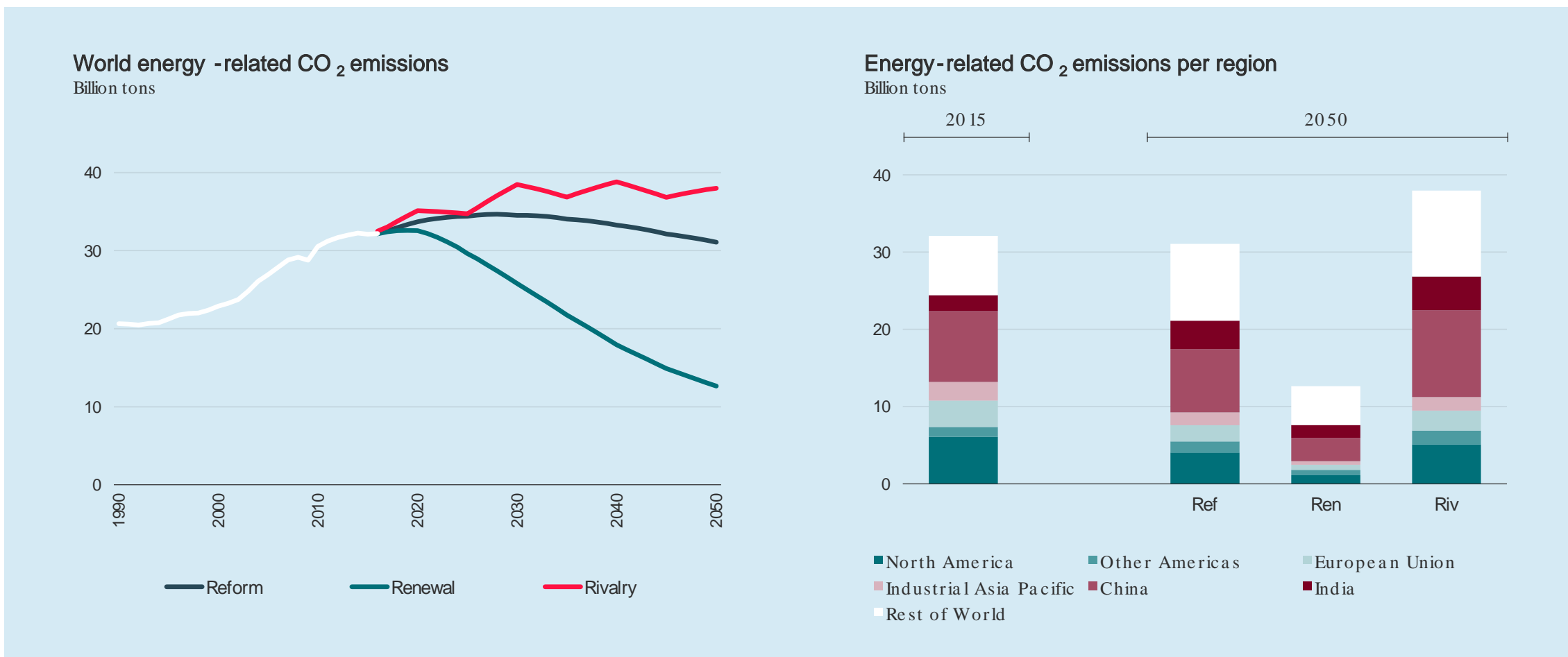
# Significant fuel mix changes in all Industrial AP scenarios



Source: IEA (history), Equinor (projections)

# Will the energy transition affect CO<sub>2</sub> emissions?

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

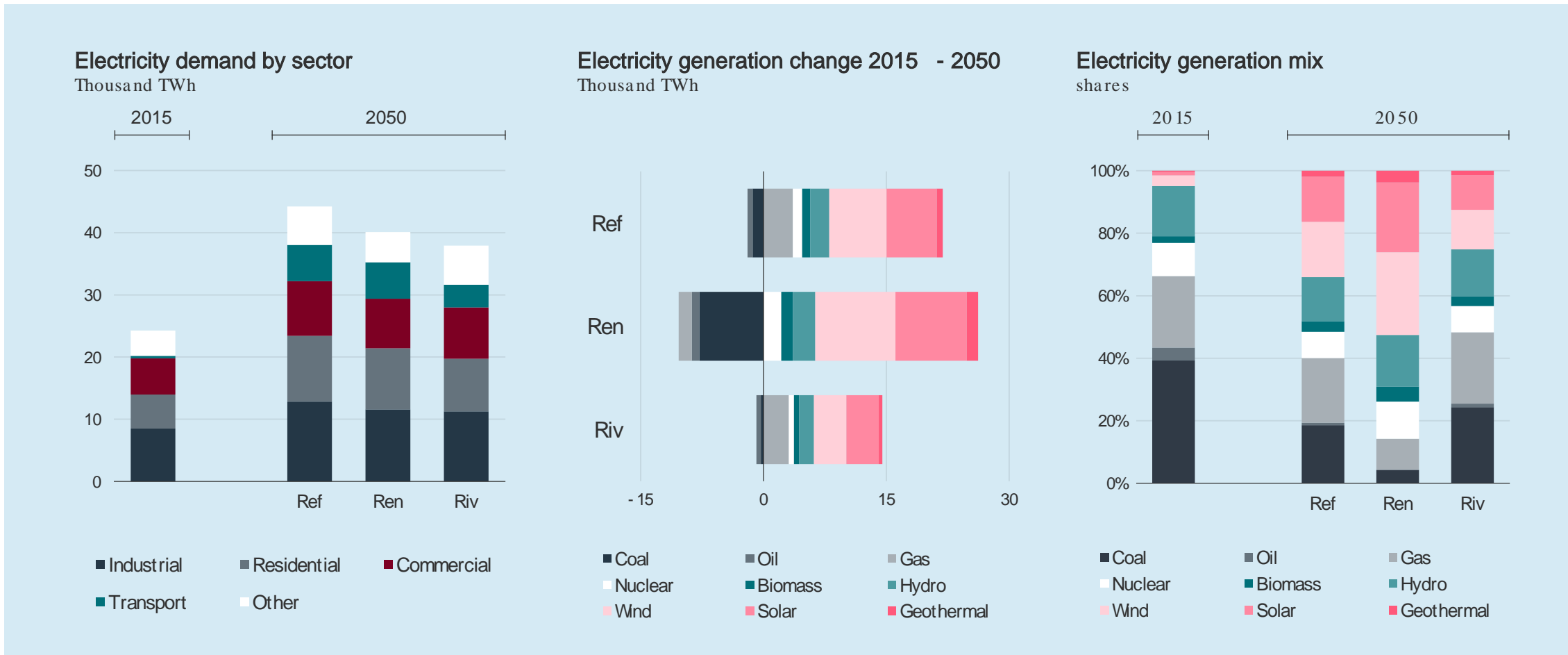


Source: IEA (history), Equinor (projections)



# Strong electricity demand growth in all scenarios

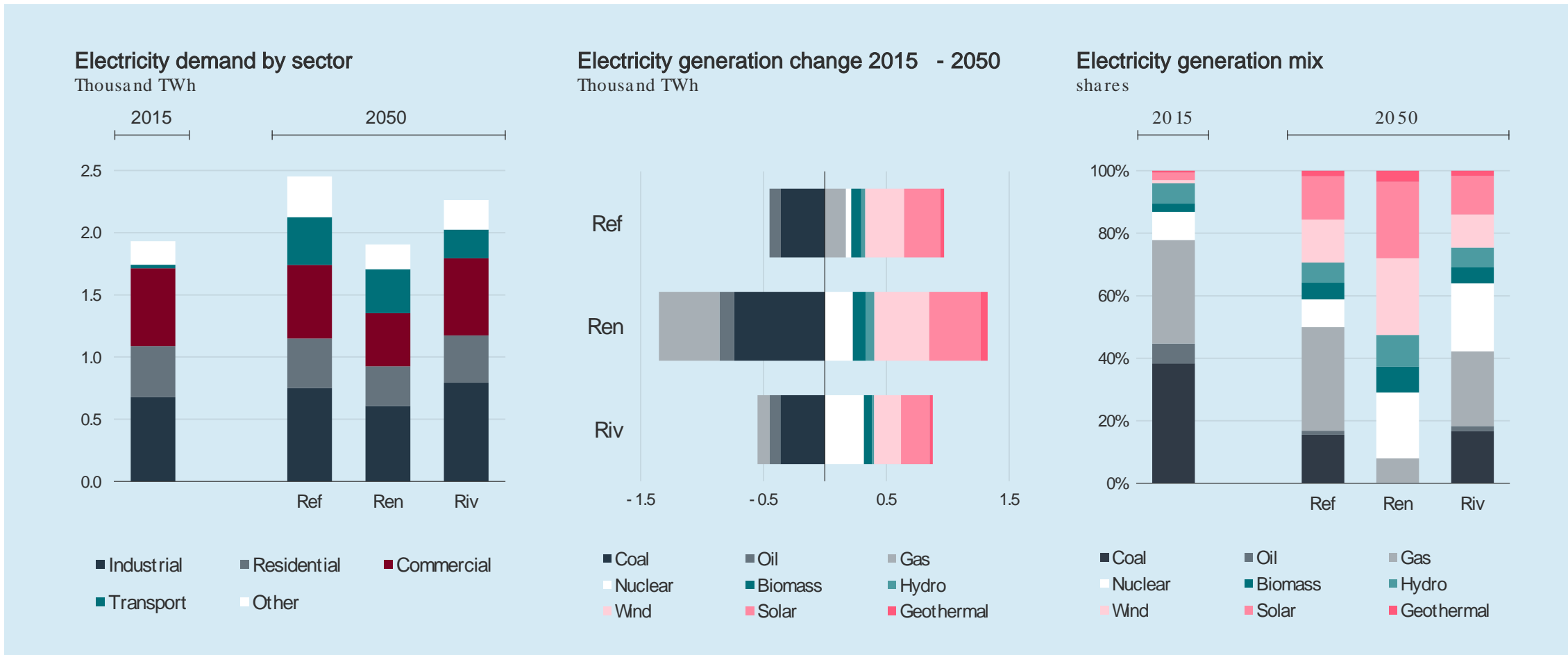
Generation mix develops very differently; solar and wind growing strongly



Source: IEA (history), Equinor (projections)

# Electricity demand remains flat or grows moderately in Industrial AP

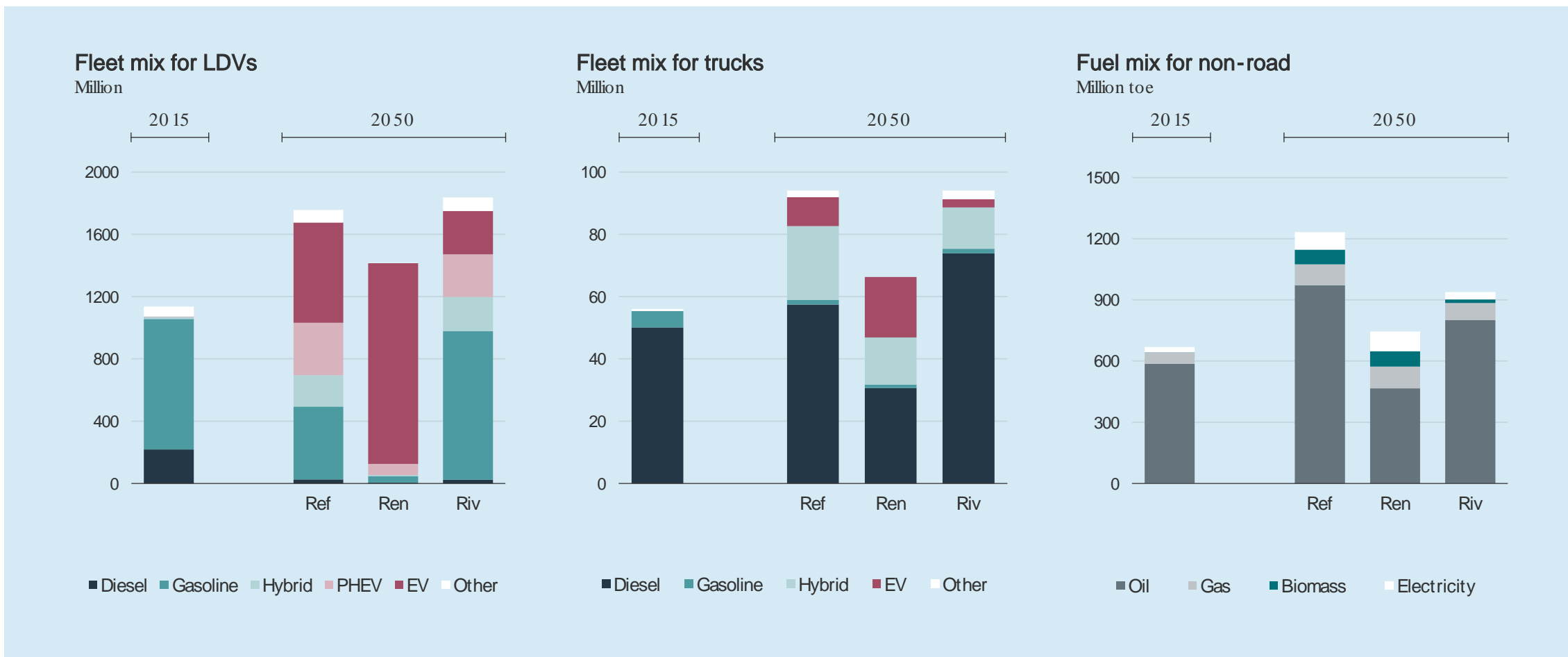
Generation mix develops very differently; solar and wind growing strongly



Source: IEA (history), Equinor (projections)

# Massive changes in road transport – efficiency and fuel mix

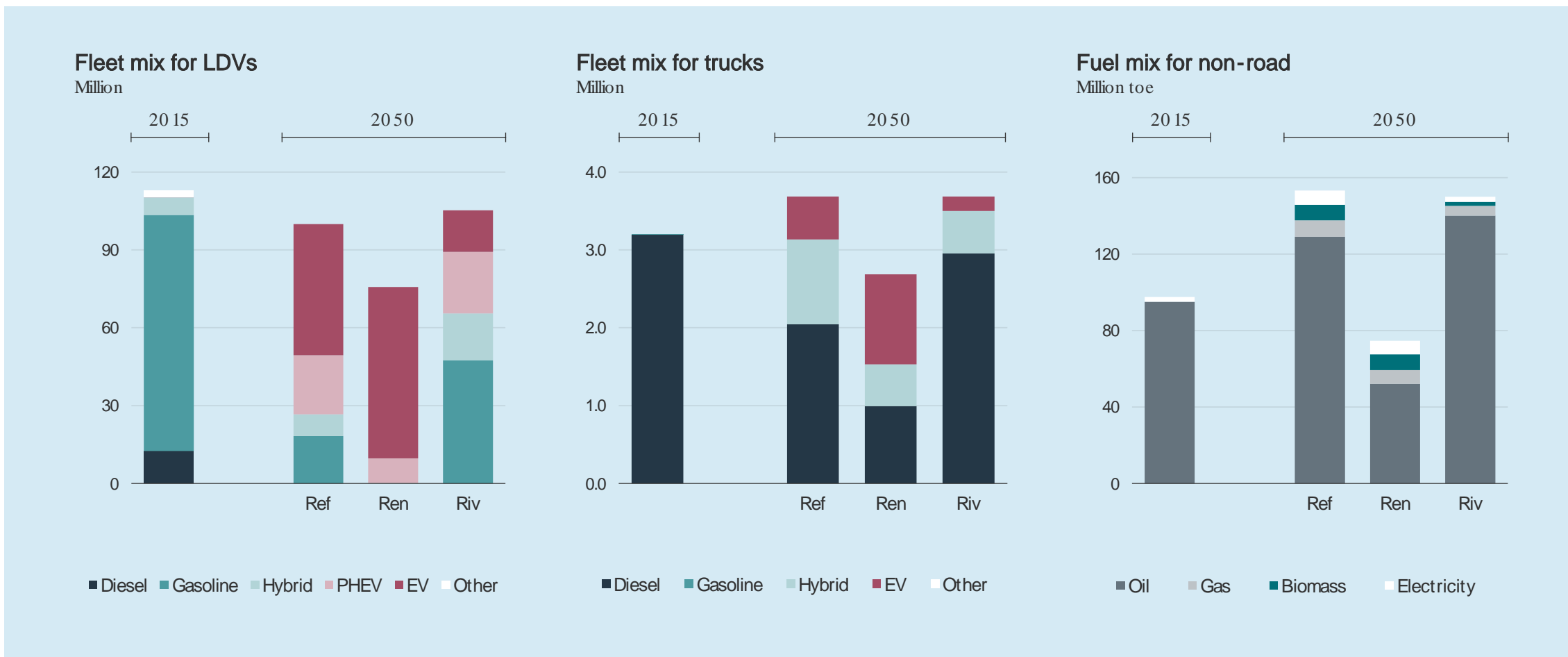
But less certain what is the alternative to oil in shipping and aviation



Source: IEA (history), Equinor (projections)

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

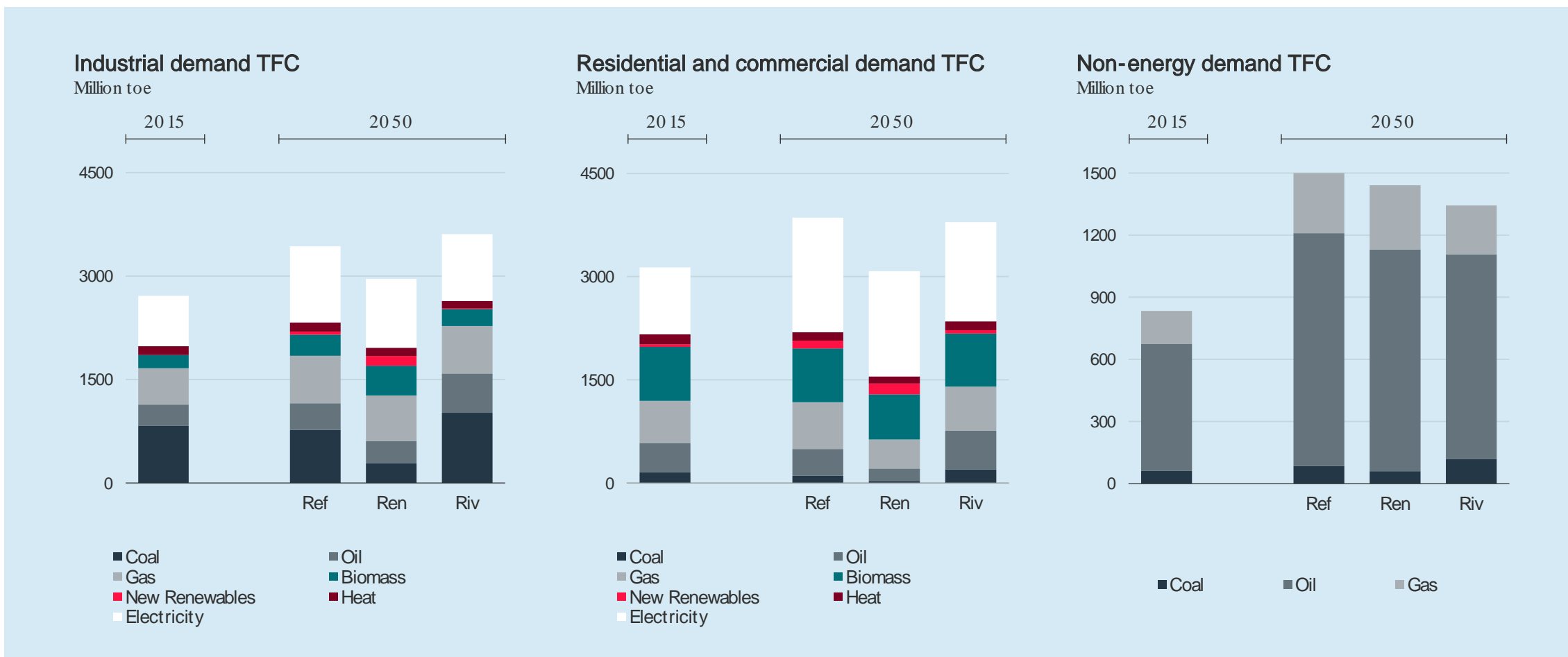
But less certain what is the alternative to oil in shipping and aviation



Source: IEA (history), Equinor (projections)

# Transition moving slower in other sectors

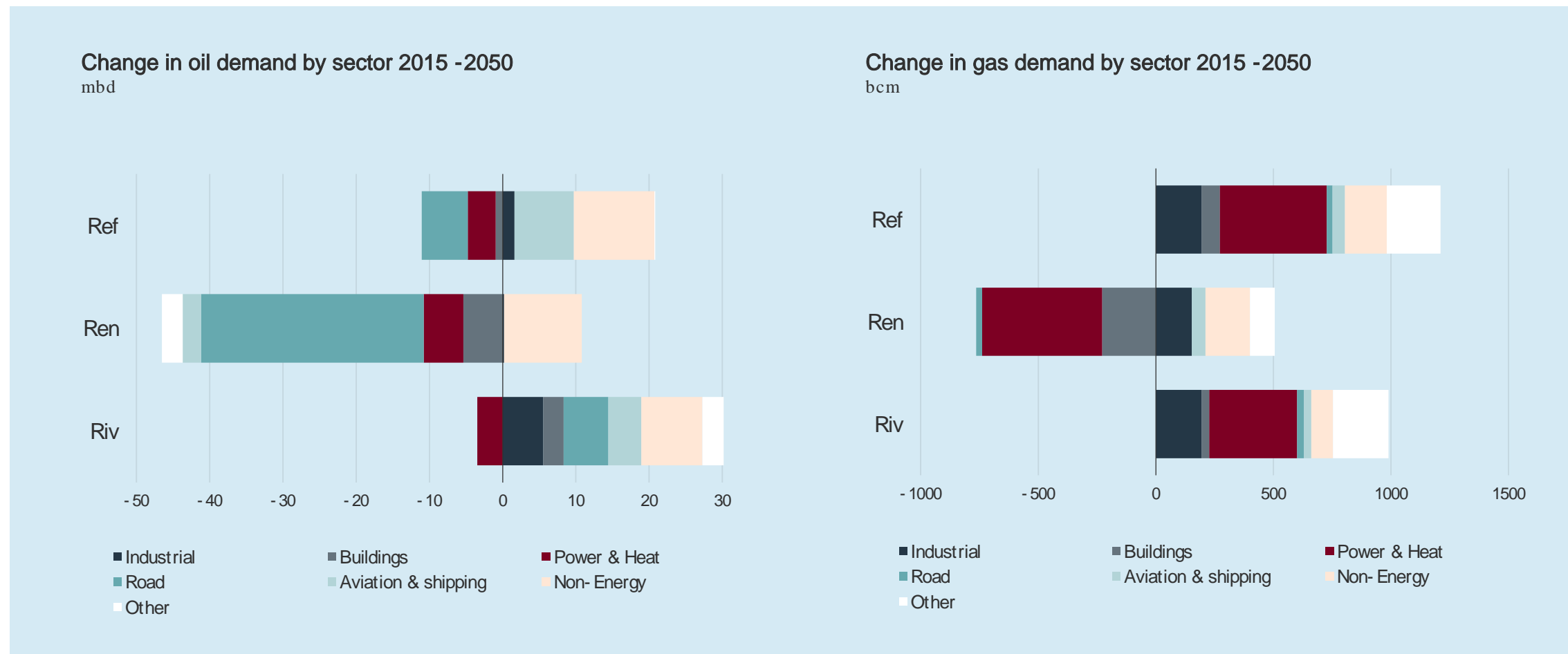
No silver bullet, efficiency and electrification the primary measures



Source: IEA (history), Equinor (projections)

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

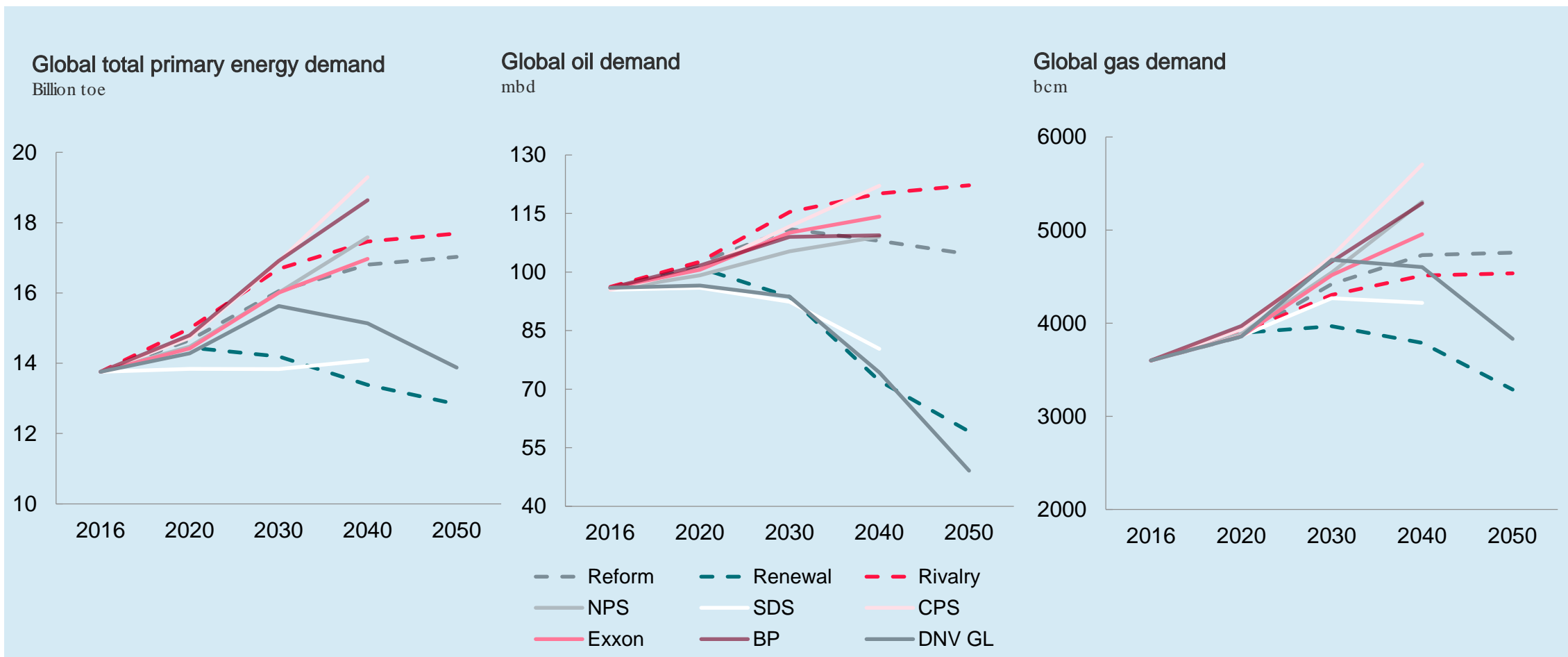
Transport key sector for oil, and power for gas; non-energy demand important for both – growth irrespective of scenario



Source: IEA (history), Equinor (projections)

# Benchmarking: How do Energy Perspectives scenarios compare?

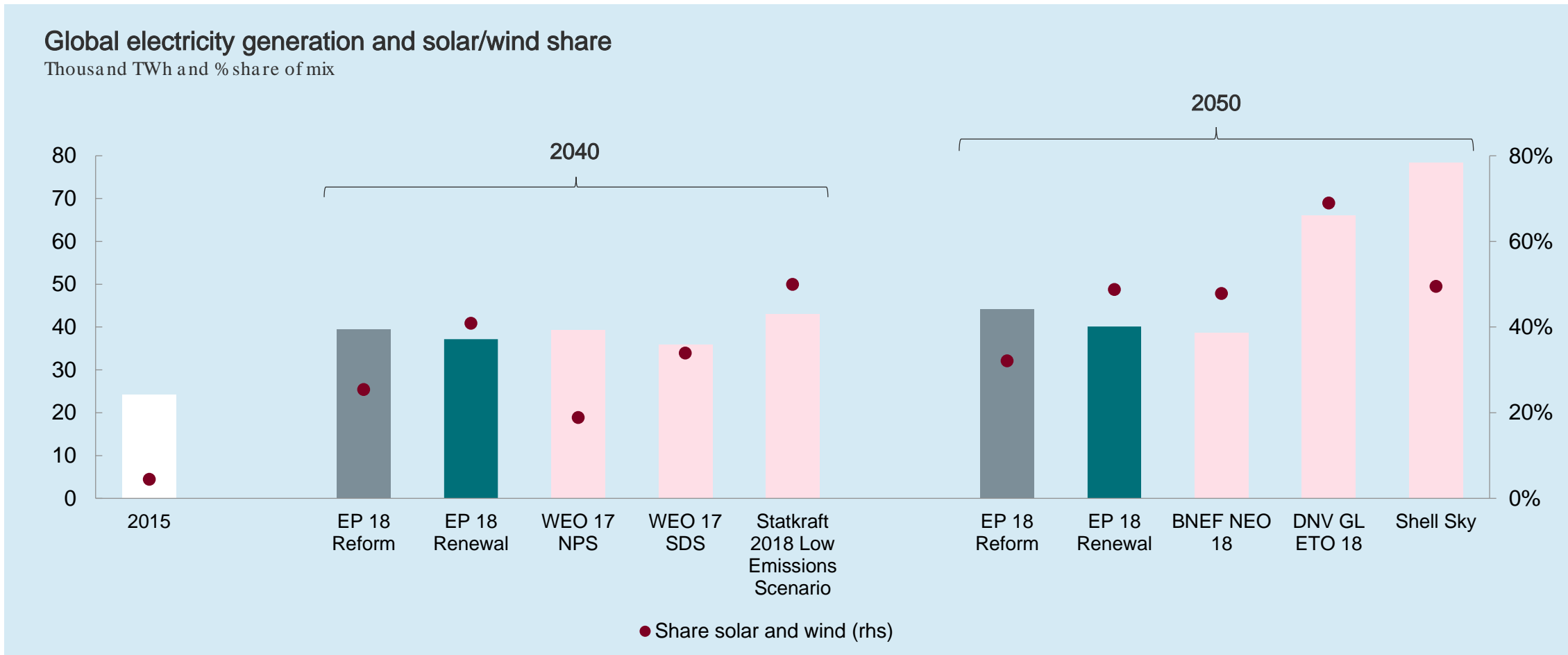
TPED, oil and gas



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

# Benchmarking: How do Energy Perspectives scenarios compare?

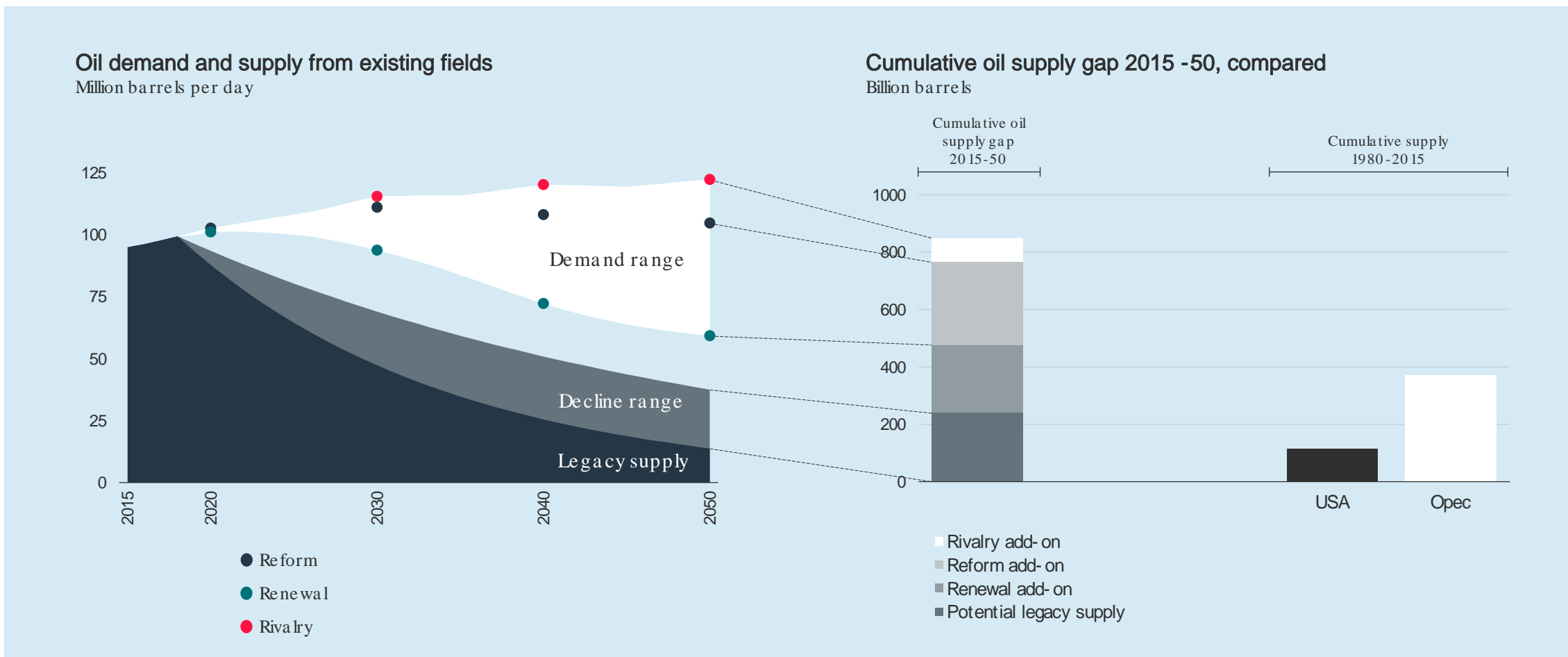
## Electricity generation and solar/wind





# What is the need for new oil investments?

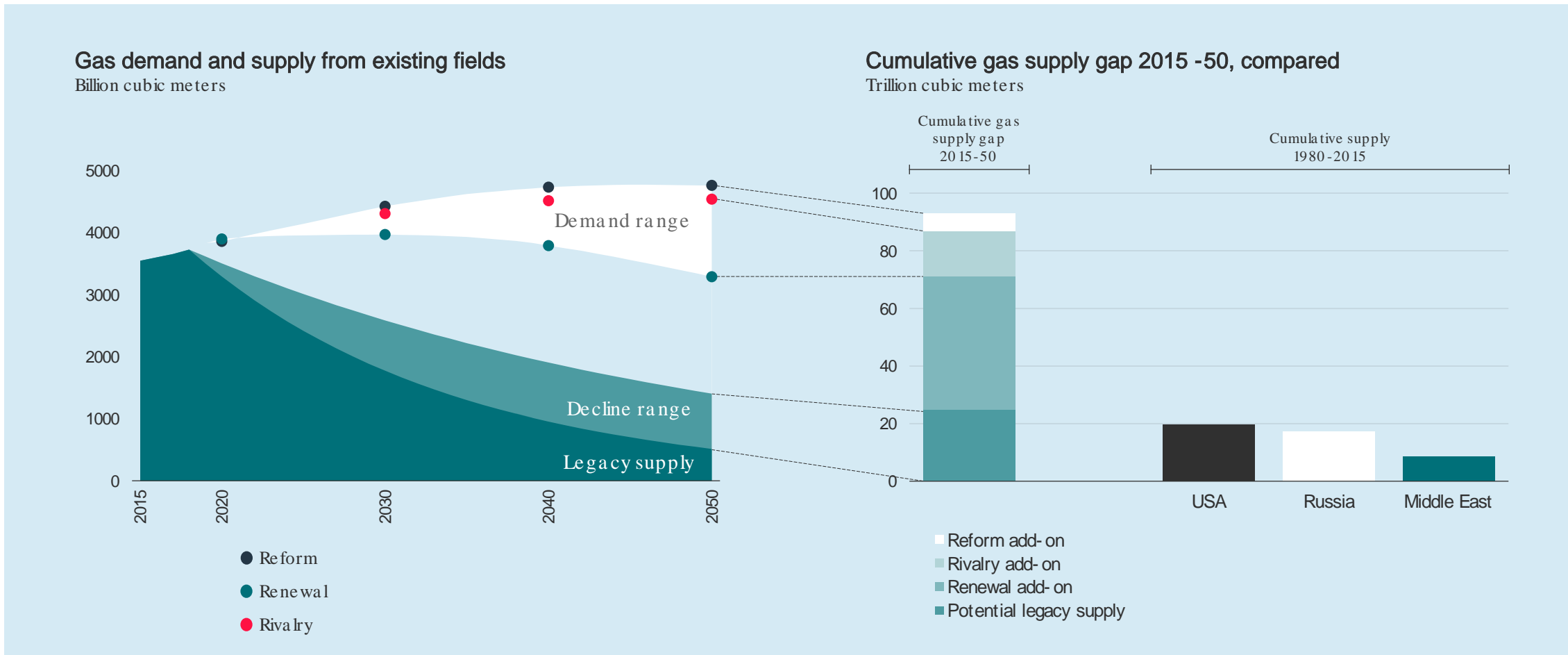
Large investments in all scenarios, although significantly less in Renewal



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

# And what about new gas supply?

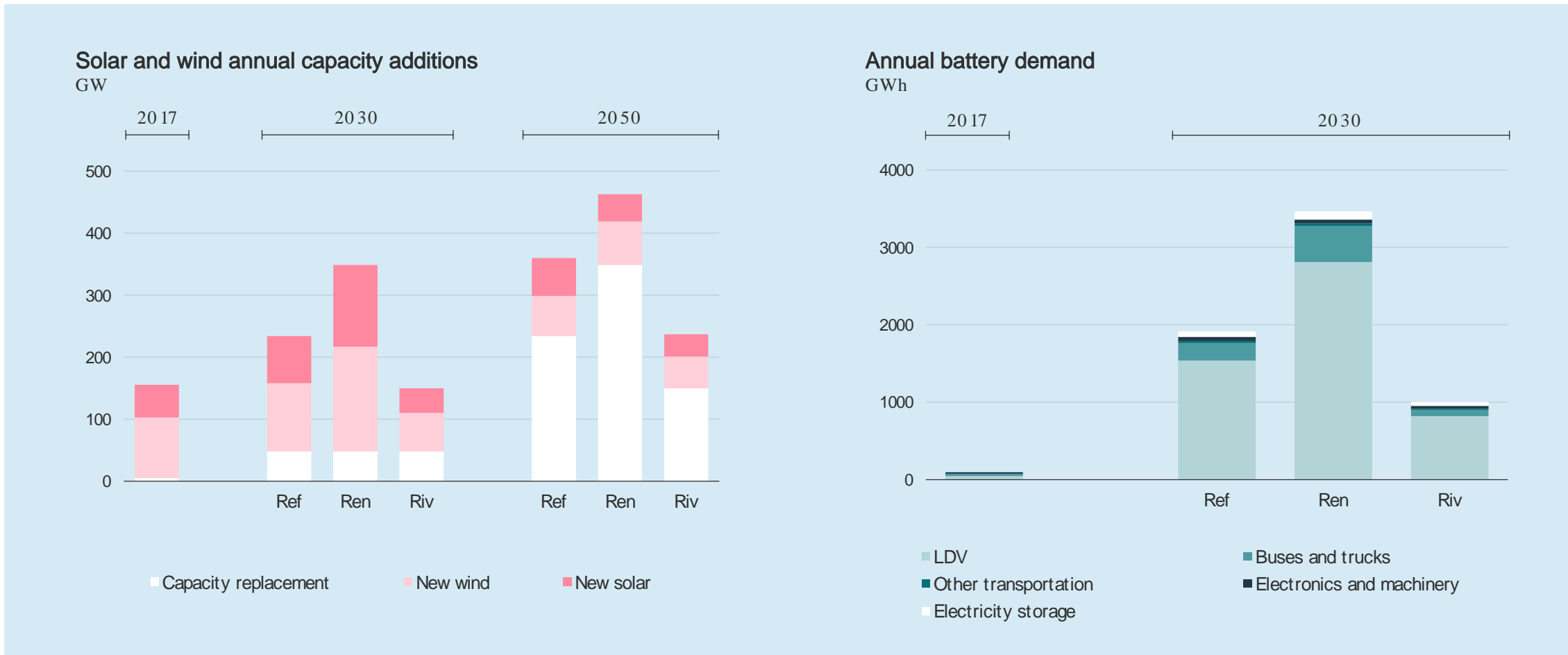
Large investments in all scenarios, although significantly less in Renewal



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)

# Energy Perspectives 2018

Eirik Wærness

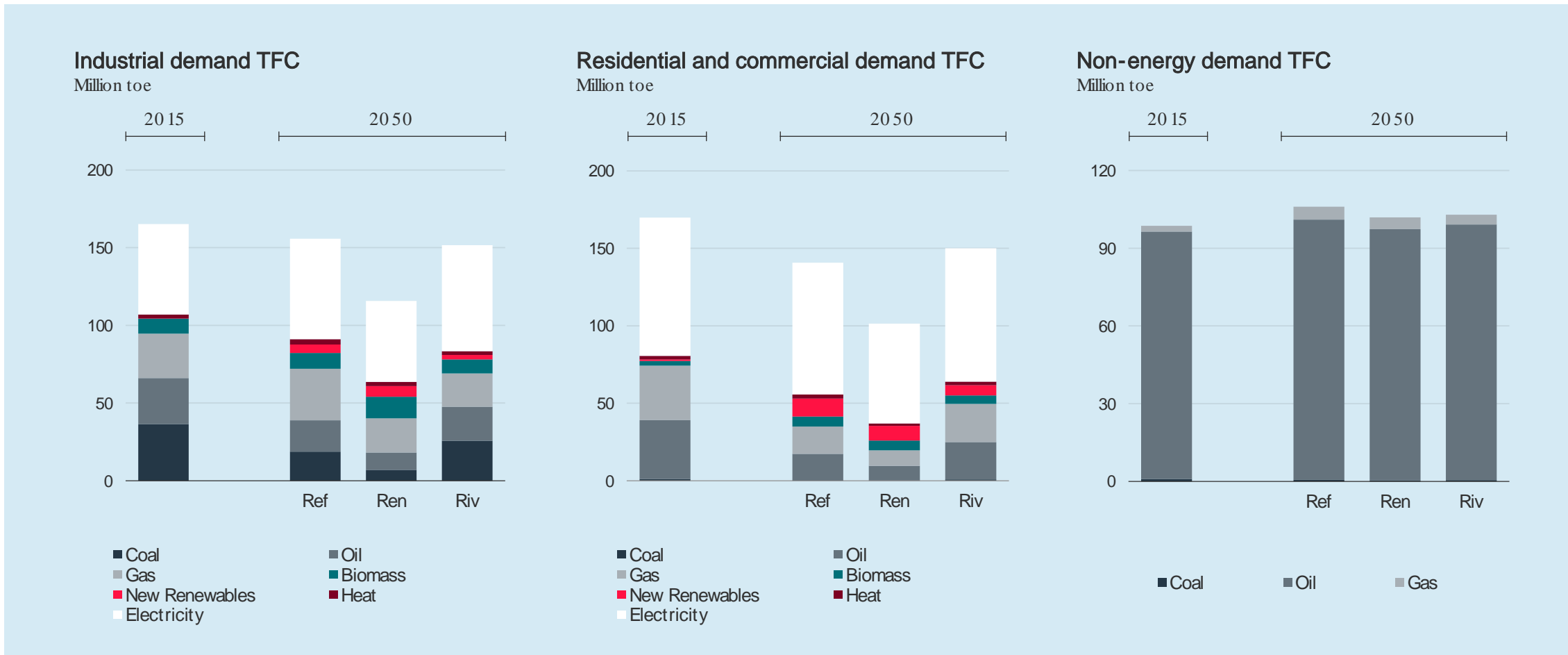
Senior vice president and Chief economist

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# Transition moving slower in other sectors – Industrial AP

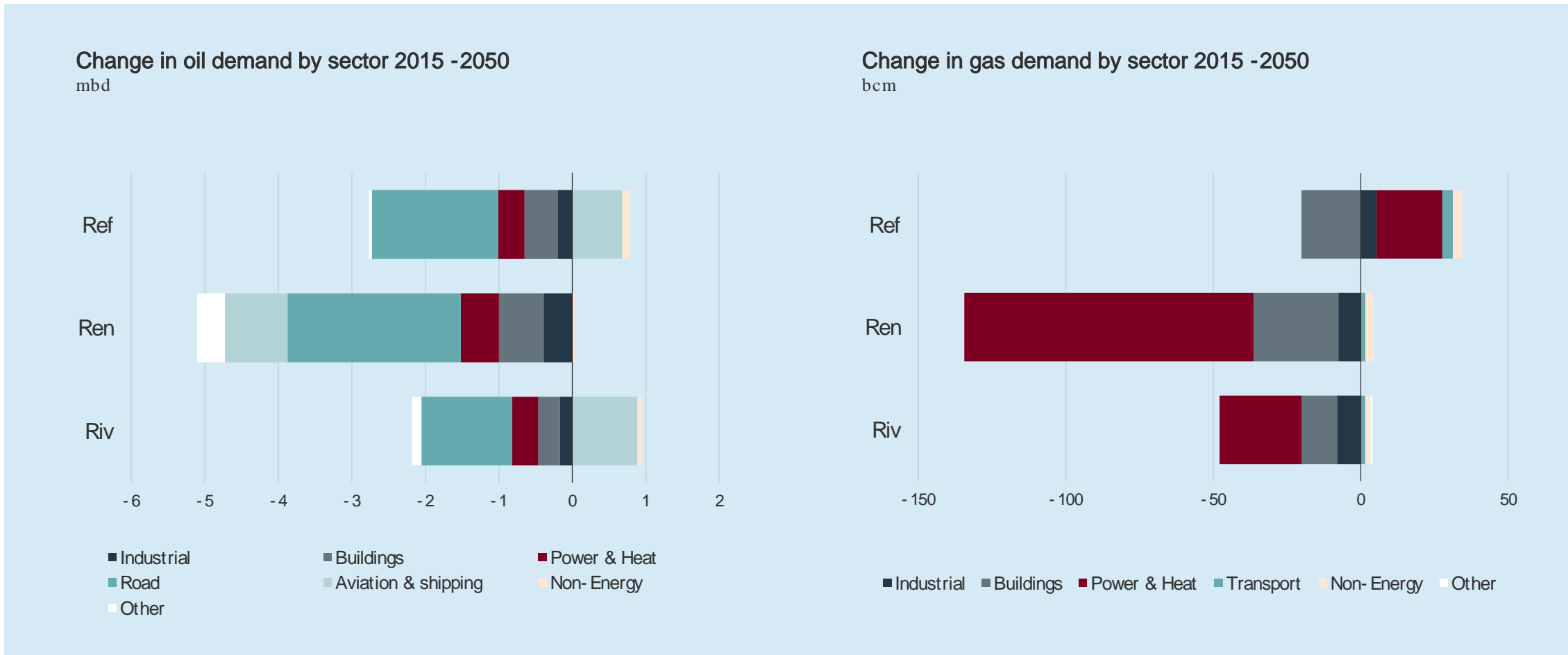
No silver bullet, efficiency and electrification the primary measures



Source: IEA (history), Equinor (projections)

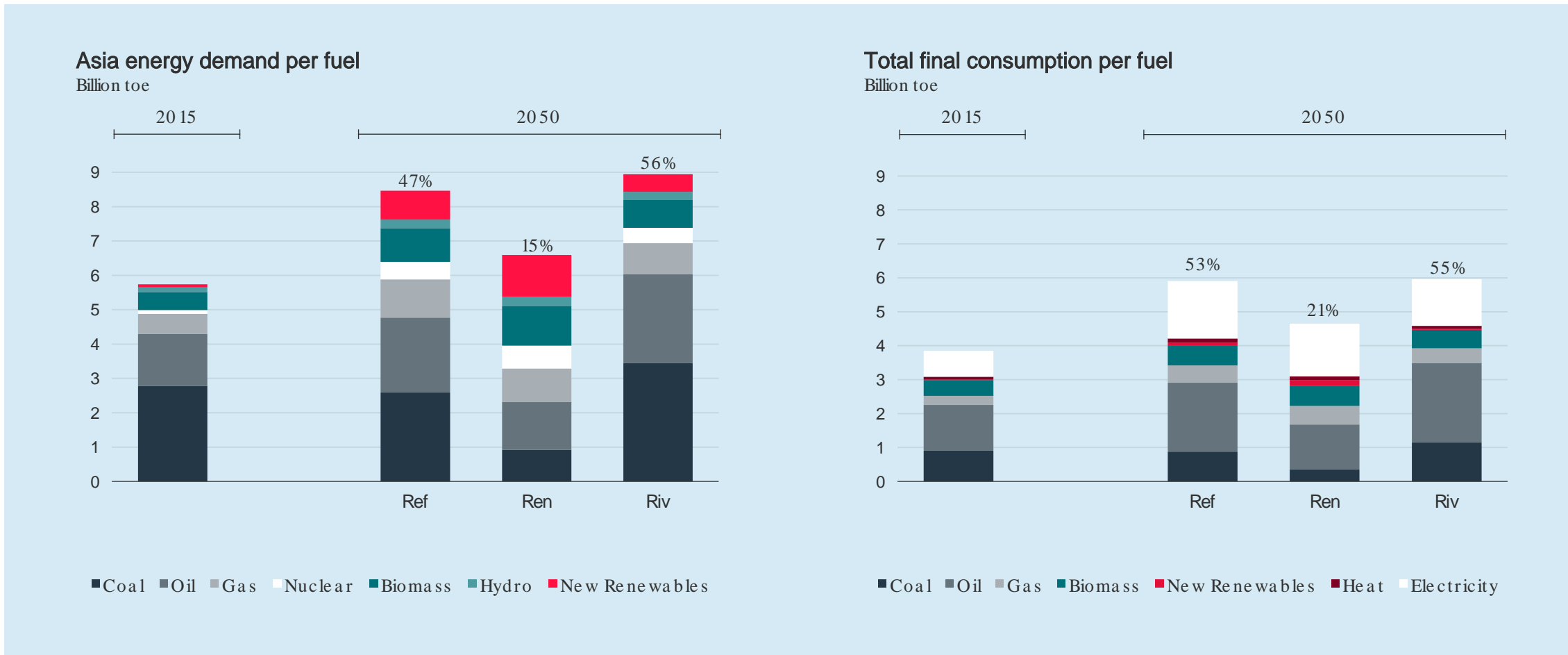
# Declining oil and gas demand in Industrial AP

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



Source: IEA (history), Equinor (projections)

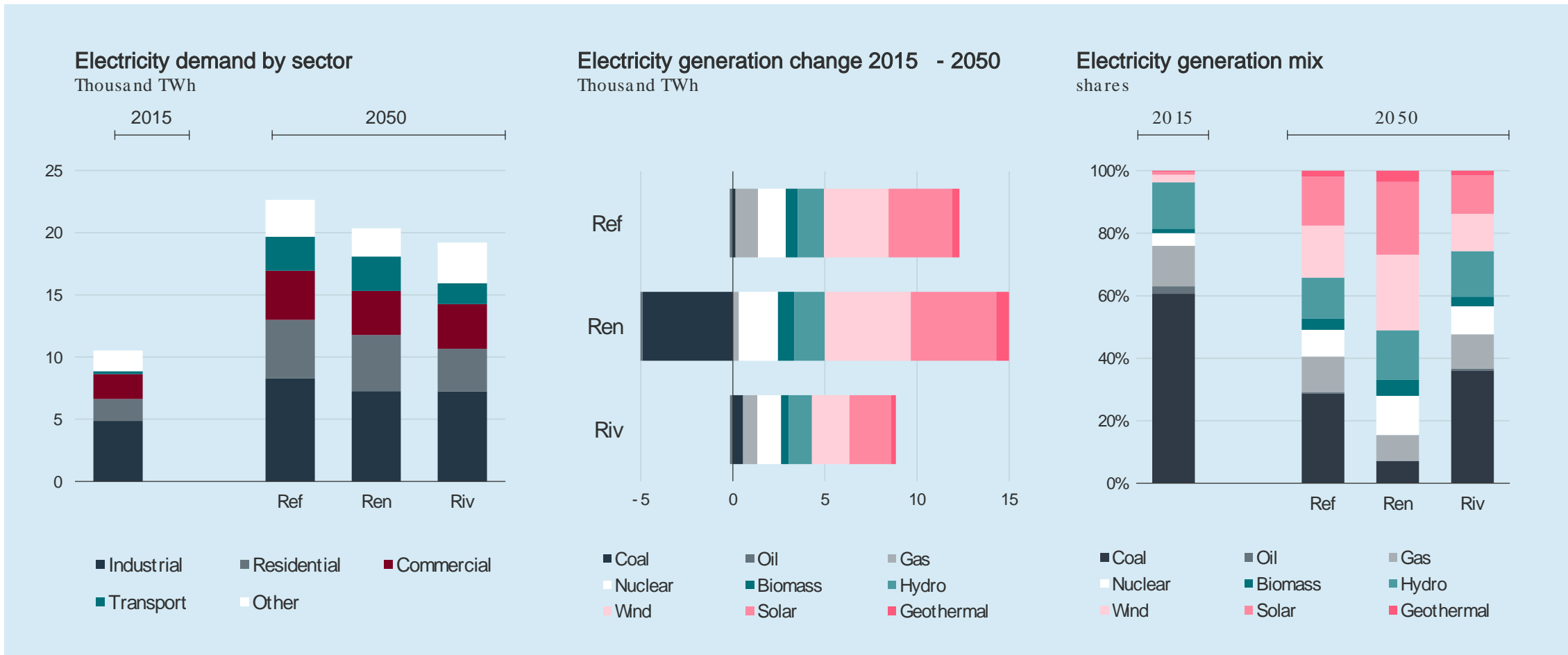
# Significant fuel mix changes in all Asia scenarios



Source: IEA (history), Equinor (projections)

# Strong electricity demand growth in Asia

Generation mix develops very differently; solar and wind growing strongly

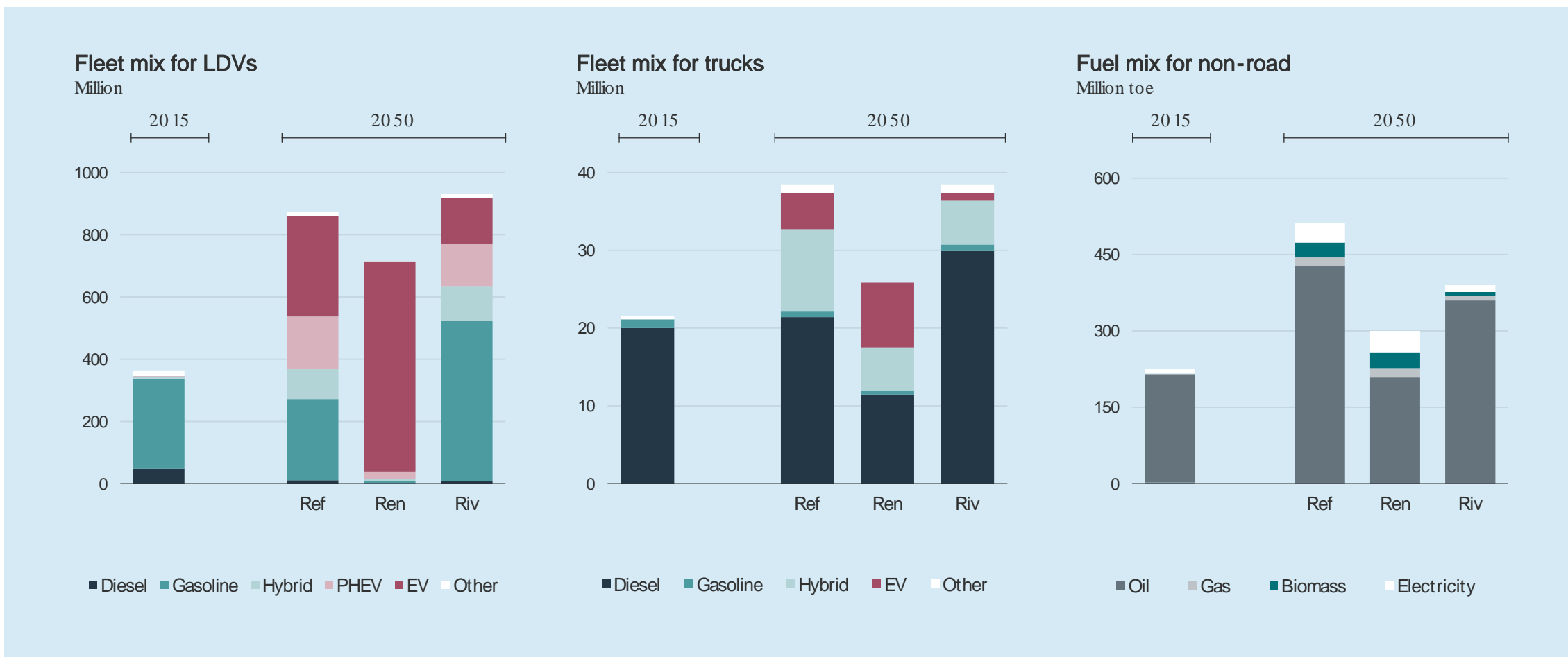


Source: IEA (history), Equinor (projections)



# Massive changes in road transport – efficiency and fuel mix Asia

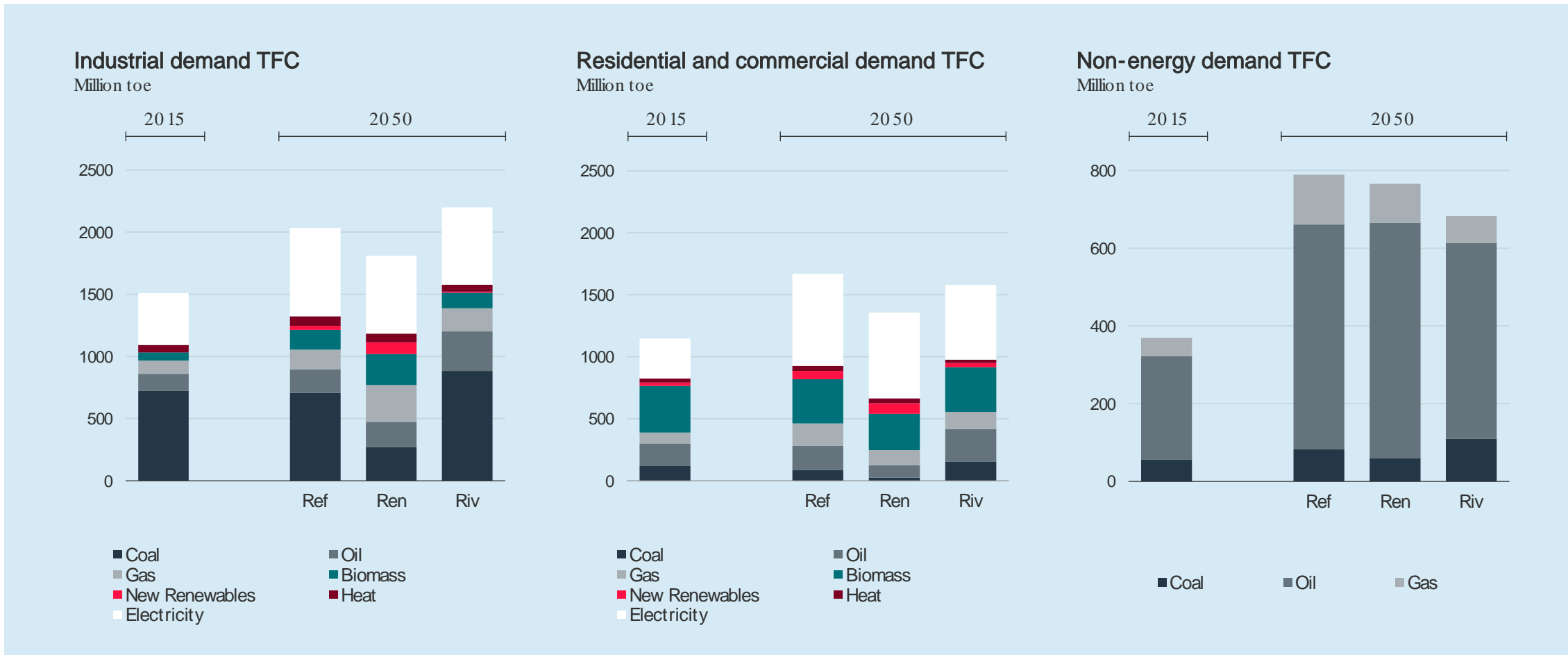
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Source: IEA (history), Equinor (projections)

# Transition moving slower in other sectors – Asia

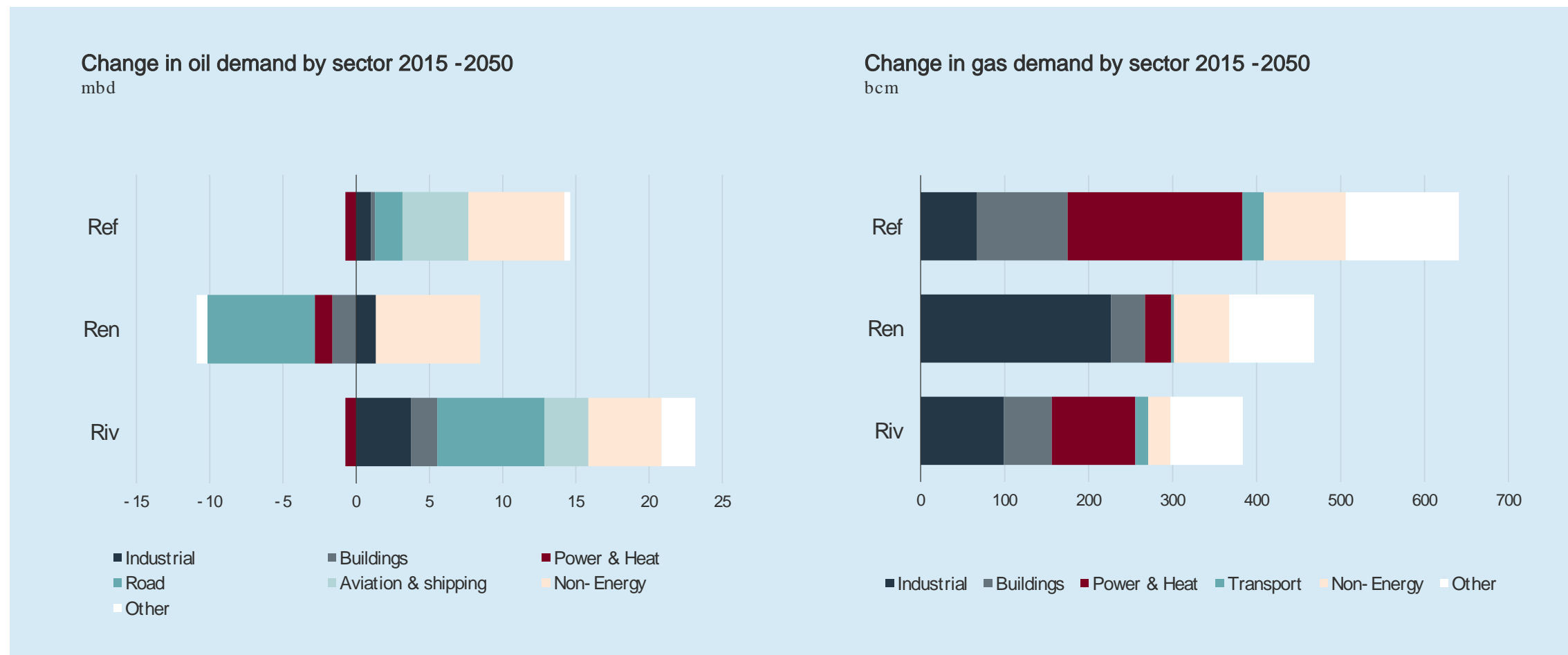
No silver bullet, efficiency and electrification the primary measures



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)