



Energy Perspectives 2017

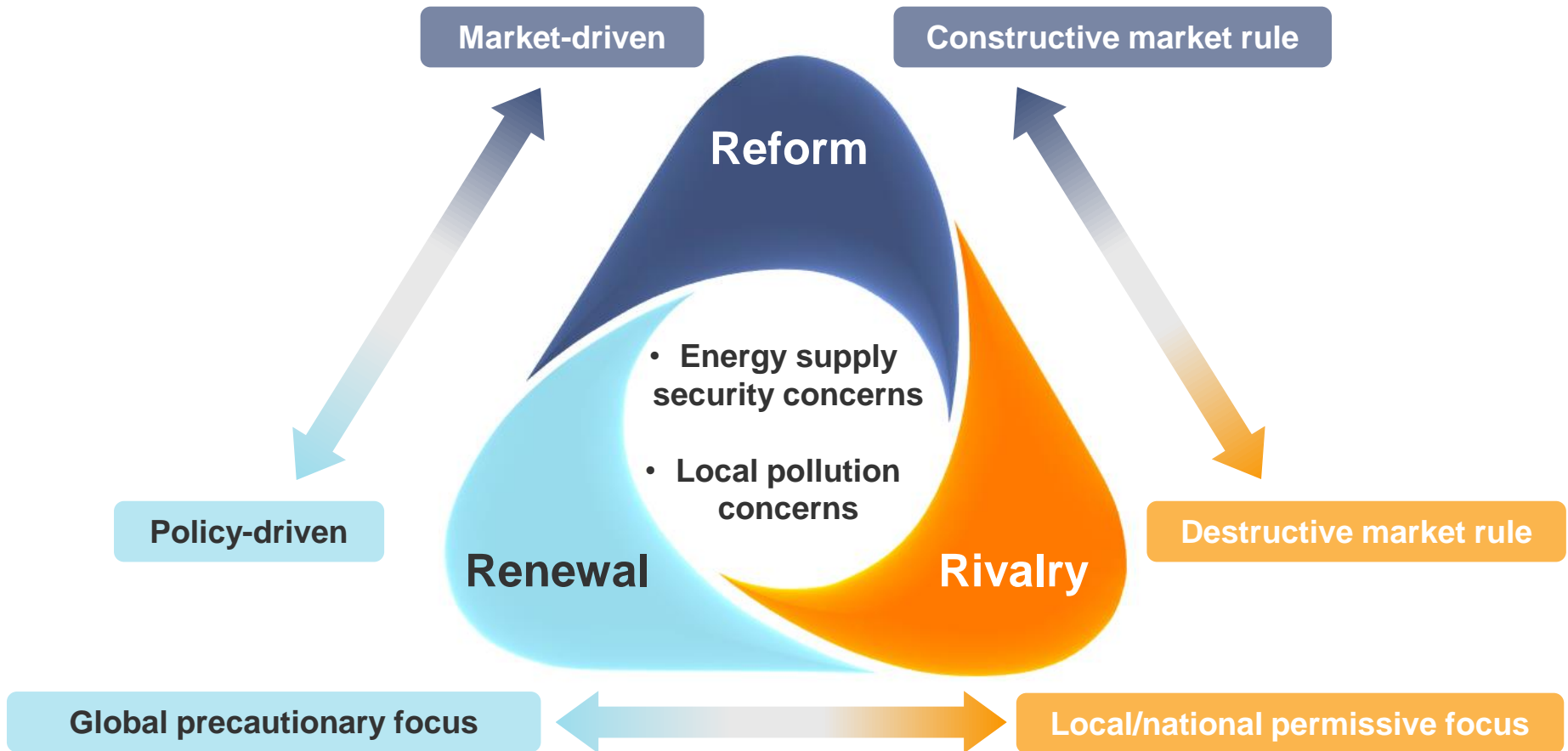
Long-term macro and market outlook

Berlin, 12 June 2017

Eirik Wærness, Senior vice president and Chief economist

Three different tales of the future towards 2050

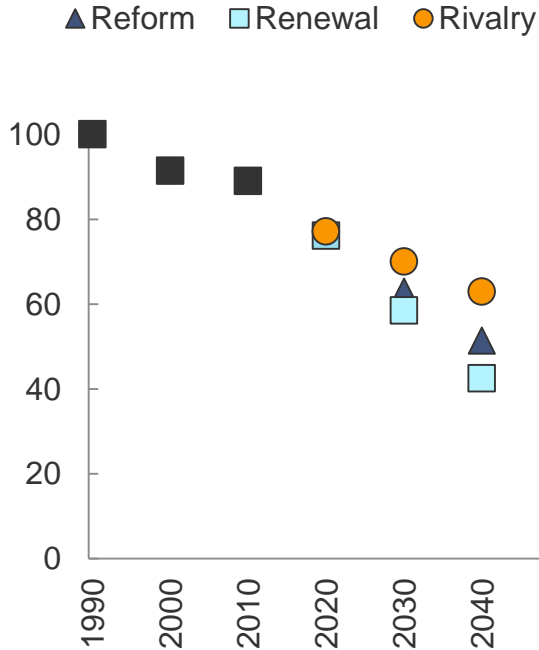
None are BAU – Renewal a tremendous challenge, Rivalry unpleasant



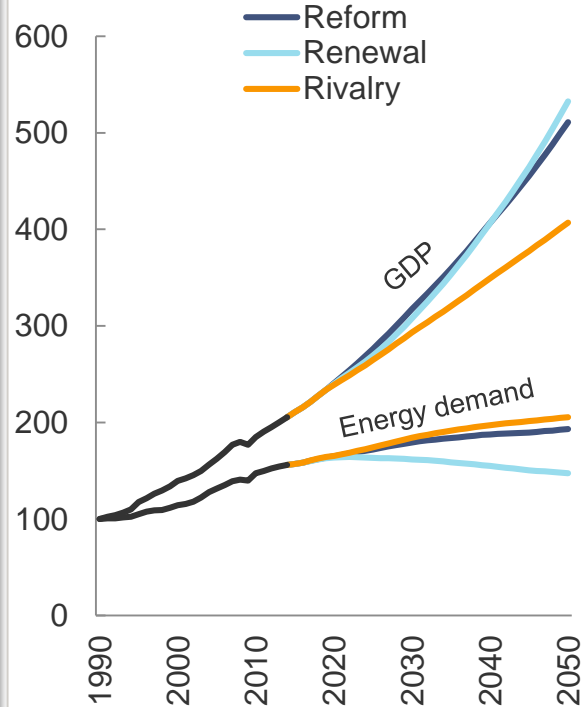
Key #1: Energy efficiency improvement

Global GDP 2-2.6 times higher in 2050, Energy demand -5% – + 30%

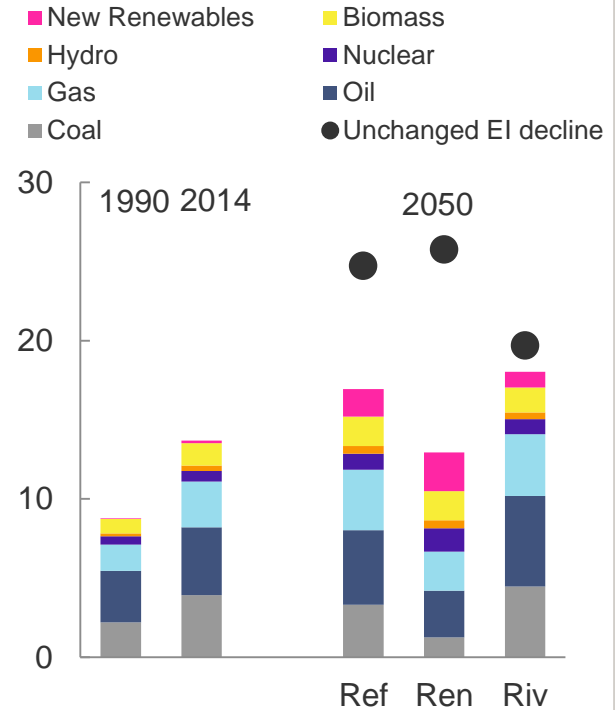
Energy intensity
Index, 1990=100



World GDP and energy demand
Index, 1990=100



World energy demand per fuel
Billion toe

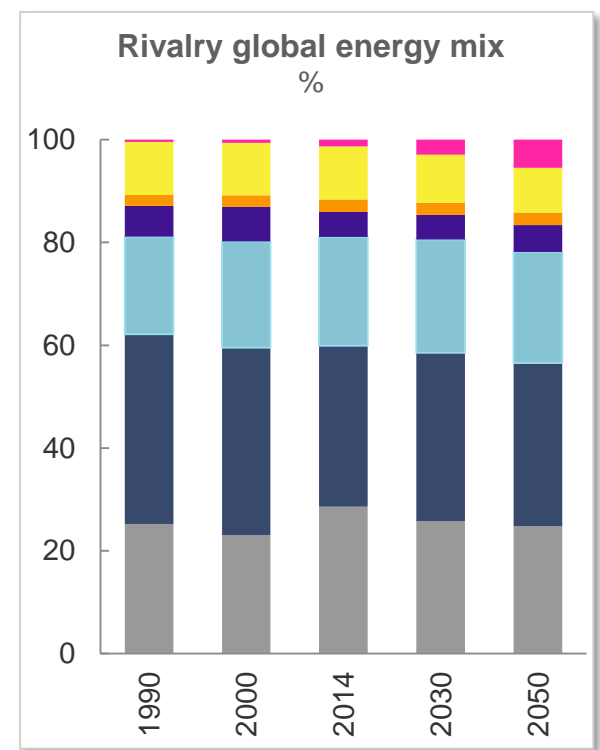
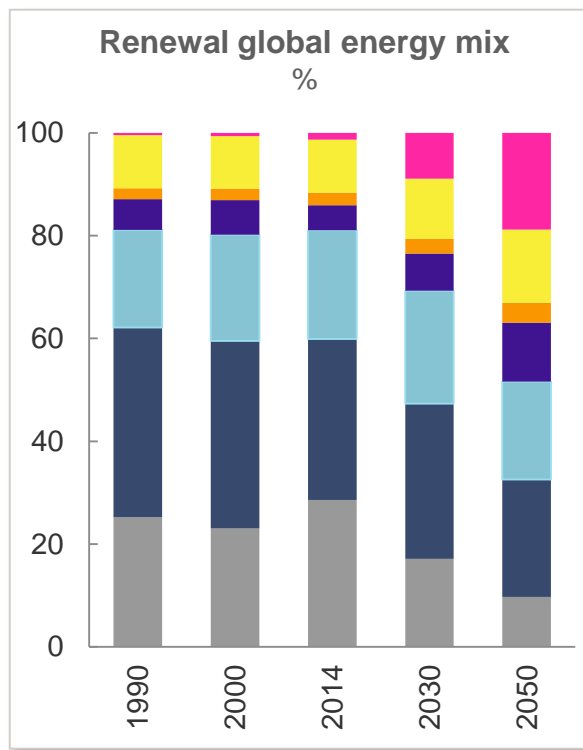
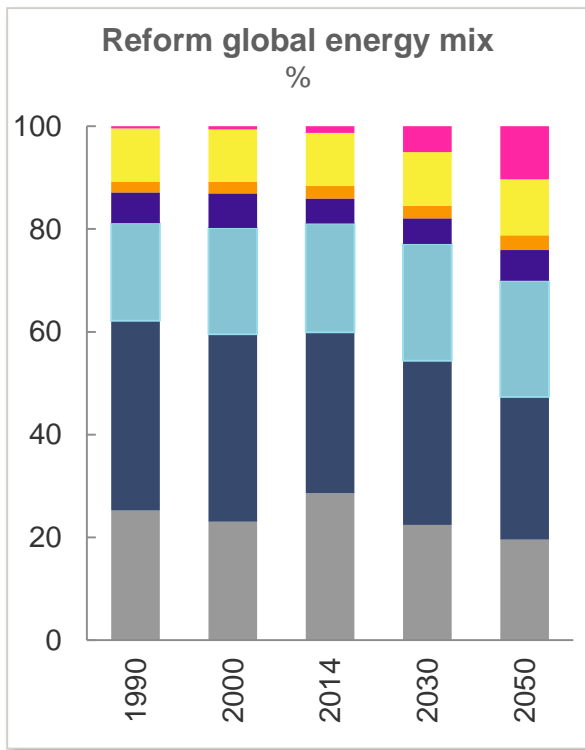


Source: IEA (history), Statoil (projections)

Key #2: Speeding up the change in global energy mix

... with Renewal displaying a paradigm shift

■ New RES
 ■ Biofuels and waste
 ■ Hydro
 ■ Nuclear
 ■ Gas
 ■ Oil
 ■ Solid fuels

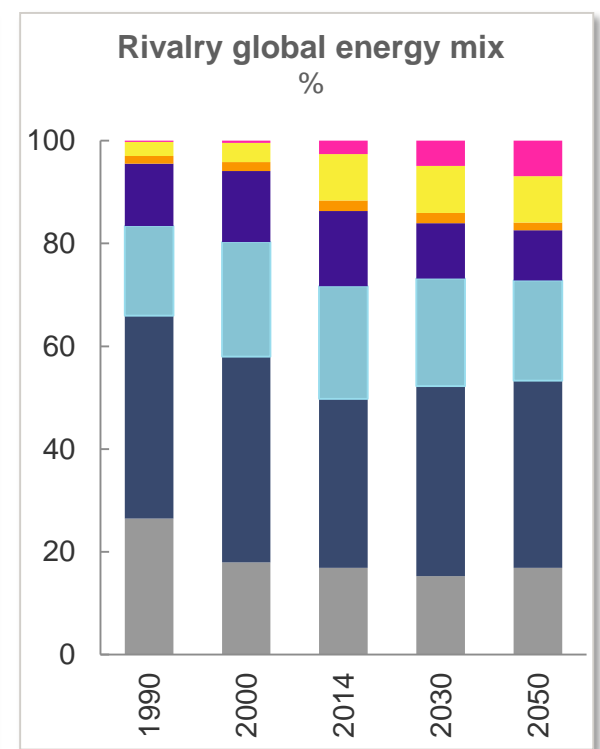
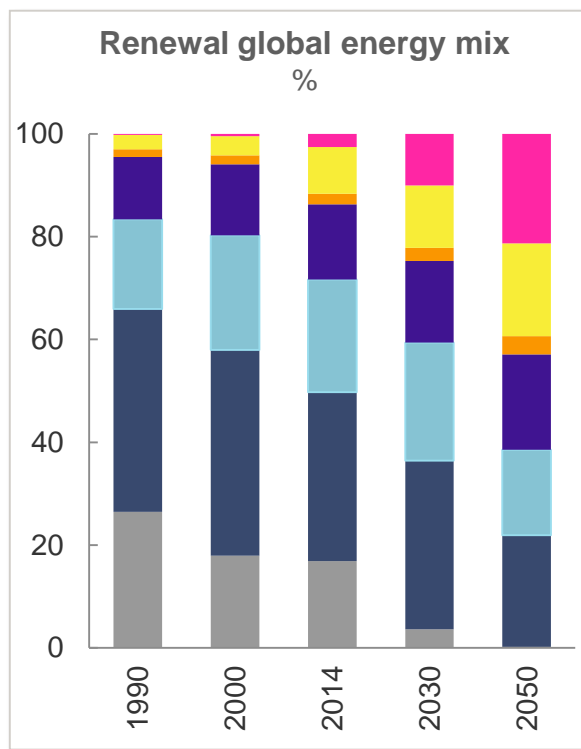
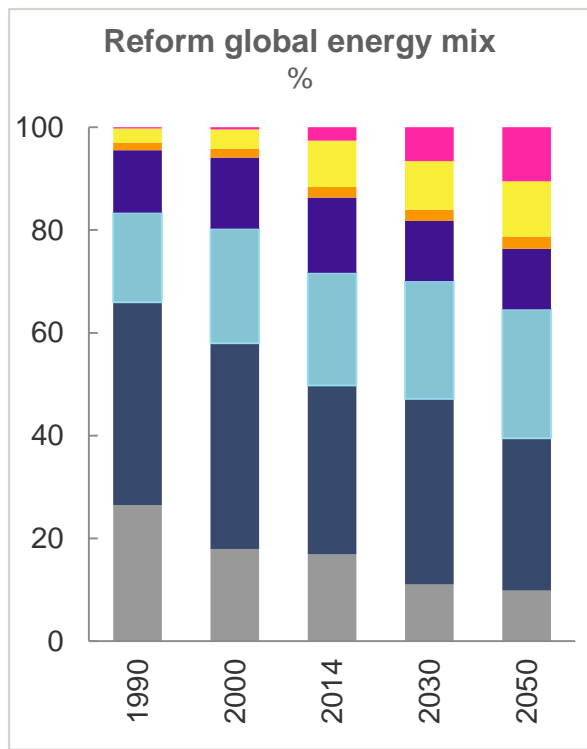


Source: IEA (history), Statoil (projections)

EU energy mix

Renewal displaying a paradigm shift – eliminating coal

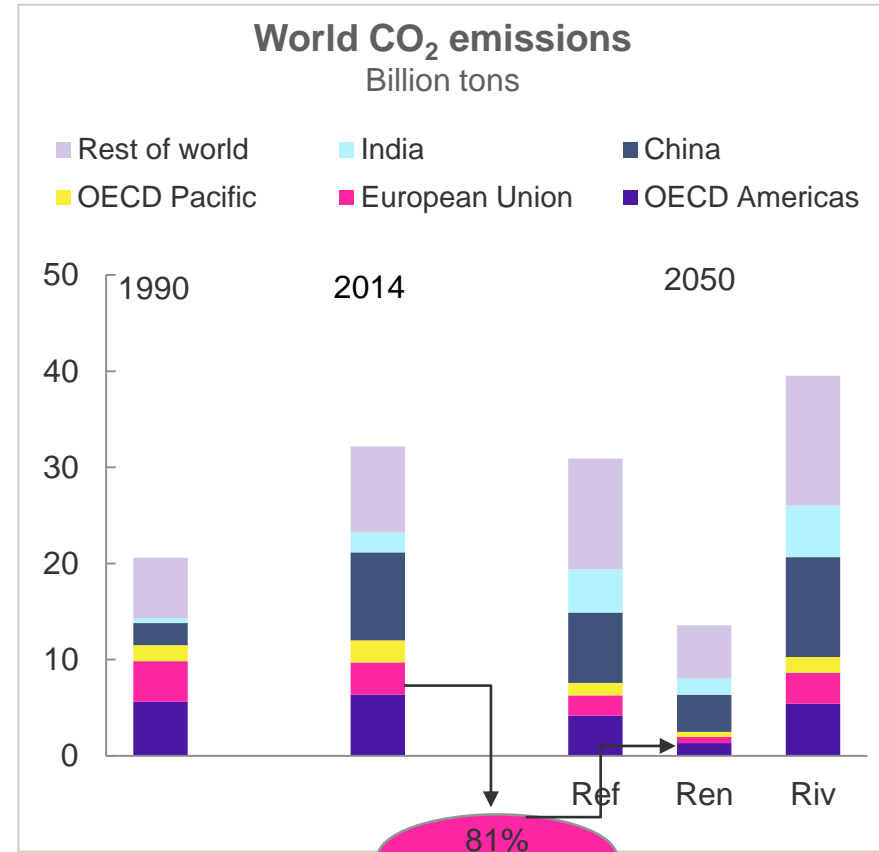
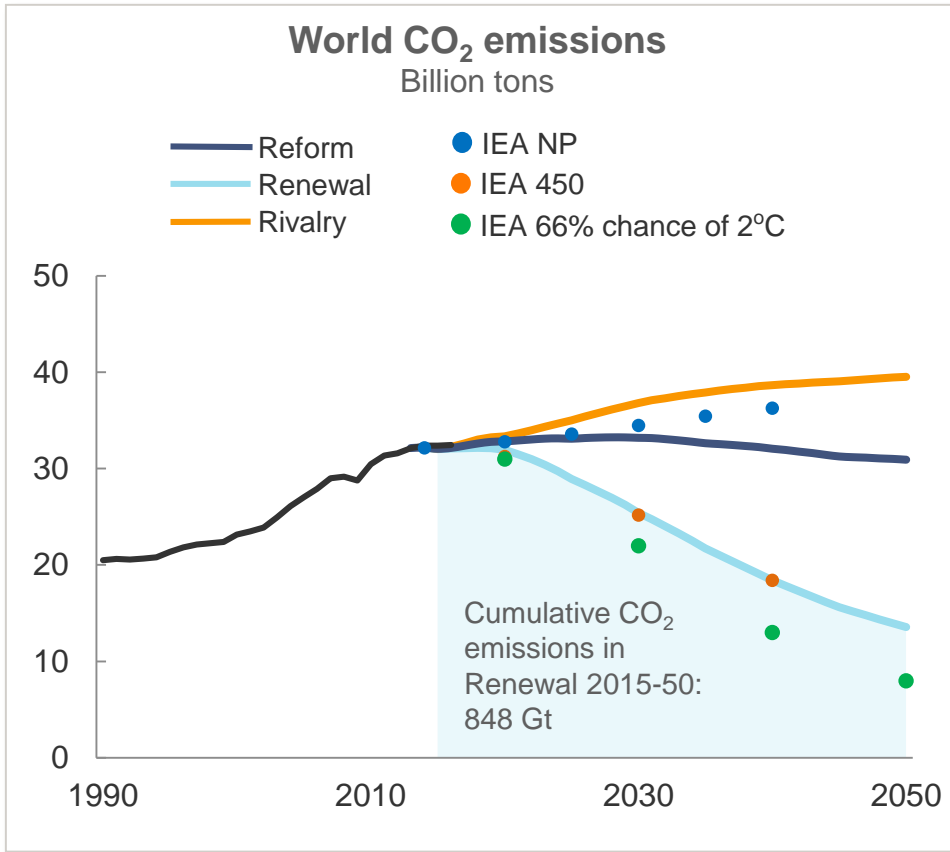
■ New RES
 ■ Biofuels and waste
 ■ Hydro
 ■ Nuclear
 ■ Gas
 ■ Oil
 ■ Solid fuels



Source: IEA (history), Statoil (projections)

CO₂ emissions determined by demand and mix

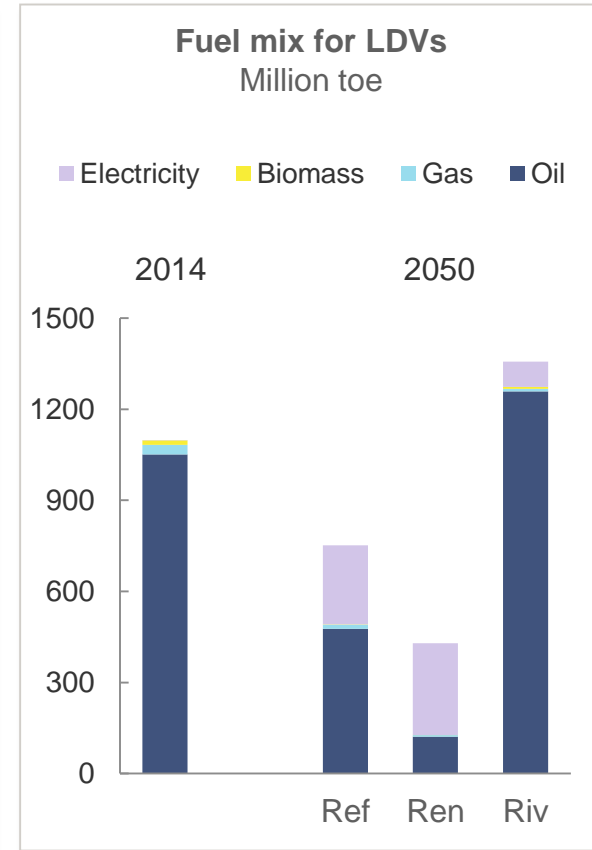
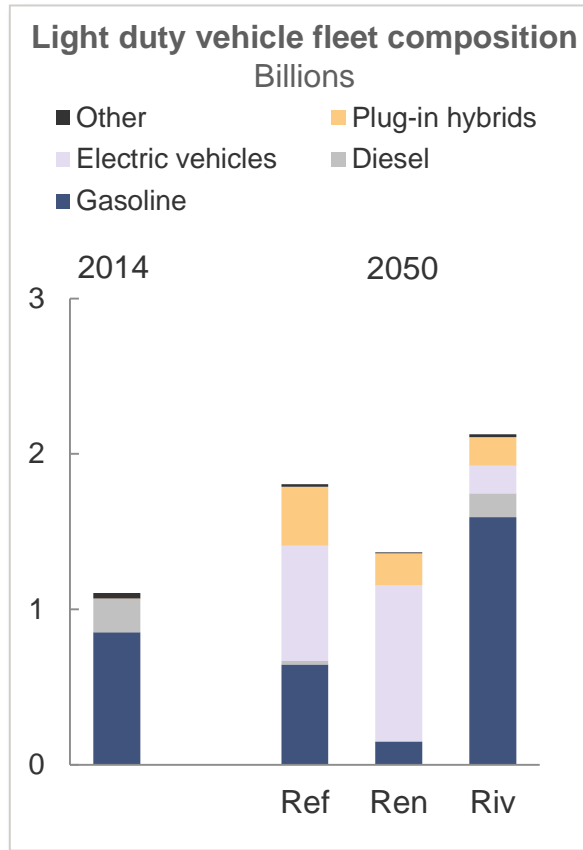
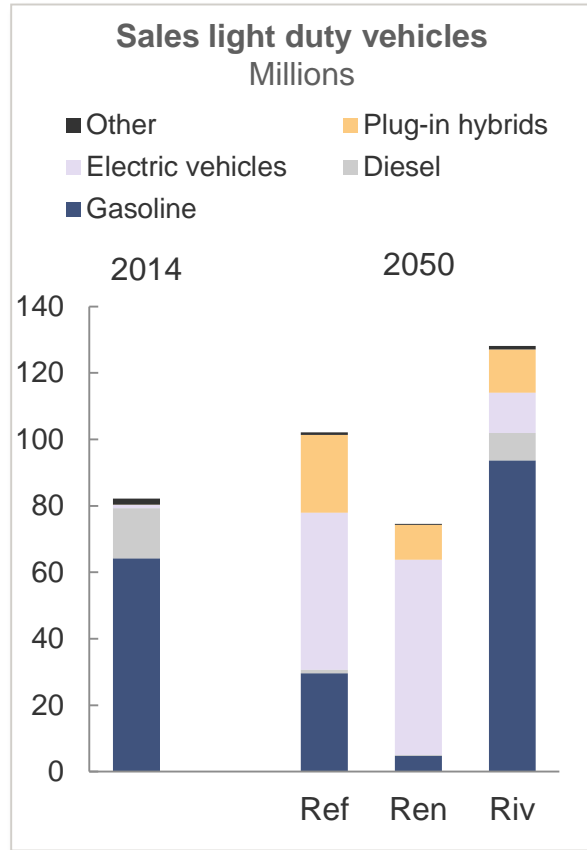
Policies, markets, and technology having varying impact



Source: IEA (history), Statoil (projections)

Technology shift for light duty vehicles

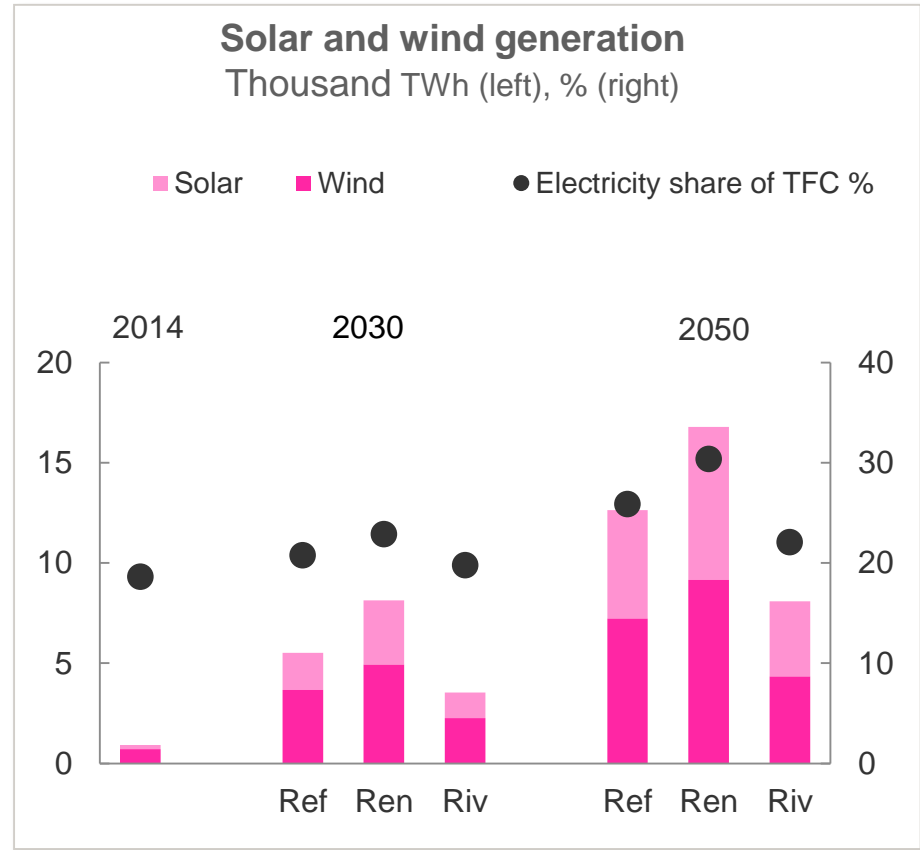
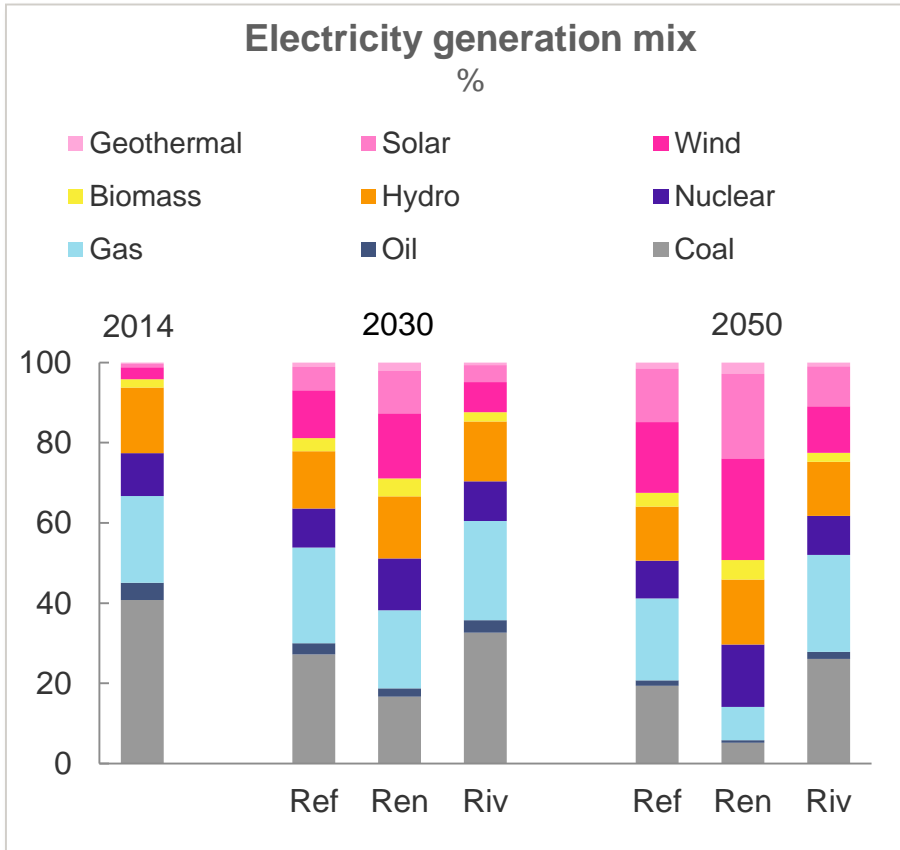
... in all scenarios, and a revolution in Renewal



Source: IEA (history), Statoil (projections)

Decarbonise electricity, and go electric

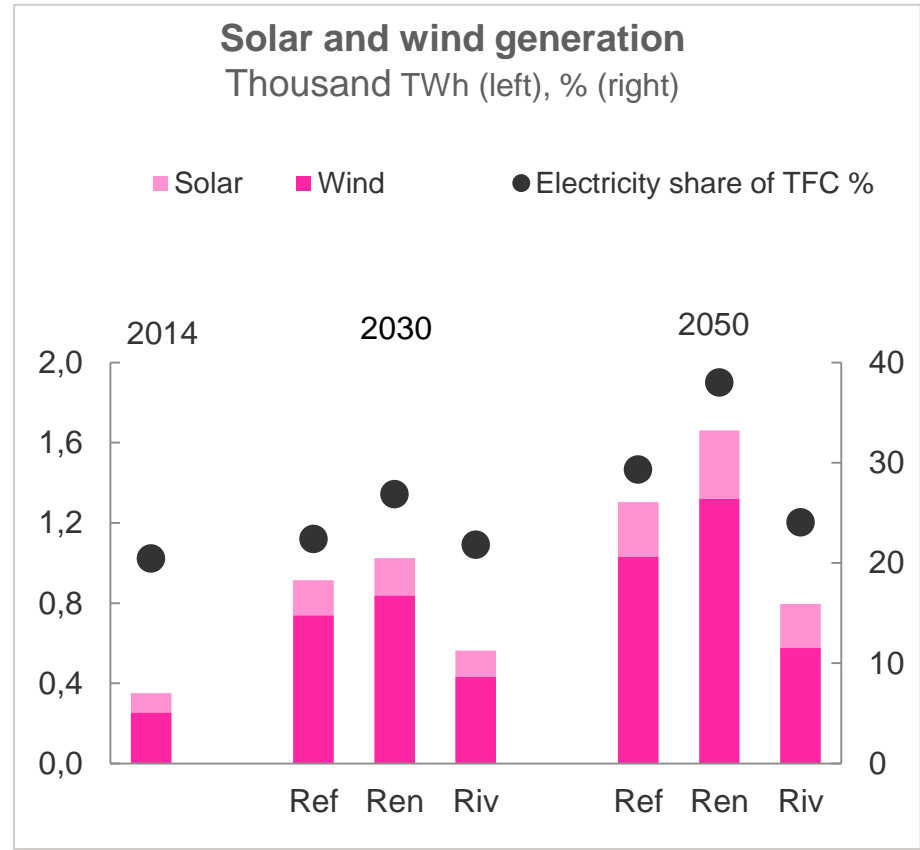
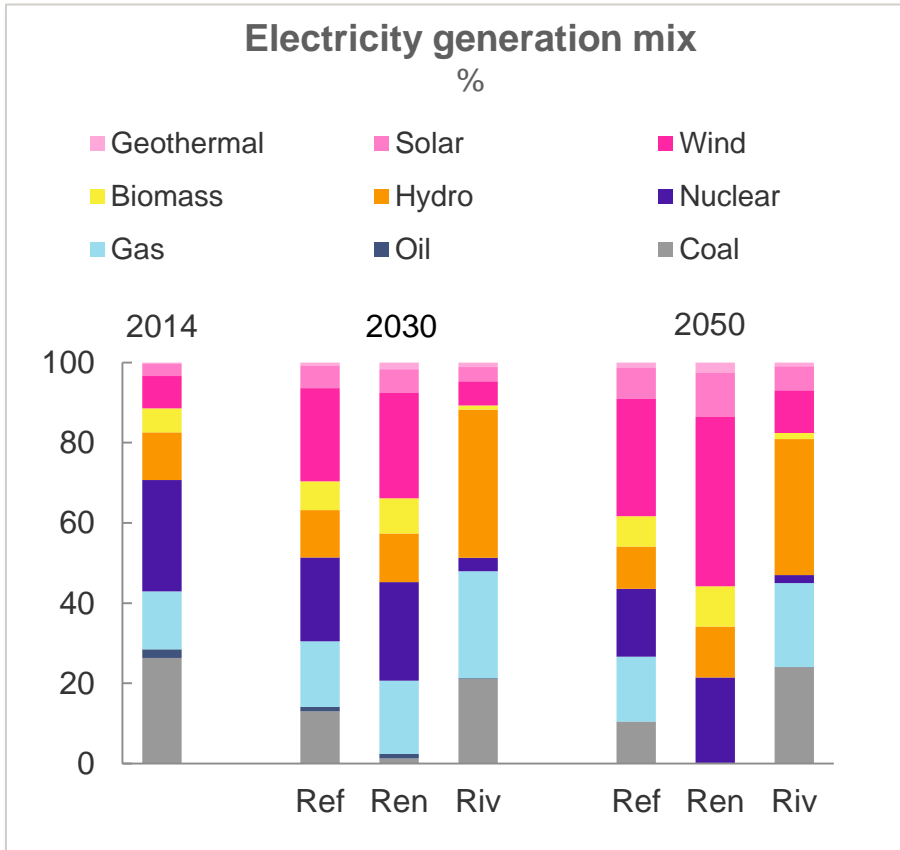
13-doubling of wind, 39-doubling of solar generation in Renewal



Source: IEA (history), Statoil (projections)

European Union: Decarbonisation of electricity

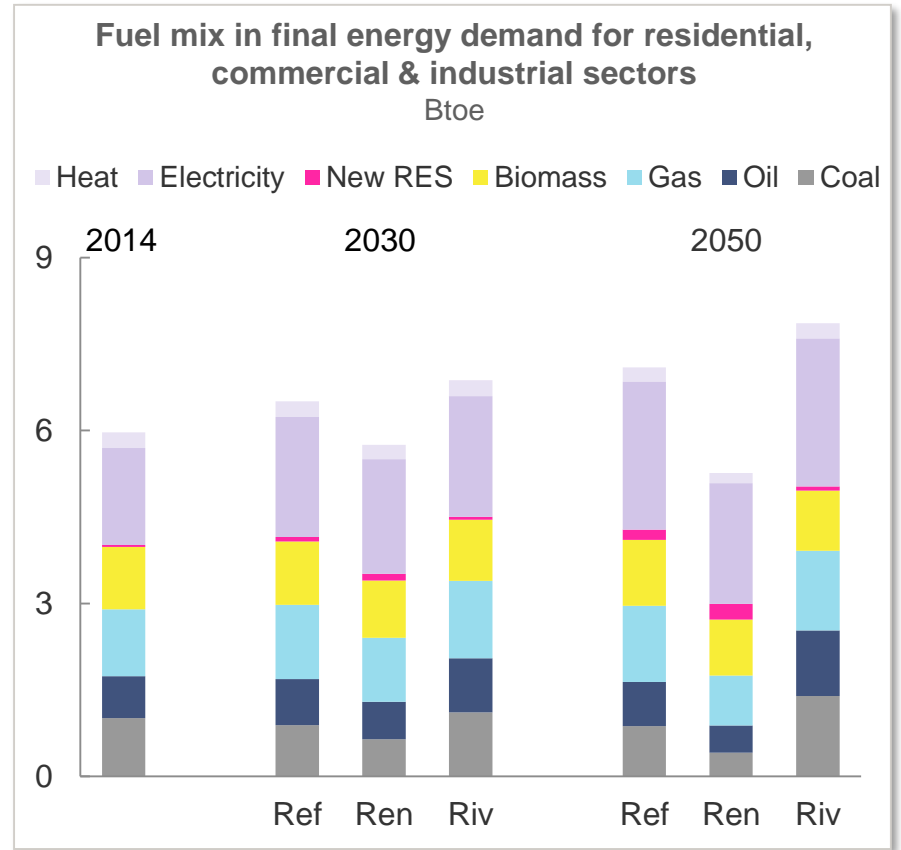
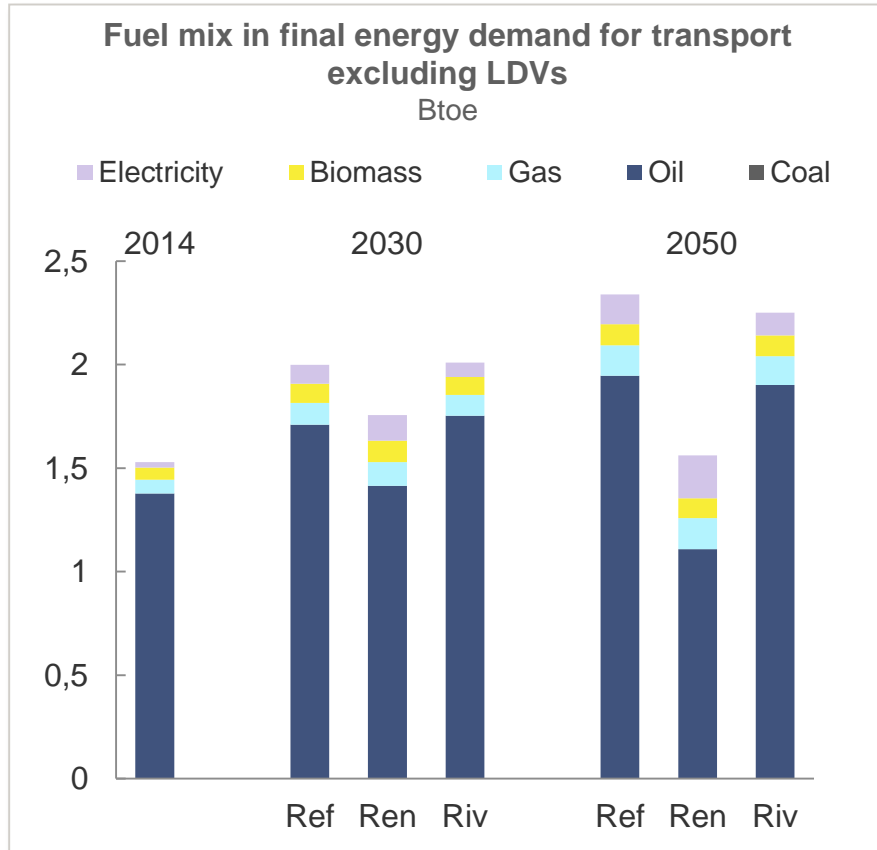
Renewal: Coal and gas out of the mix, rapid electrification



Source: IEA (history), Statoil (projections)

Oil and gas dominate in other sectors

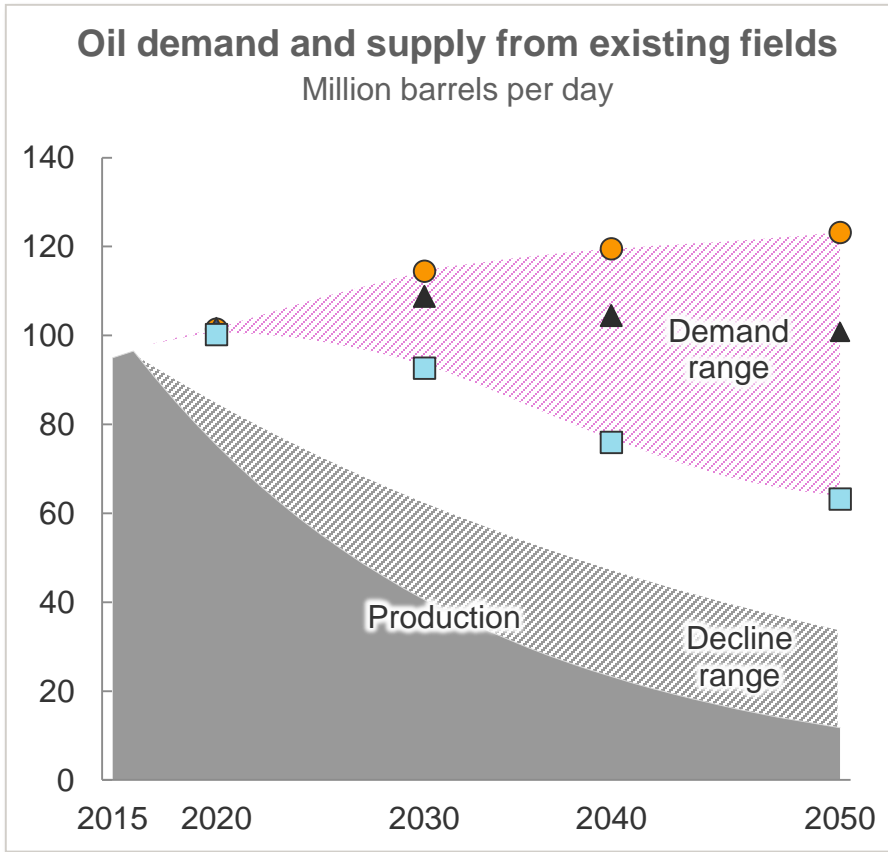
... contributing to maintaining demand for fossil fuels



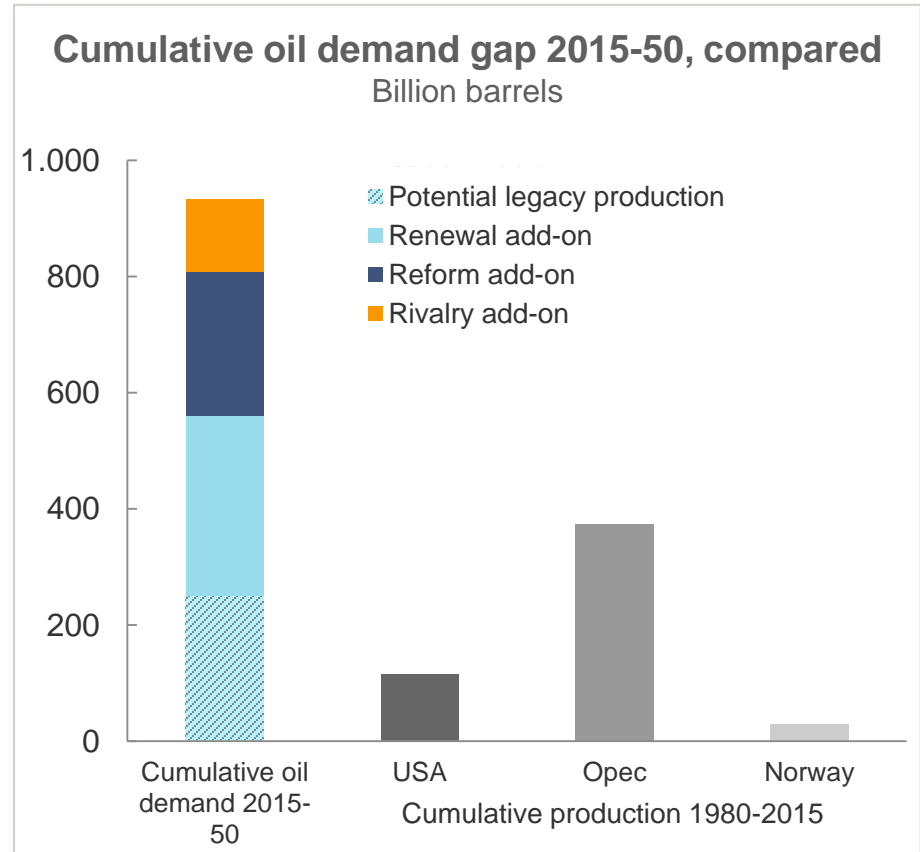
Source: IEA (history), Statoil (projections)

Huge investments needed in oil in all scenarios

...to replace production and satisfy demand



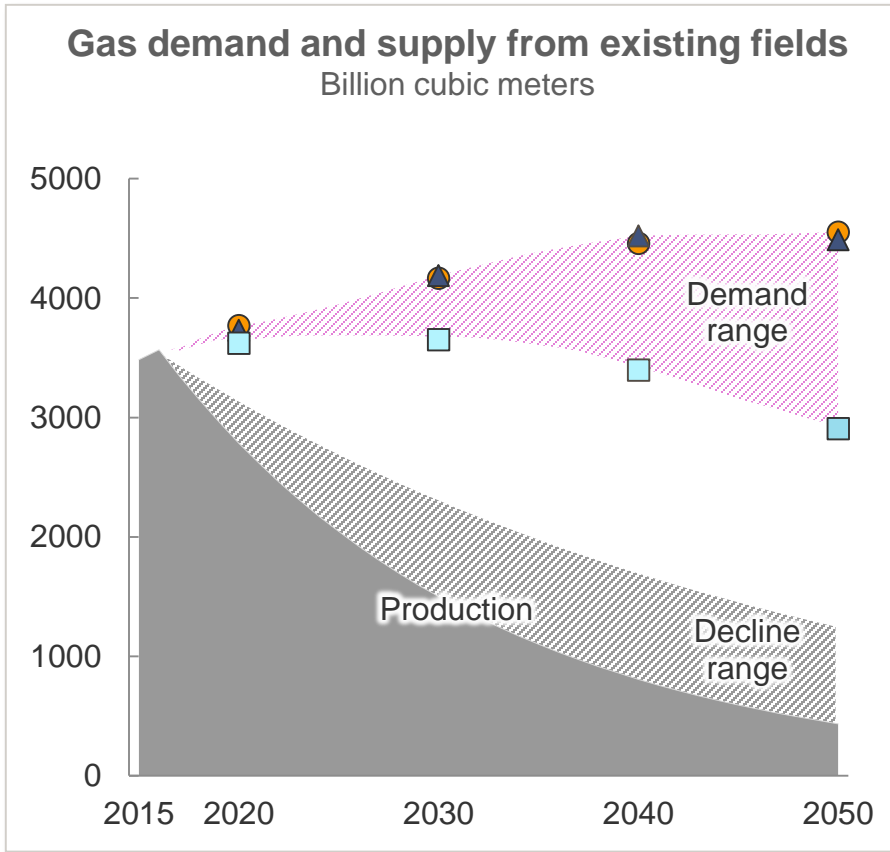
Source: Statoil



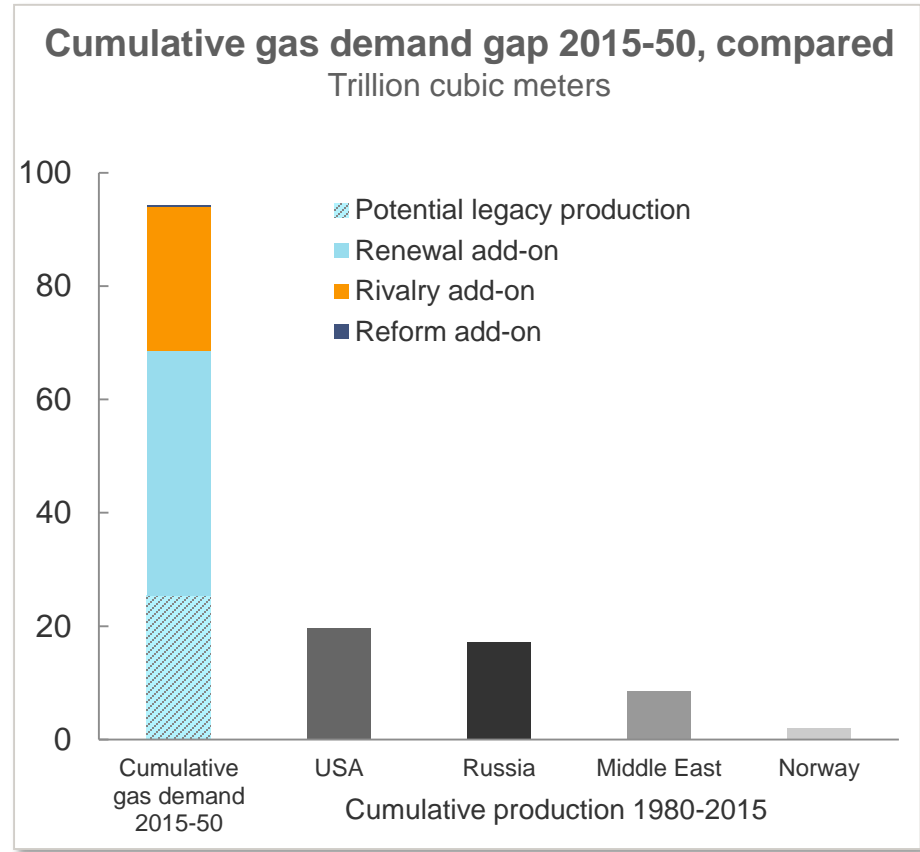
Source: Statoil (projections), BP statistical review of world energy (history)

...and the same is the case for gas

...to replace production and satisfy demand



Source: Statoil



Source: Statoil (projections), BP statistical review of world energy (history)

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www.statoil.com/energyperspectives

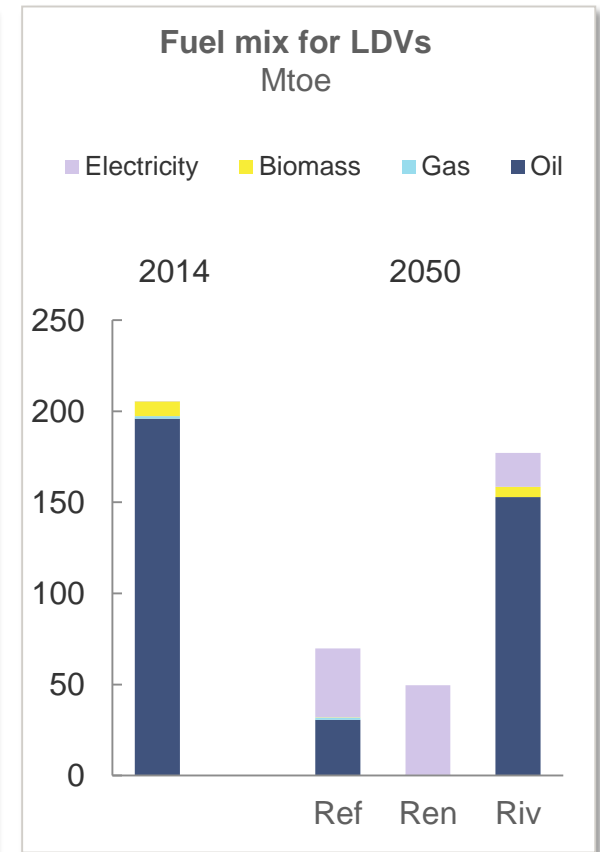
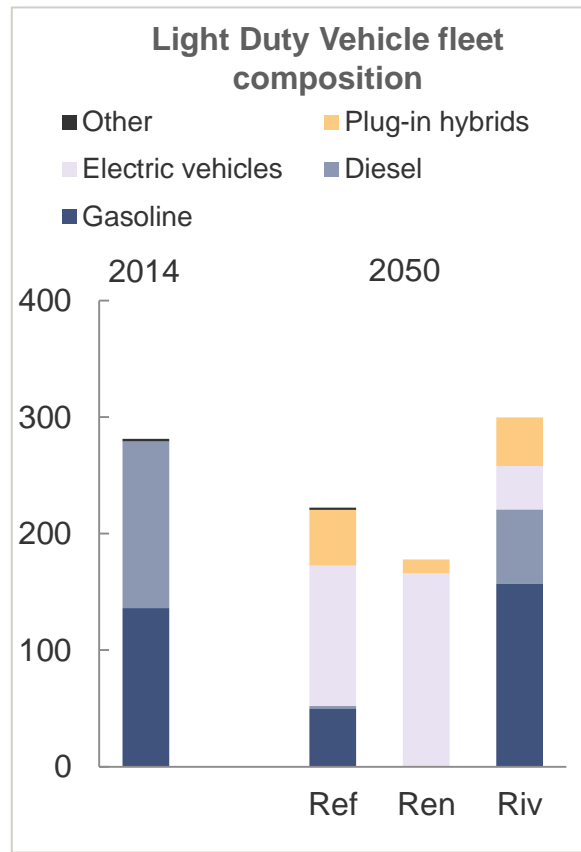
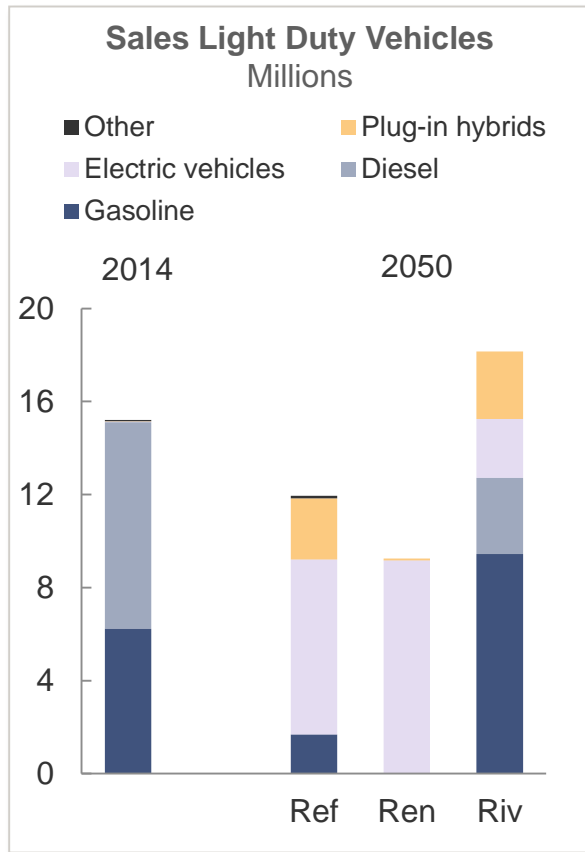
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EU: Technology shift for light duty vehicles

... in all scenarios, and a revolution in Renewal



Source: IEA (history), Statoil (projections)