



# Energy Perspectives 2015

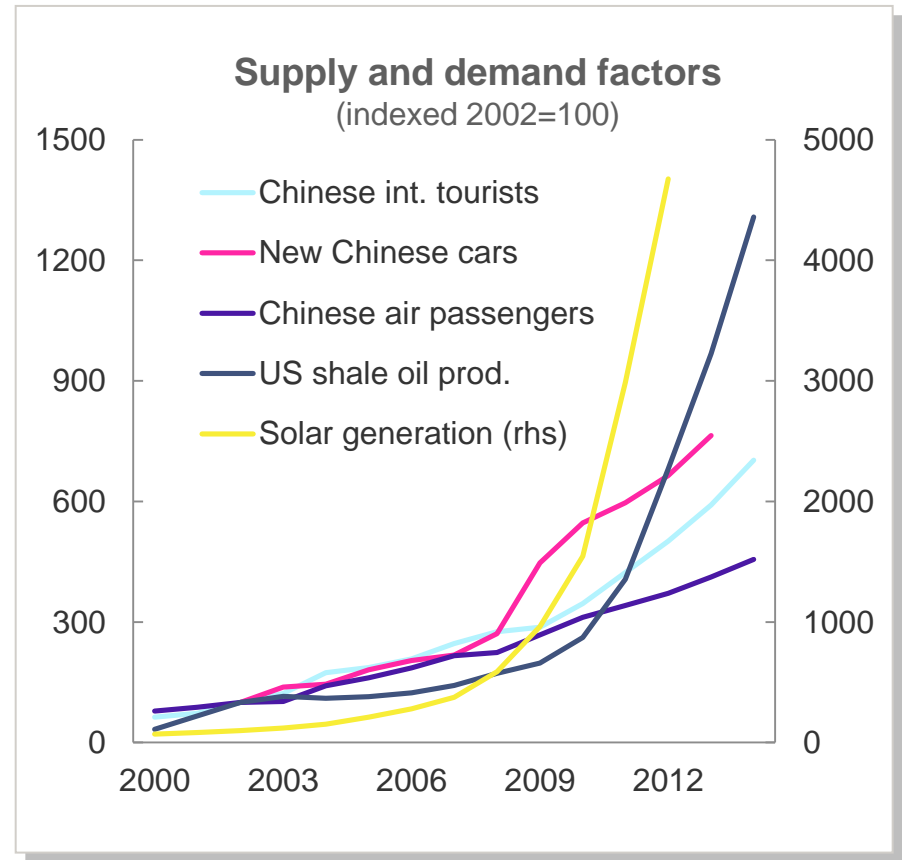
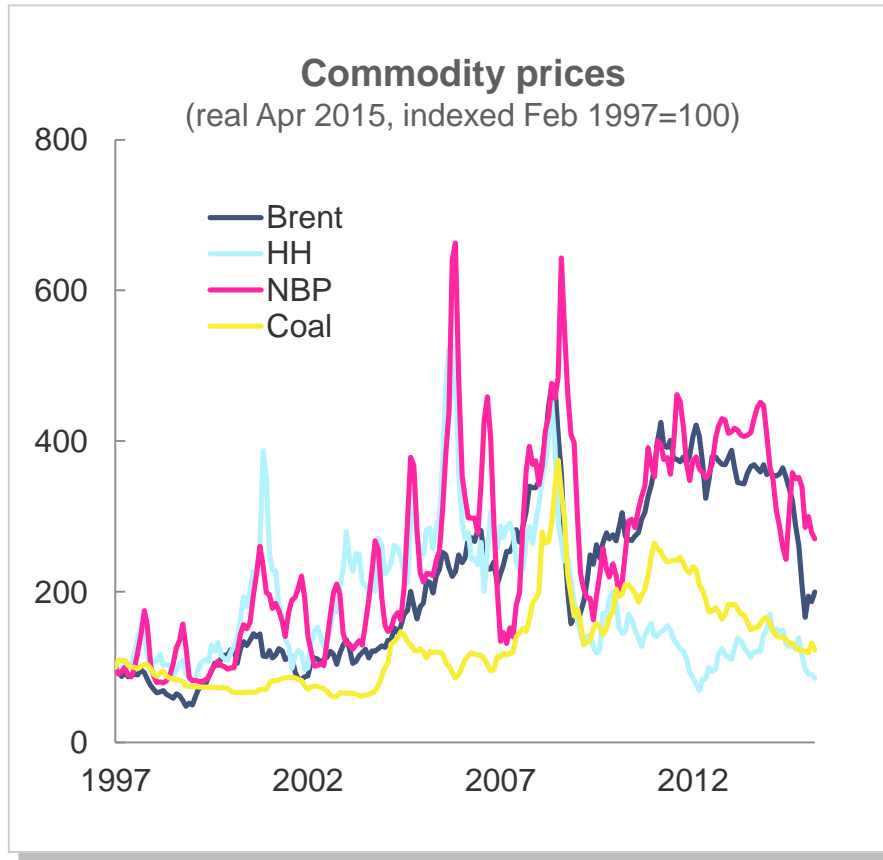
## Long-term macro and market outlook

IGU workshop, «What Does COP 21 Mean for the Role of gas?»  
Cartagena, Columbia, 22 October 2015  
Runar Tjersland, Special Advisor



# A world of volatility and change

Hope to be vaguely right, not precisely wrong...



Sources: Thomson Reuters Datastream, DOE, CEIC, IEA

# Long-term forecasts are uncertain

Climate change, policy, technology, consumers and economy will decide



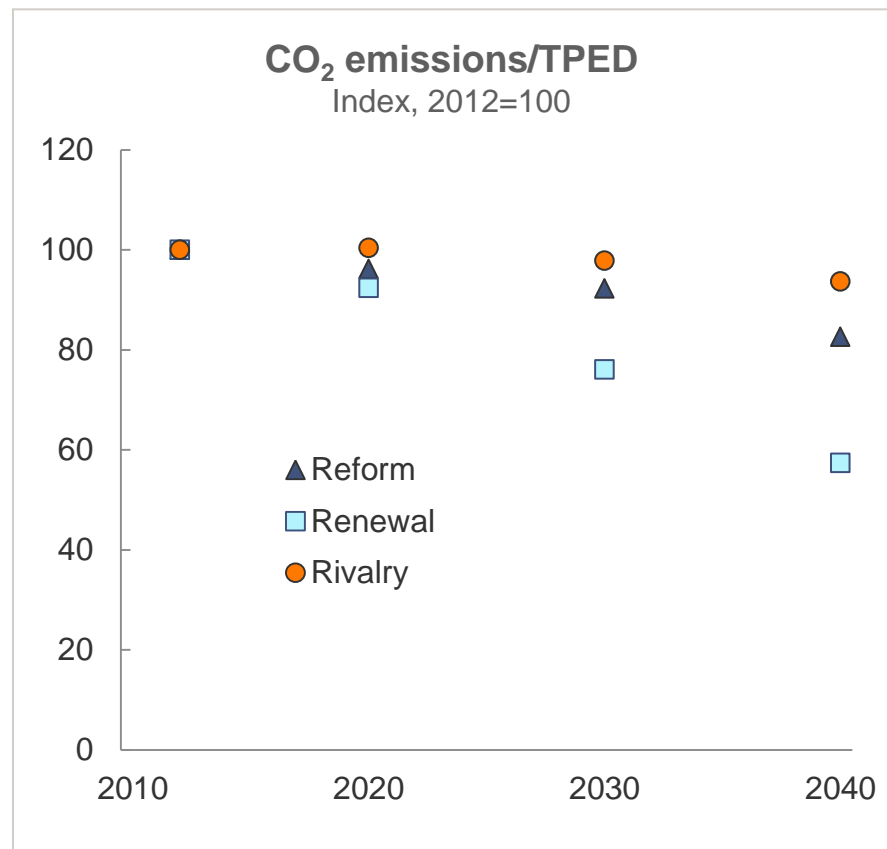
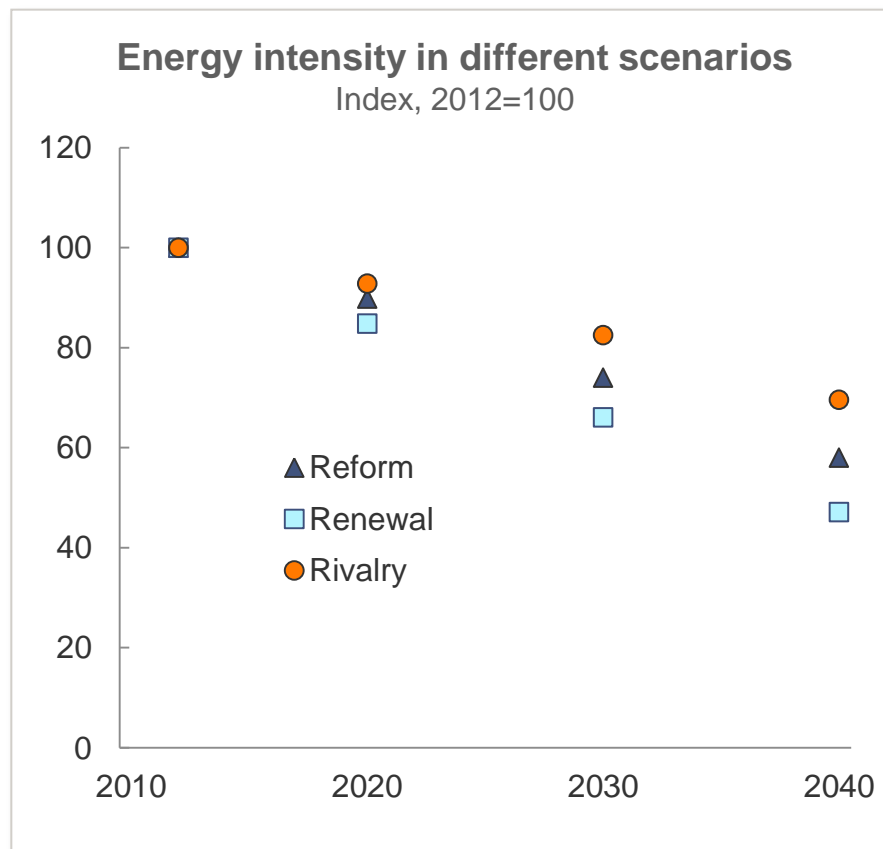
- Some known unknowns handled by constructing scenarios
  - Energy and climate policies
  - Economic growth
  - Energy efficiency
  - Relative costs and prices driving fuel mix
- A large number of other known unknowns:
  - Consumer behaviour
  - Cold fusion
  - Natural disasters (volcanoes etc.)
  - Climate change impact
- ... as well as the unknown unknowns ...

Sources: The Economist, Financial Times, Google, UN, Statoil, McKinsey & Company, National Geographic, twistedsifter.com

# Several futures are possible



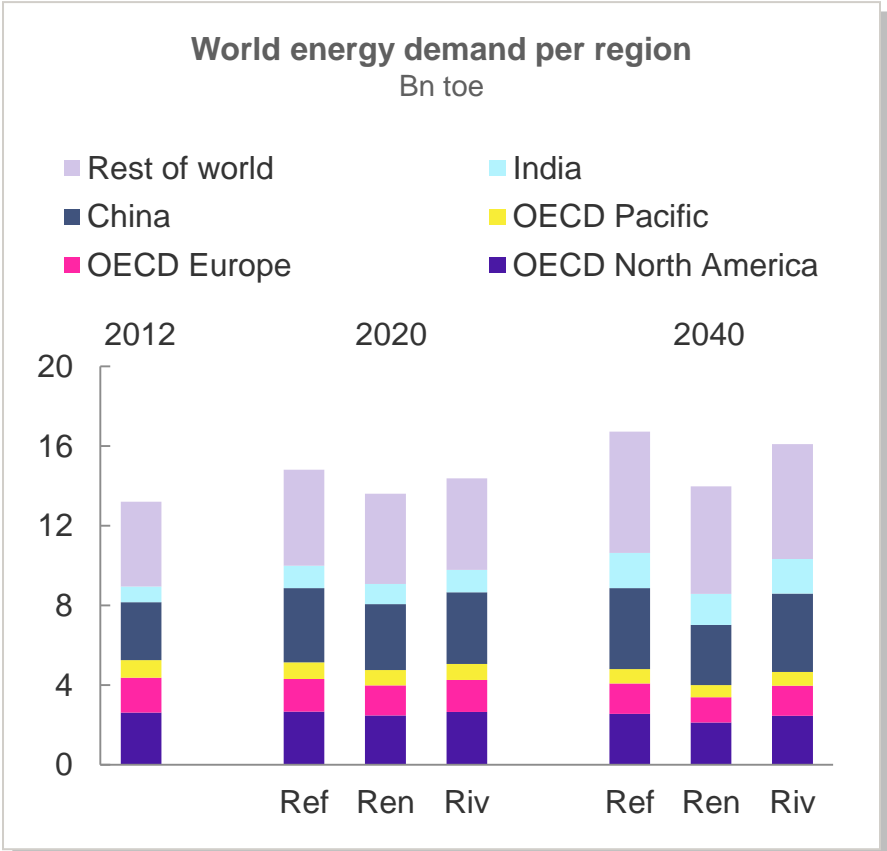
Three scenarios – stories about the future – have been established



Source: IEA (history), Statoil (projections)

# One of the known knowns: Asia matters

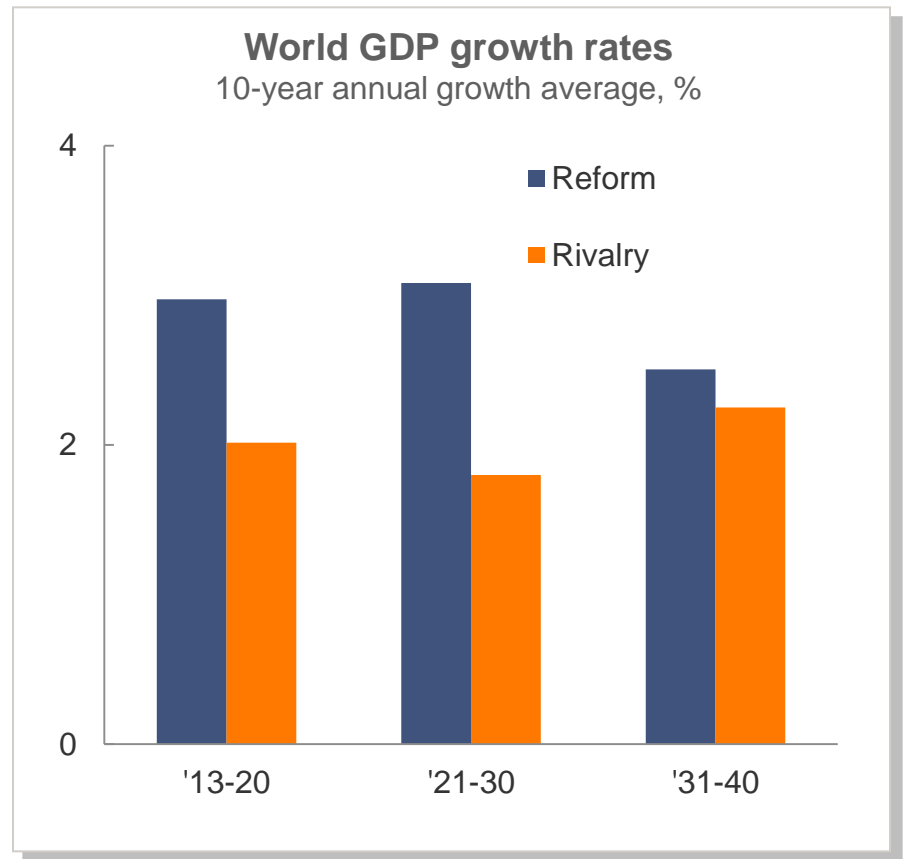
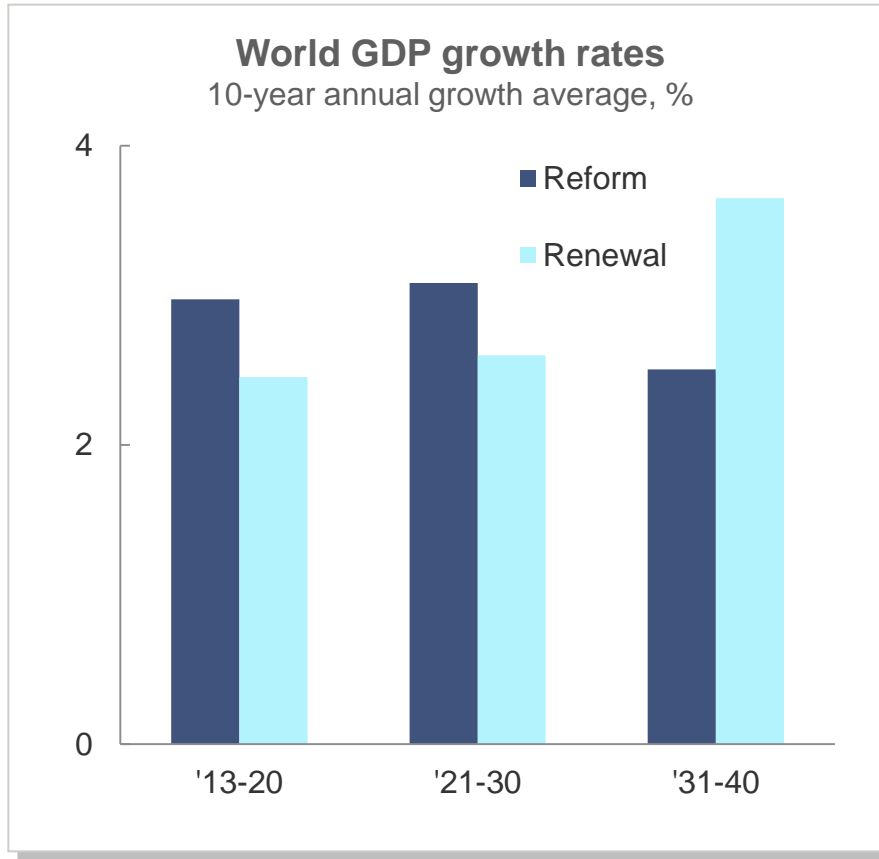
Economic gravity moves (back) to the east, and so does energy demand



Sources: Reddit, IEA, Statoil (projections)

# Growth is a key driver for energy demand...

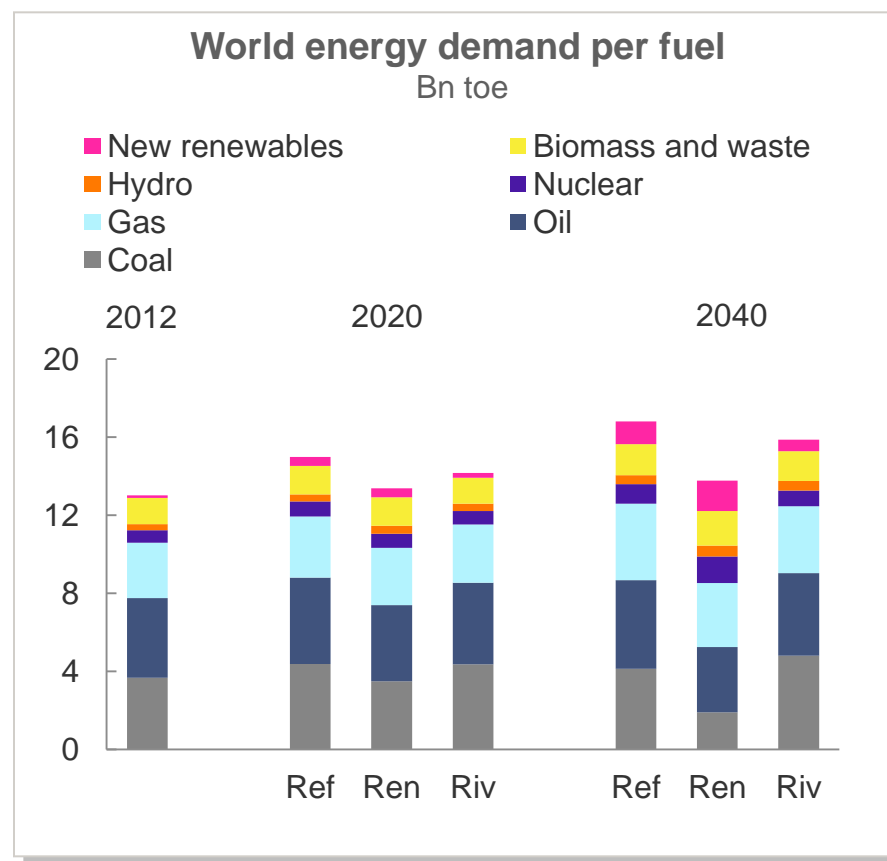
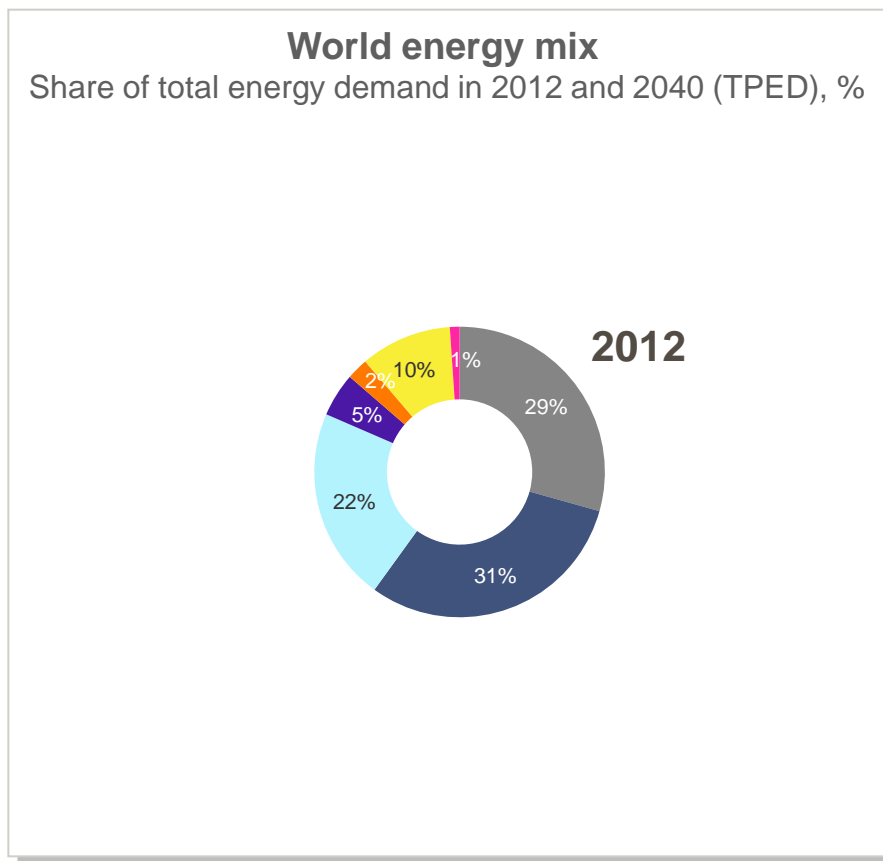
... and is different in alternative scenarios



Source: IEA (history), Statoil (projections)

# Energy demand and energy mix differ

... depending on growth, efficiency, technology and policies

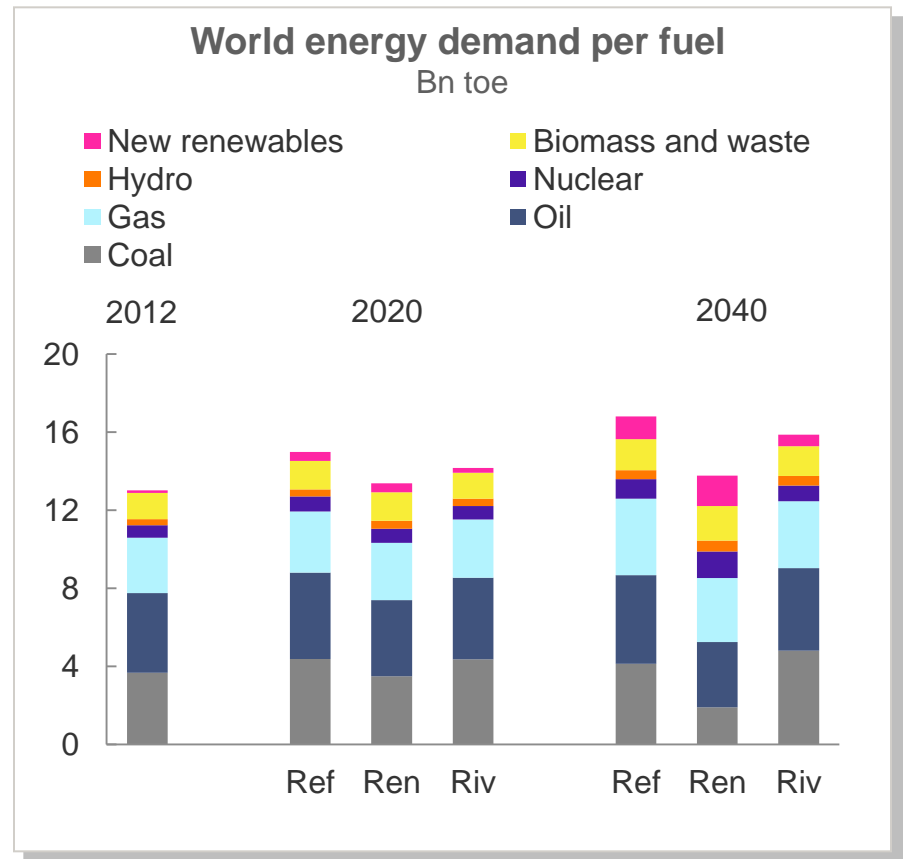
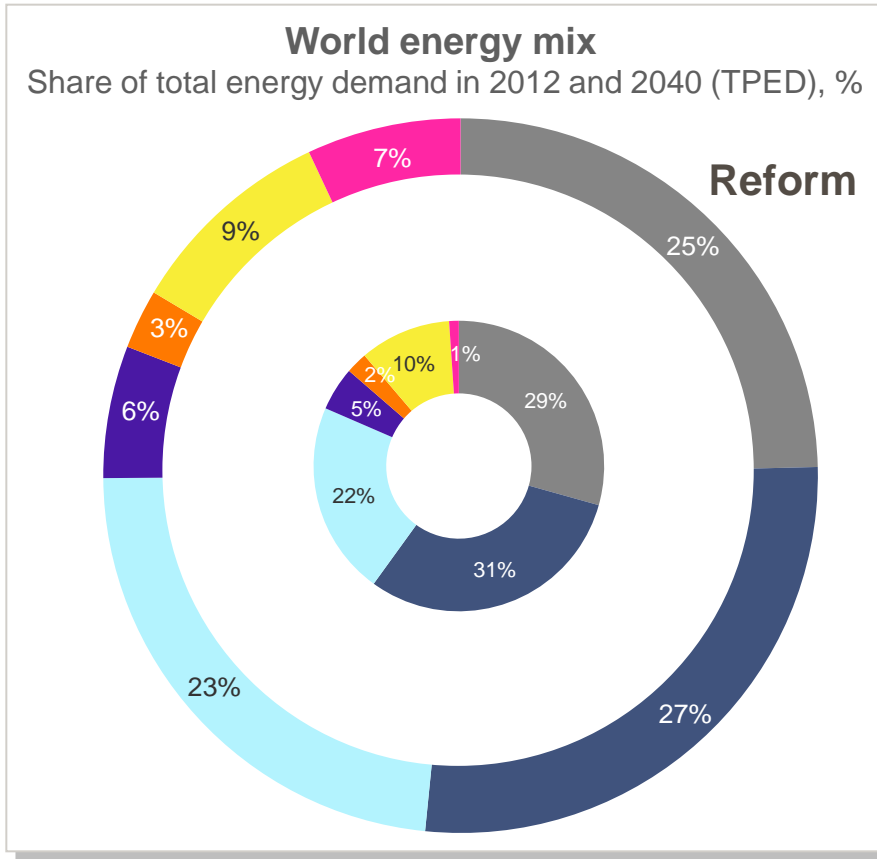


Source: IEA (history), Statoil (projections)



# Energy demand and energy mix differ

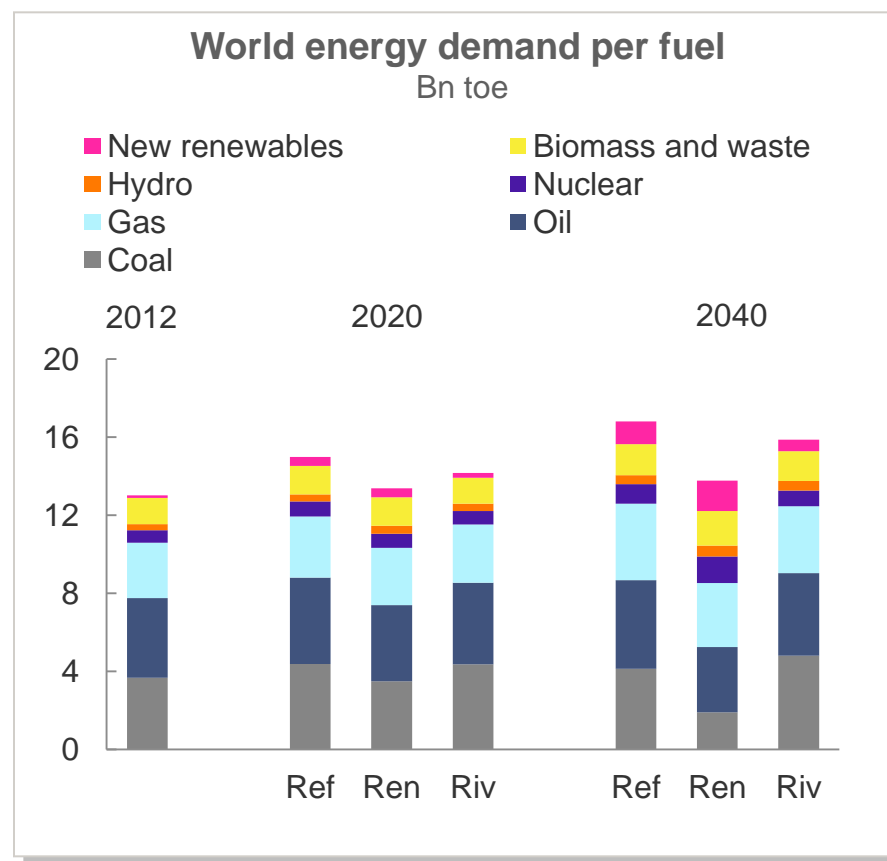
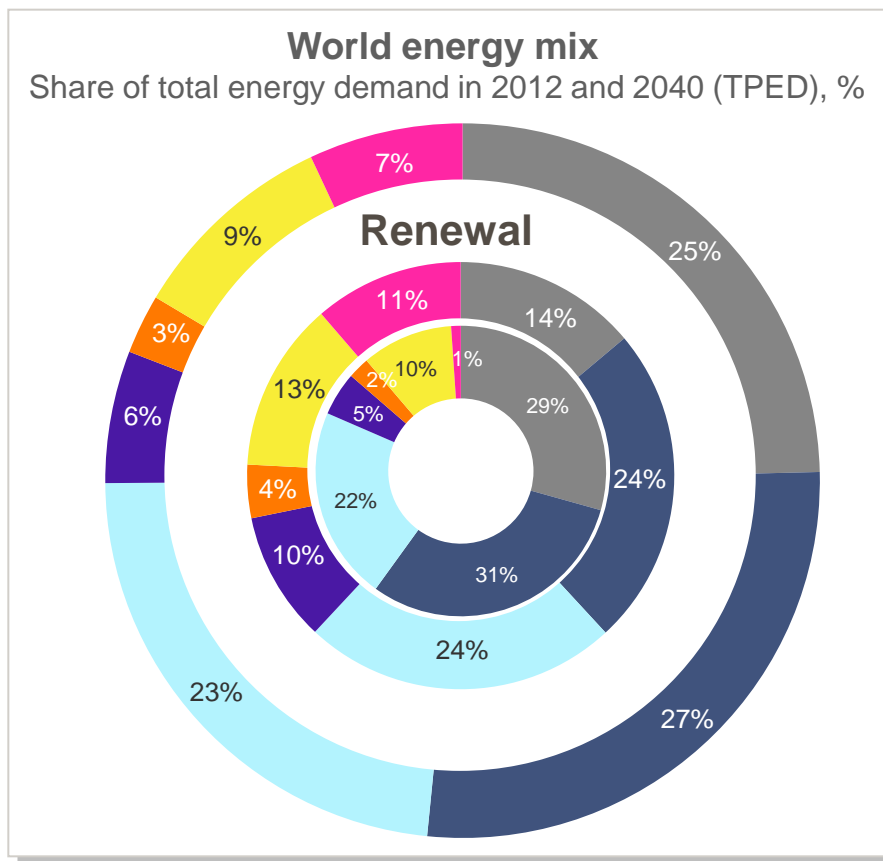
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Source: IEA (history), Statoil (projections)

# Energy demand and energy mix differ

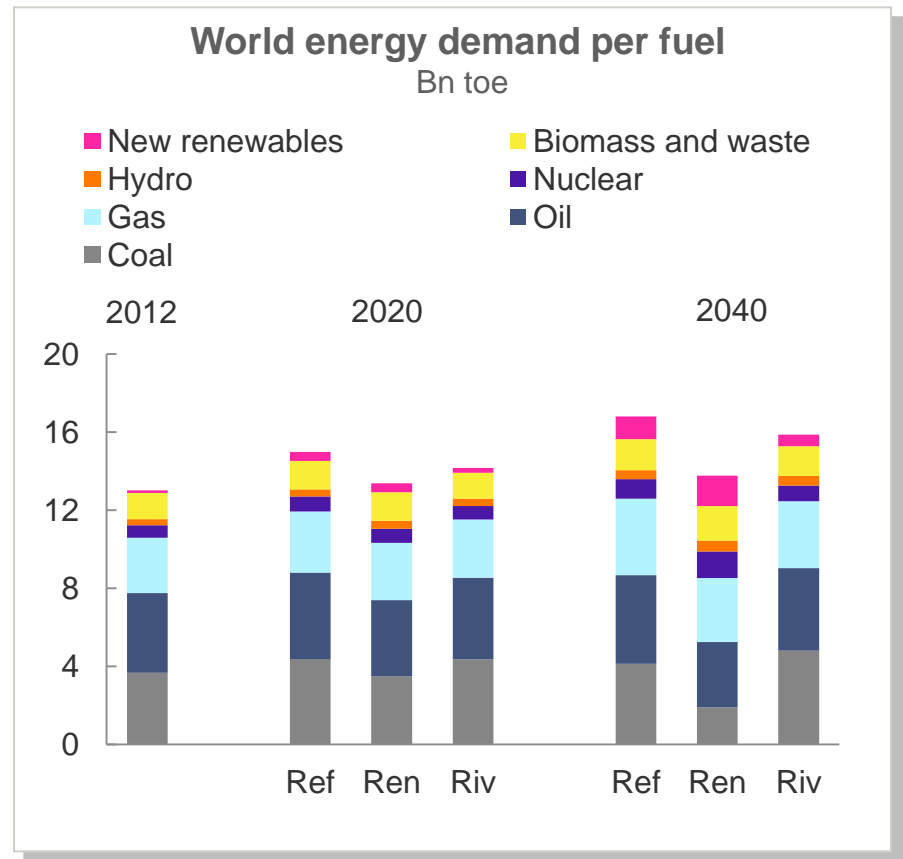
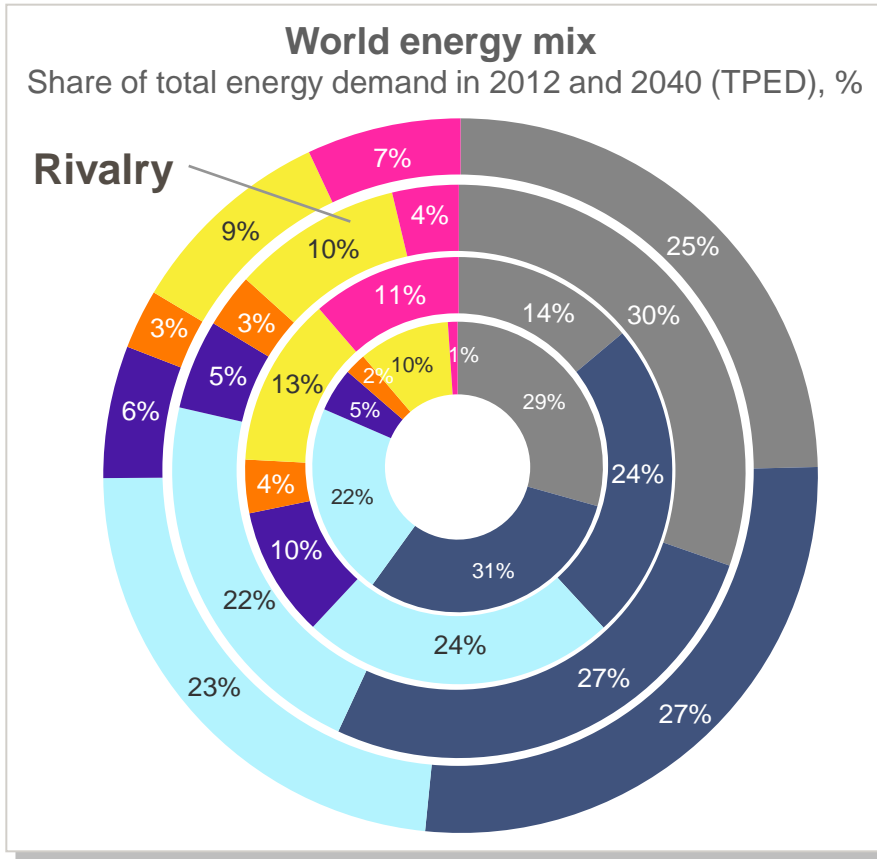
... depending on growth, efficiency, technology and policies



Source: IEA (history), Statoil (projections)

# Energy demand and energy mix differ

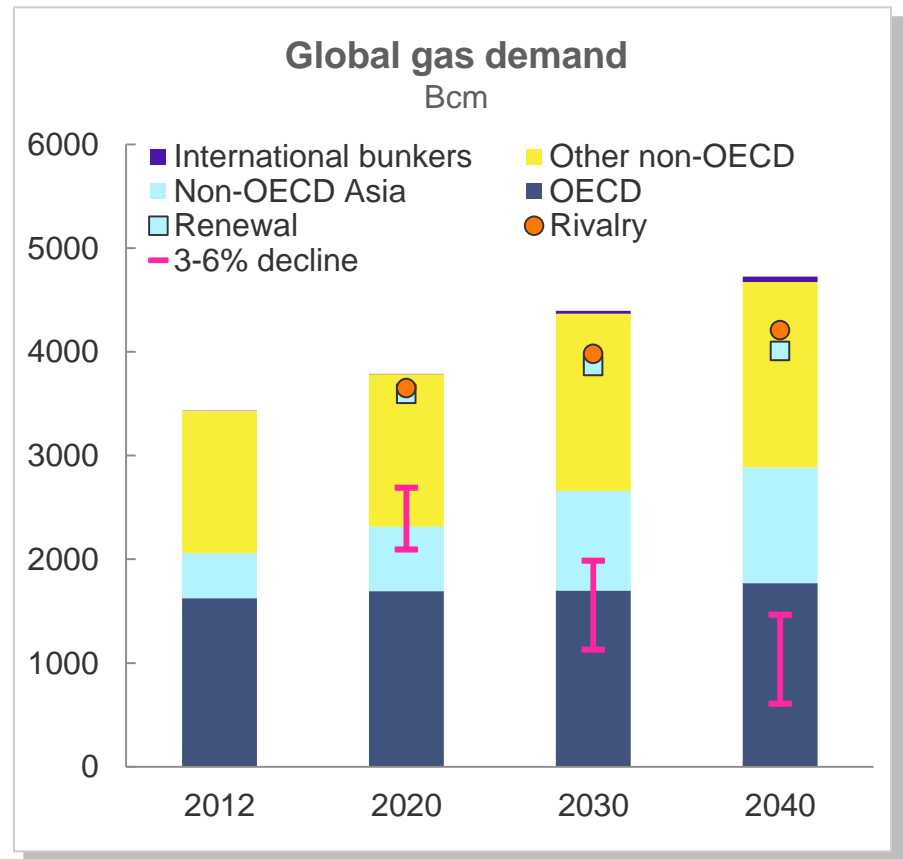
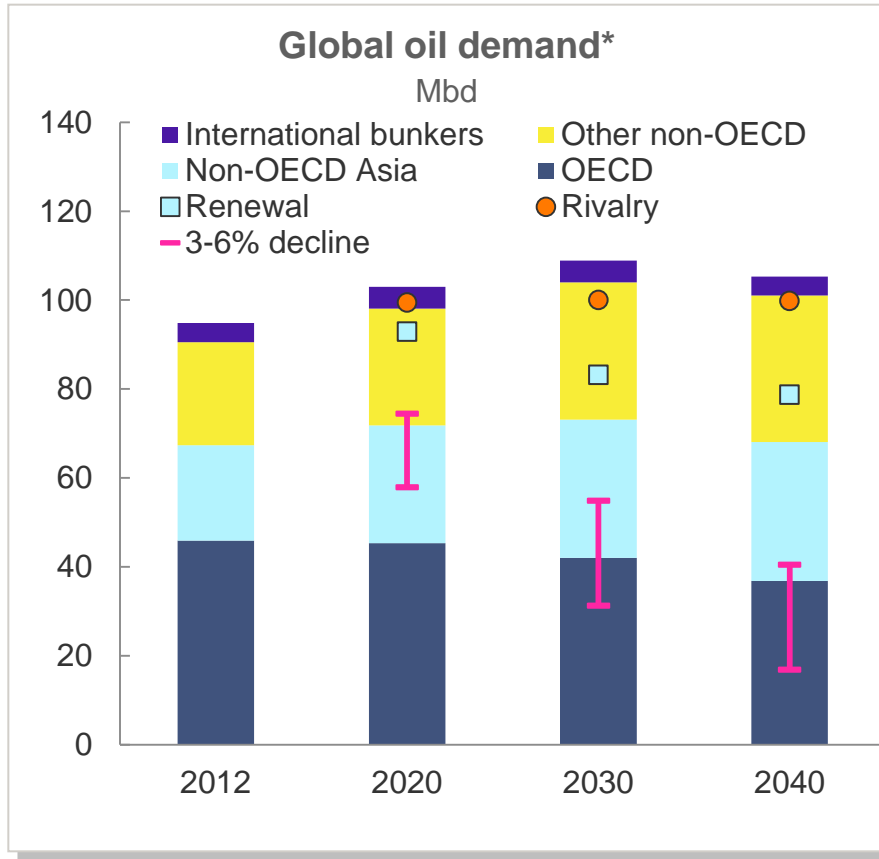
... depending on growth, efficiency, technology and policies



Source: IEA (history), Statoil (projections)

# Oil and gas are here to stay

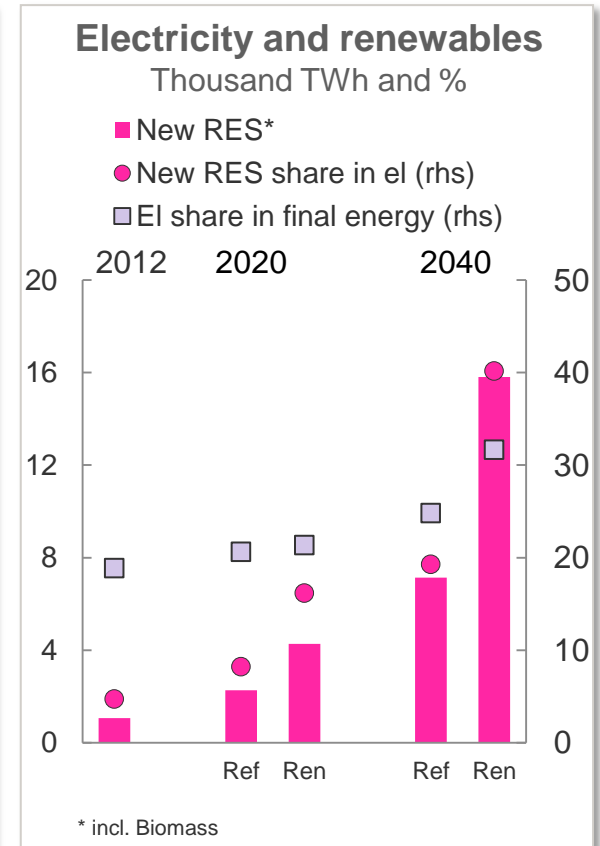
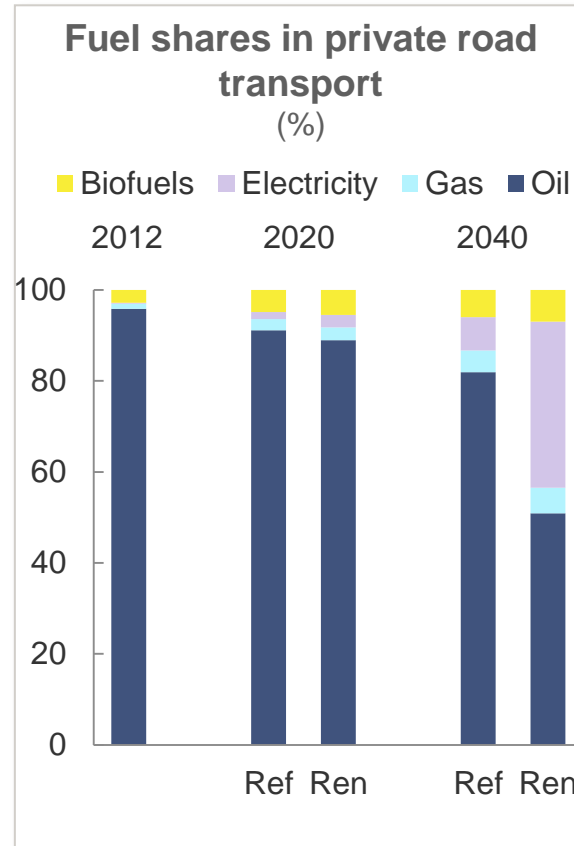
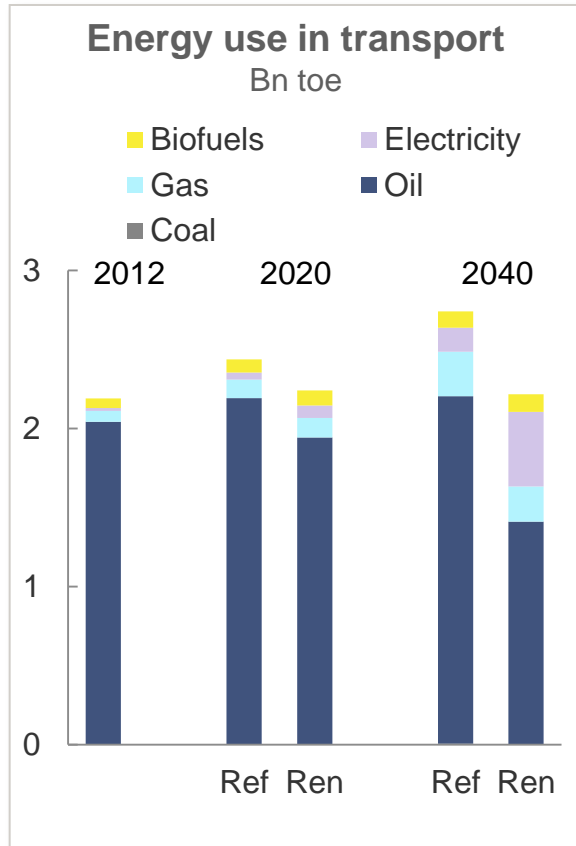
Considerable need for new investments, irrespective of scenario



\* Excl. Bio-fuels  
Source: IEA (history), Statoil (projections)

# Renewal requires large changes

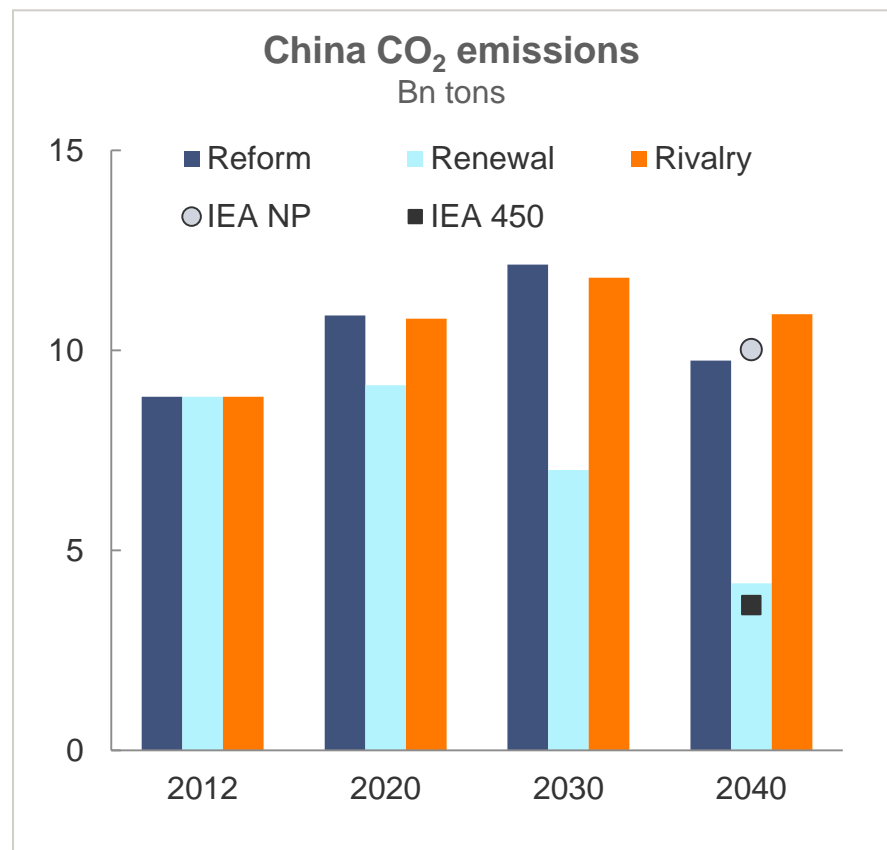
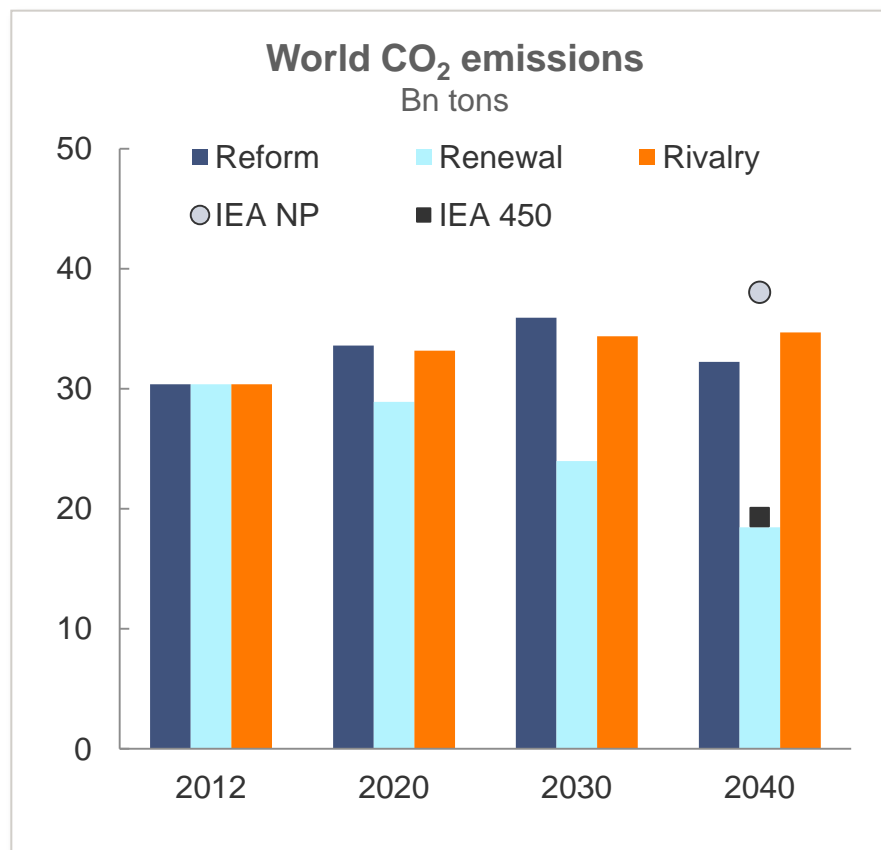
... in particular in transport and power – this is no walk in the park!



Source: IHS Global Insight and International Energy Agency (history), Statoil (projections)

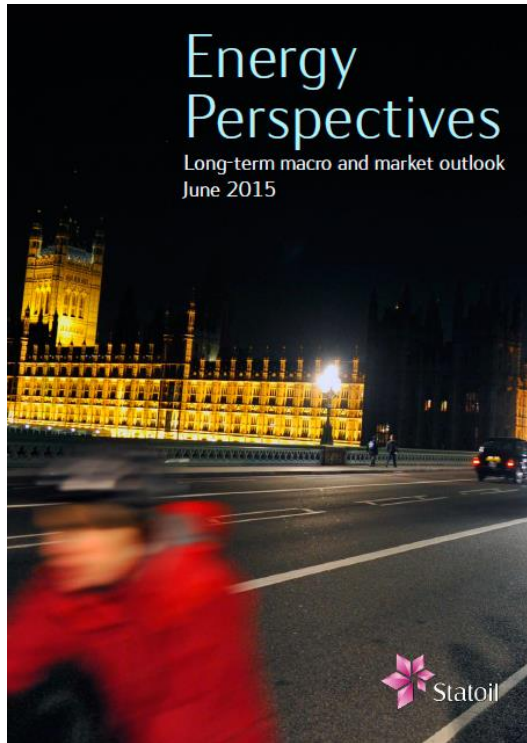
# Energy related CO<sub>2</sub> emissions vary considerably

... driven by policy, energy intensity, and fuel mix

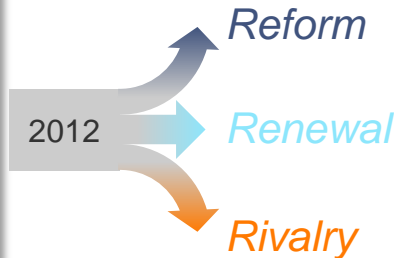


Source: Statoil, IEA WEO 2014

# So, in summary ...



[www.statoil.com/energyperspectives](http://www.statoil.com/energyperspectives)



- Three very different scenarios developed
- *Renewal* delivers on sustainability in several dimensions
  - VERY challenging – requires huge investments
  - 2-degree target achieved
  - Transformation of private transportation and electricity generation
  - Radical assumptions – coal significantly reduced, but oil and gas are here to stay, for decades
  - Oil and gas demand in 2040 ~ today's level
- *Reform* and *Rivalry* imply higher oil and gas demand, but an unsustainable development