



The Prospects for Natural Gas in 2050

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Some things change a lot in 32 years...

1986



Argentina wins the world cup

2018

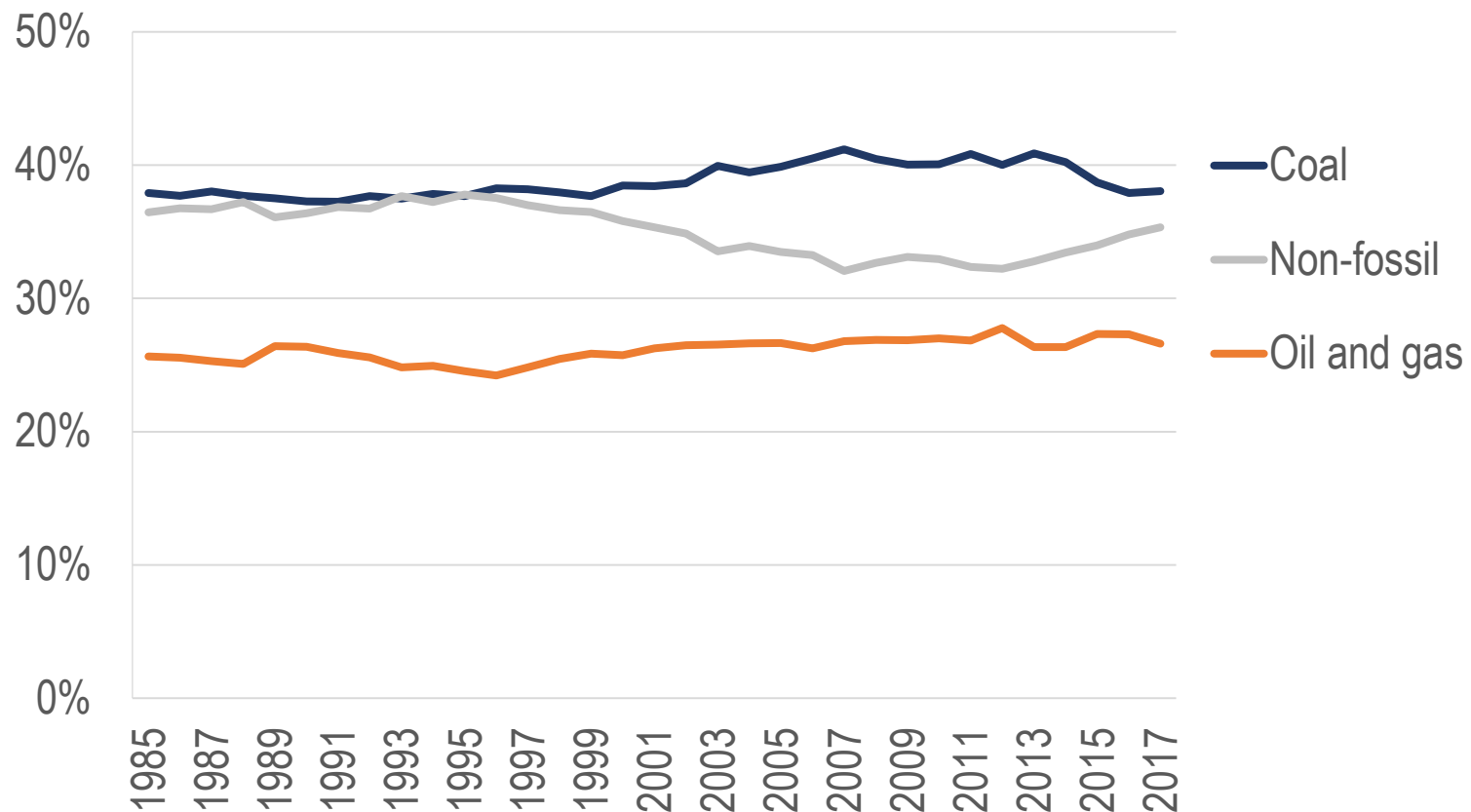


Argentina faces elimination in 1st round after a 3-0 defeat by Croatia



...But some things don't

Fuel shares in electricity generation 1985-2017



Source: BP Statistical Review 2018 (after Spencer Dale's presentation at Columbia University on June 19, 2018)



Assumptions underlying most long-term demand forecasts



27th WORLD GAS CONFERENCE
WASHINGTON DC
JUNE 25-29
2018

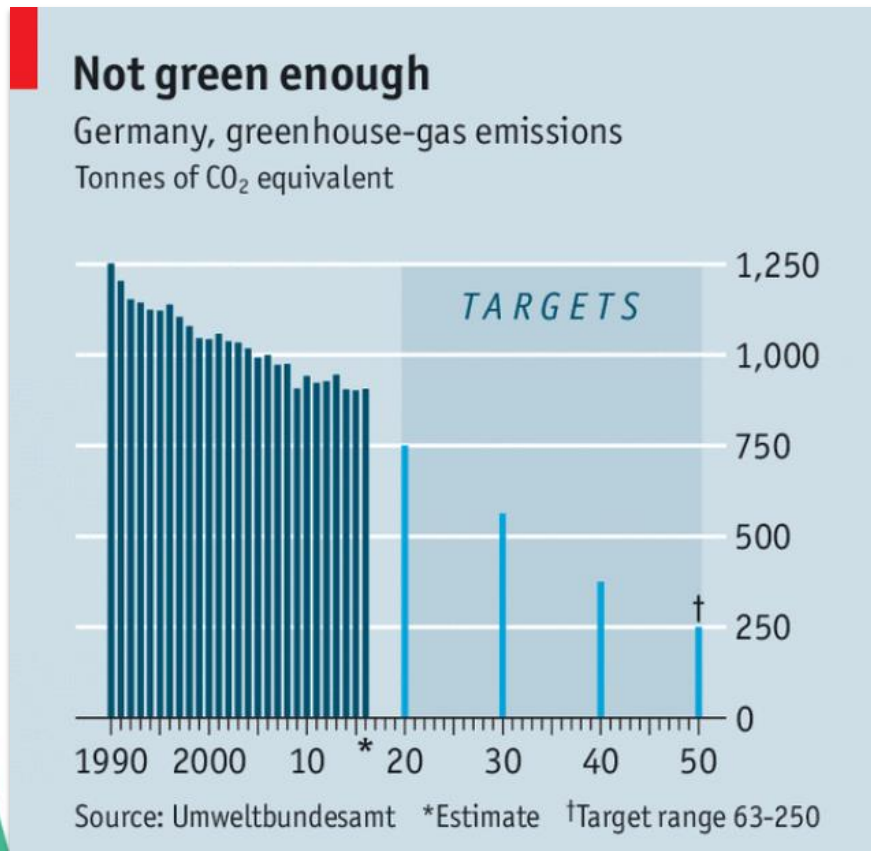
- We are rational actors
- Exceeding 2°C will become politically acceptable
- Policy intervention is guided by economic efficiency
- Innovation will help decarbonize natural gas



Are we rational actors? (Maybe not)



Germany's *Energiewende*

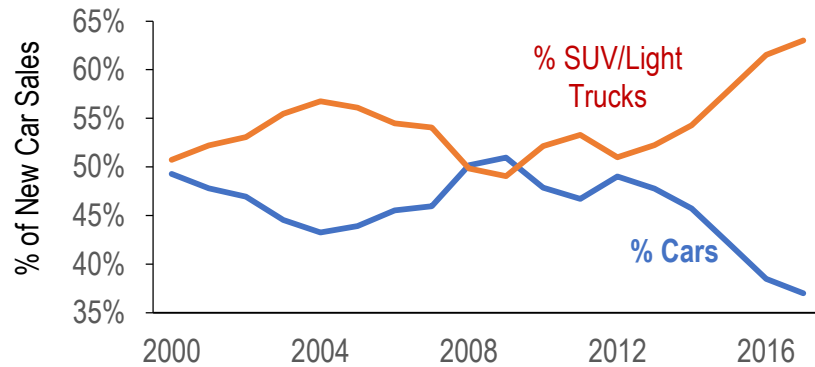


Source: *Economist.com*



Low oil prices equal high SUV sales

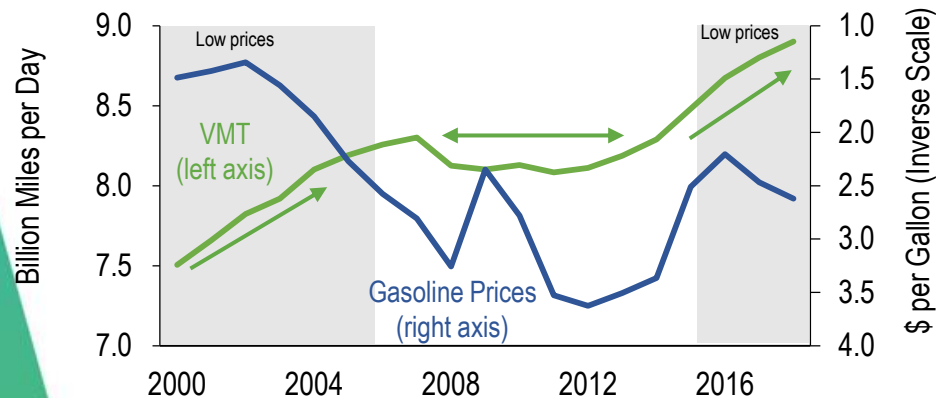
Continued shift to SUVs / light trucks



Top 3 best-selling vehicles in the US in 2017



VMT increases in a lower price environment



Source: U.S. Department of Energy, EIA, STEO, NHTA, Wards Auto

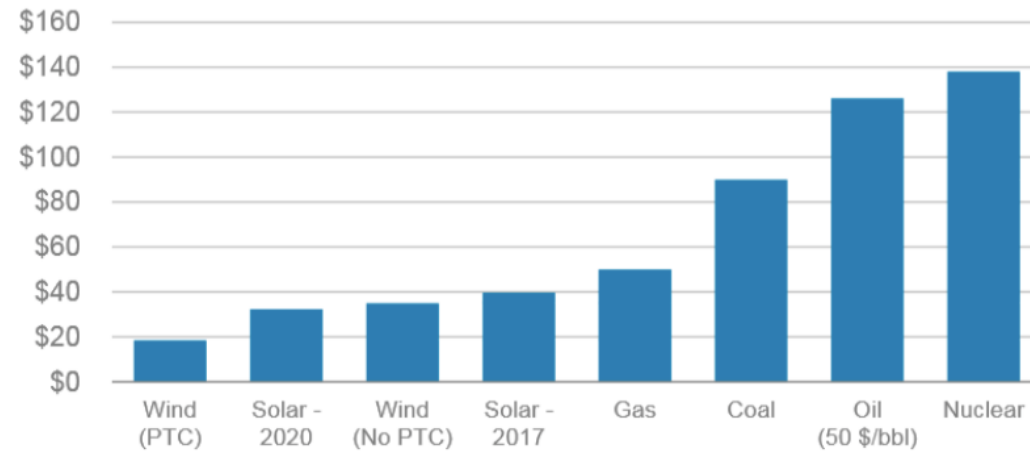
Source: Car and Driver



US efforts to bring back coal



Levelized cost of electricity for new generation in the US (\$/MWh)



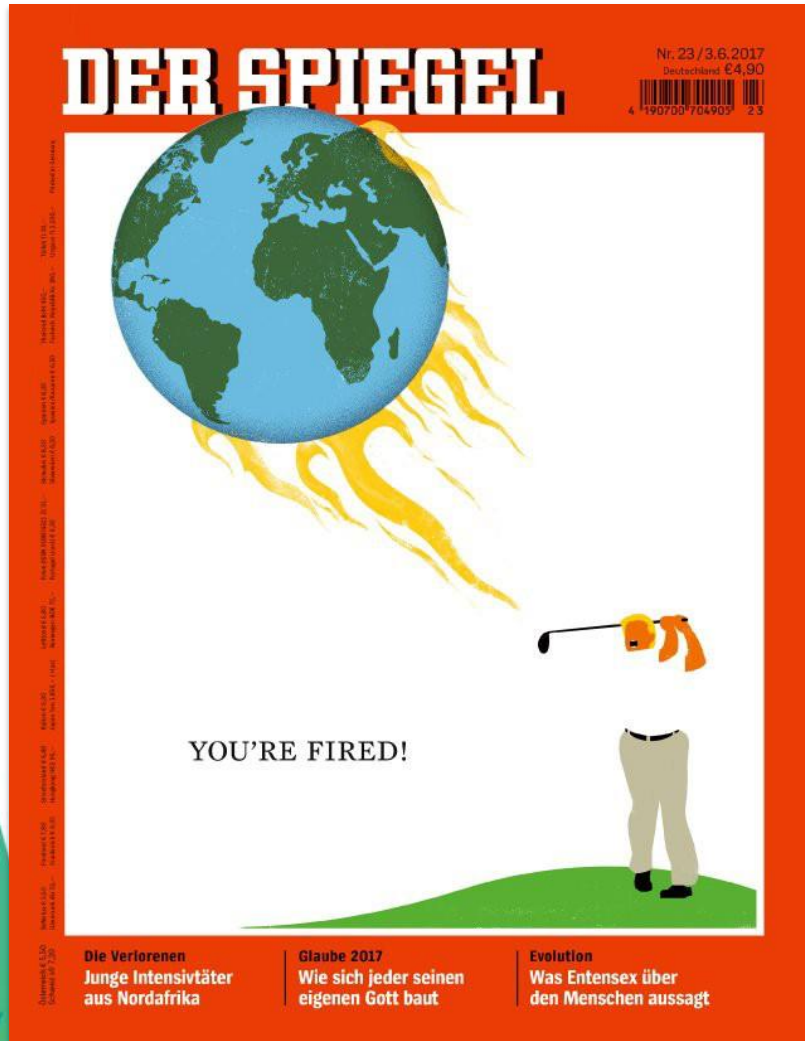
Source: Morgan Stanley Research



Exceeding 2°C will become politically acceptable
(Be very skeptical)



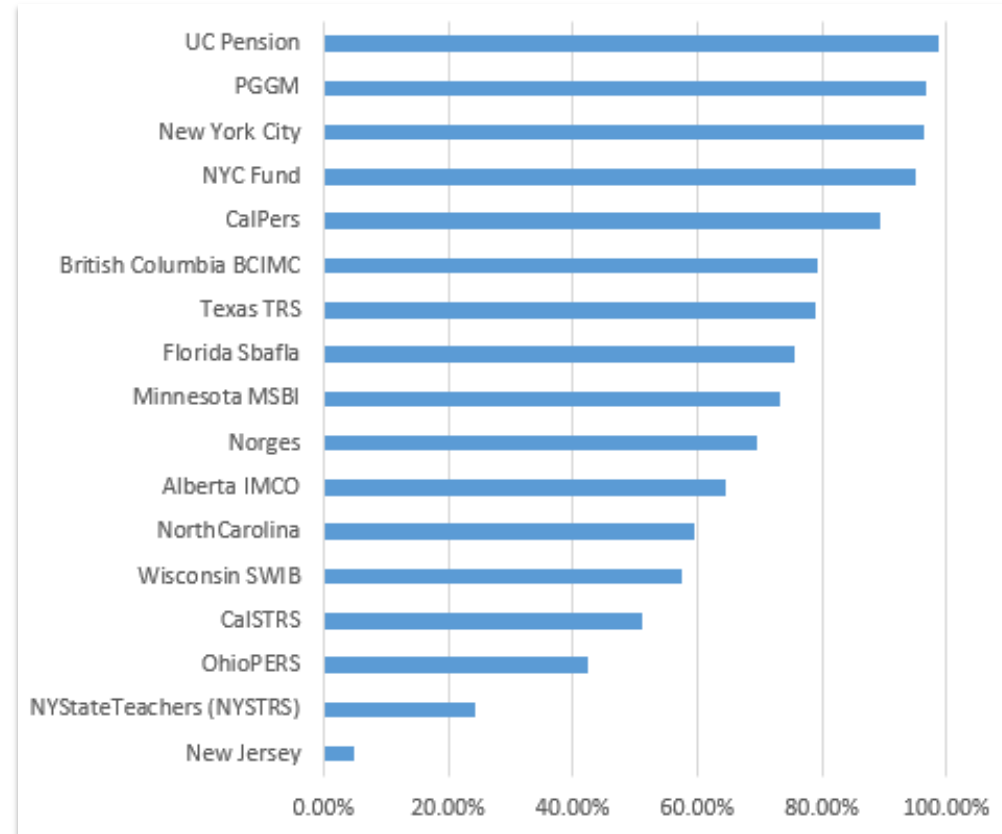
We will always have Paris



Climate risk is not disappearing



Pension fund support of climate proposals



Source: AsYouSow.org



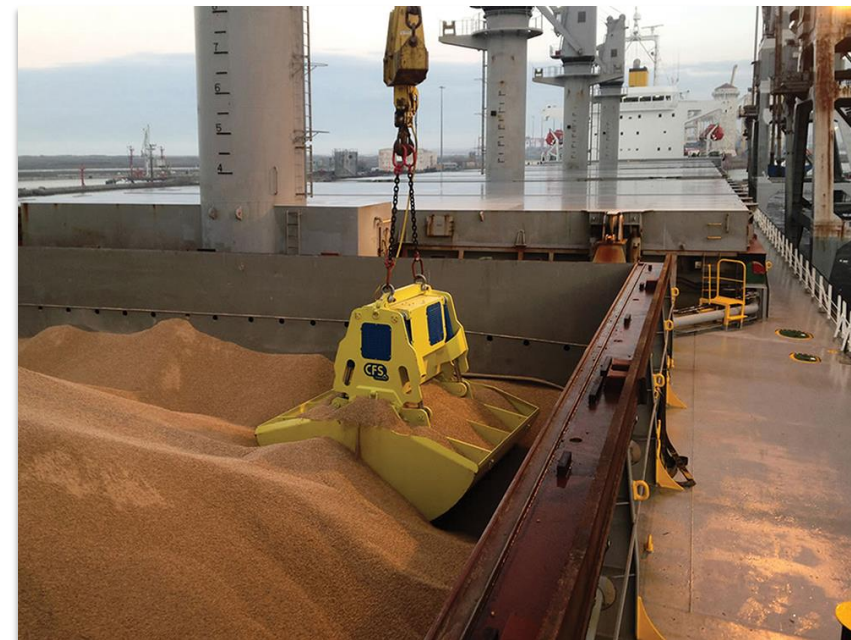
Policy intervention is primarily guided by economic efficiency
(Absolutely not)



A case study of the Netherlands



Newly-built coal plant in Rotterdam



Biomass to be imported from Canada for co-firing



A case study of the Netherlands



Protest against gas production at the Groningen gas field in the Netherlands



Offshore wind farm in the North Sea



Innovation Will Help Decarbonize Natural Gas (There is hope)

#WGC2018
FUELING THE FUTURE



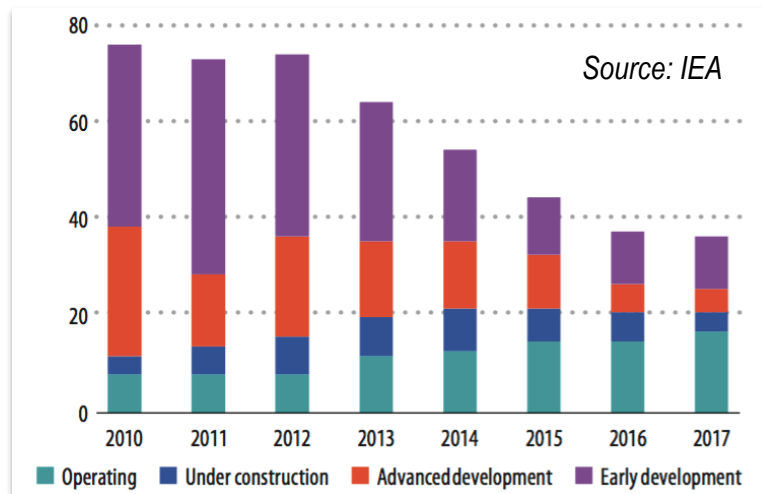
Innovation in natural gas?



Biogas facility in Drenthe, Netherlands

The Kemper CCS facility in Mississippi

Number of CCS projects worldwide



What does this mean?



- We must be cautious about long-term projections
- Growing energy demand and limitations of mainstream renewables will likely leave room for gas in the energy system through 2050
- The role of gas will be defined by volatile politics and (oftentimes) irrational decision-making
- Investors have their work cut out for them





Thank you!

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