Les perspectives énergétiques de l'AIE à l'horizon 2035: *conséquences sur le changement climatique*

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What will drive the future of energy – *and global climate?*

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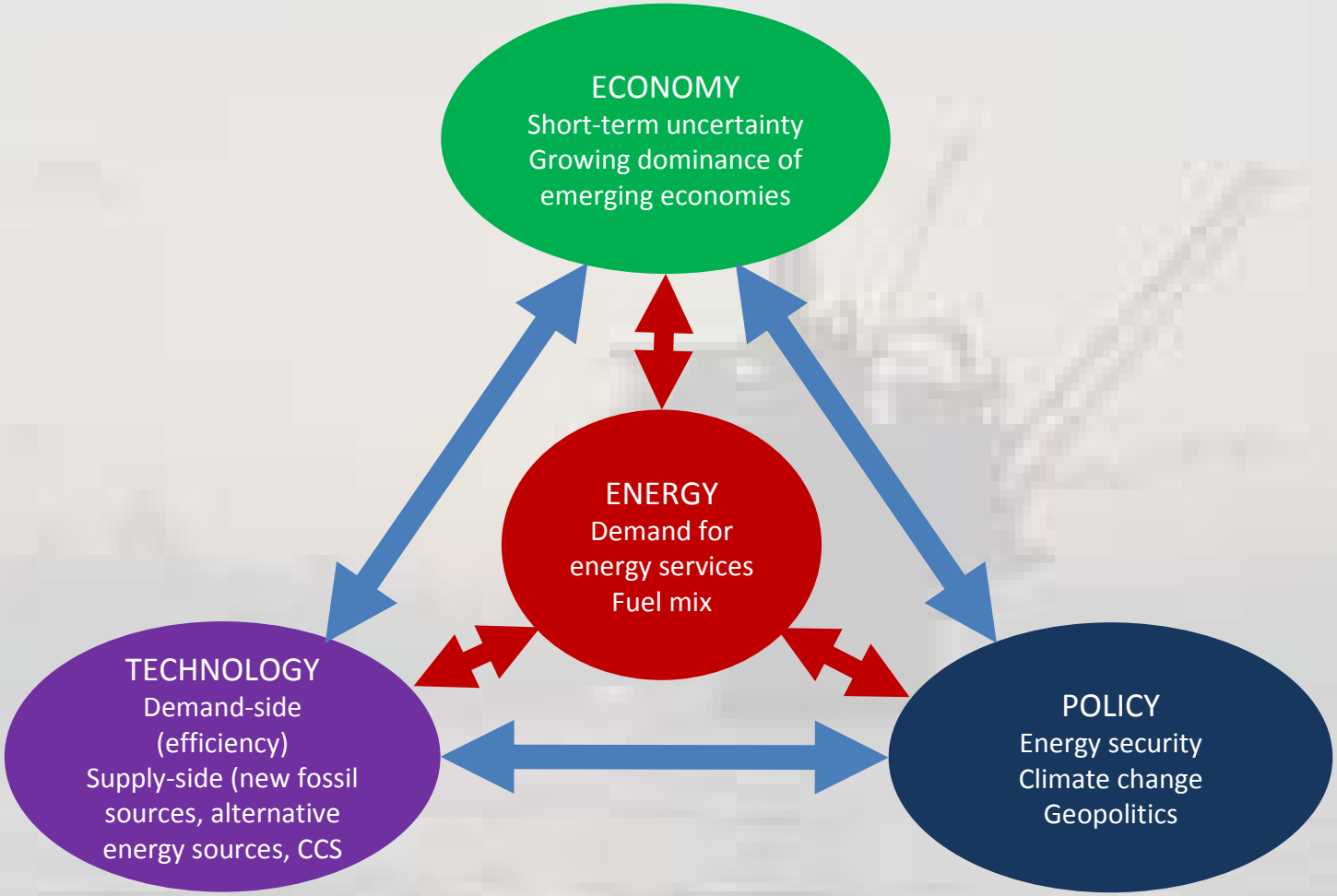

The economy is the biggest near-term uncertainty for energy markets, but policy & how that affects technological change will be key to the future of energy in the longer term

WEO-2011 scenarios

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- **New Policies Scenario** is the central scenario
  - > *assumes cautious implementation of recently announced commitments & plans, even if yet to be formally adopted*
  - > *provides benchmark to assess achievements & limitations of recent developments in climate & energy policy*
- **Current Policies Scenario** is business as usual
  - > *takes into consideration only those policies that had been formally adopted by mid-2010*
- **450 Scenario** is a climate scenario
  - > *Assumes radical policies to achieve an energy pathway consistent with a 50% chance of reaching the goal of limiting global temperature increase to 2 ^{0}C*

Fossil fuels are set to remain dominant

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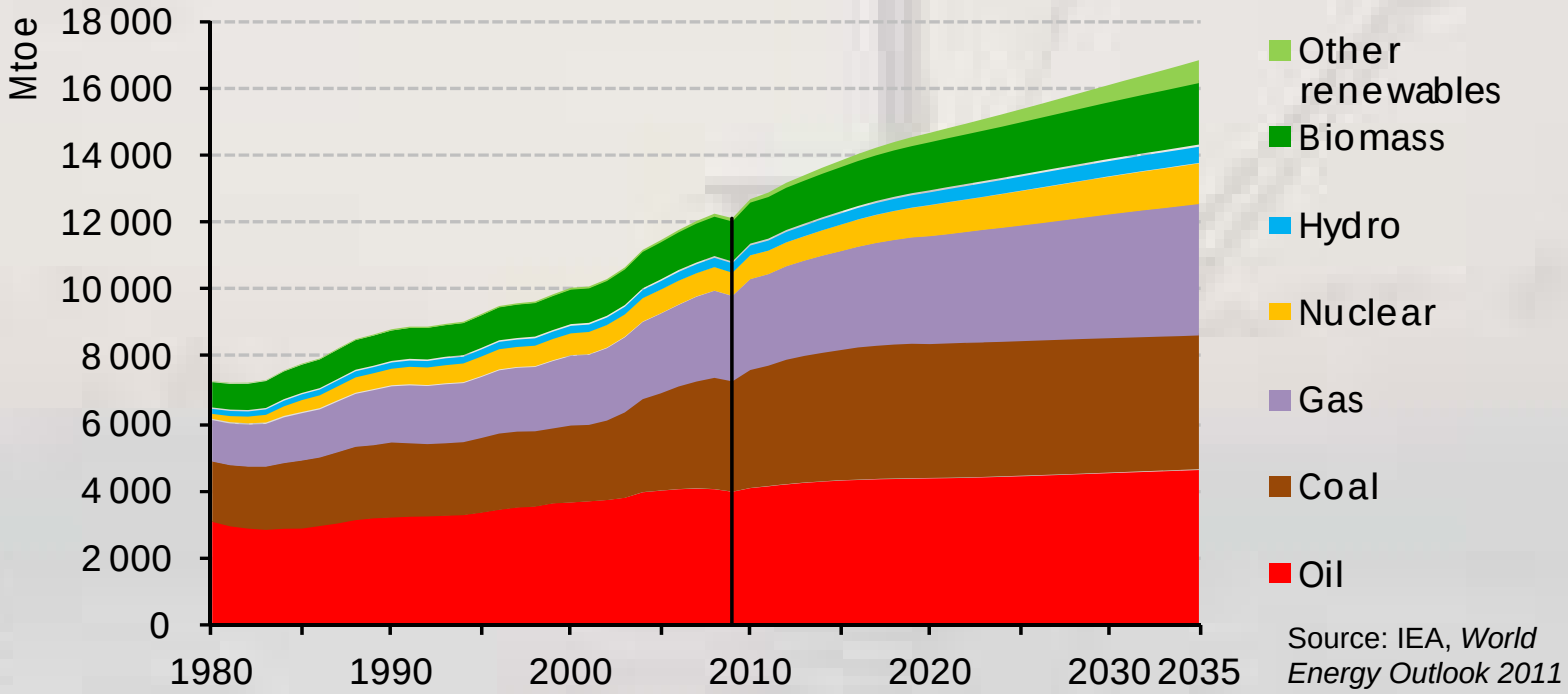
World primary energy demand in the *WEO-2011* New Policies Scenario



Source: IEA, *World Energy Outlook 2011*

Global primary energy demand grows by 40% between 2009 & 2035, with oil remaining the leading fuel though natural gas demand rises the most in absolute terms

Emerging economies dominate the growth in demand for all fuels

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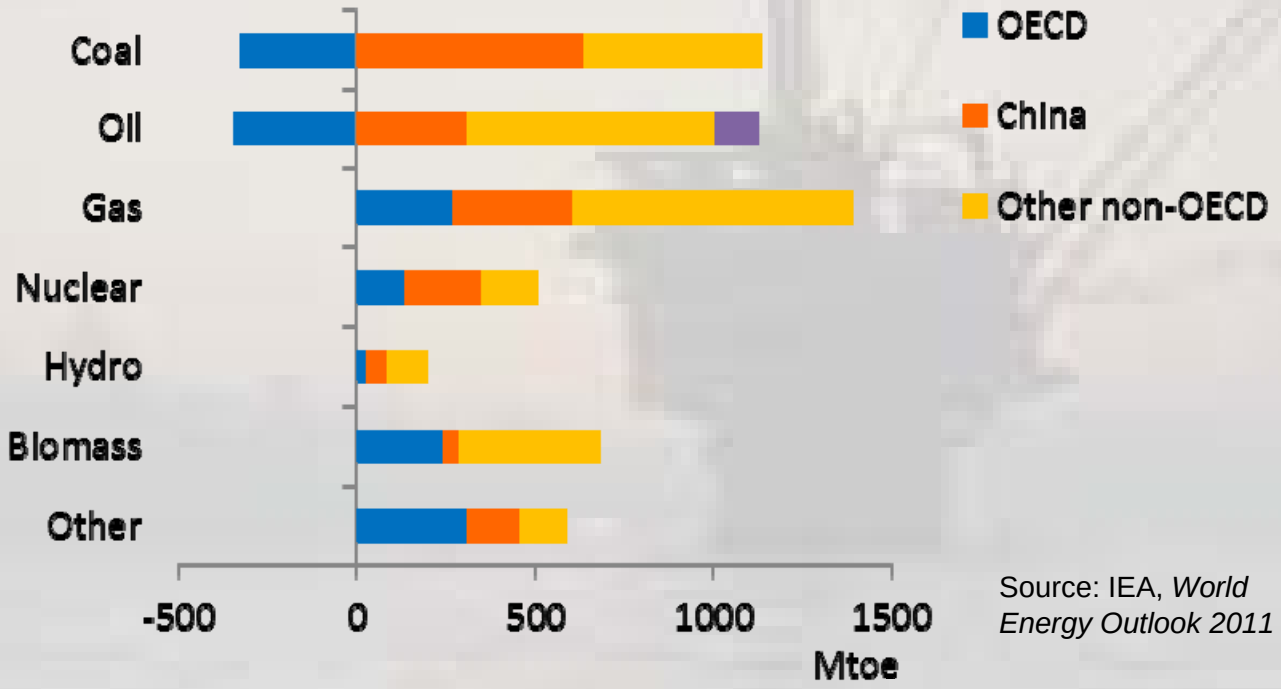
Change in world primary energy demand in the *WEO-2011* New Policies Scenario by fuel, 2009-2035

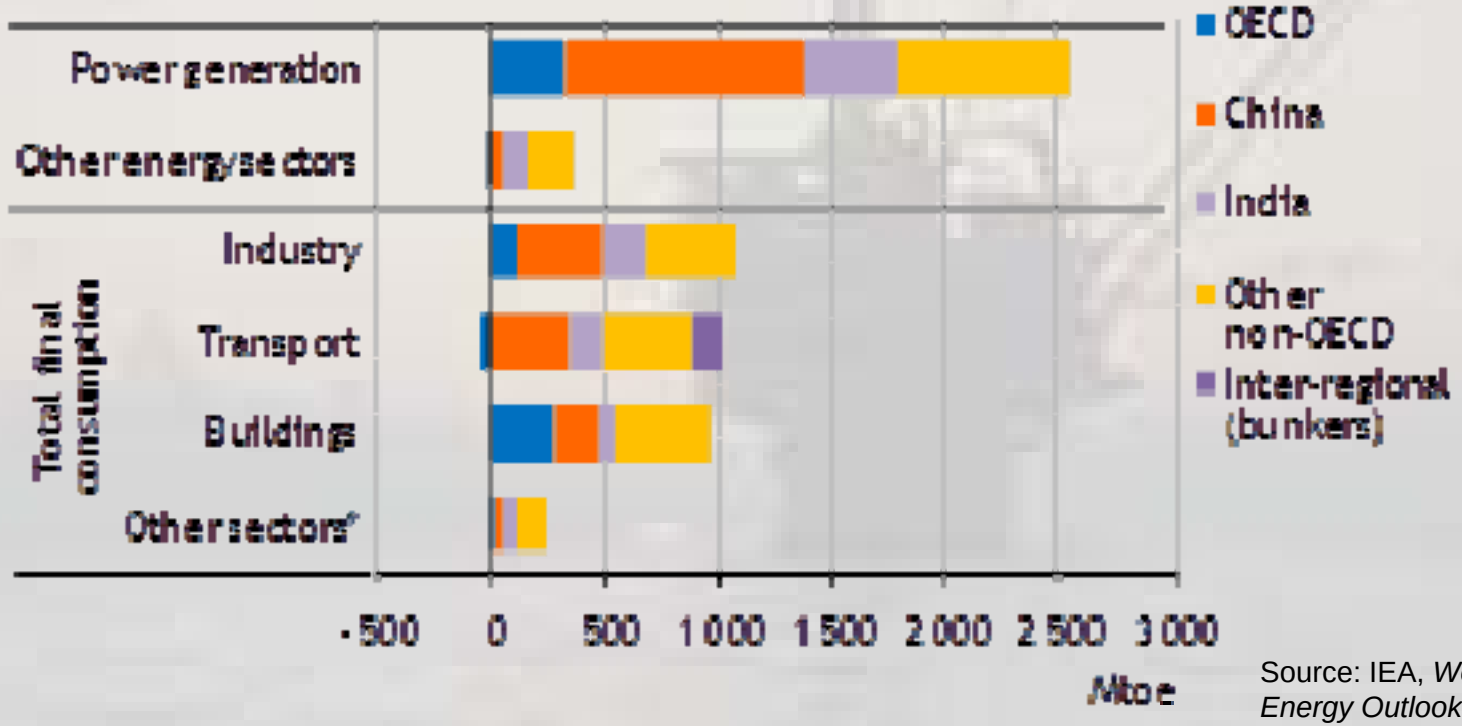


Source: IEA, *World Energy Outlook 2011*

Non-OECD countries account for the entire increase in demand for coal & oil, & the bulk of the increase in all other primary energy sources except modern renewables

The power sector leads energy-demand growth in all regions

Change in world primary energy demand in the *WEO-2011* New Policies Scenario by sector, 2009-2035

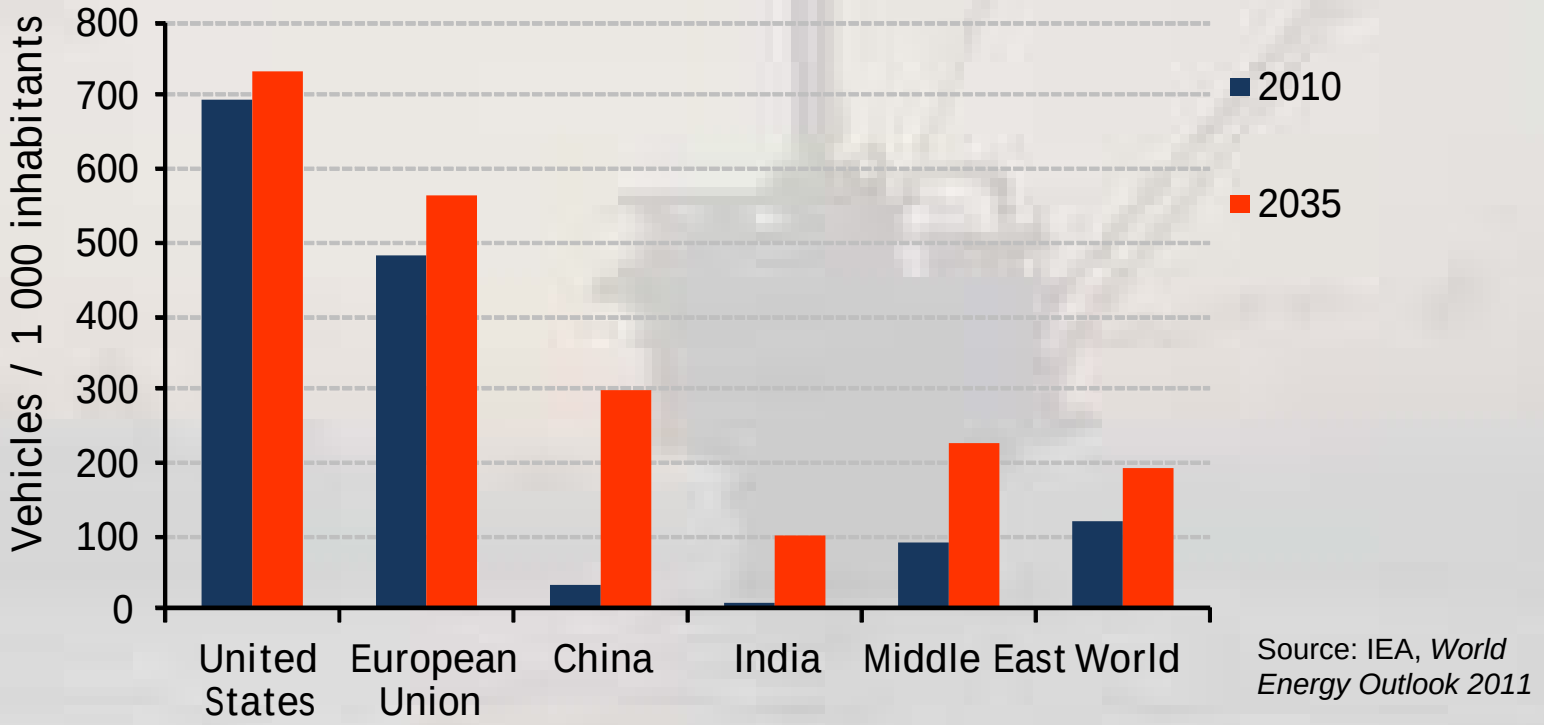


Source: IEA, *World Energy Outlook 2011*

Power generation accounts for over half of the increase in global demand to 2035, with industry, transport & buildings contributing most of the rest in roughly equal measure

Oil demand is driven higher by soaring car ownership

Vehicle ownership rates in selected markets in the *WEO-2011* New Policies Scenario



Source: IEA, *World Energy Outlook 2011*

The global passenger vehicle fleet doubles to 1.7 billion in 2035, with most new car sales occurring outside the OECD by 2020

The 450 Scenario shows what the 2 ^{0}C goal will require

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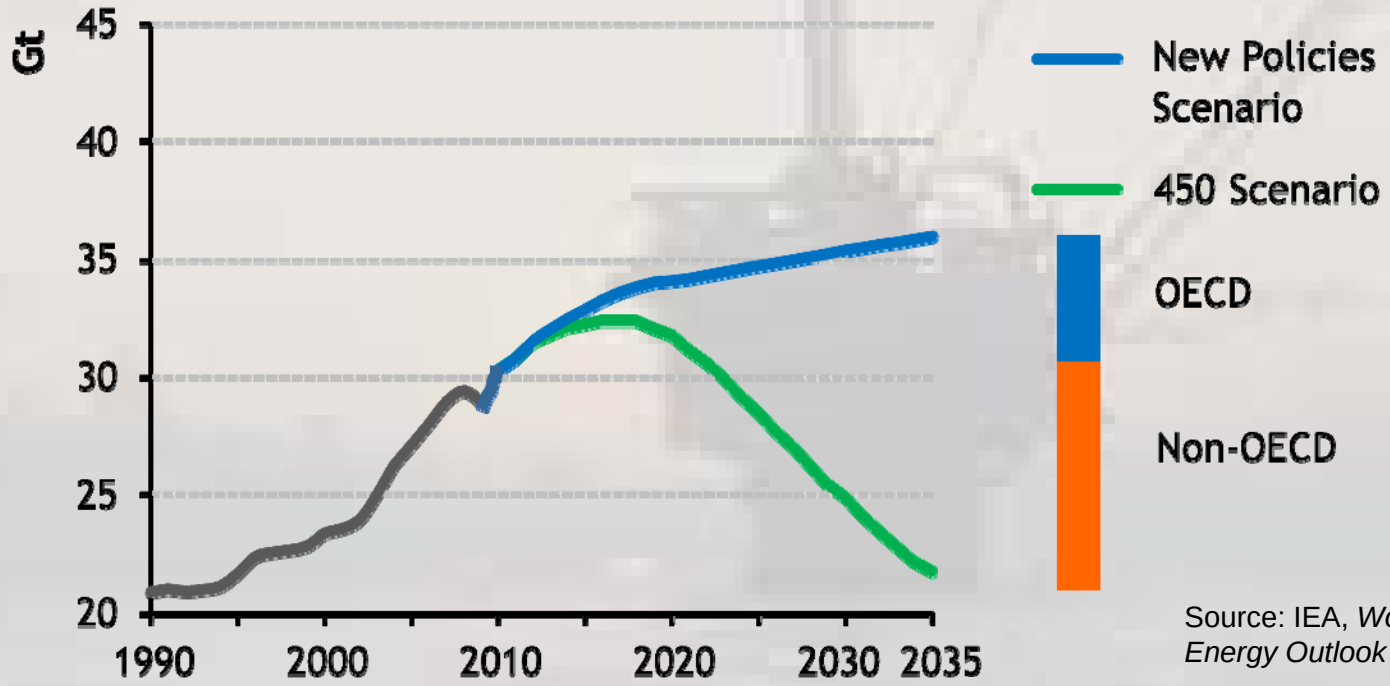
World energy-related CO_2 emissions by scenario



Source: IEA, *World Energy Outlook 2011*

Holding greenhouse-gas concentration to 450 ppm would limit temperature increase to c.2 ^{0}C compared with 3.5 ^{0}C in the New Policies Scenario & 6 ^{0}C in the Current Policies Scenario

Efficiency gains contribute most to emissions reductions

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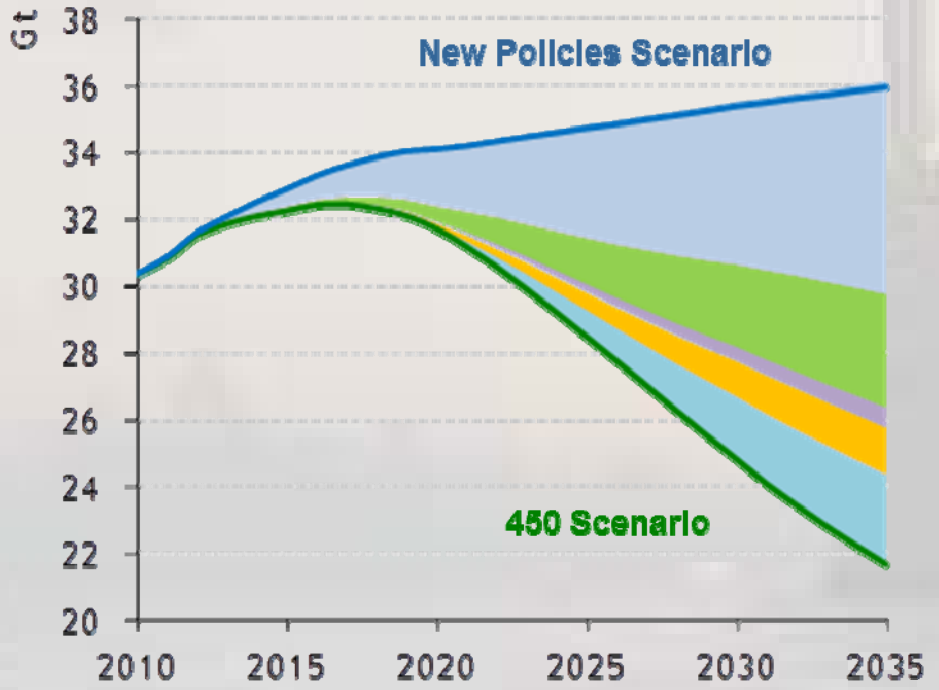
World energy-related CO_2 emissions by scenario



Abatement	2020	2035
Efficiency	72%	44%
Renewables	17%	21%
Biofuels	2%	4%
Nuclear	5%	9%
CCS	3%	22%
Total (Gt CO_2)	2.5	14.8

Source: IEA, *World Energy Outlook 2011*

Energy efficiency measures – driven by strong policy action across all sectors – account for 50% of the cumulative CO_2 abatement over the Outlook *period*

Coal has to bear the brunt of emissions reductions

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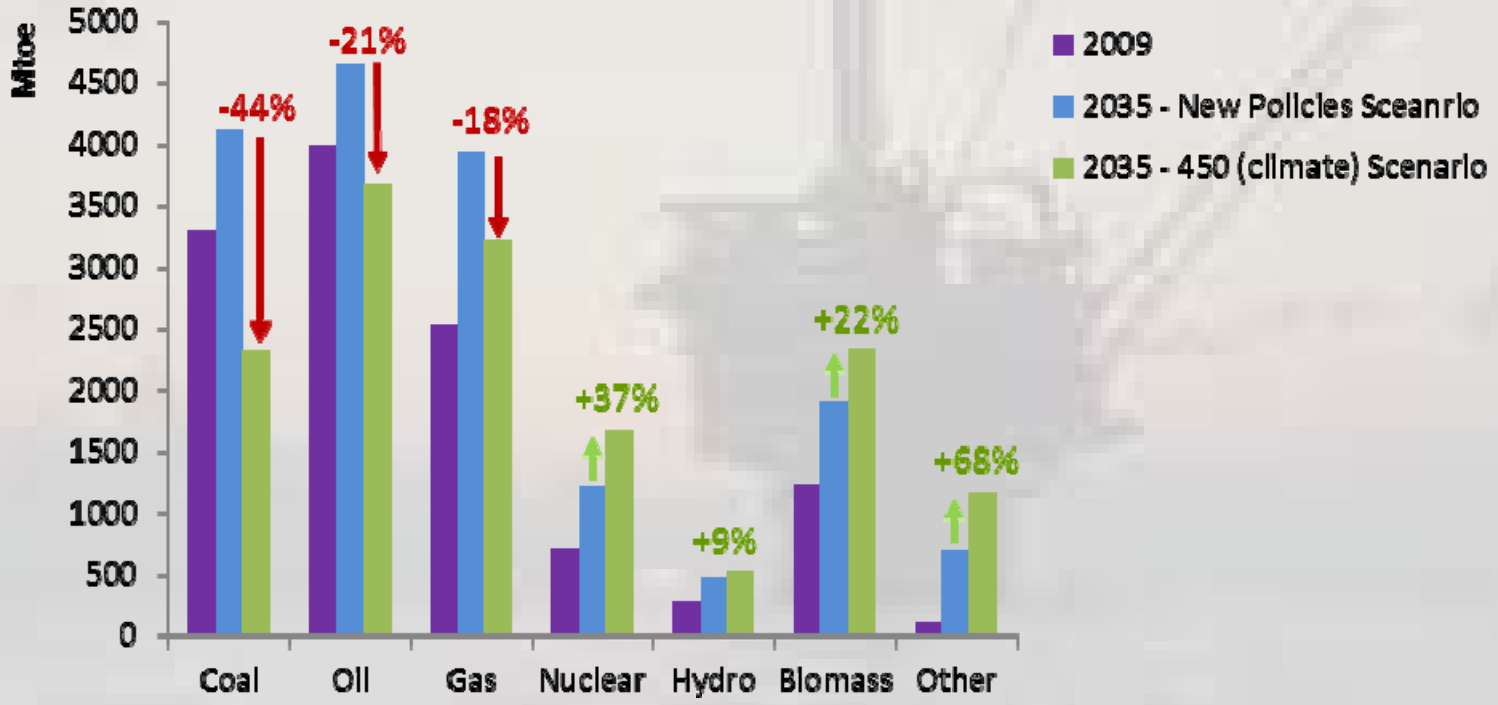
World primary energy demand by fuel & scenario



Source: IEA, *World Energy Outlook 2011*

Gas overtakes coal by 2035 as the 2nd-biggest source of emissions, with coal-based emissions peaking early in the projection period & falling rapidly thereafter

Will peak oil be a guest or the spectre at the feast?

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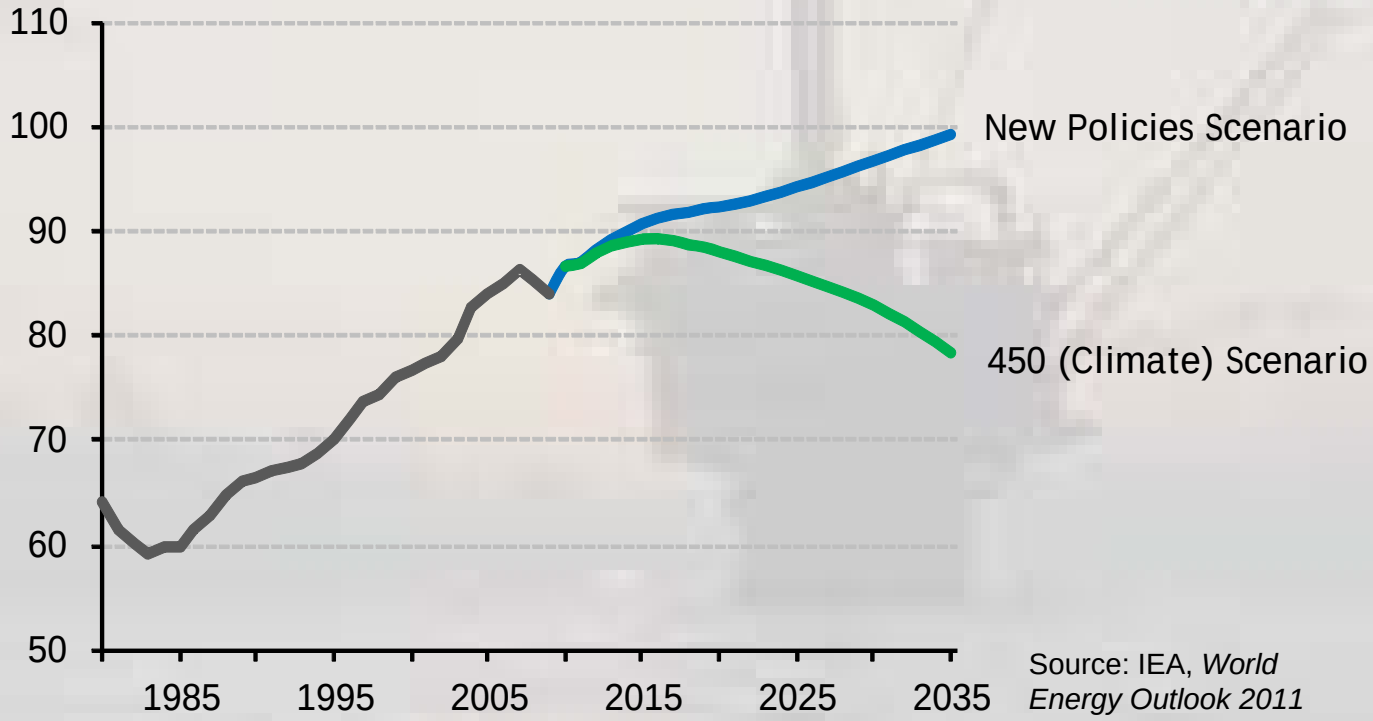
Global primary oil demand by scenario in the *WEO-2011*



Source: IEA, *World Energy Outlook 2011*

Radical policies to achieve the 2-degree climate goal would lead to a peak in oil demand before 2020 at 90 mb/d & a drop to 78 mb/d by 2035 – almost 10% below 2010 levels

The door to 2° is closing, but will we be "locked in"?

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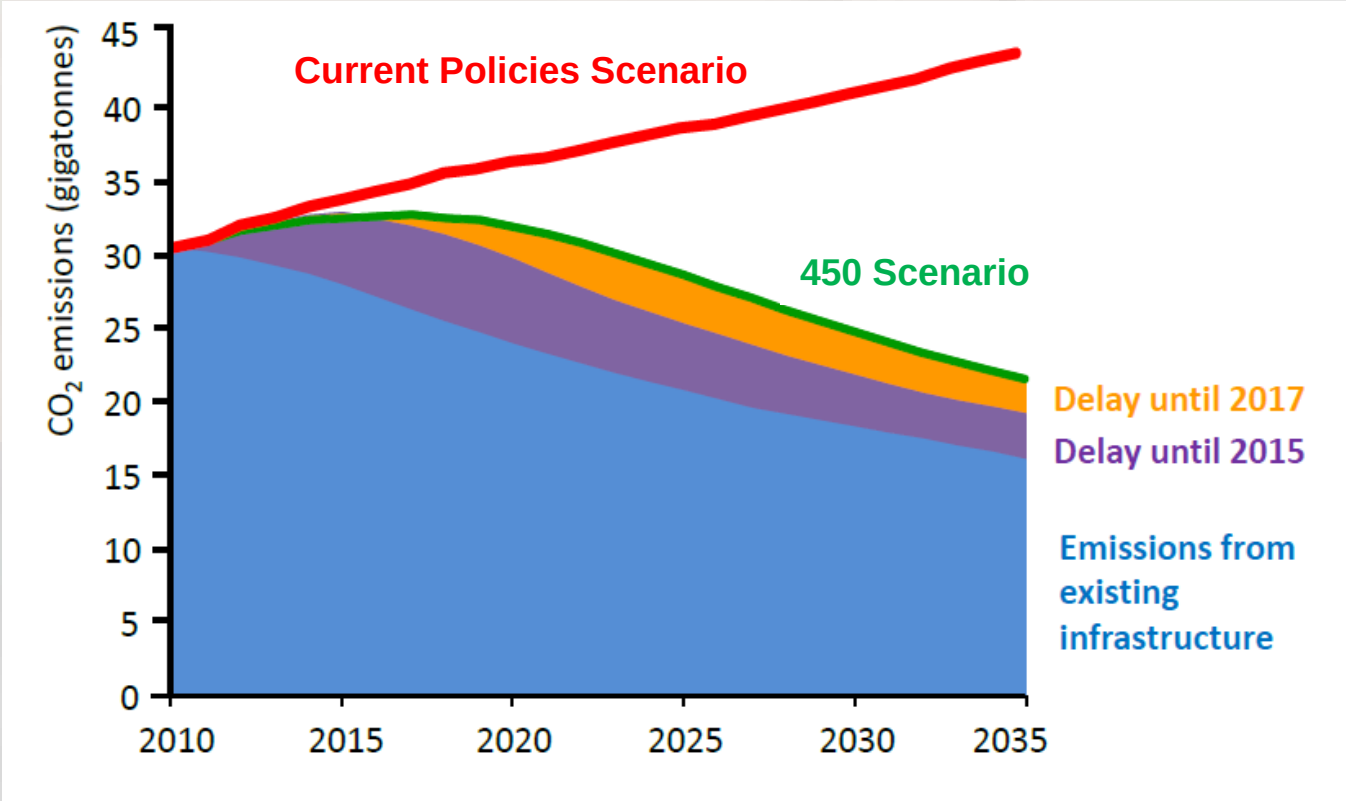
World energy-related CO_2 emissions by scenario



Without further policy action, all the emissions permitted in the 450 Scenario will have been locked-in by existing factories, buildings, cars & power plants within just 5 years

Less nuclear would make the 2° goal all but unachievable

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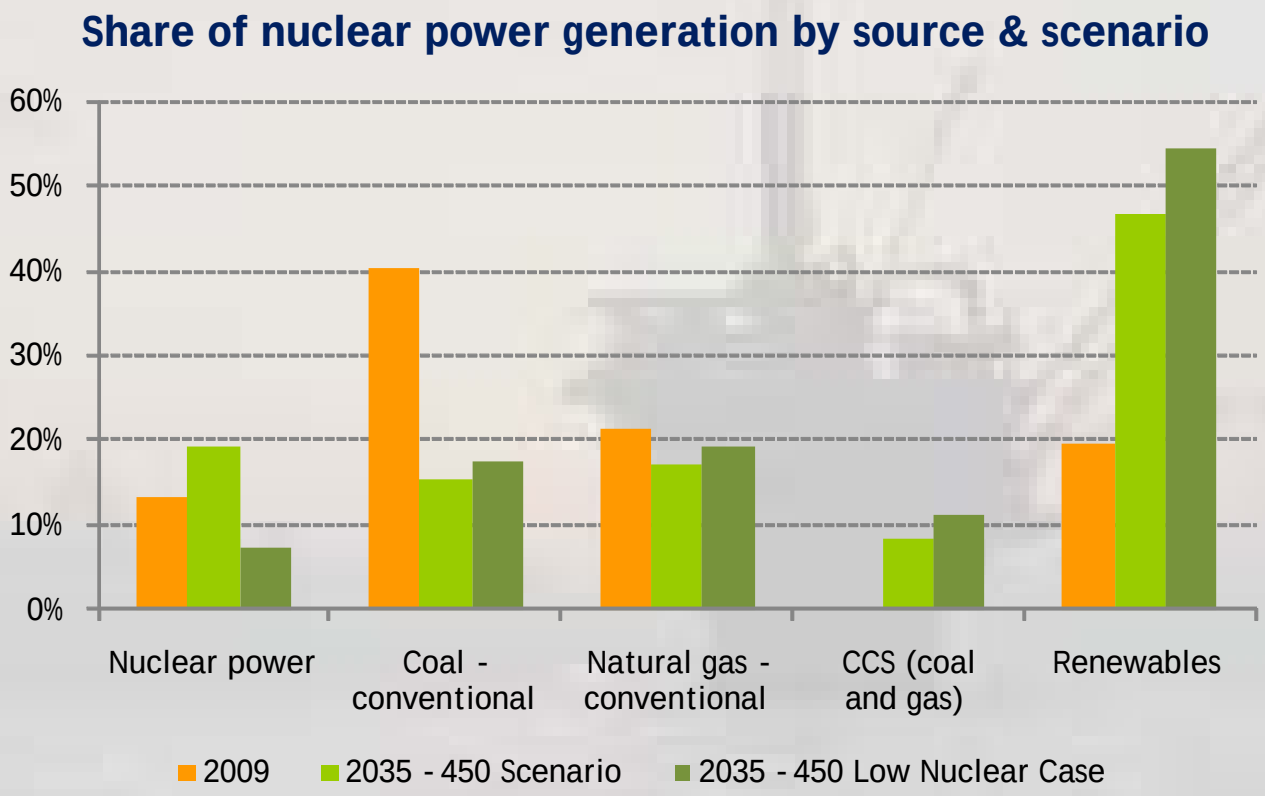

Source: IEA, *World Energy Outlook 2011*

To compensate for less nuclear, much more CCS & renewables – as well as bigger emissions reductions in non-power sectors – would be needed

Summing up

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- How rigorously current policy commitments – and any new ones – are implemented is key to long-term energy trends
  - > *Fossil fuels will still dominate the energy mix through to 2035*
  - > *But low-carbon technologies are set to expand – possibly rapidly*
- The window of opportunity to meet the 2-degree climate goal is closing fast
  - > *Technology lock-in will limit the scope for transforming energy-supply infrastructure*
- Widespread abandonment of nuclear after Fukushima would shut the window definitively
- Cutting fossil-fuel subsidies could pay for rising renewables subsidies, reinforcing the impact on cutting emissions

Thank you

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