

WORLD ENERGY OUTLOOK 2012

*Fun things you may not have noticed
in WEO2012*

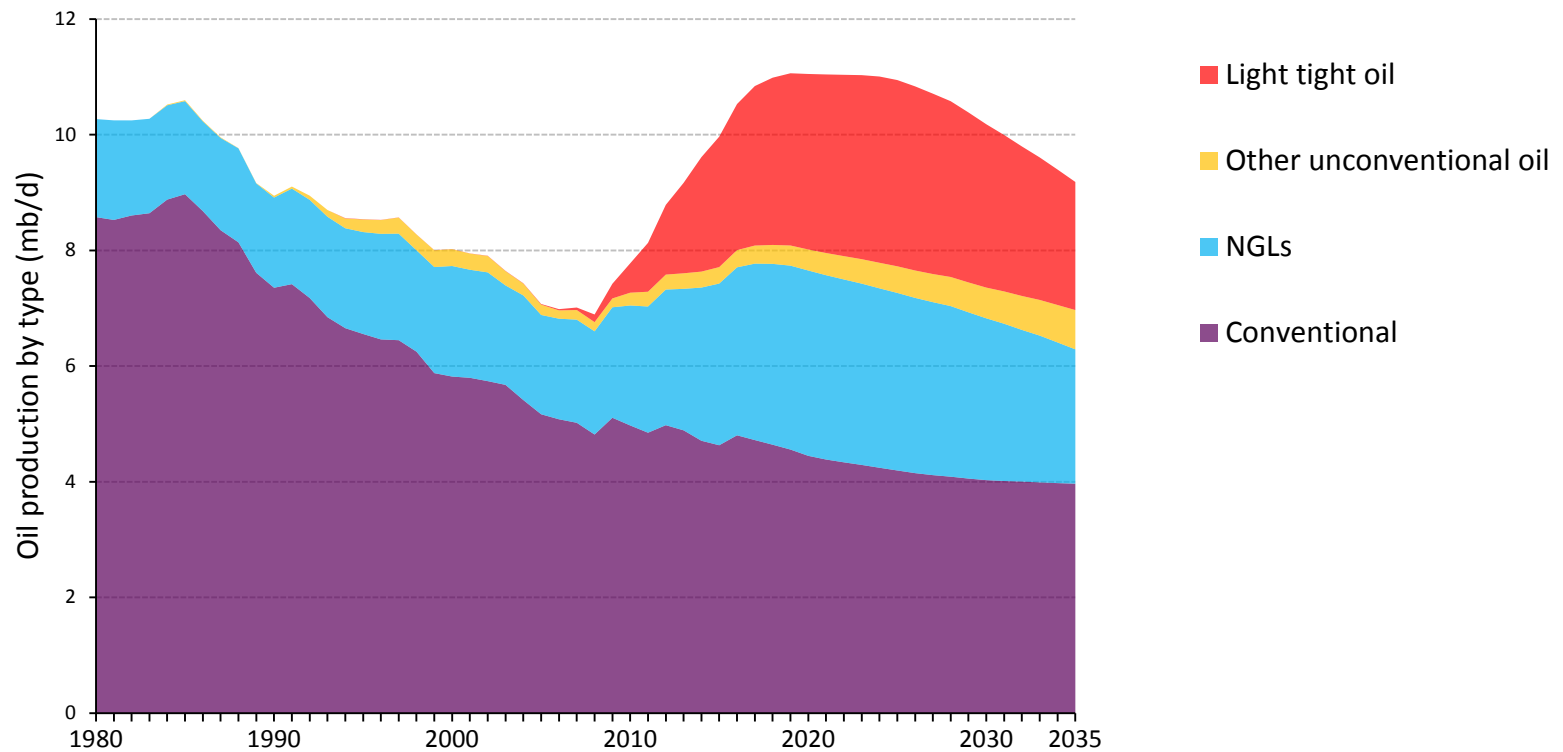
C. Besson

Riyadh, 22nd January 2013

A United States oil (& gas) transformation

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Historical and projected US oil production in NPS

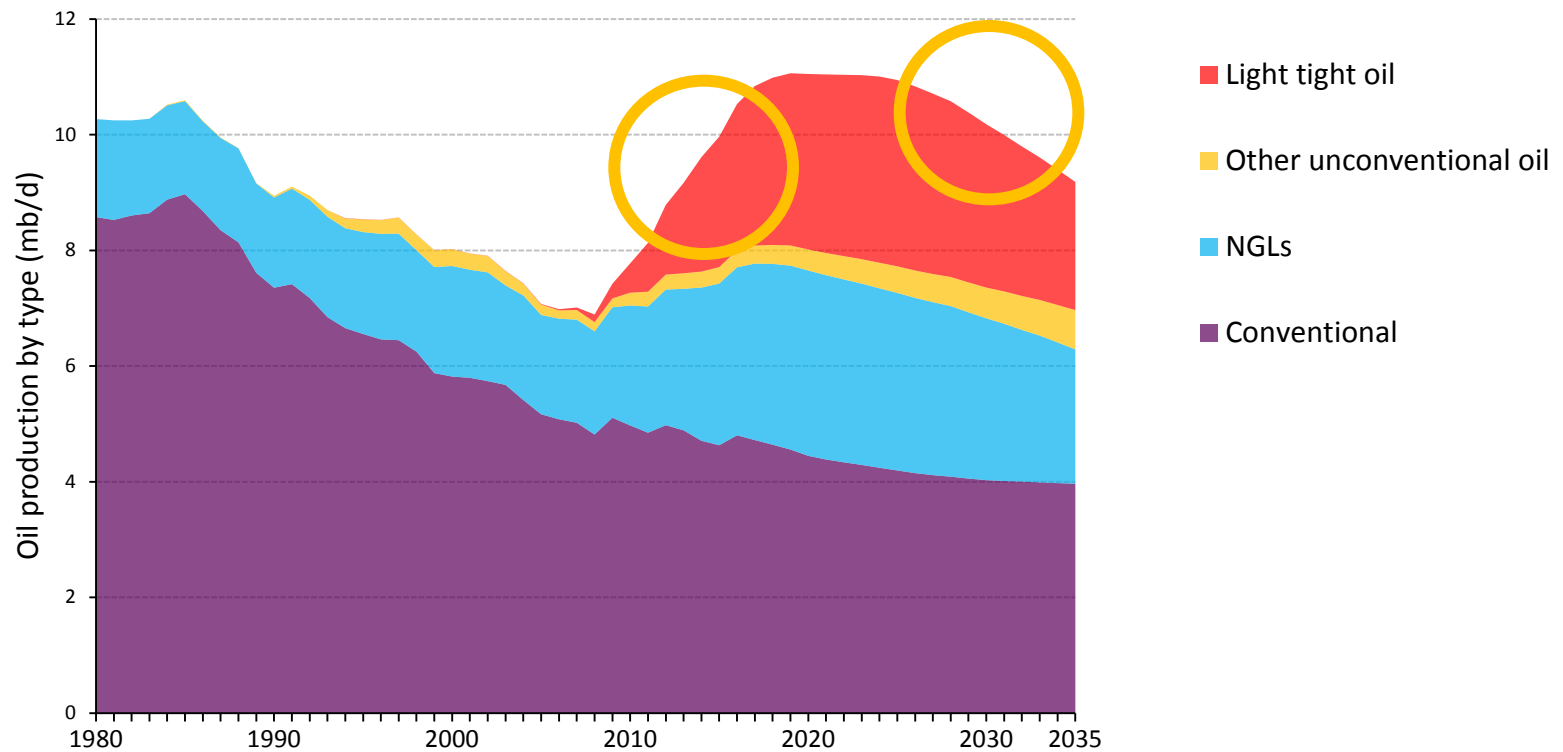


The surge in unconventional oil (& gas) production has implications well beyond the United States

Light Tight Oil: a short revolution?

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Historical and projected US oil production in NPS

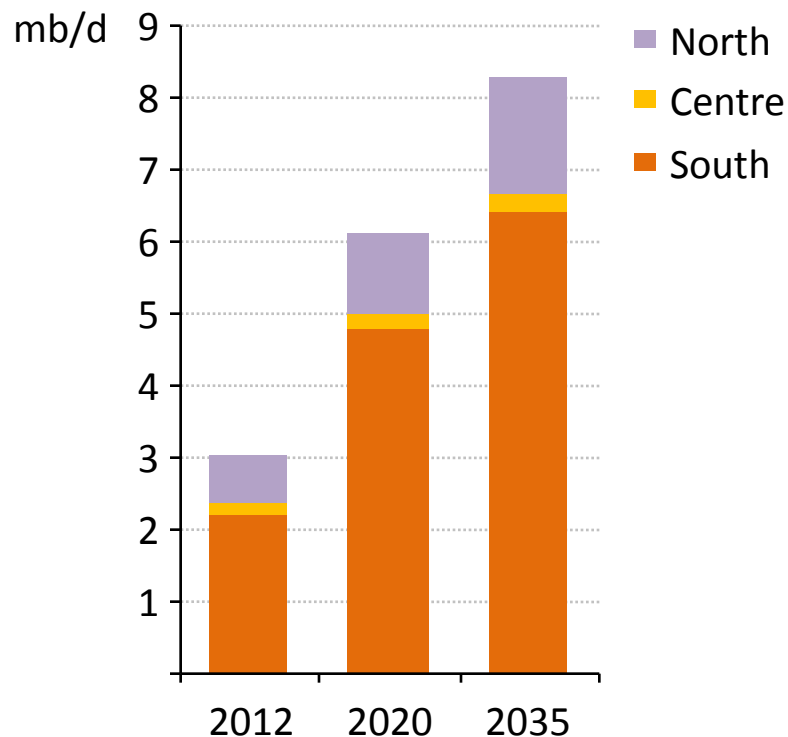


With currently known resources and technologies, LTO production in the US will peak in the 2020's

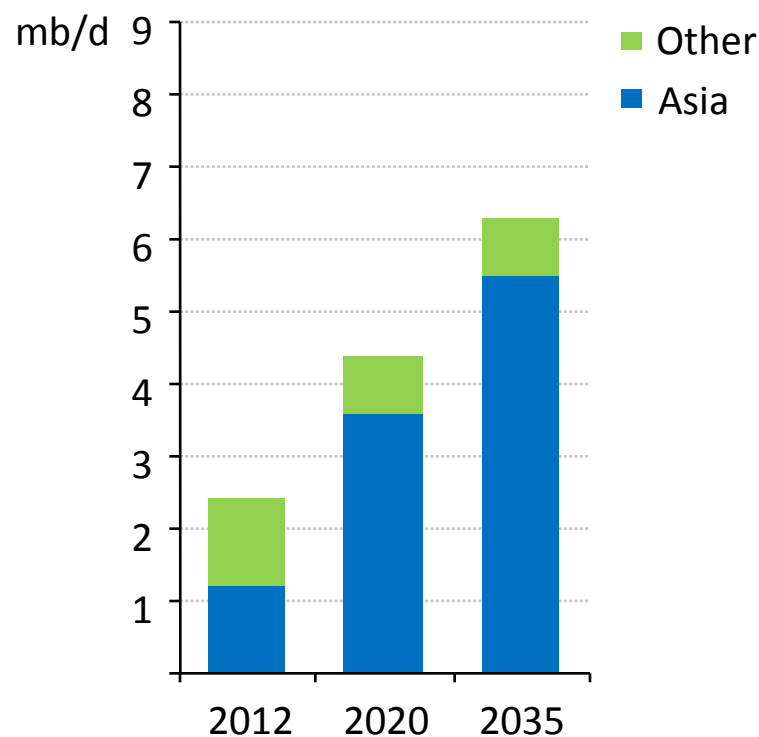
Iraq oil poised for a major expansion

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Iraq oil production



Iraq oil exports

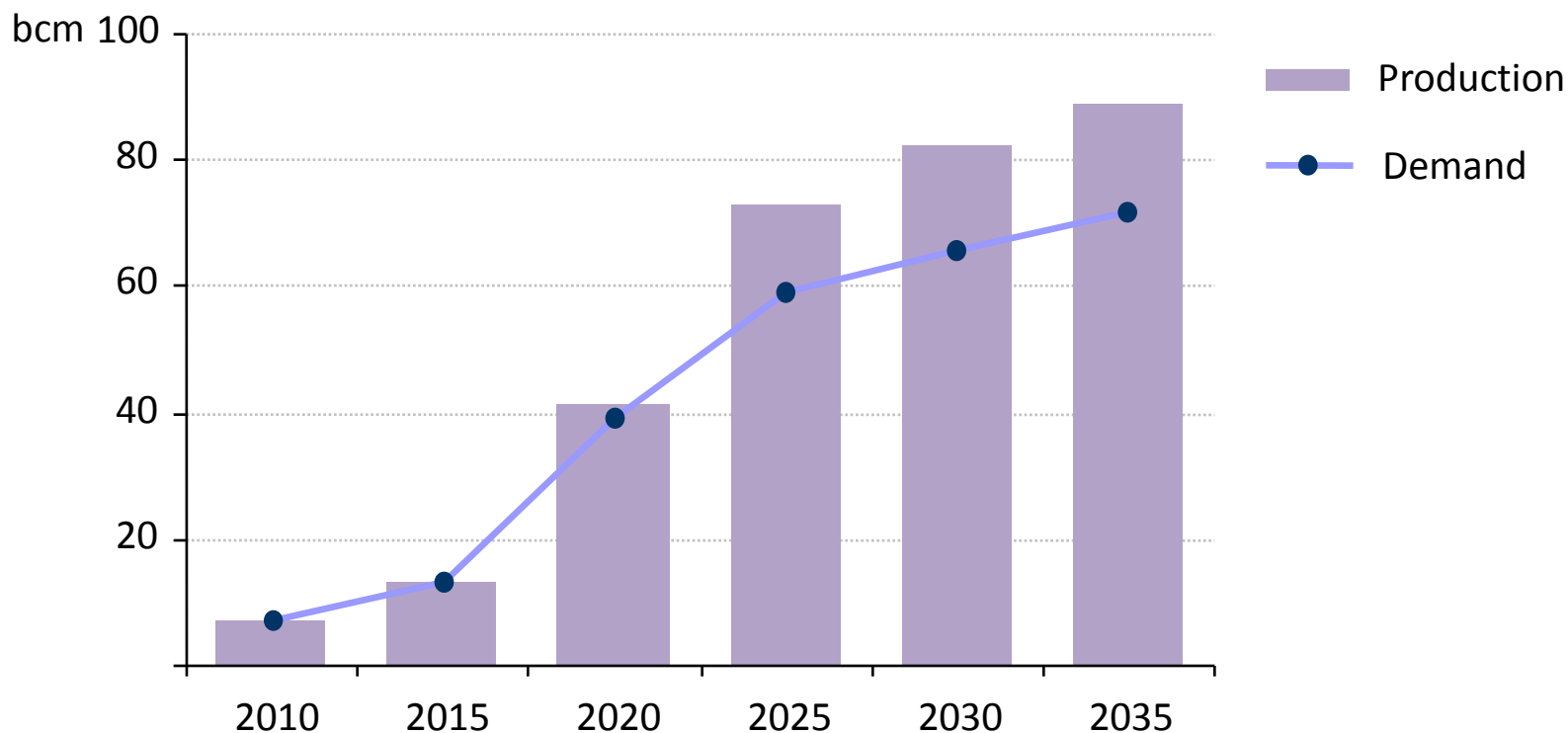


***Iraq accounts for 45% of the growth in global production to 2035;
by the 2030s it becomes the second-largest global oil exporter, overtaking Russia***

Gas moves from sideshow to centre stage

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Iraq's natural gas balance

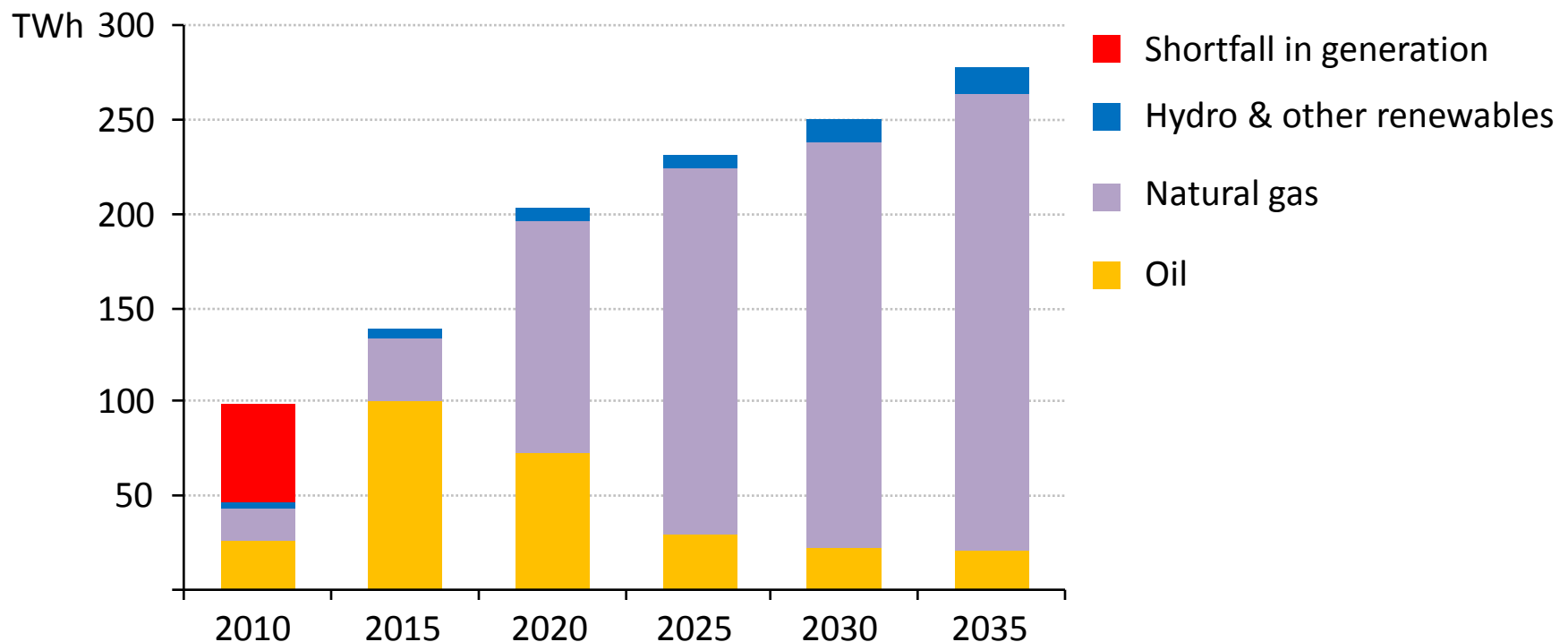


Reductions in gas flaring & development of new gas fields will be needed to meet Iraq's growing domestic needs & its export ambitions

Catching up with power demand

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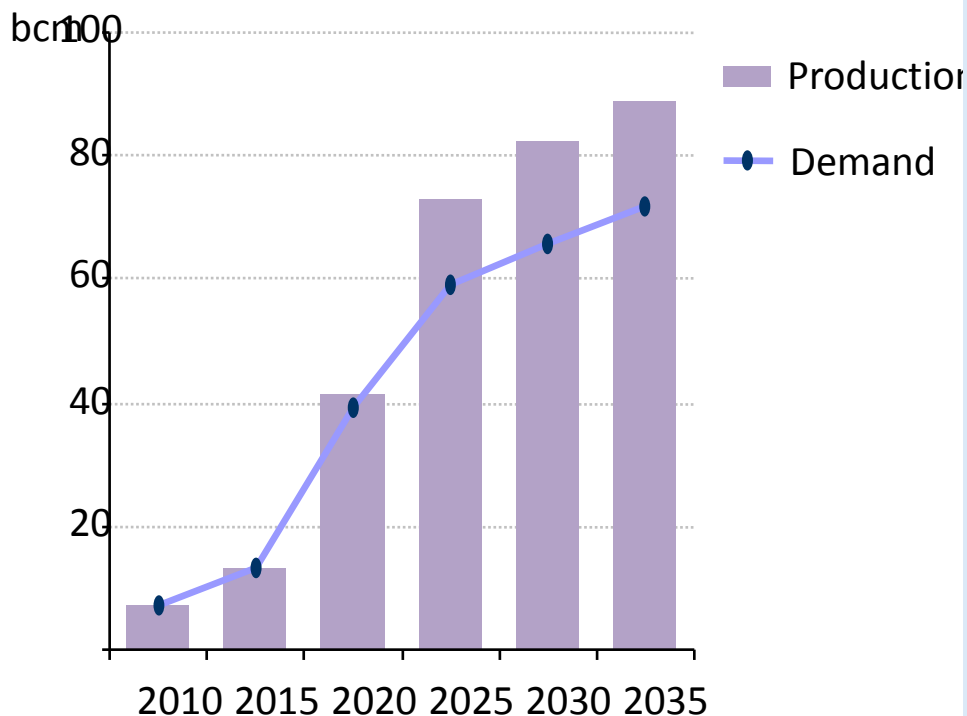
Iraq electricity generation



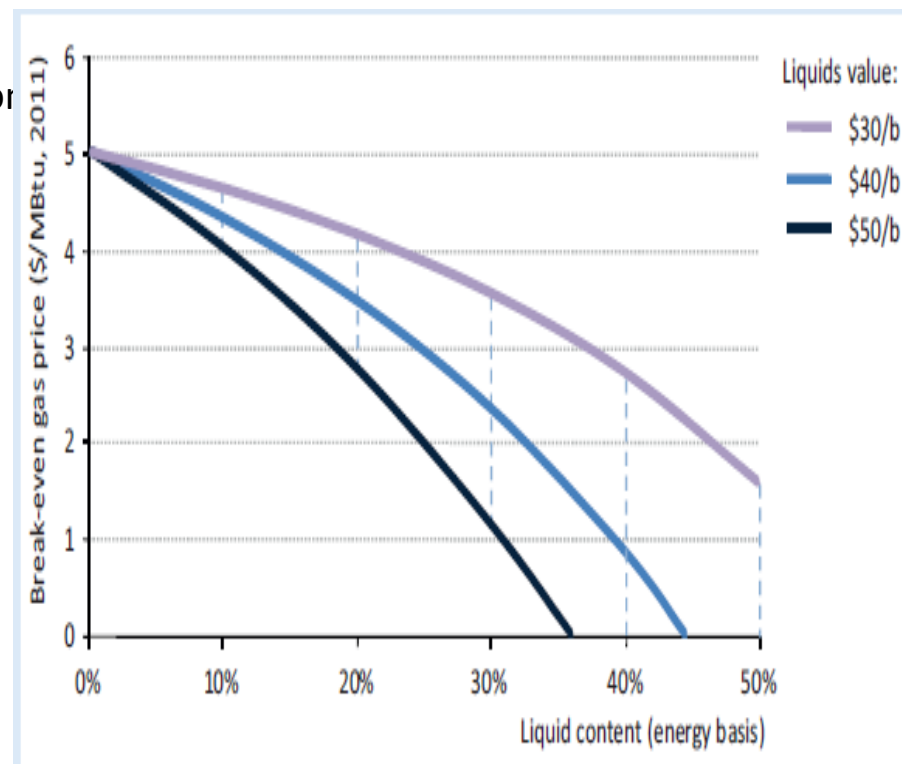
Oil helps to eliminate the power deficit in 2015. But without a longer-term shift to gas-fired power, Iraq would forego more than \$500 billion in oil export revenue

Iraqi Gas is Doubly Free!

Iraq's natural gas balance



Economics of US shale gas as a function of NGLs content

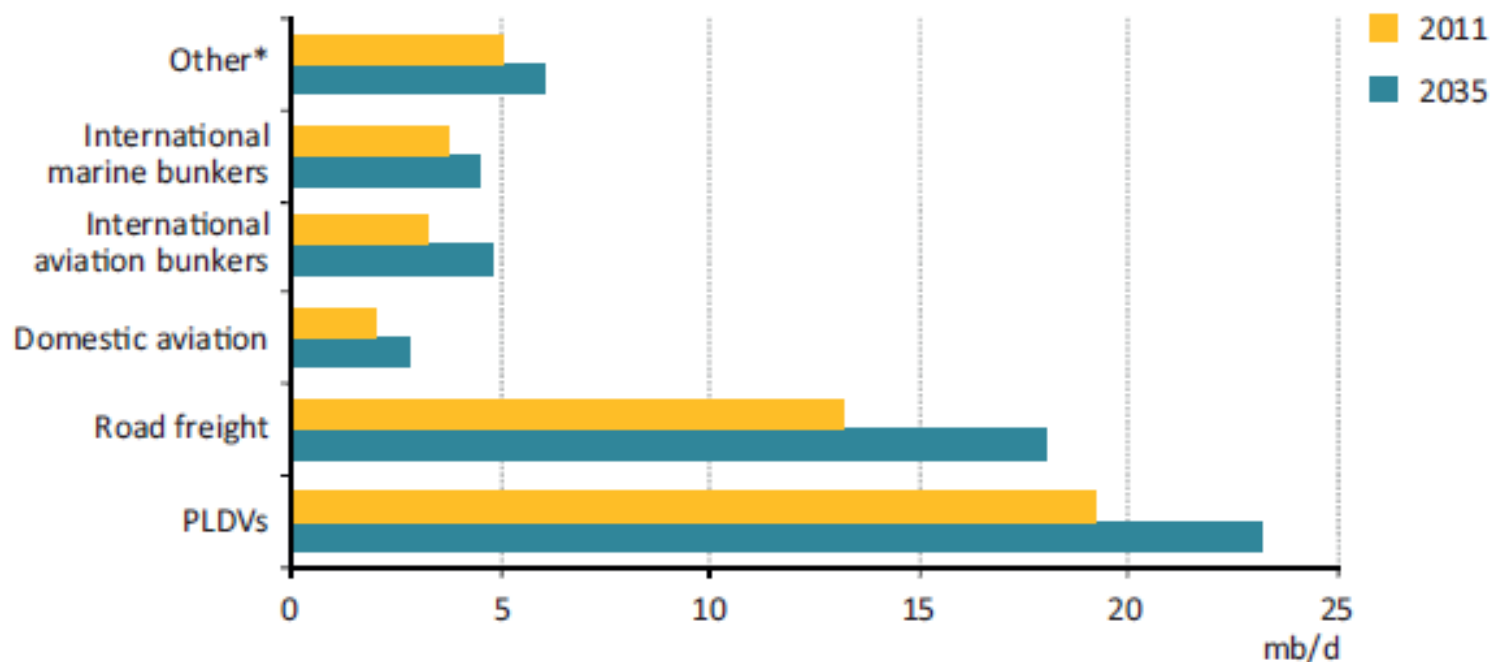


NGLs pay for most gas developments in Iraq. This is a trend observed in other countries (US, Russia...). It implies a new sort of coupling between the oil and gas markets. It calls for more detailed understanding of long term NGLs markets.

Road Freight is responsible for the largest increase in oil demand

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World Transport Oil demand by sub-sector

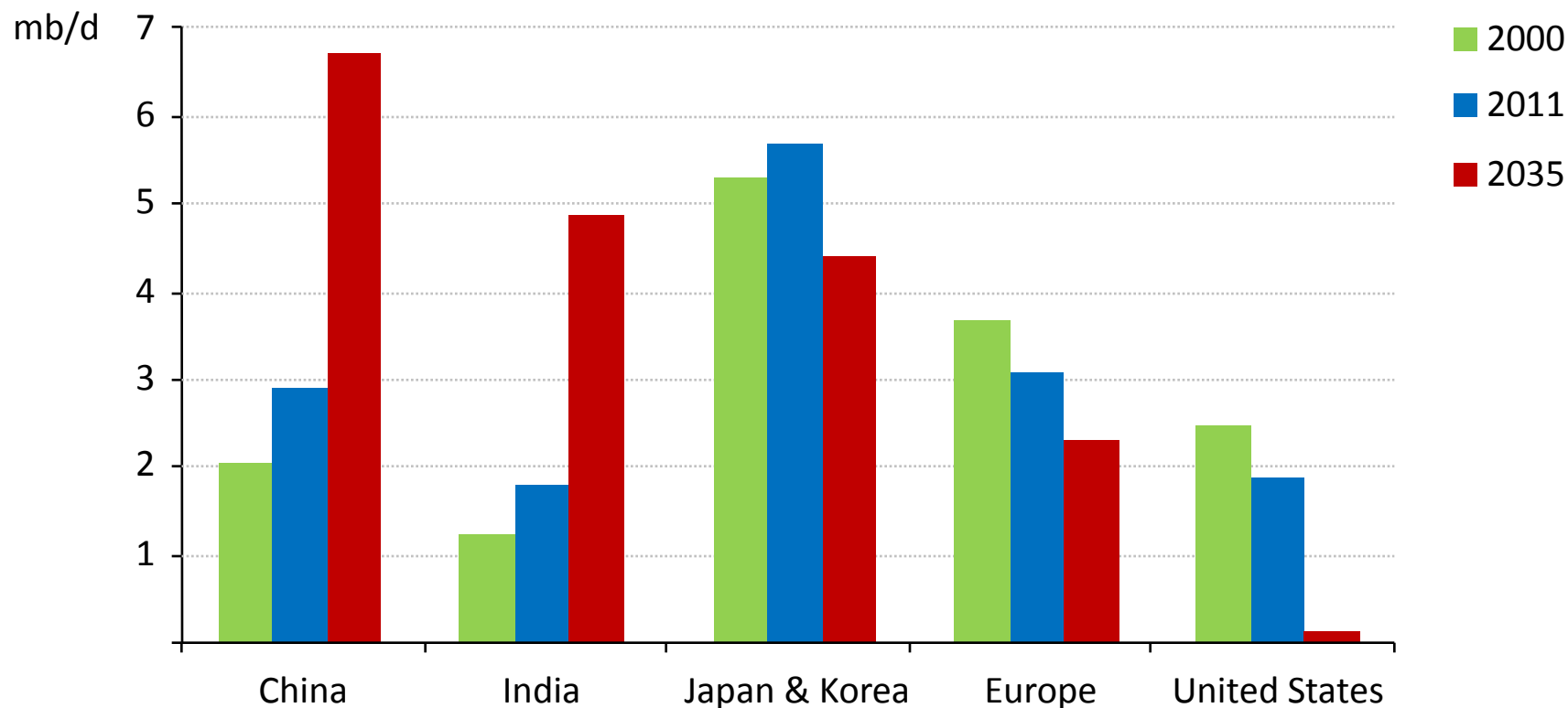


*Road Freight has strong potential for efficiency gains and fuel substitution.
Projections are more robust than for PLDV's.*

Middle East oil to Asia: a new silk road

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Middle East oil export by destination

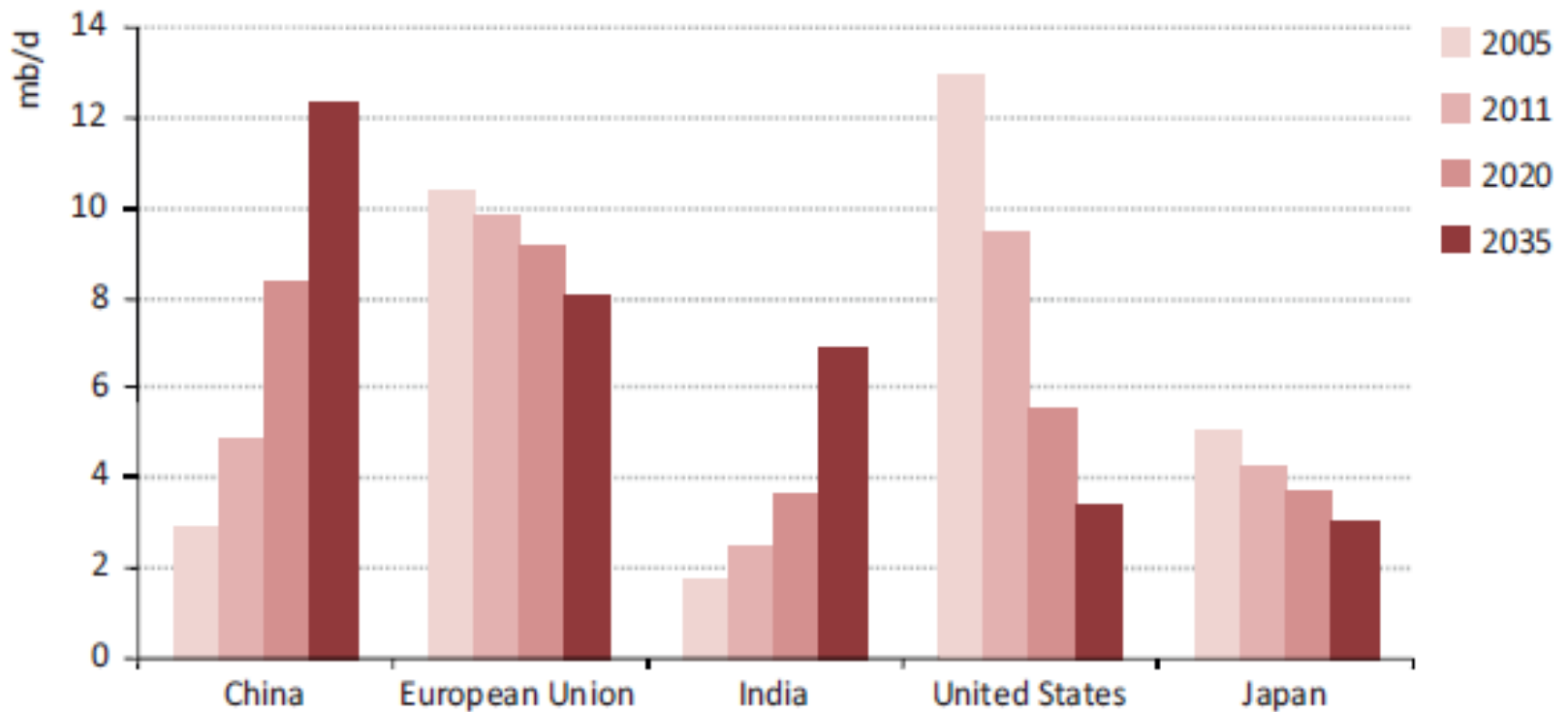


By 2035, almost 90% of Middle Eastern oil exports go to Asia; North America's emergence as a net exporter accelerates the eastward shift in trade

Changing Trade Patterns

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Net oil imports in New Policies Scenario

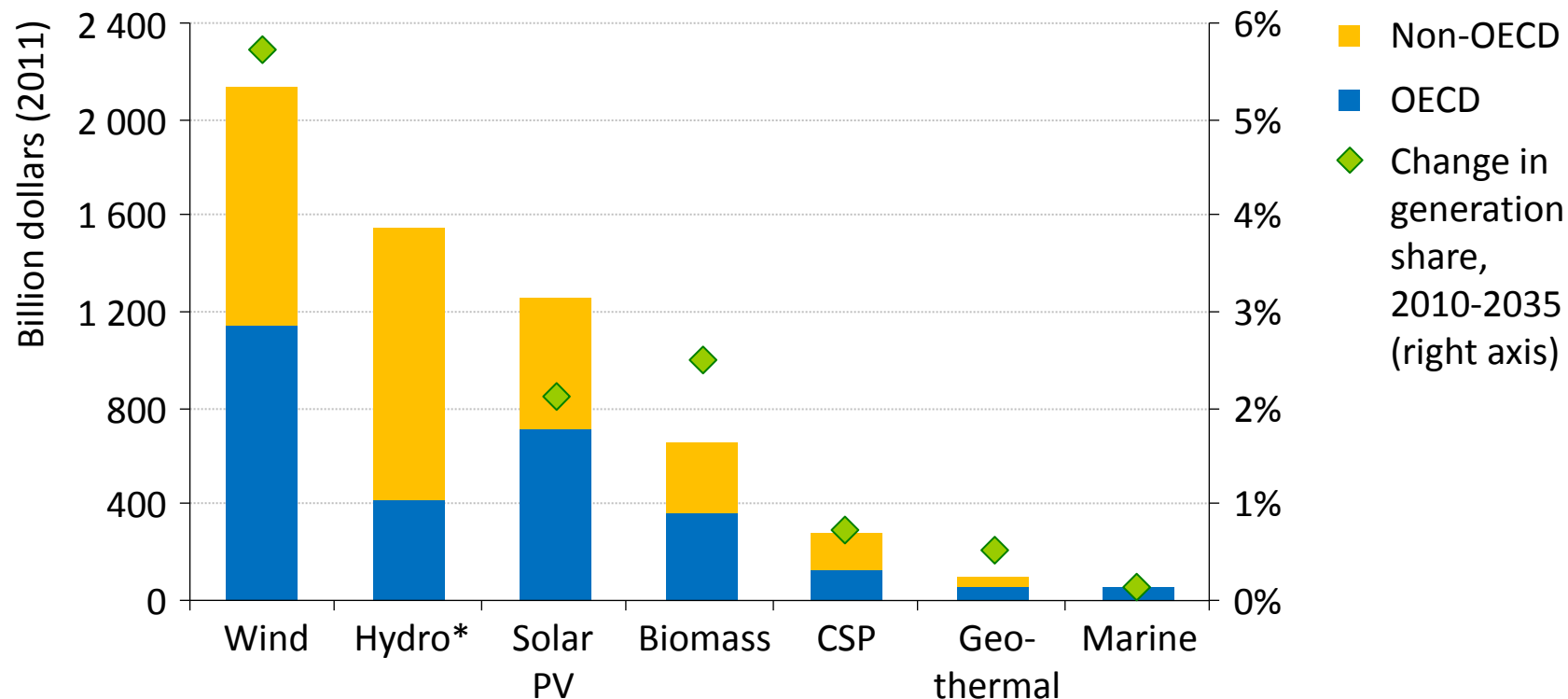


By 2035, global oil demand will be 100% of global oil supply. New refining capacity will be 100% of global oil supply. New refining capacity will be 100% of global oil supply. New refining capacity will be 100% of global oil supply.

Renewables to account for half of new worldwide power capacity in NPS

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Cumulative investment in renewables capacity 2012-2035

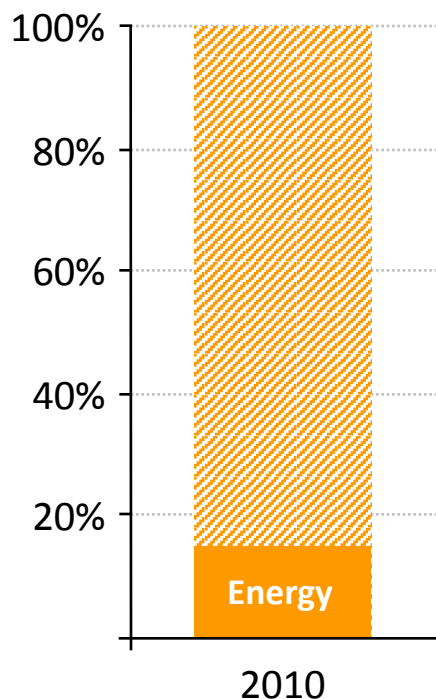


The projected increase in global renewables requires cumulative investment of \$6.0 trillion (compared to 10 for upstream oil) and faces large uncertainties

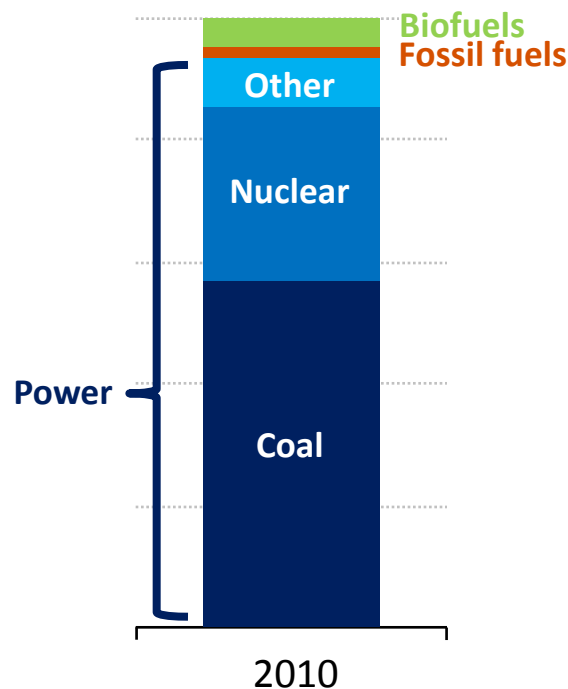
Energy is becoming thirstier in the face of growing water constraints

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Global water use



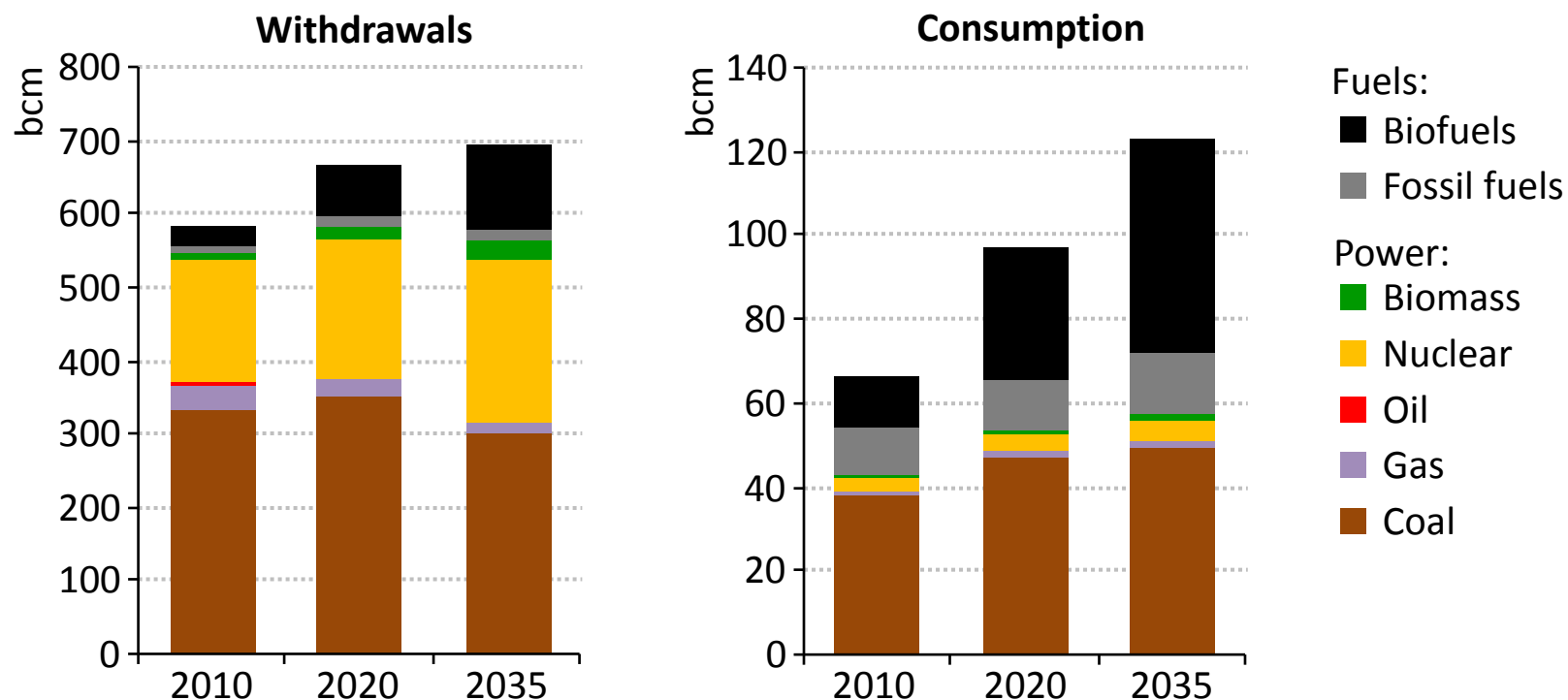
Water for energy



The energy sector's water needs are set to grow, making water an increasingly important criterion for assessing the viability of energy projects

Global water use for energy production

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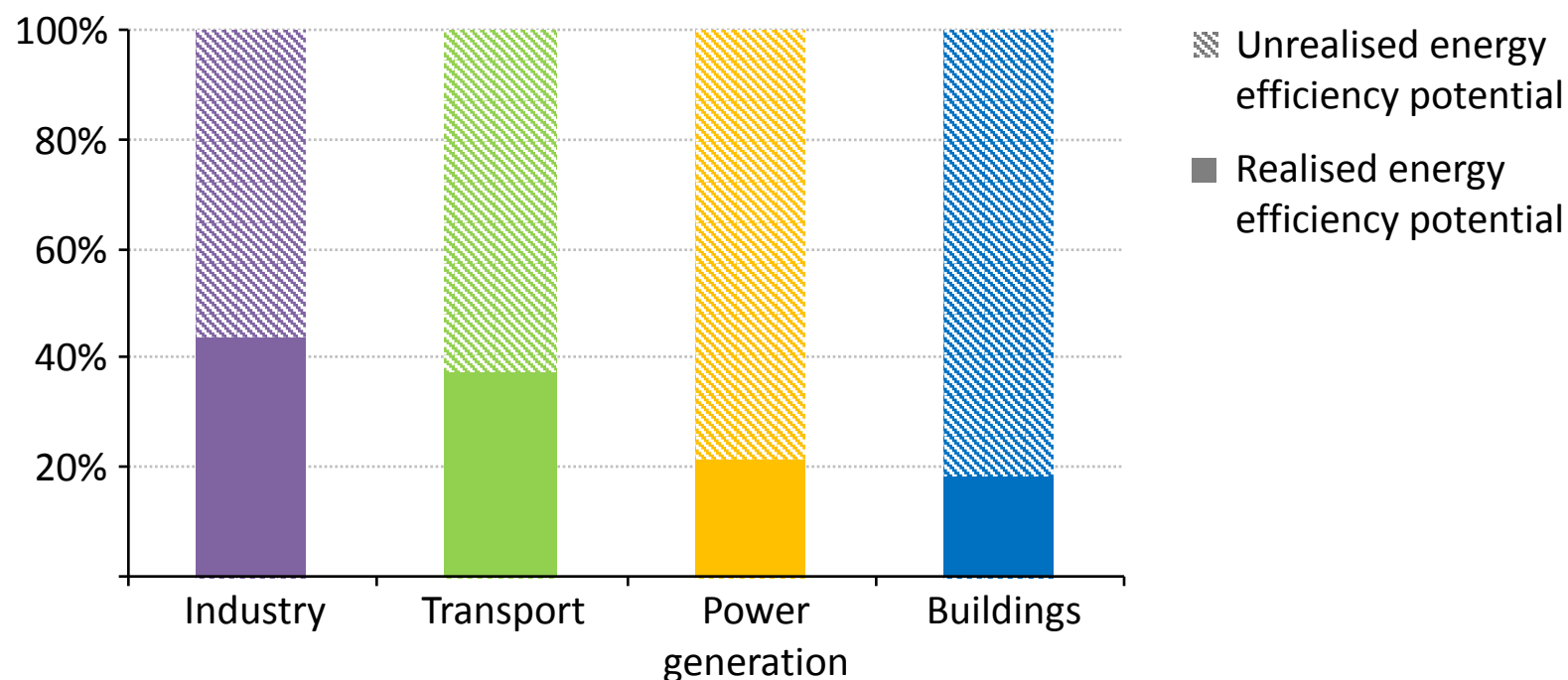


If oil is only a small part of Withdrawals, it is not so small for Consumption

Energy efficiency: a huge opportunity going unrealised

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Energy efficiency potential used by sector in the New Policies Scenario

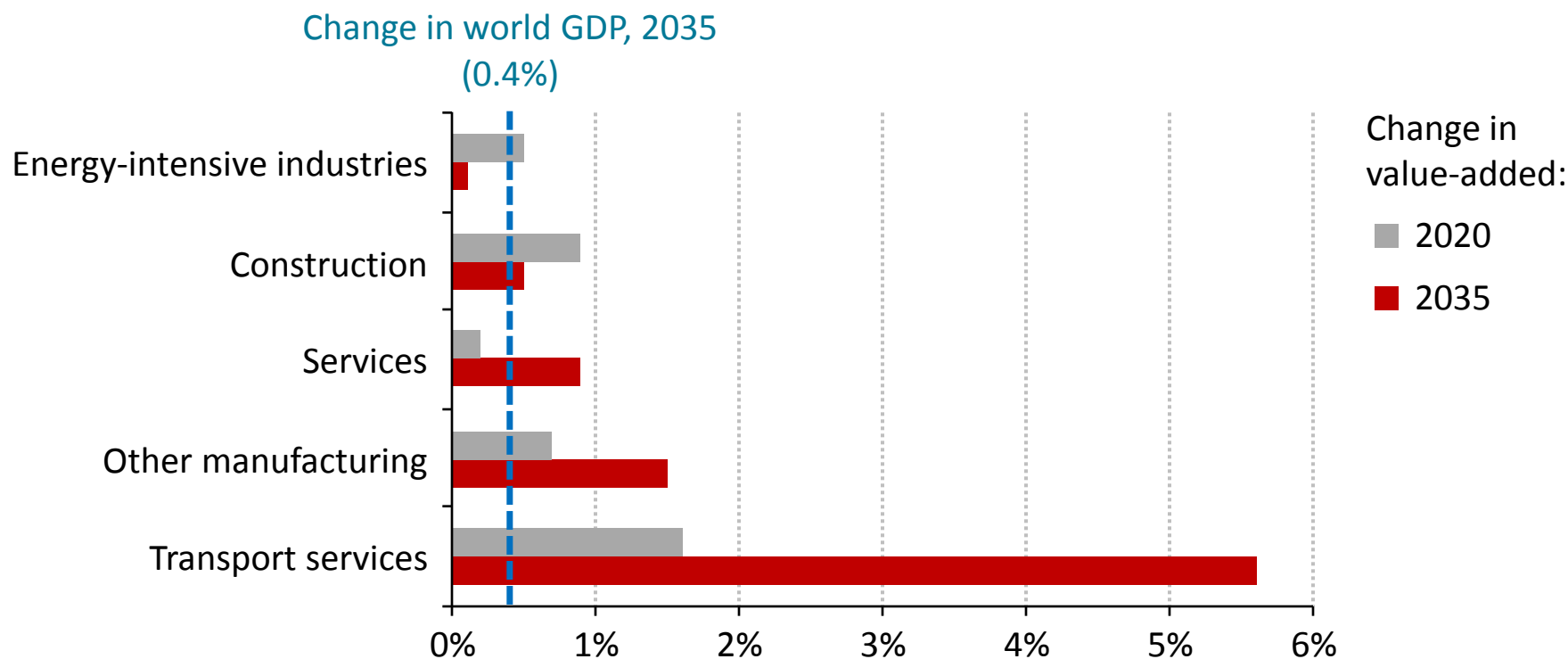


Two-thirds of the economic potential to improve energy efficiency remains untapped in the period to 2035

Changes in global real GDP The Big “Unknown Unknown” in the Scenarios & value-added by sector

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The Efficient World Scenario relative to the New Policies Scenario

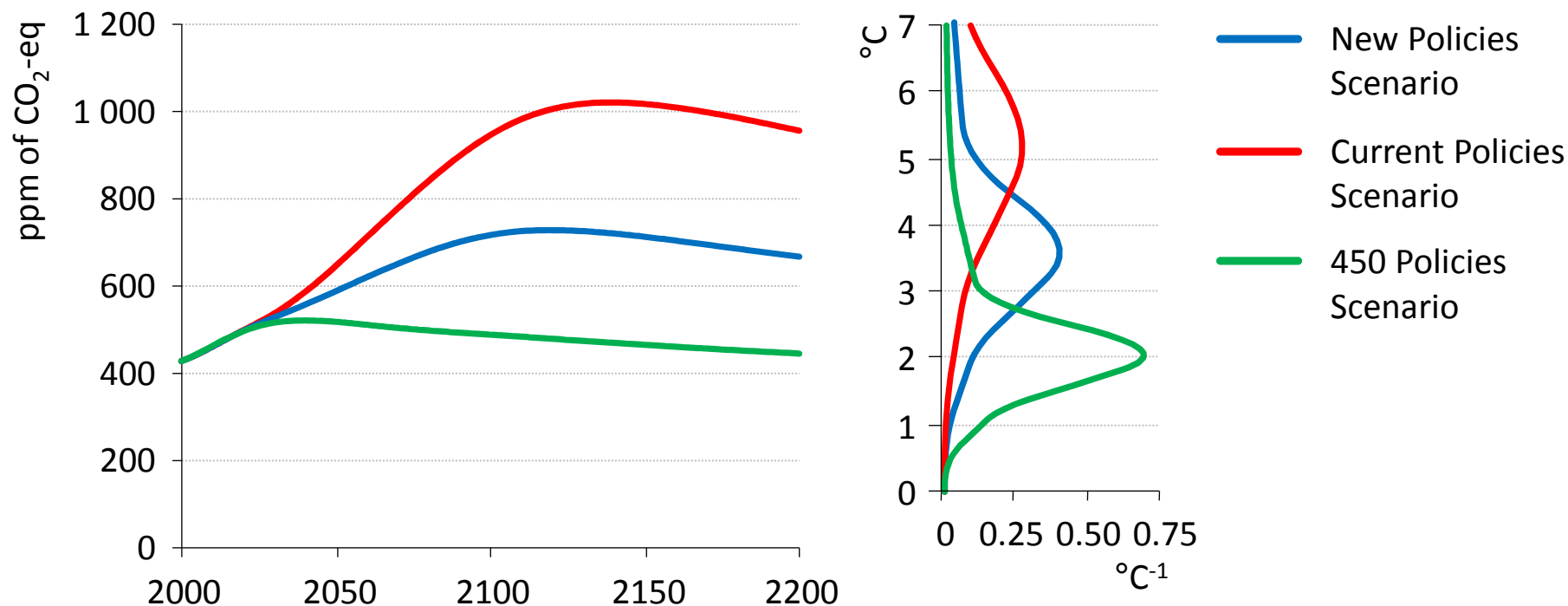


This is obtained by taking the IEA 2035 relative to the New Policies general economic model. Something not done for CPS, NPS and 450S

Current & new policies increase global mean temperature

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Greenhouse-gas concentration pathways (left) and probability distribution of equilibrium temperature increase (right)



Current policies result in a 50% likelihood of a long-term temperature increase of 5.3°C, the New Policies Scenario sees a median temperature increase of 3.6°C