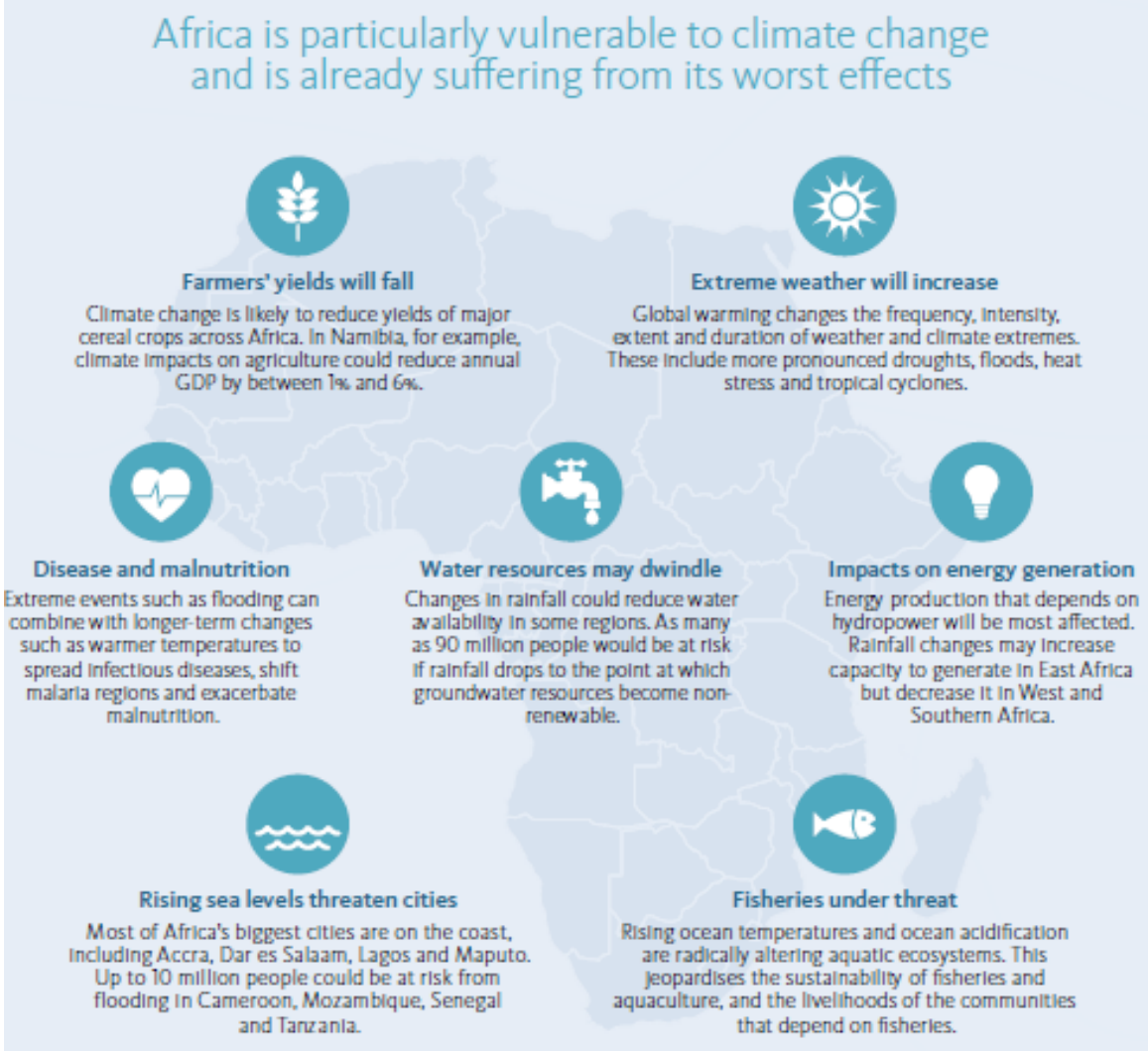
EY Pan African Oil&Gas Tax Workshop 2017

Impact of the COP21 – Paris Agreement on the long term prospects of the oil and gas industry in Africa

February 24th, 2017

Africa's exposure to climate change



Source: African Development Bank (AfDB)

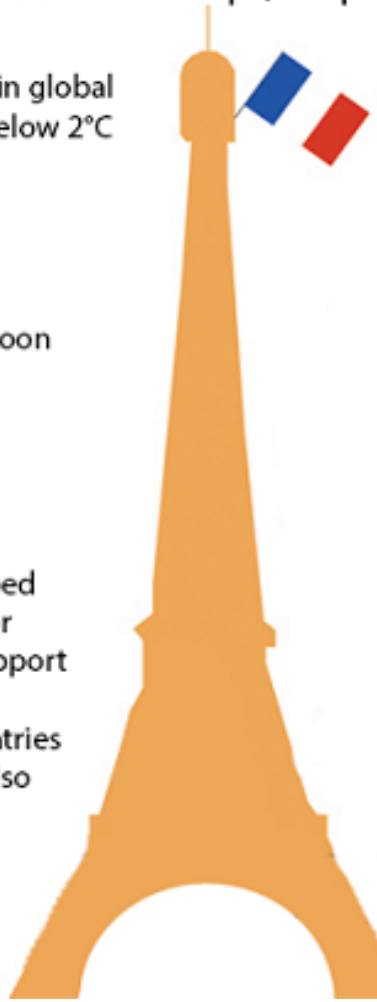
What's COP21? The Paris Agreement?

A text with universal scope, adopted by 195 countries

The aim: to keep the increase in global average temperature to well below 2°C and to 1.5°C if possible.

The objective: to level off greenhouse gas emissions as soon as possible.

The principal: to differentiate between developed and developing countries. Developed countries must lead the way for reduction of emissions and support developing countries in implementing this. Other countries with the ability to do so may also contribute their support on a voluntary basis to achieve this target.



The means: Countries must submit Intended Nationally Determined Contributions (INDCs) which are revised upwards every 5 years. The 1st report is due in 2023. North-South technology transfer.

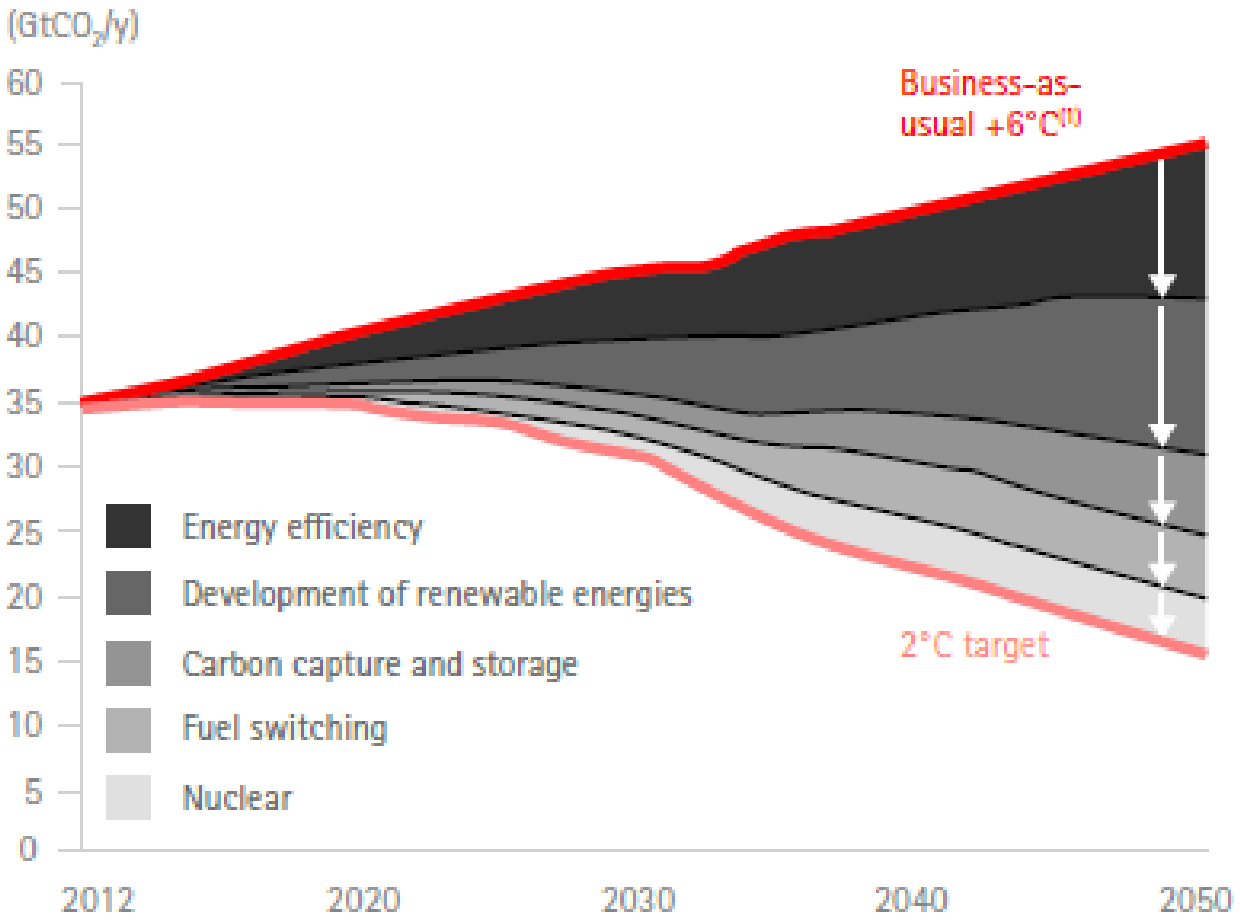
The financing: from 2020, rich countries must contribute at least $100 billion per year. This amount will be reviewed in 2025.

The new mechanism: loss and damage. Measures must be taken to avert, minimize and address the concrete effects of climate change, in order to help the most vulnerable countries.

Entry into force: 2020 if the Agreement is ratified by 55 countries accounting for 55% of global greenhouse gas emissions.

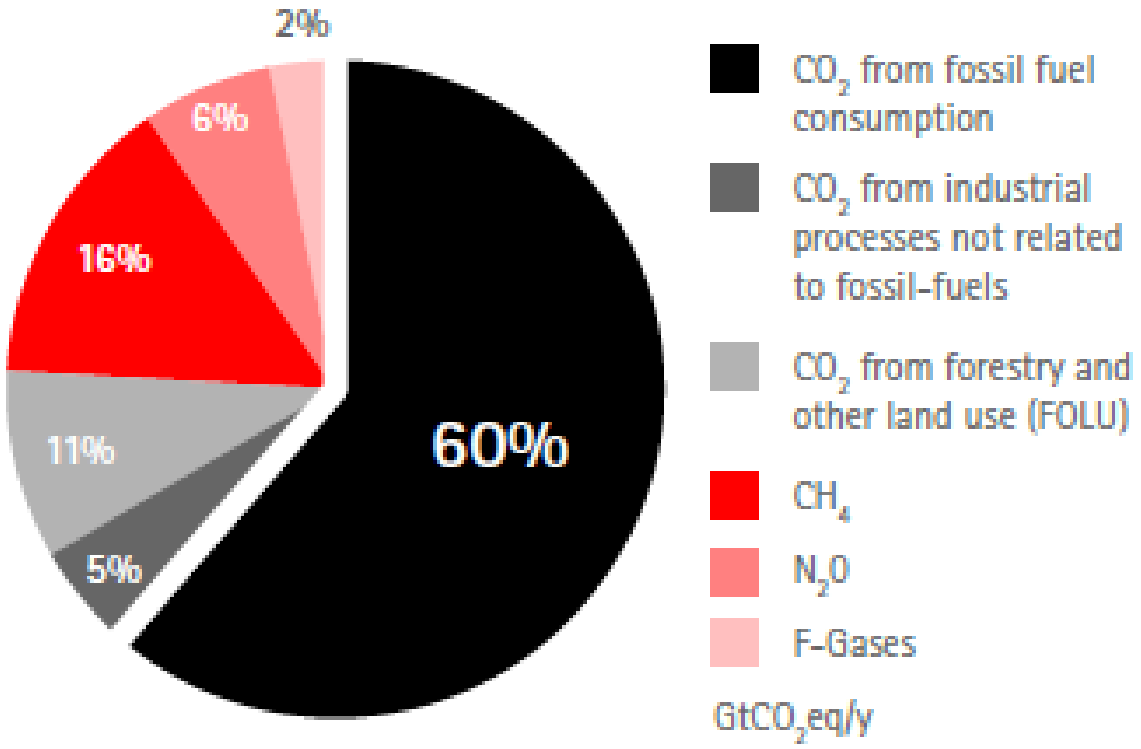
Source: Novethic

How to reach the +2°C target?



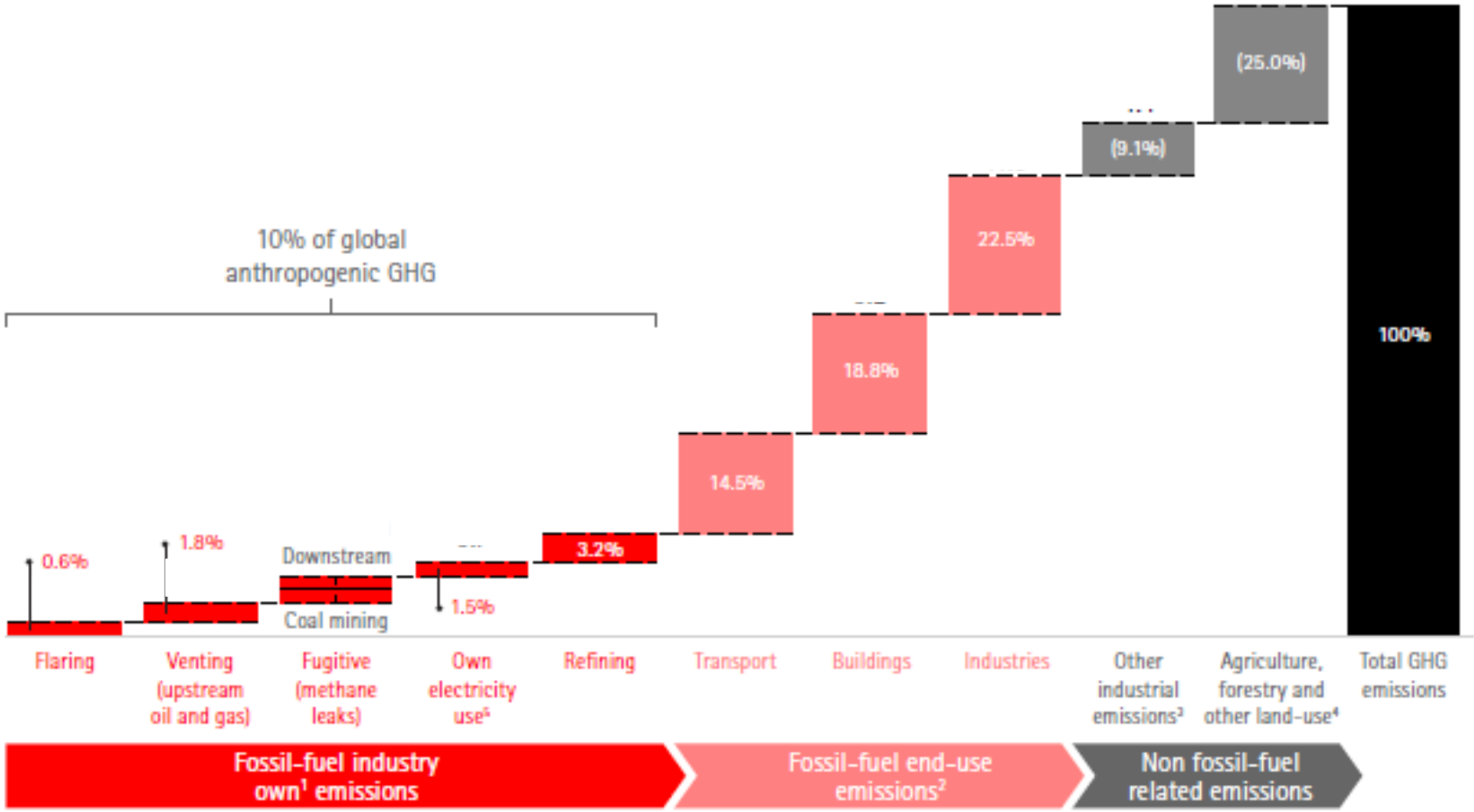
Source: modified from IEA, World Energy Outlook 2015 / **Accenture Strategy**

Distribution of the total annual anthropogenic GHG emissions



Source: Accenture Strategy, Energy analysis based on IPCC (2014) "AR5-WGIII";

Global anthropogenic GHG emissions



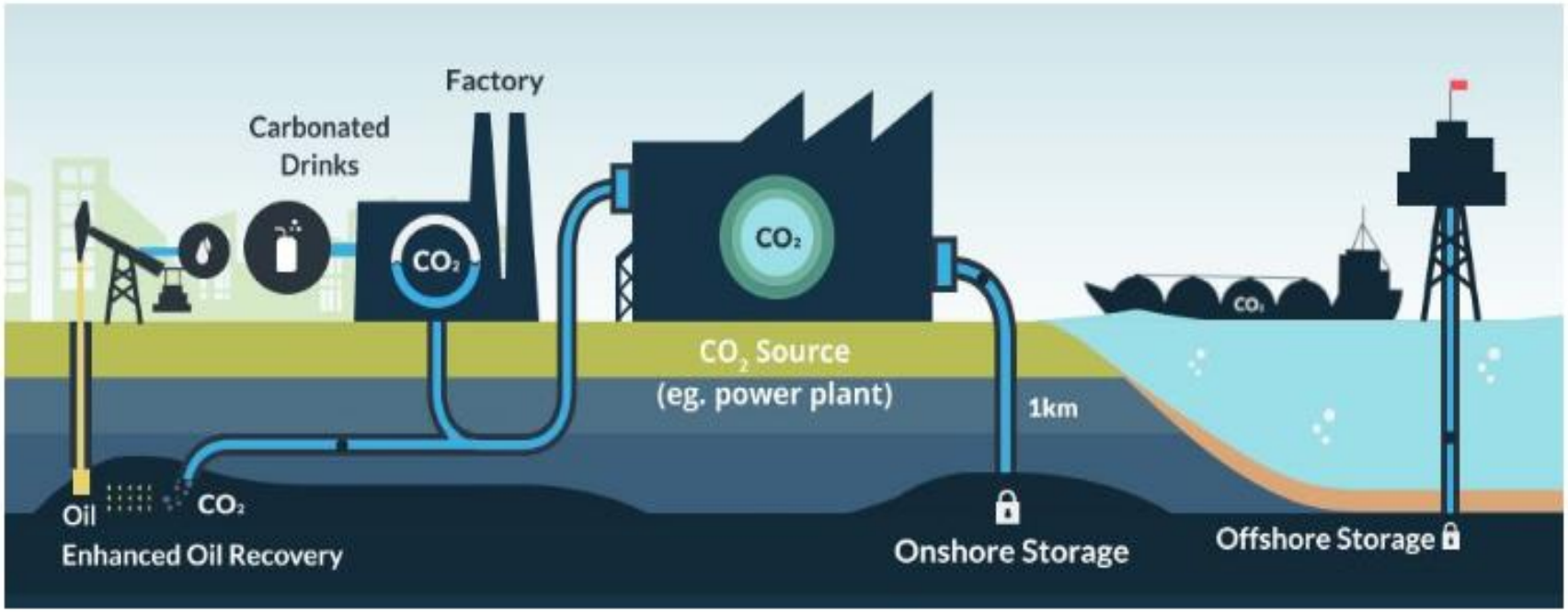
Source: Accenture Strategy, Energy analysis based on IPCC (2014) "AR5-WGIII";

Fossil-fuel industry own emissions

Excluding coal operations, the oil and gas industry emits about 8% of global GHGs (3.8 Gt CO2 eq per year), mainly due to:

Source: Accenture Strategy

CCS – Carbon Capture and Storage



Multiple industrial sources of CO_2 can use common transport and storage infrastructure in a CCS Hub or Cluster. Picture: Global CCS Institute

World Bank initiative: Zero routine flaring by 2030

- Thousands of gas flares at oil production sites around the globe
- 140 billion cubic meters of natural gas annually
- 300 million tons of CO2 emitted to the atmosphere
- If used for power generation: 750 billion kWh of electricity

  = **More than the African continent's annual electricity consumption**

Endorsers:

- **African Governments:**

Angola, Cameroon, Republic of Congo, Gabon and Nigeria

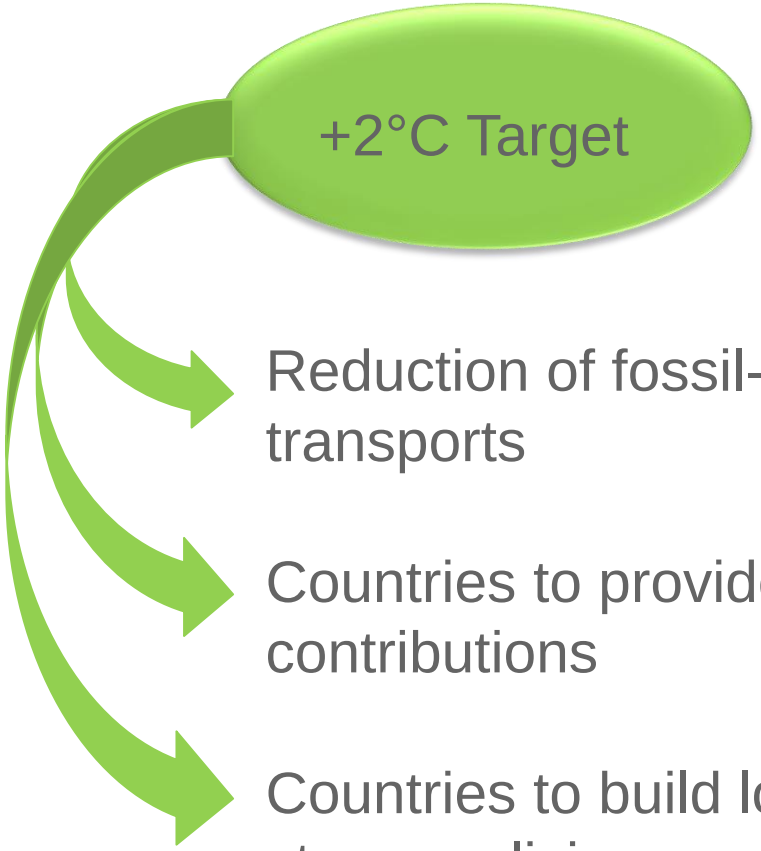
- **Oil companies operating in Africa:**

BP, Eni, Repsol, Shell, Statoil, Total
and several national oil&gas companies

- **Development institutions**

Source: World Bank

Fossil-fuel end-uses emissions



Reduction of fossil-fuel use in industries, buildings and transports

Countries to provide each 5 years more ambitious contributions

Countries to build lower carbon economies driven by strong policies

Source: Chatham House

Paris Agreement long term impact on oil

- Oil uses to be reduced or eliminated in many countries.
- Lower oil demand i.e. exacerbate the decline in oil demand in rich countries and reducing the growth of oil demand in emerging countries.
- IEA's scenario, consistent with capping global warming to 2°C, considers that **oil demand would peak in 2020 before decreasing to 74 mb/d in 2040**.

Source: Chatham House & Accenture Strategy

Paris Agreement long term impact on gas

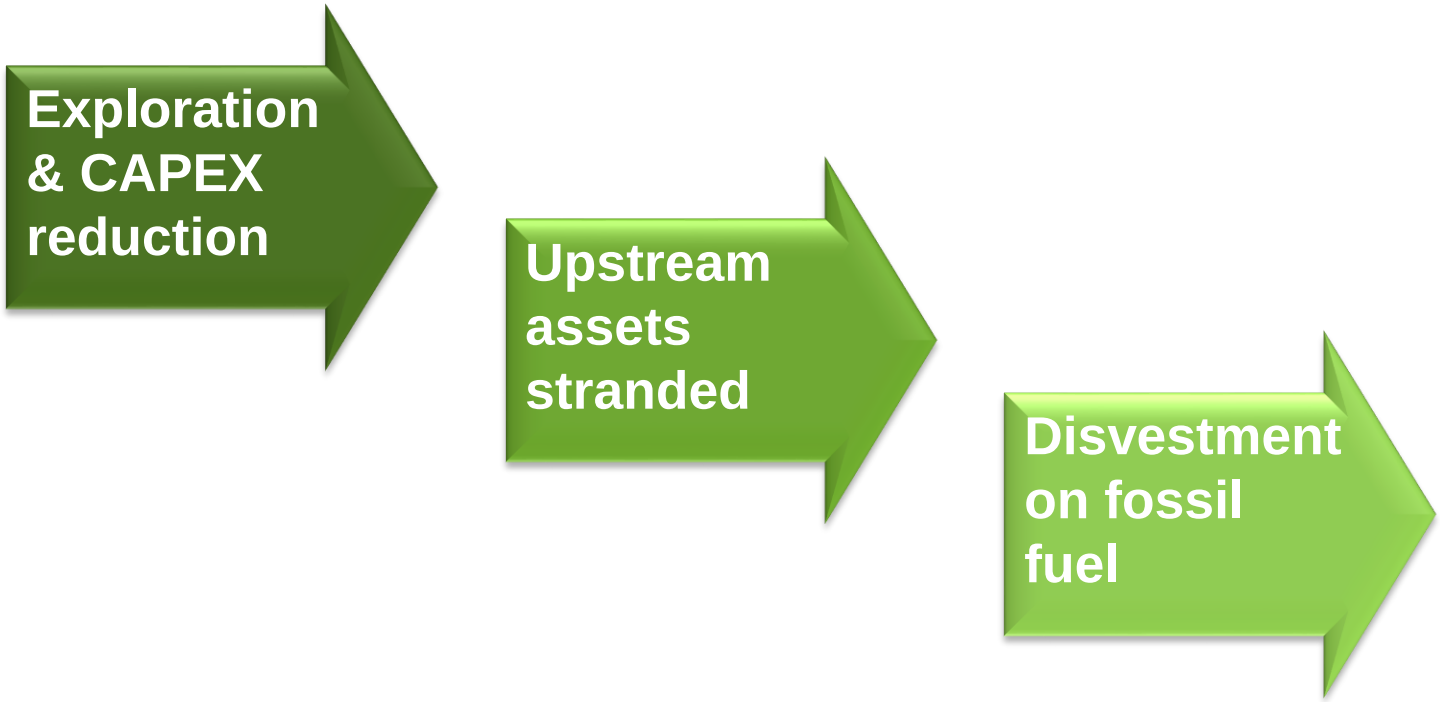
- Natural gas in power generation could be a way of replacing coal.

- In rich countries, electricity demand is not growing and the promotion of renewables, without a managed exit for coal, neither creates room for gas nor the profitability that power companies need to make the necessary investments (in smart grids, for example).

- In developing countries, where access to power is important and demand is growing, it is for the gas producers to persuade governments that gas has a place (particularly where imported coal is very cheap) and achieve volumes sufficient to fund infrastructure investment.

Source: Chatham House

Paris Agreement long term consequences



Source: Accenture Strategy

Exploration and CAPEX reduction

Exploration will largely decrease as oil&gas industry has already discovered sufficient reserves to match its share of carbon budget and should not develop all its current discoveries.

Drastic cut of exploration and development should drive significant reduction in CAPEX:

- **For oil**, slowing demand starting in 2020 could drive a **1.3% annual decline in CAPEX**
- **For gas**, **CAPEX would continue to increase** until 2040 in line with growing demand in developing countries.

Source: Accenture Strategy

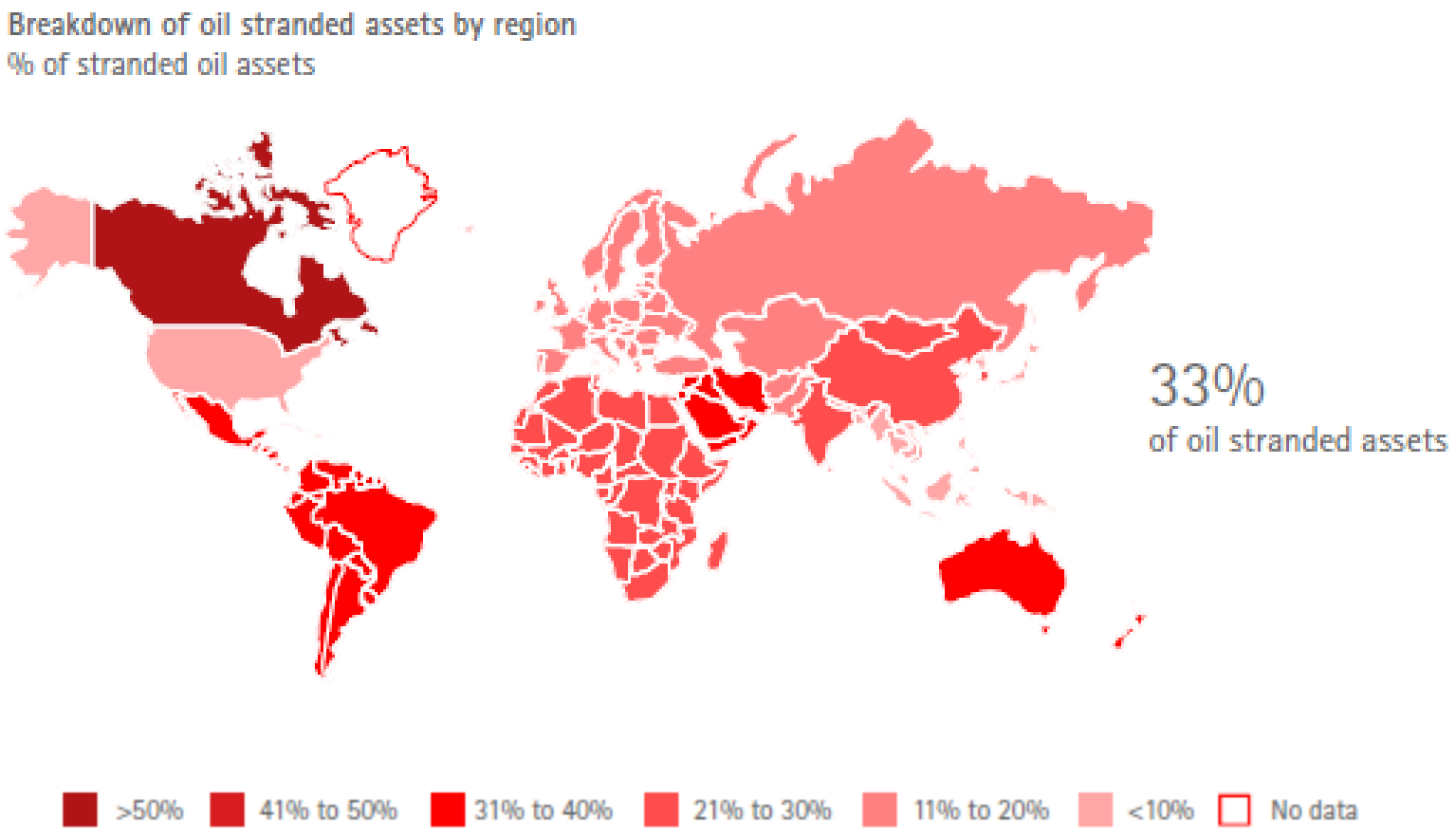
Upstream assets stranded

According to McGlade and Ekins model (article published in Nature in 2015):

..should remain unused from 2010 to 2050 in order to meet the target of 2 °C.

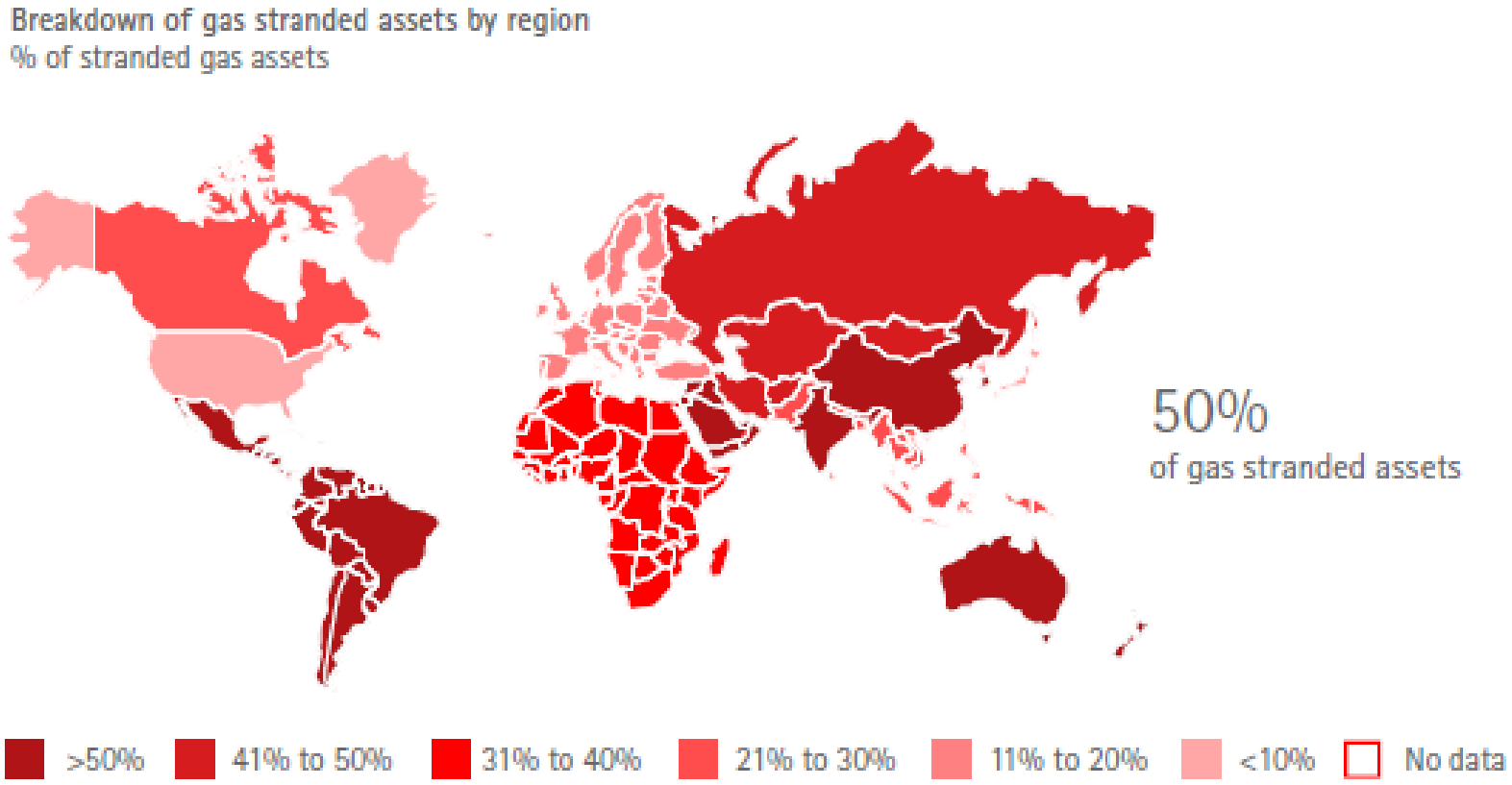
Source: McGlade & Ekins

Impact on producing countries - oil



Source: Accenture Strategy

Impact on producing countries - gas



Source: Accenture Strategy

Divestment on fossil fuels

Several stakeholders - including the UN Environment Programme, asset manager AMUNDI, and not-for profit organization Carbon Disclosure Project - have launched a Portfolio Decarbonization Coalition, which is targeting $100 billion in divestment.

Not that much compared with the $2.6 trillion energy sector market capitalization in the US alone, but it is an emerging practice…

Source: Accenture Strategy

Uncertainties regarding Paris Agreement

How countries will implement constraining mechanisms to reduce fossil fuels use as it could be politically sensitive if it results in higher retail energy prices?

How will be funded the $100 billion annual floor that rich countries pledged to grant to the poorest ones to fund energy transition beginning in 2020?

How countries will react regarding their stranded assets?

Source: Accenture Strategy

Conclusion by sector

In the **oil sector,** a realistic assessment of demand growth is crucial. Managements should not overinvest in potentially unnecessary projects. The corollary of this maybe spending, through consolidation or diversification in renewables or decapitalization, through dividends and share buybacks, allowing the market to reallocate capital.

In the **gas sector**, the challenge is twofold: to try and negotiate a space for gas in the generation systems of developed countries – where it would be a substitute for existing assets (largely coal); and to gain a share of generation growth in developing markets (perhaps driven by pressure for improved air quality, and/or diversity of supply) sufficient to justify the infrastructure investments that gas needs.

Source: Chattham House

General conclusion

- Managements of companies producing both oil and gas will have to decide how to allocate resources between the two, given the different risk profiles.

- Just as they have successfully dealt with exploration and financial risks for decades, they now must include the CO2 carbon budget as another major parameter of their portfolio management.

Source: Chattham House / Accenture Strategy

Thank you for your attention!

For any question, do not hesitate to contact me:

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