

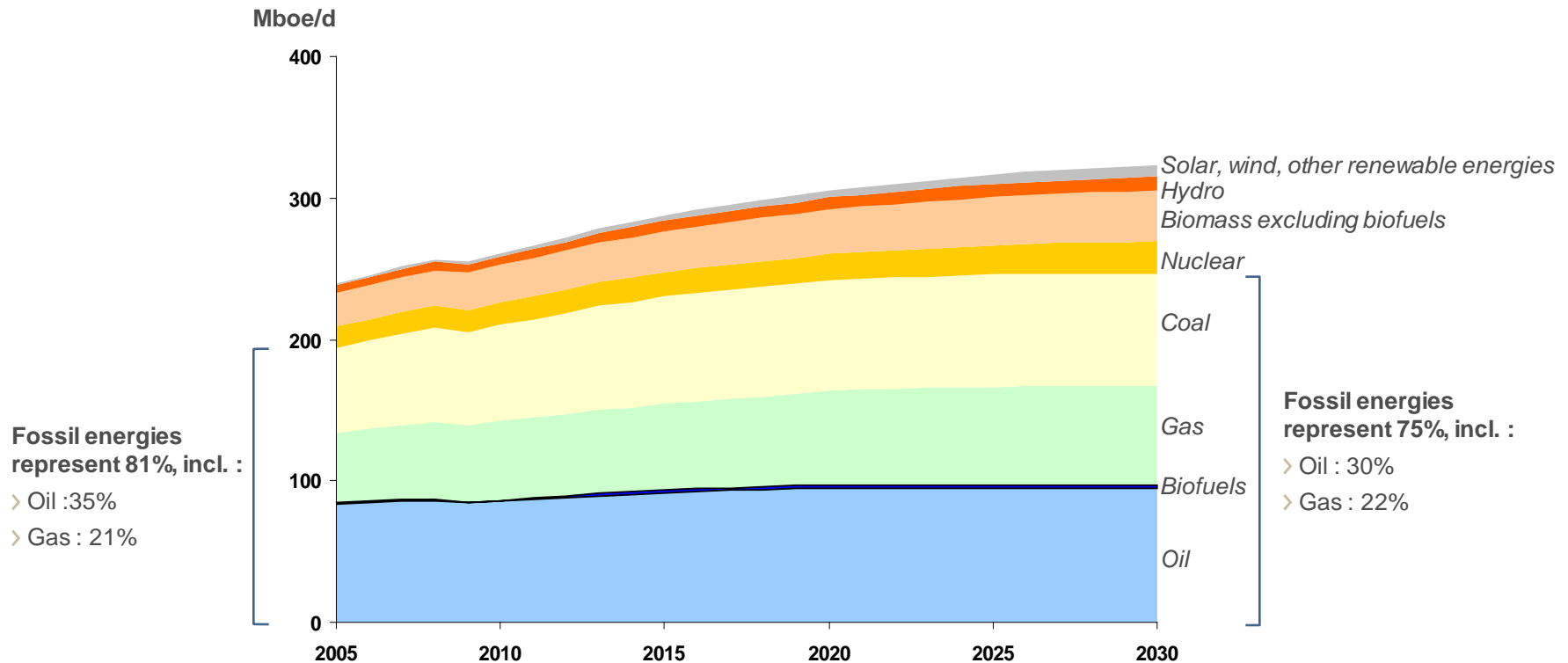
# **Green Innovation and Sustainable Development by TOTAL**

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# Fossil energies to represent 75% of energy supply in 2030(e)

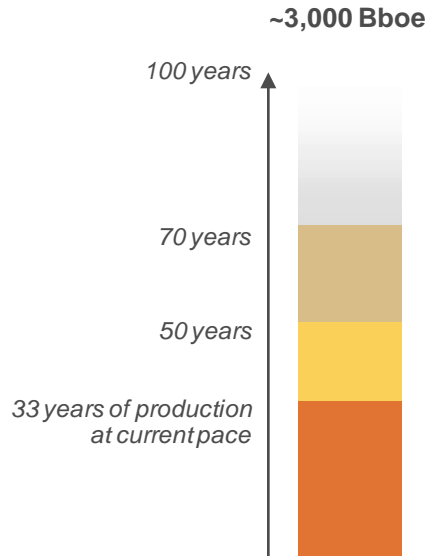
## World energy supply



***Limiting CO<sub>2</sub> emissions necessary to increase coal and hydrocarbon production  
Diversification of energy supply required***

# Significant resources yet to be produced

## Oil resources



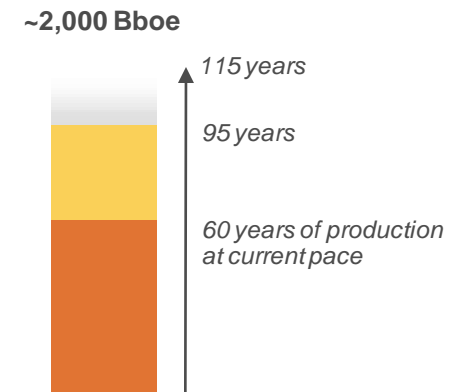
**Unconventional resources**  
*oil shale, shale gas,  
coal bed methane, tight gas*

**Heavy oil**

**New discoveries  
and increased recovery rate**

**Identified resources**

## Gas resources



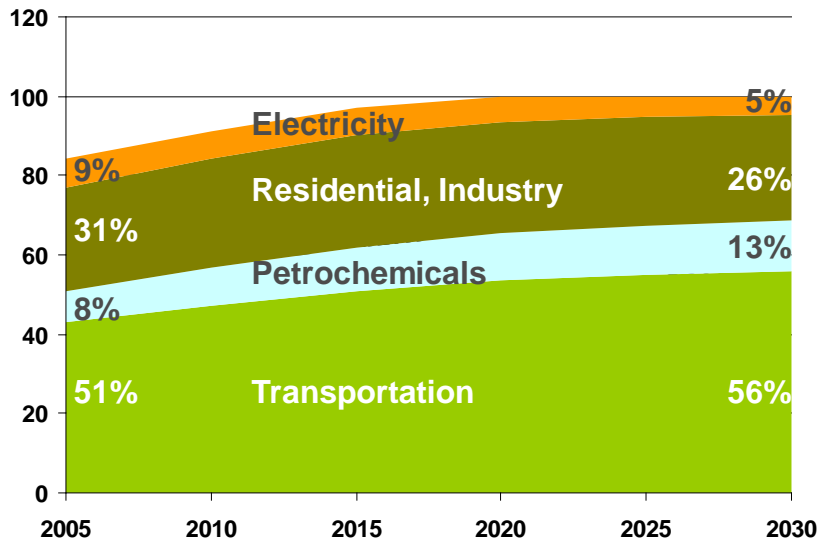
- > Conventional oil mainly in the Middle East
- > Heavy oil concentrated in Canada and Venezuela

- > More than 50% of global gas resources in Russia, Iran and Qatar
- > Transportation and liquefaction constraints limit global access to isolated resources

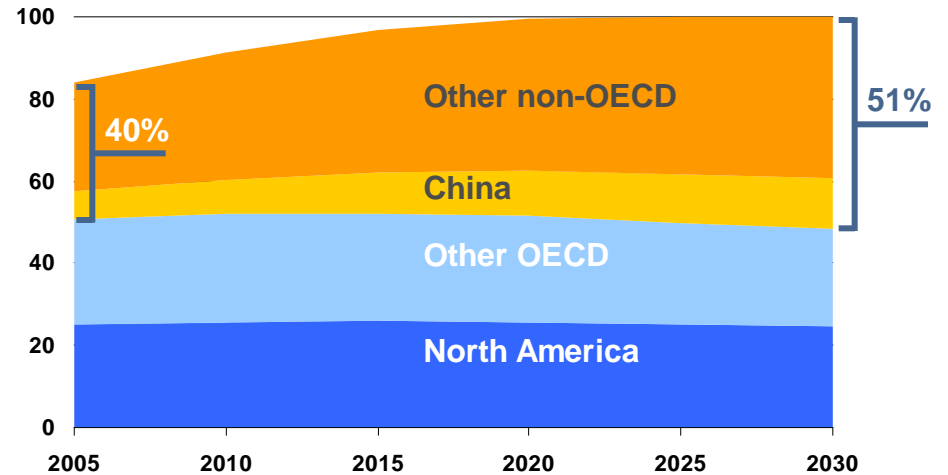
***Oil and gas resources require increasing technological efficiency and higher capital expenditures to be brought onstream***

# Growth of energy demand led by Asia and transportation

Petroleum products demand by use (Mb/d)



Petroleum products demand by region (Mb/d)



***Demand for petroleum products will have to adapt to supply limited to around 100 Mb/d by 2020***

# Pushing back the limits of fossil fuels



**DEEP OFFSHORE**  
Promising potential for the future



**EXTRA-HEAVY OILS AND BITUMEN**  
Reserves for the future



**ARCTIC EXPLORATION**  
Developing extreme resources

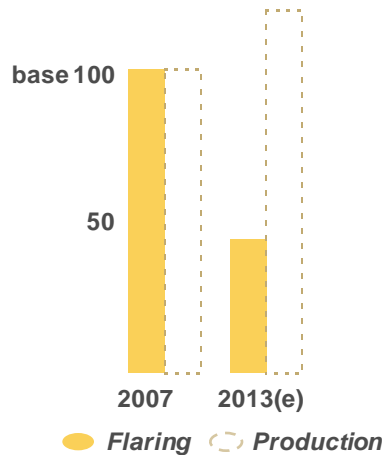


**LNG**  
A clean and competitive energy source

***Innovation will be the main driver of sustainable growth in our production***

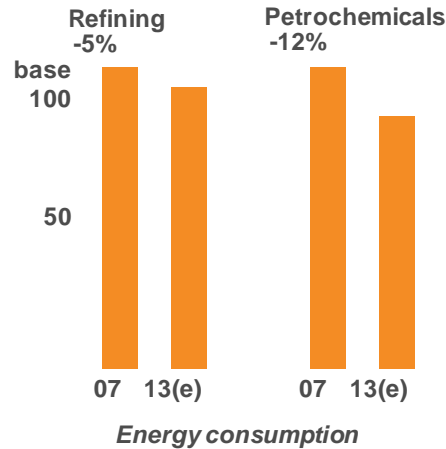
# Strengthening the portfolio while contributing to energy efficiency and limitation of CO2 emissions

Flaring reduction\*



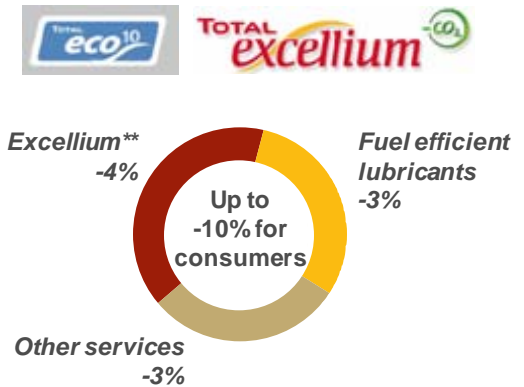
Improving energy efficiency

Estimated savings of approx. 150 M\$/y



Innovative products and services

To reduce fuel consumption and CO2 emissions

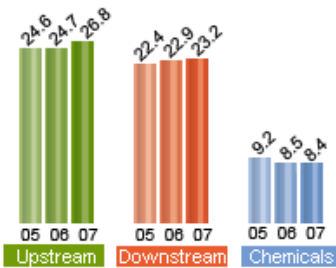


**Increasing resilience of the portfolio**

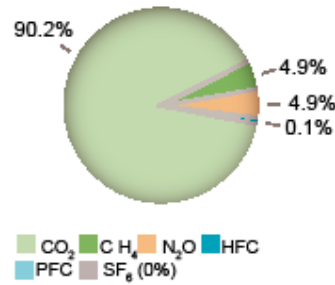
\* reduction in flaring by Total-operated oil and gas production facilities compared to Total's estimated technical production growth  
 \*\* compared to conventional road fuels

# A global strategy to reduce our climate impact

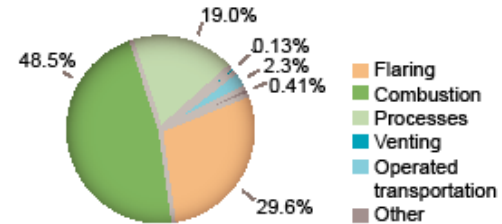
Greenhouse gas emissions (six gases)  
(MTCDE/year)  
(2007 total: 58.4 million metric tons)



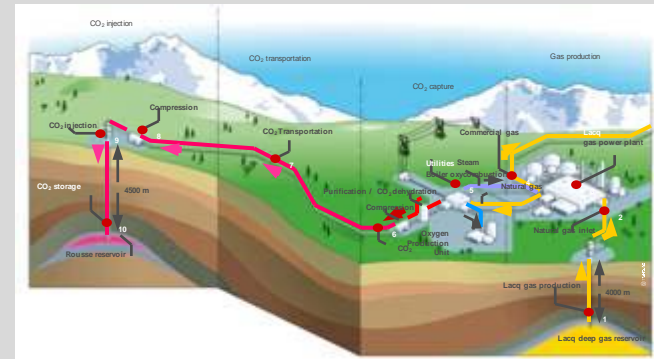
Relative percentage of the six greenhouse gases in Total's emissions in 2007



Relative percentage of greenhouse gas sources in Total's direct emissions in 2007



Enhancing energy efficiency in our plants



Lacq pilot project : Carbon capture and sequestration

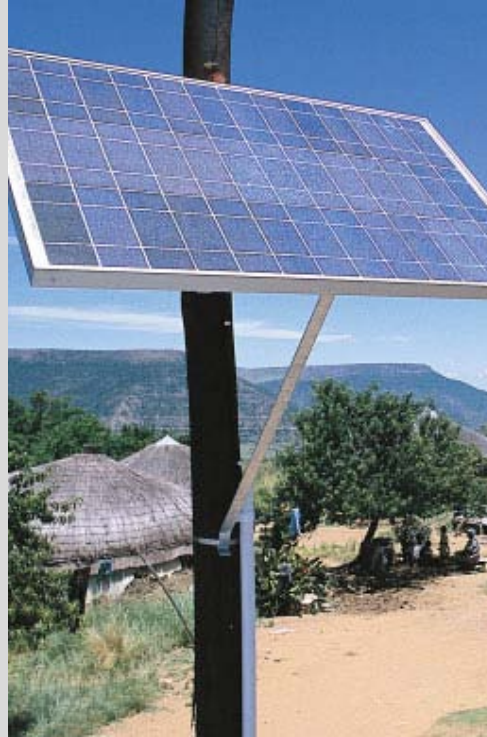
Innovative technological solutions

***To reduce the impact of our activities, we are striving to manage our greenhouse gas emissions more effectively, enhance energy efficiency and develop innovative technological solutions***

# Pursuing our commitment to new energies



Exploiting biomass



Photovoltaic solar energy, an industrial commitment



Marine energy, a new alternative

***Environmentally friendly and limitless, renewable energies supplement fossil fuels, and are expected to play a major role in the years to come***