

# BP Energy Outlook: transition to a lower carbon future



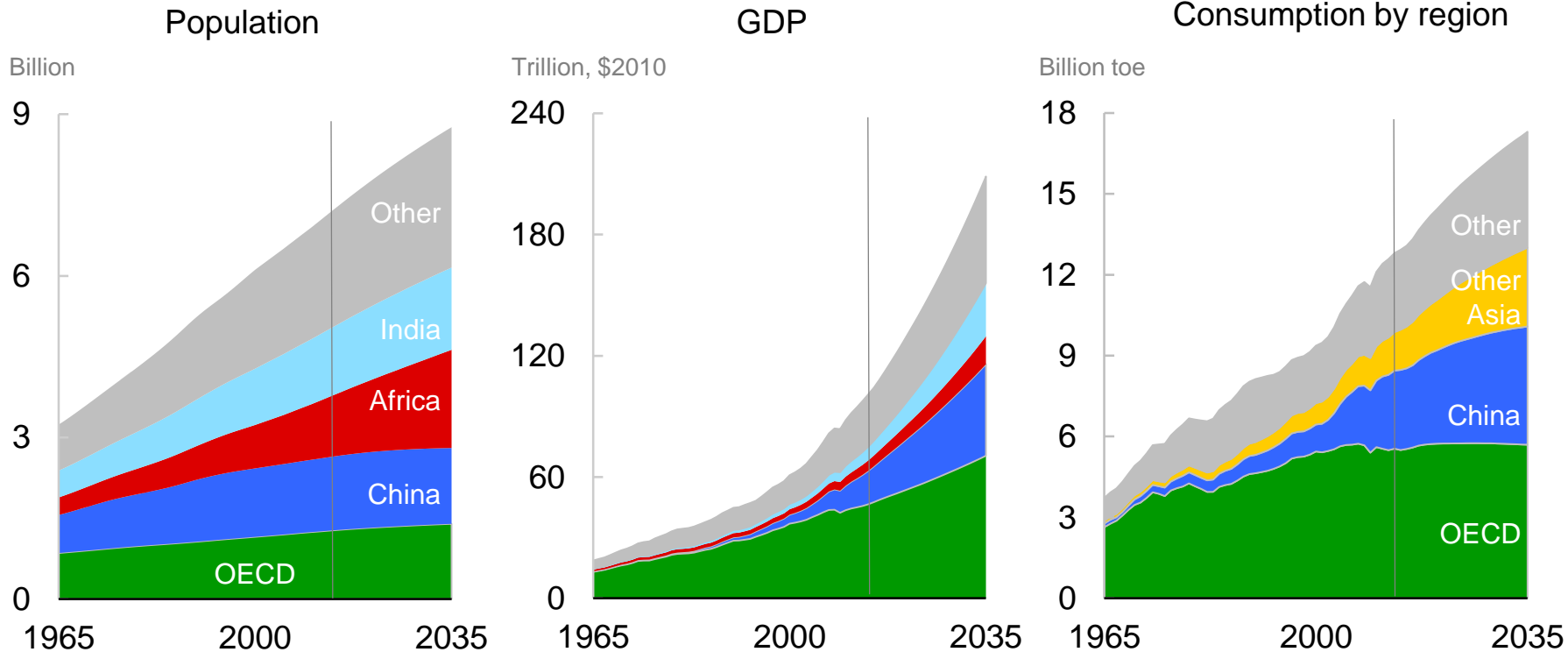
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**Fórum FGV Energia:  
Matriz e Segurança  
Energética**

Rio de Janeiro, 1/12/2016

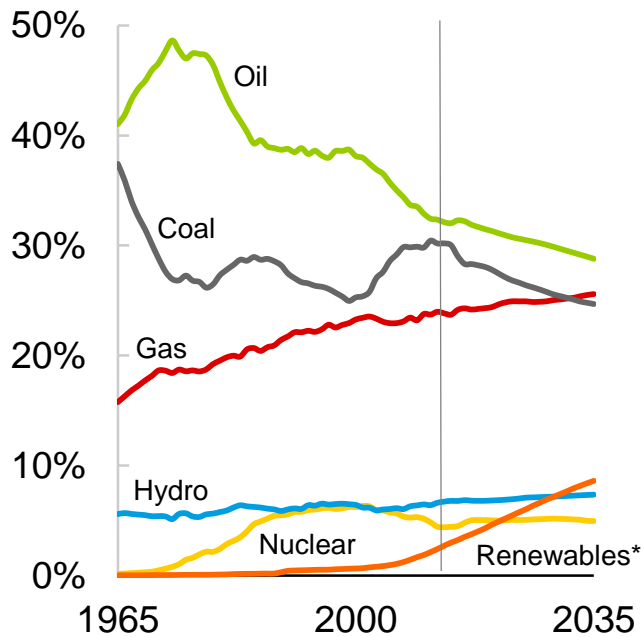


# Growing population and GDP drives demand...

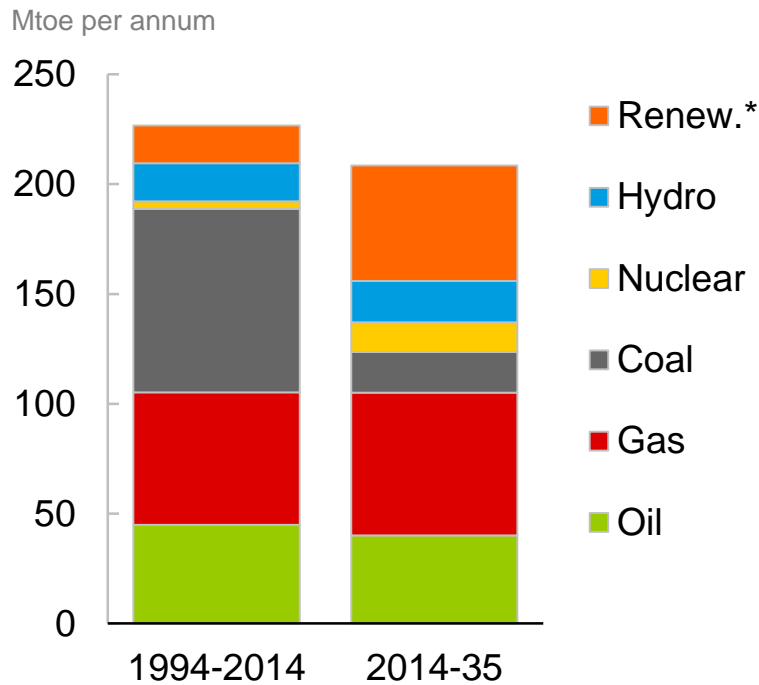


# The fuel mix is set to change significantly...

### Shares of primary energy



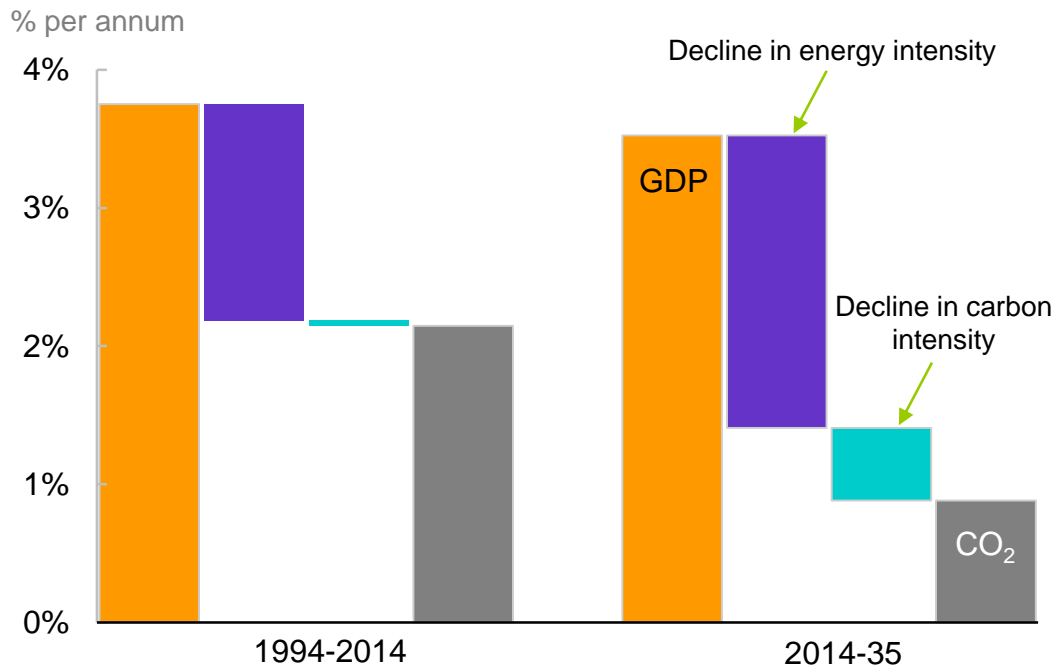
### Annual demand growth by fuel



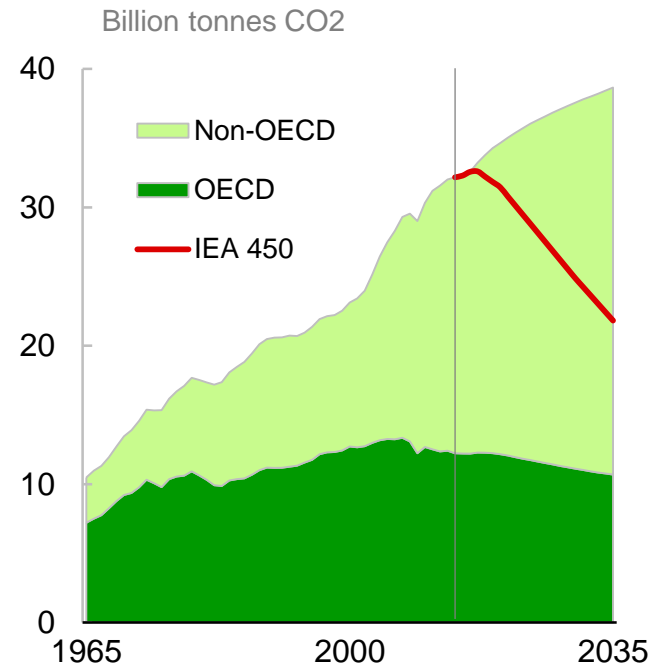
\* Includes biofuels

# Growth in carbon emissions slows...but not completely

## Decoupling emissions growth from GDP growth

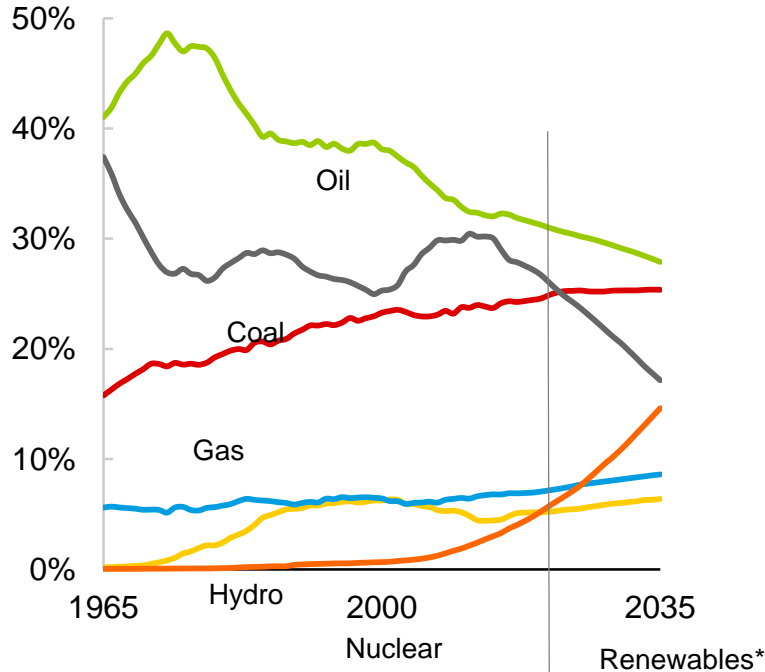


## Carbon emissions



# Faster transition to a lower-carbon world...

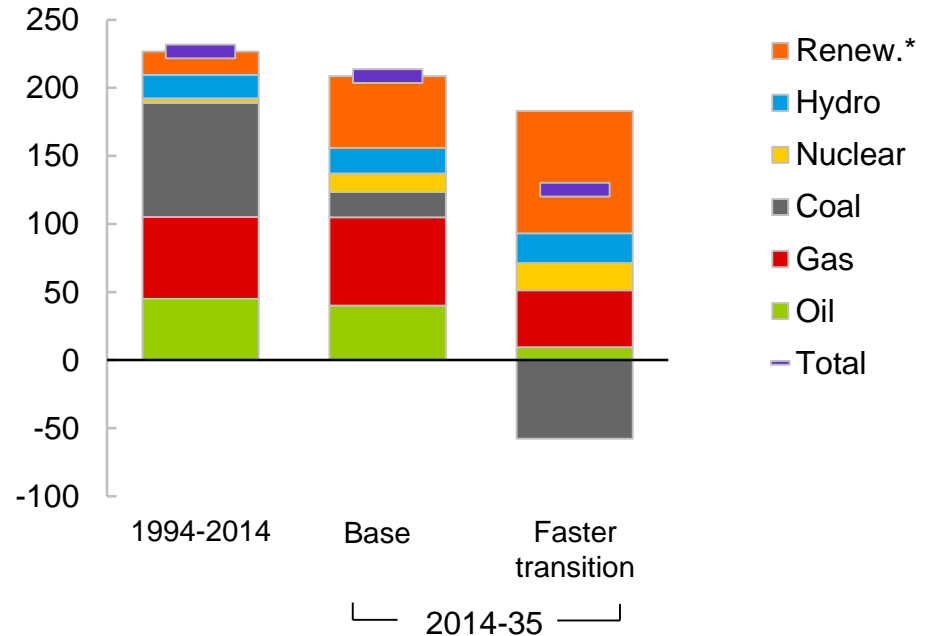
## Shares of Primary Energy



\* Includes biofuels

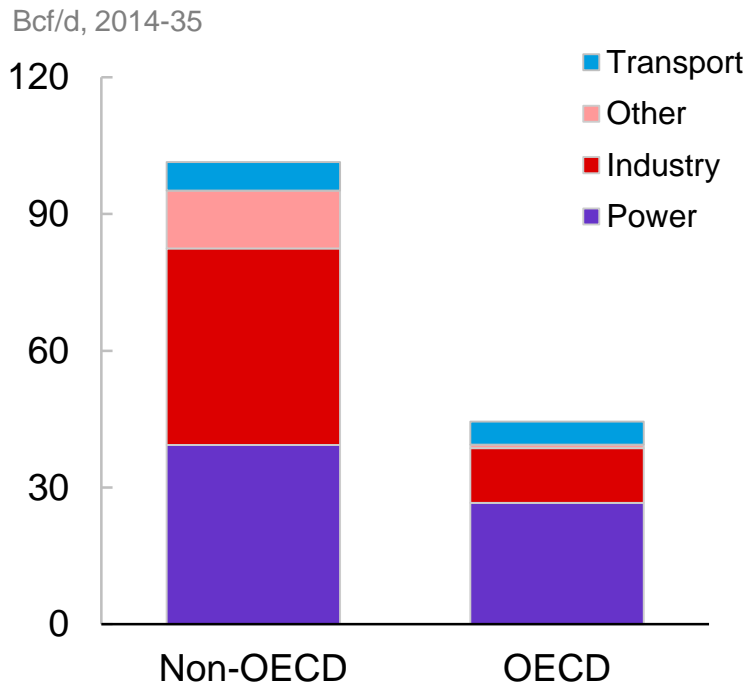
## Annual demand growth by fuel

Mtoe per annum

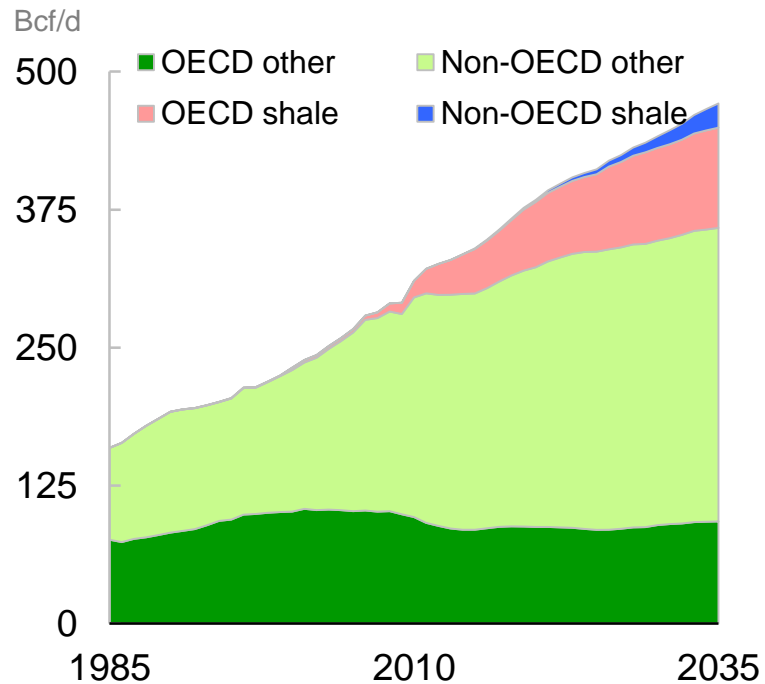


# Growing demand for gas....

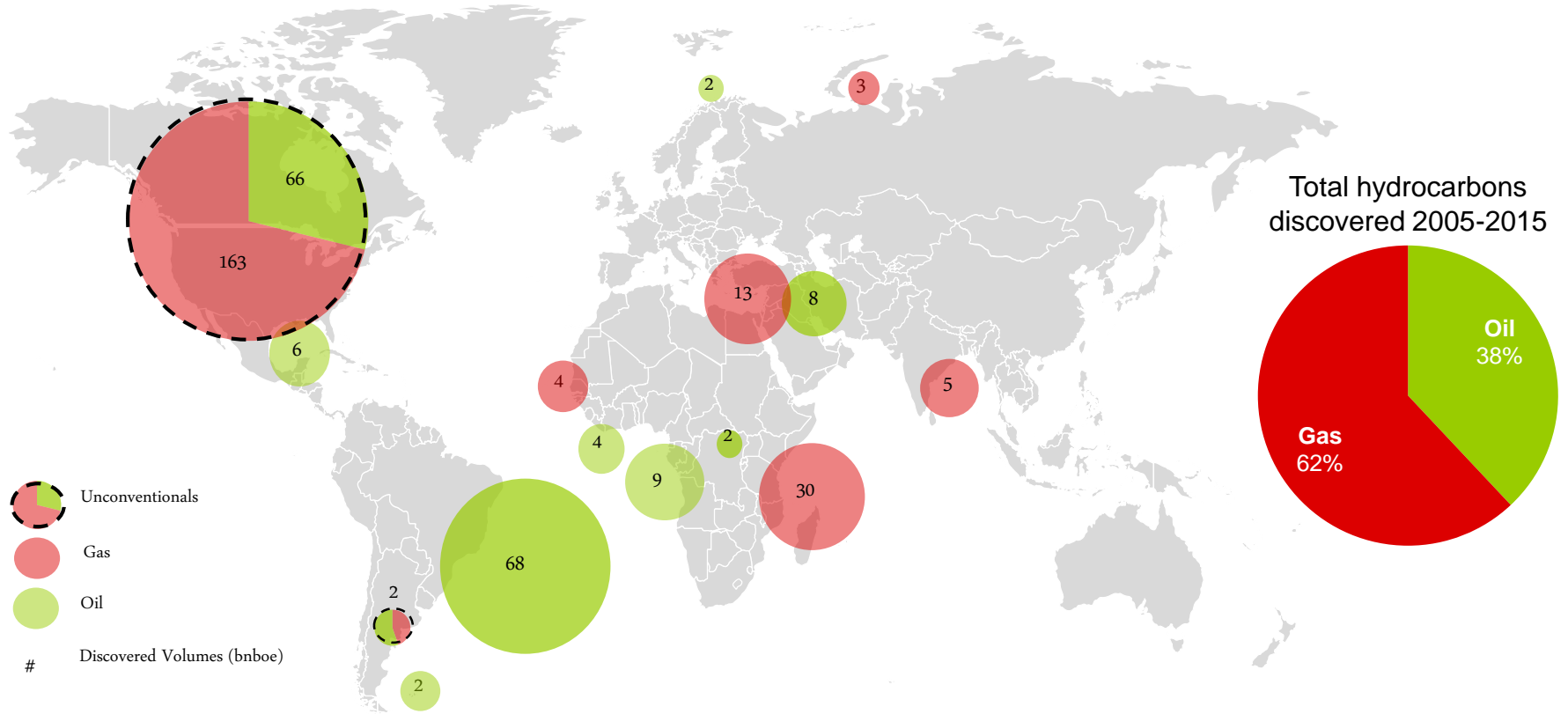
## Demand growth by region



## Gas production by type and region



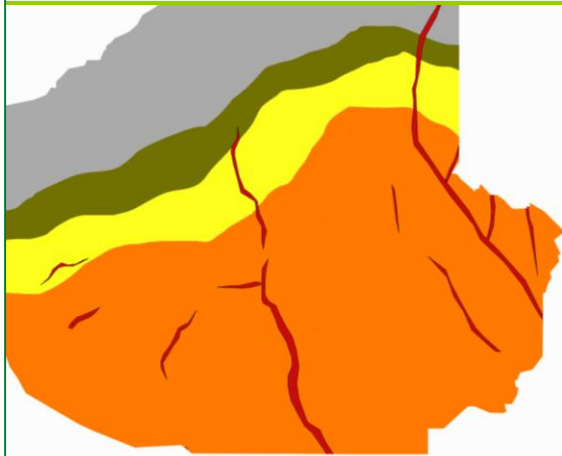
# Material plays over the last decade....



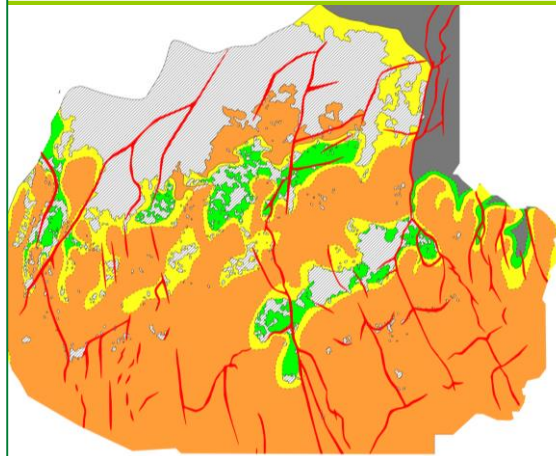
# Using technology to unlock new resources...



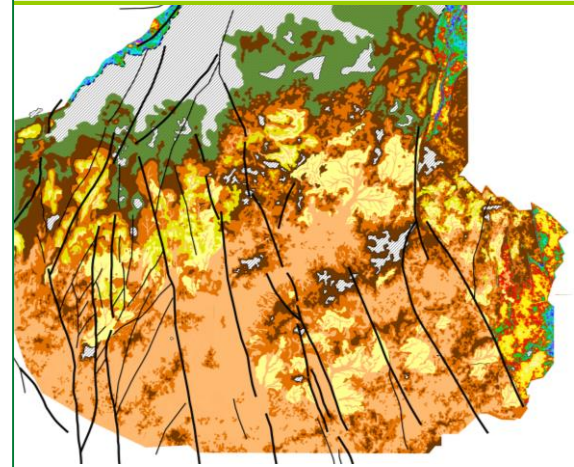
2011



2014



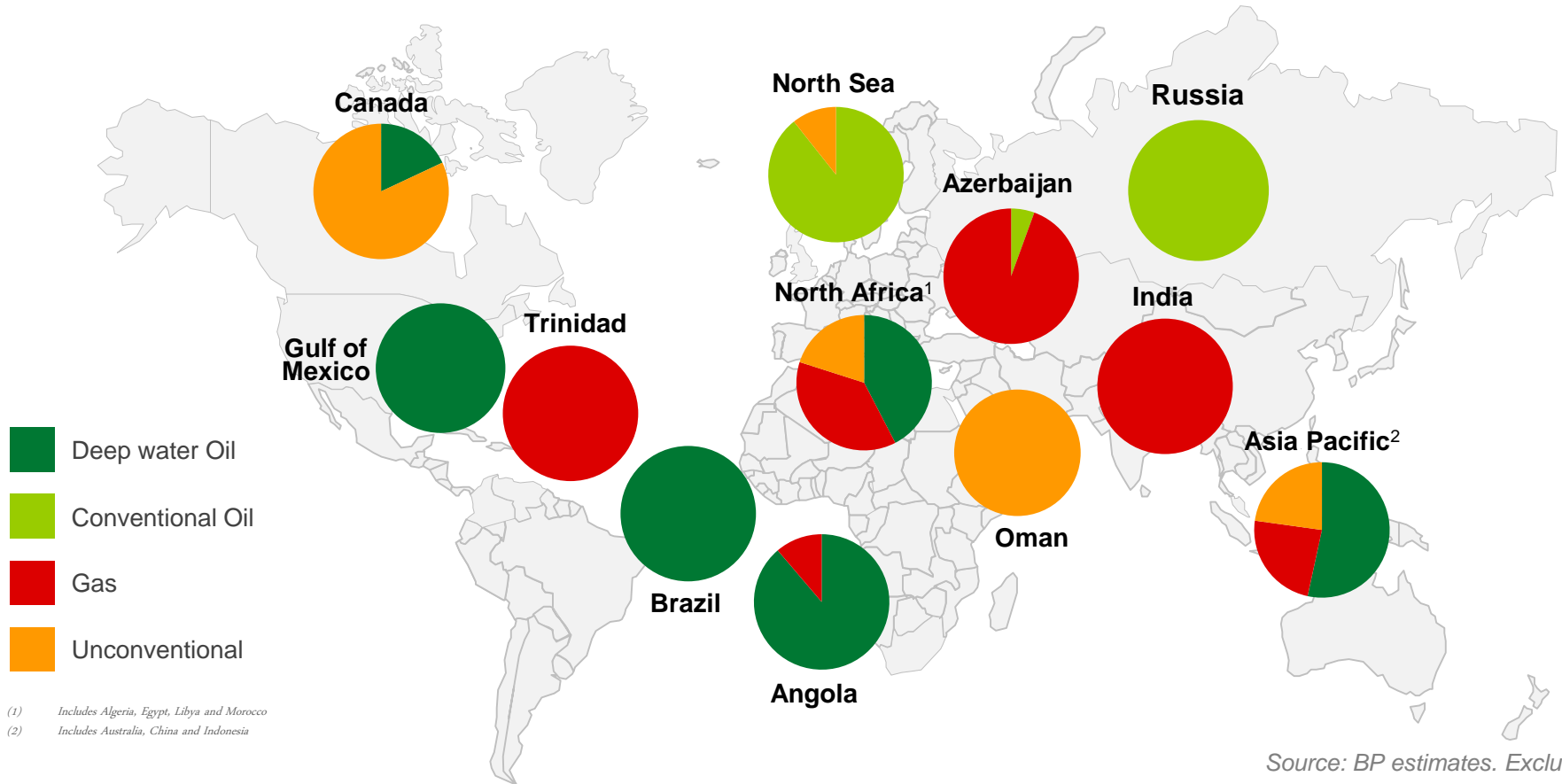
2015



Improvement in subsurface definition

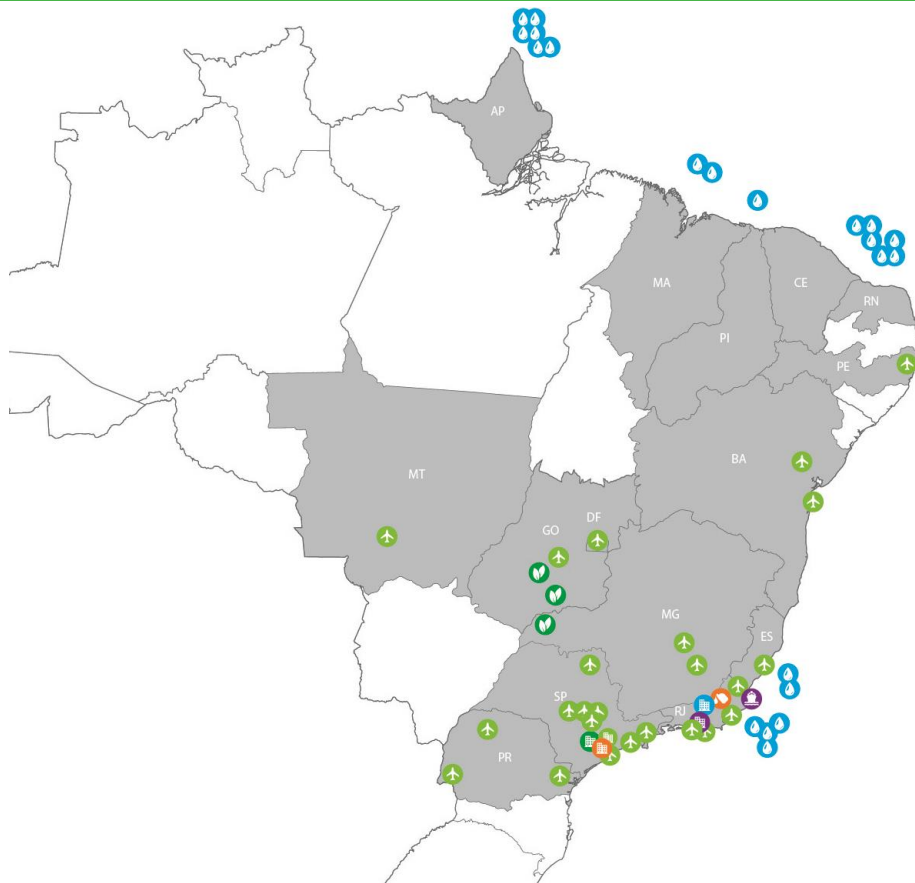


# A diverse exploration portfolio for the future....



(1) Includes Algeria, Egypt, Libya and Morocco  
(2) Includes Australia, China and Indonesia

# ... and a variety of businesses in Brazil



## Air BP

- Airports:
  - Brasília - DF
  - Belo Horizonte - MG (Confins e Pampulha)
  - Cabo Frio - RJ
  - Campinas - SP (Viracopos e C. Amarais)
  - Cuiabá - MT
  - Curitiba - PR
  - Feira de Santana - BA
  - Foz do Iguaçu - PR
  - Goiânia - GO
  - Guarulhos - SP
  - Jundiaí - SP
  - Macaé - RJ
  - Maringá - PR
  - Osasco - SP
  - Recife - PE
  - Ribeirão Preto - SP
  - Rio de Janeiro - RJ (Galeão e Jacarepaguá)
  - São Paulo - SP (C. Marte e Helicidade)
  - Valença - BA
  - Vitória - ES

- Office:
  - São Paulo - SP

## BP Biofuels

- Sugarcane mills:
  - Edéia - GO
  - Ituiutaba - MG
  - Itumbiara - GO

- Office:
  - São Paulo - SP

## BP Energy

- E&P Blocks
- Office:
  - Rio de Janeiro - RJ

## Castrol

- Factory:
  - Rio de Janeiro - RJ
- Office:
  - Barueri - SP

## IST | BP Marine

- Office:
  - Rio de Janeiro - RJ
- Bunker terminal:
  - Porto do Açu,
  - São João da Barra - RJ