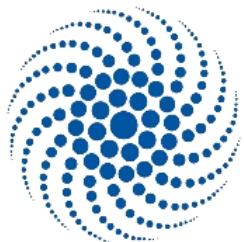


Estimation of Greenhouse Gases Emissions in Brazil (1970-2015)

Energy

+

Industrial Processes and Product Use



**instituto de energia
e meio ambiente™**

David Tsai



SEEG partners



Forestry
and LUC



Agriculture



Energy
and IPPU

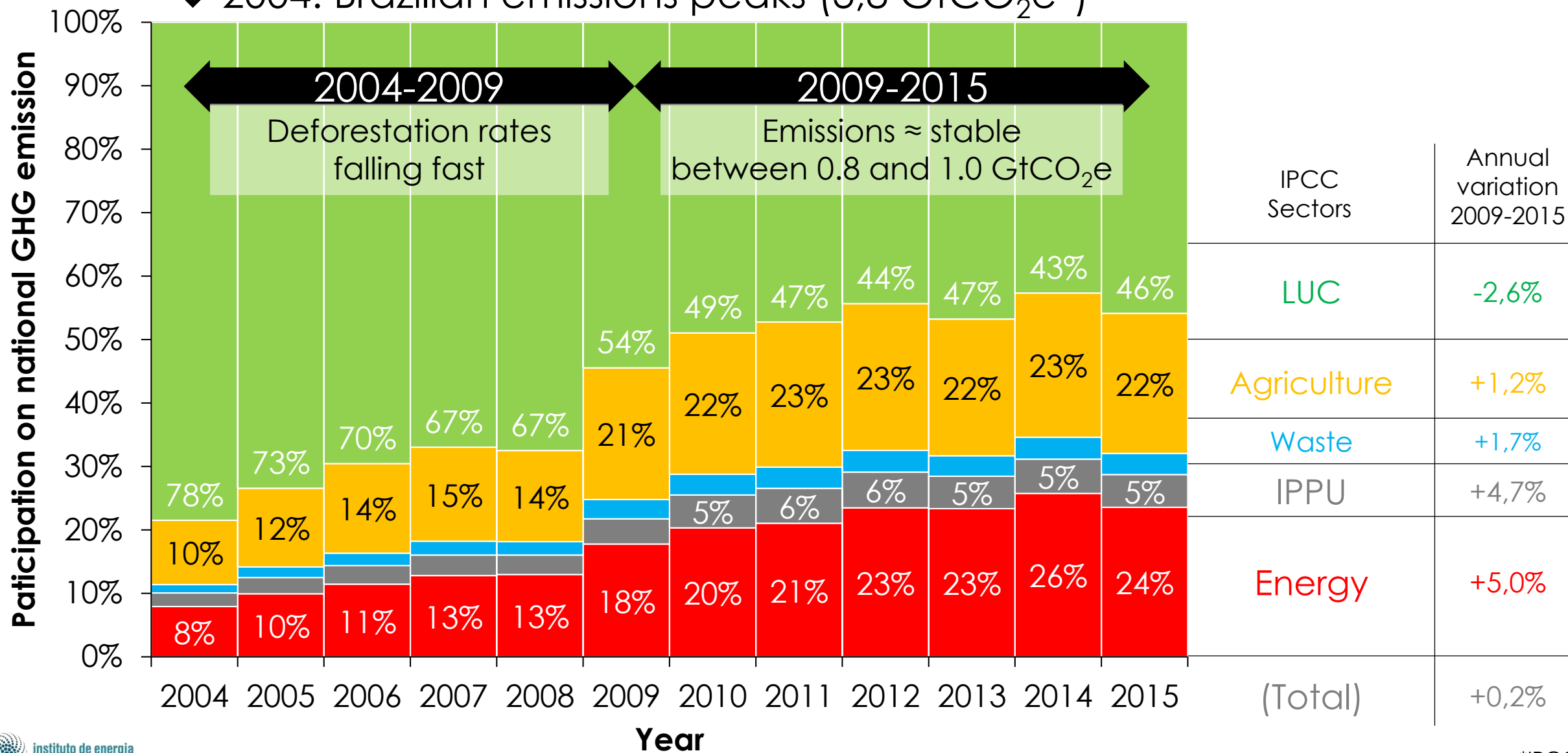


Waste

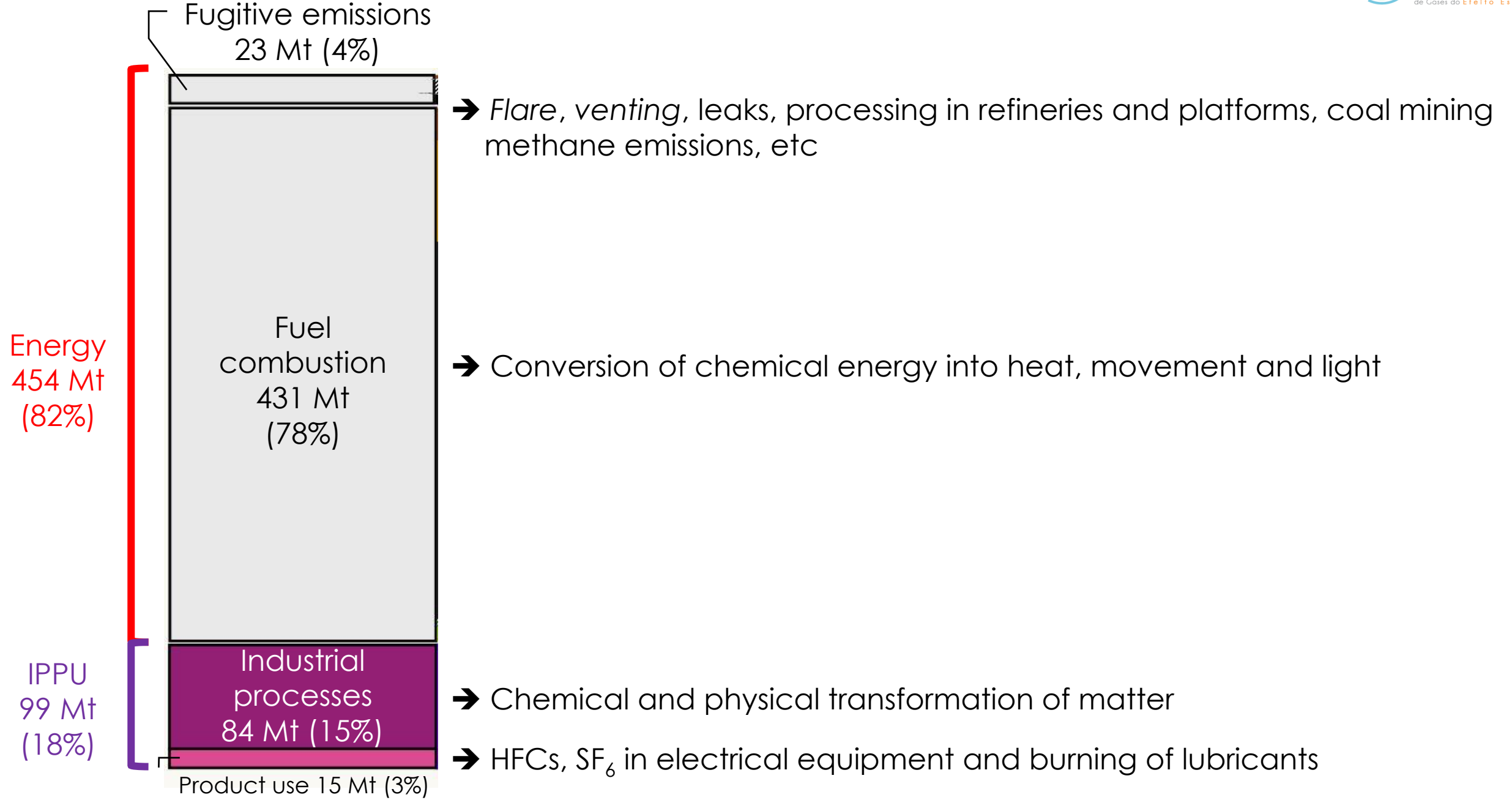


Profile of National GHG emissions by sector (IPCC)

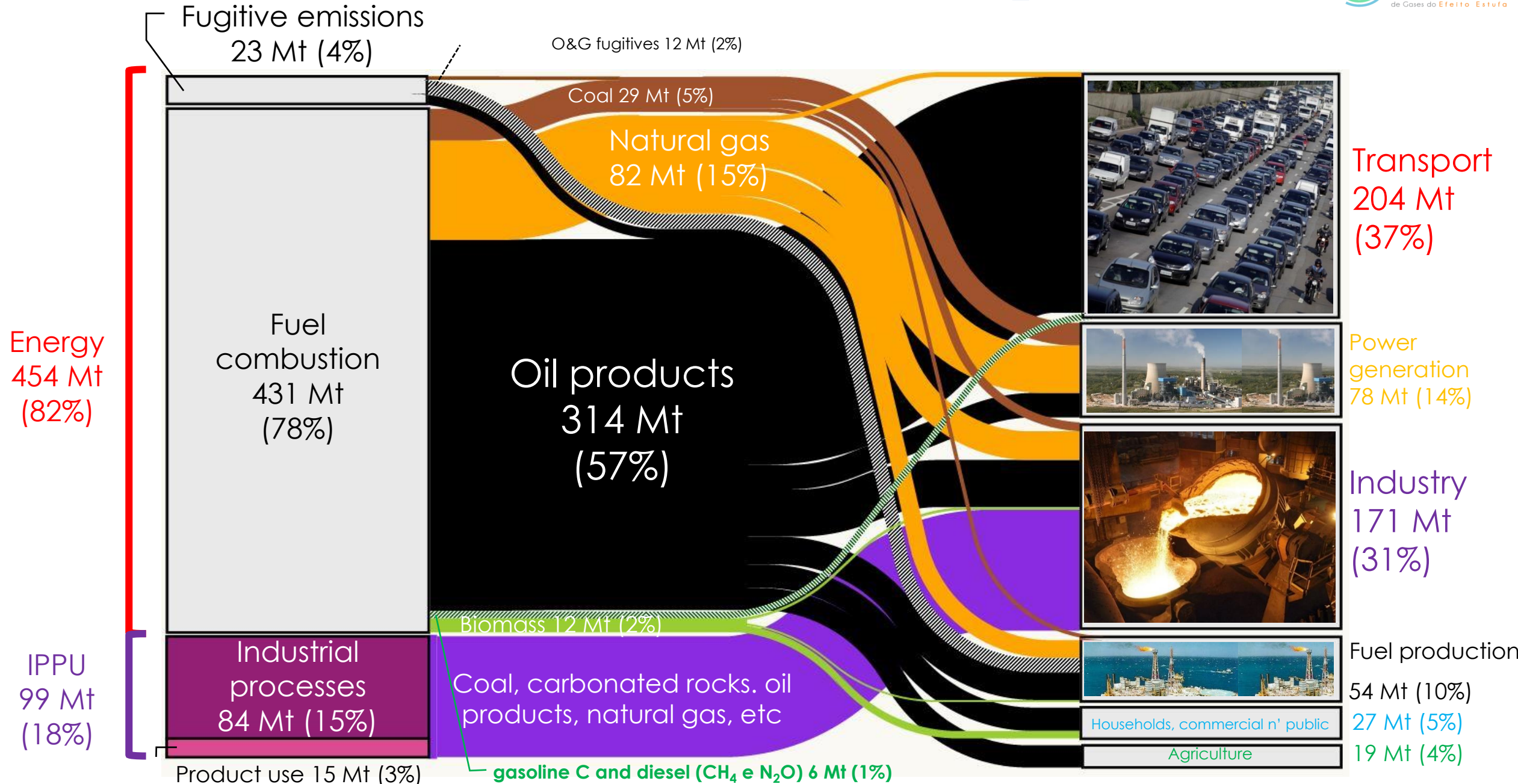
↓ 2004: Brazilian emissions peaks (3,8 GtCO₂e*)



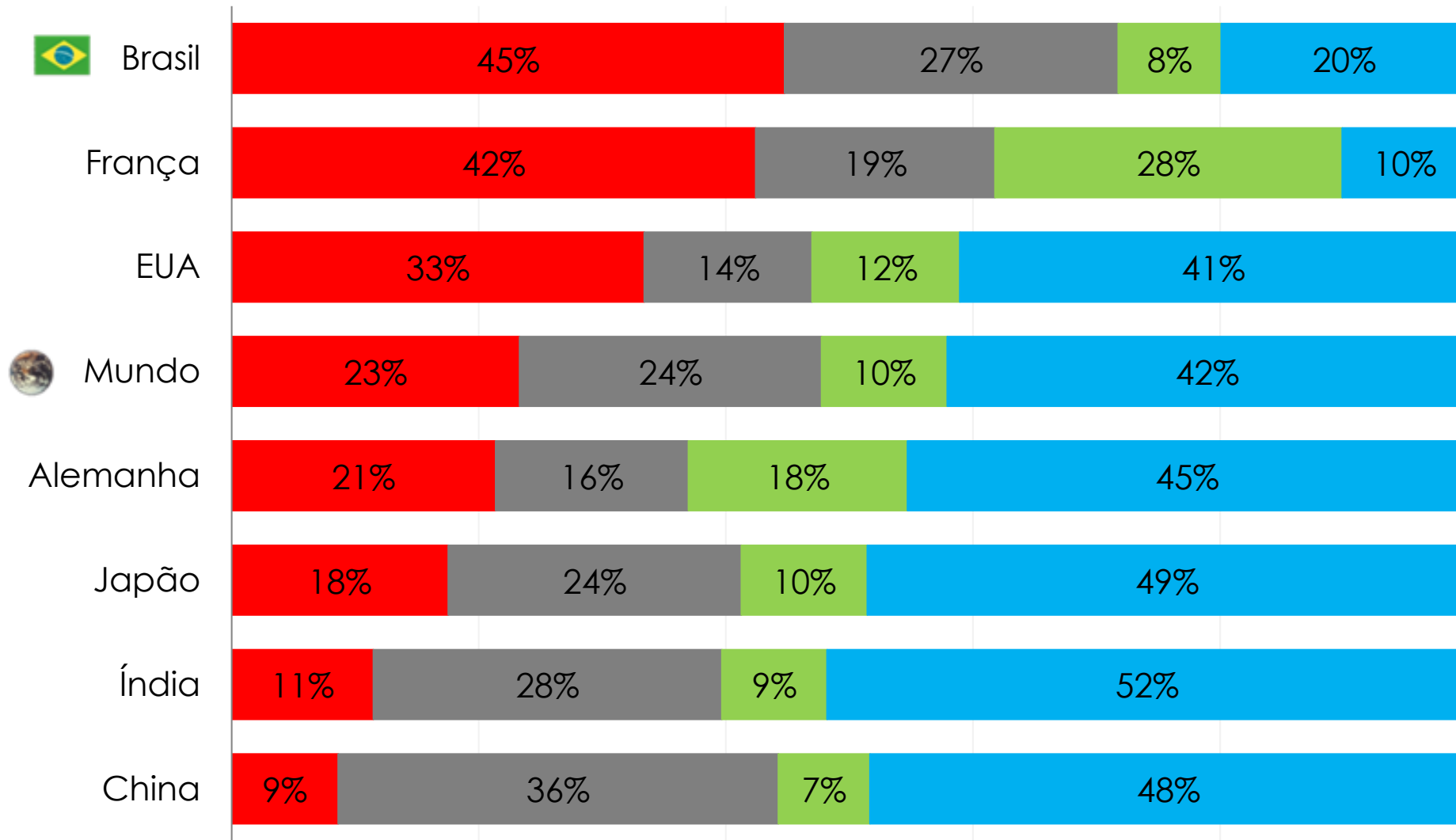
Energy and IPPU emissions in 2015 (MtCO₂e)



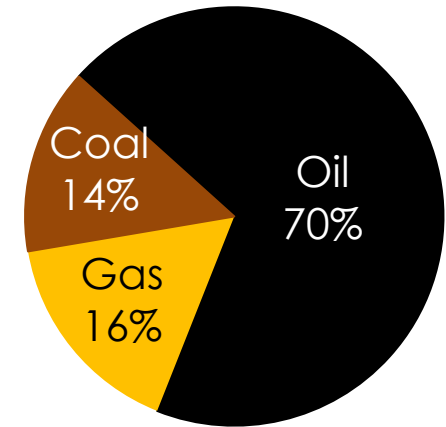
Energy and IPPU emissions in 2015 (MtCO₂e)



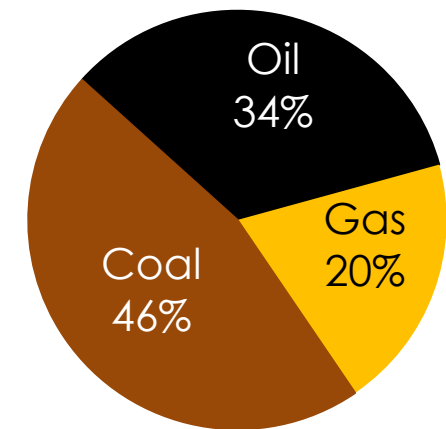
BR Energy emissions x World Energy emissions (2014)



Brazil

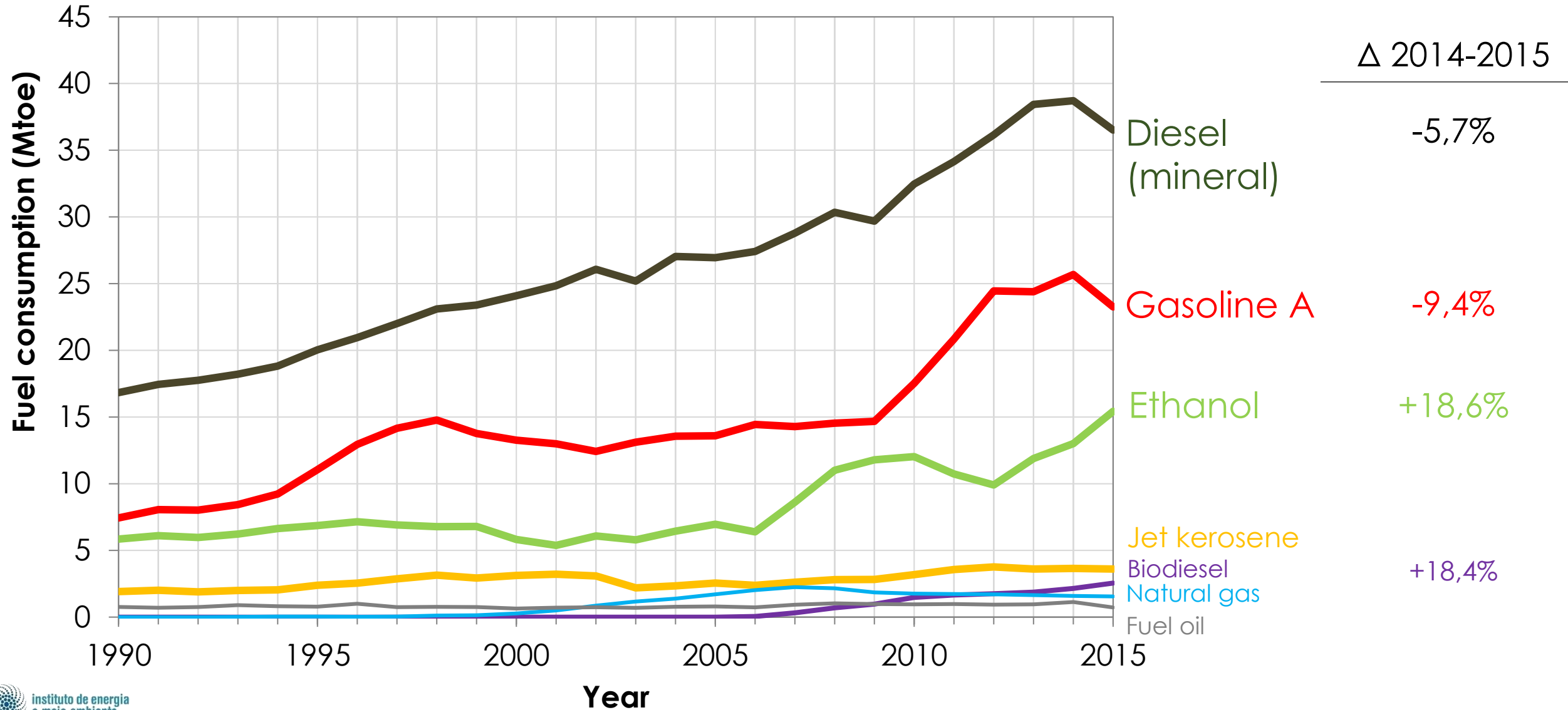


World

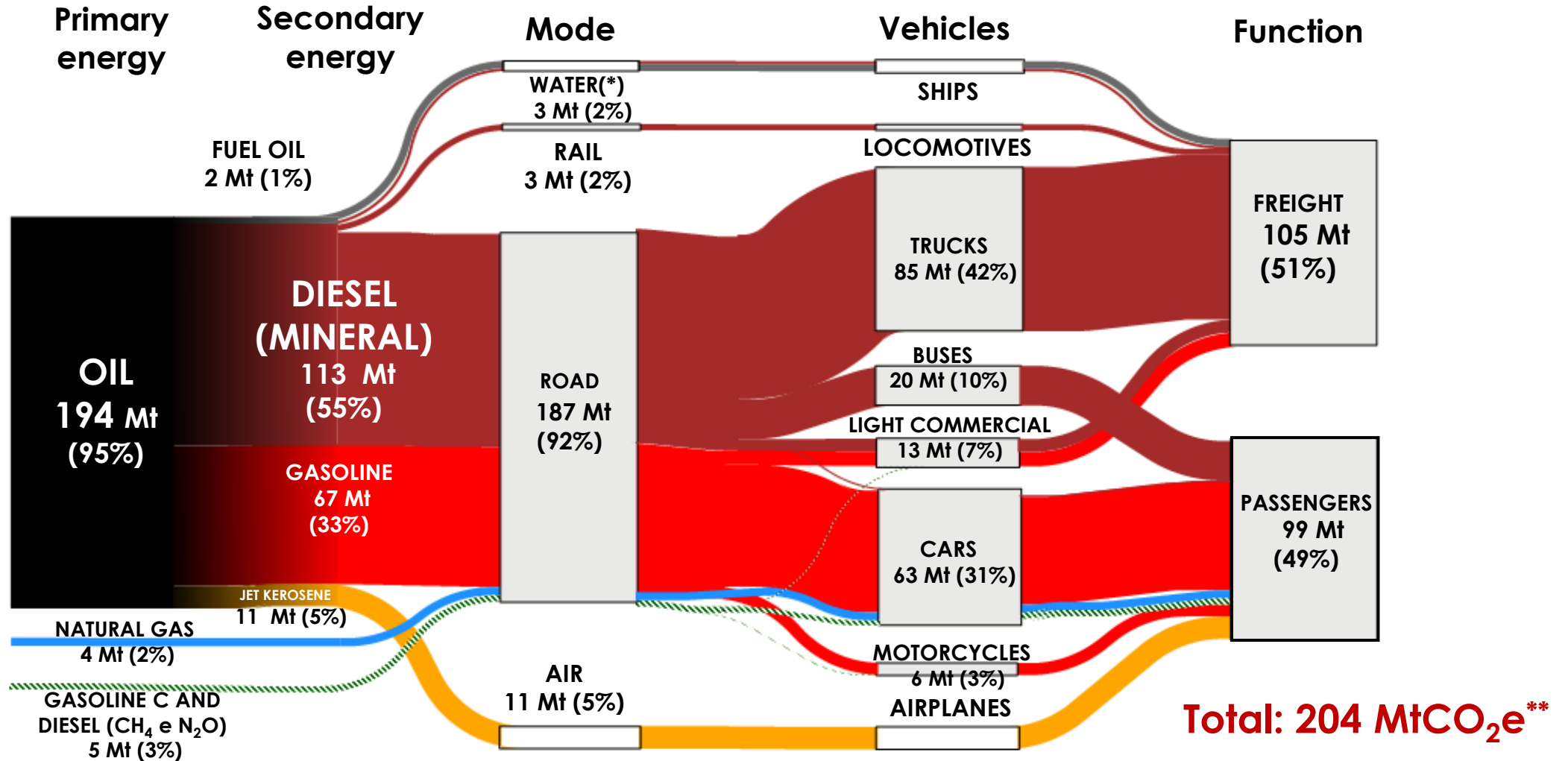


■ Transportes ■ Indústria ■ Outros Setores ■ Geração de Eletricidade e Calor

Fuel consumption in transportation



Brazilian Transport GHG emissions breakdown



Fonte de dados: Balanço Energético Nacional (MME) e Inventário Nacional de Emissões Atmosféricas por Veículos Automotores Rodoviários (MMA)

(*) Uma parcela do uso de combustíveis em embarcações decorre do transporte de passageiros. Devido a ausência de informações fundamentadas e a sua pouca importância no conjunto das emissões, optou-se por alocar as emissões deste modal no transporte de cargas

(**) Incluídas as emissões do consumo de álcool hidratado no transporte rodoviário que correspondem a 1 Mt e as emissões do consumo de gasolina de aviação no transporte aéreo que correspondem a 0,1 Mt.

Mode share in selected countries

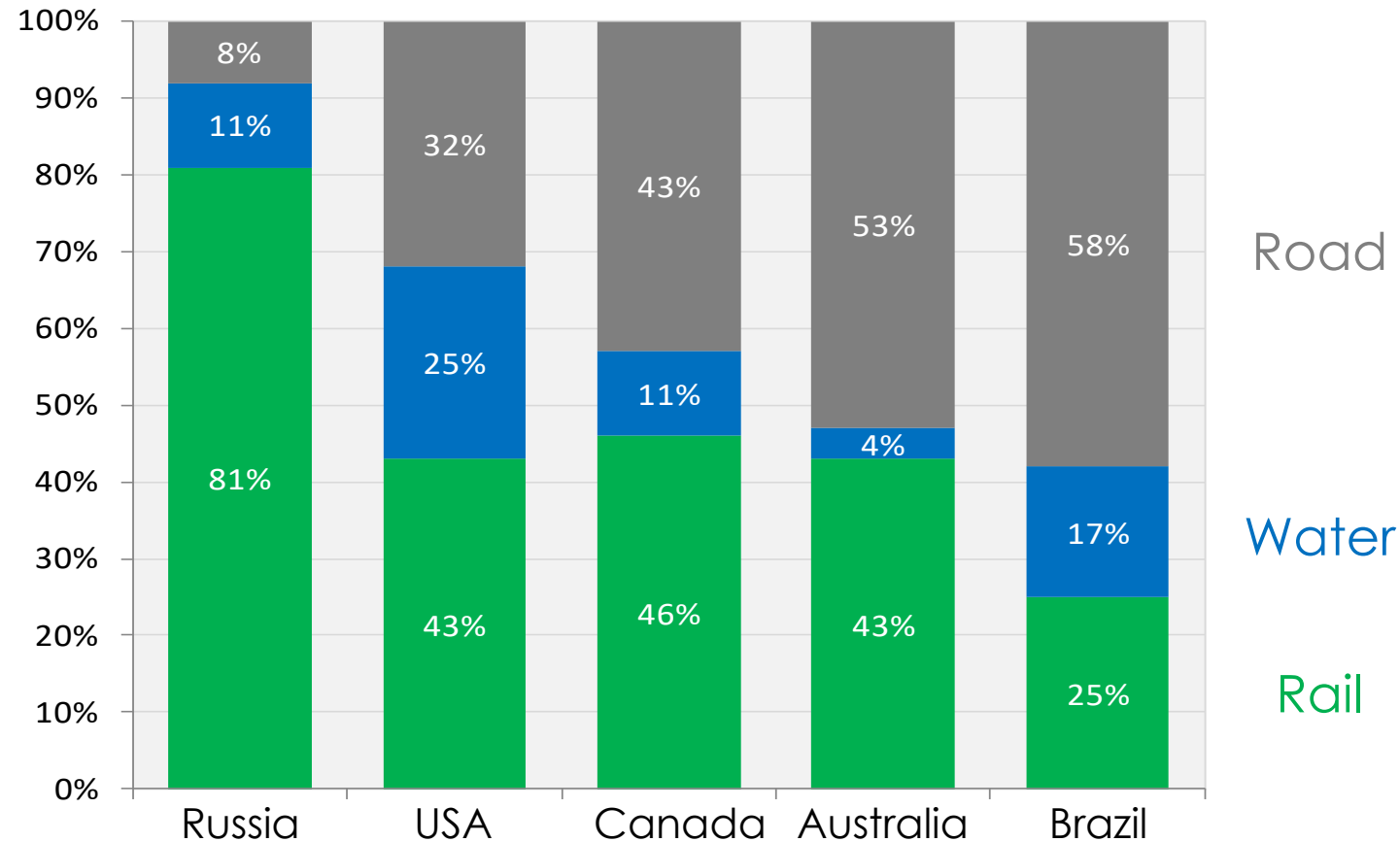


Chart data source: Ministério das Cidades and Ministério dos Transportes (2013)

**Key questions: How to reduce Brazil's dependancy on road diesel?
Can rail, and water transport be better explored?**

Modal share and freight type in Brazil

Total 2015: ~ 2.4 Gtku

**Road
(64,9%)**



**Rail
(15%)**



**Coastline shipping
(10,5%)**



Inland shipping (5,3%)



Pipelines (4,4%)



Sources of information: PNLI (EPL, 2016)

Transporte aéreo de cargas representa 0,03% (0,6 bilhões de tku) da movimentação.

Modal share and freight type in Brazil

Total 2015: ~ 2.4 Gtku

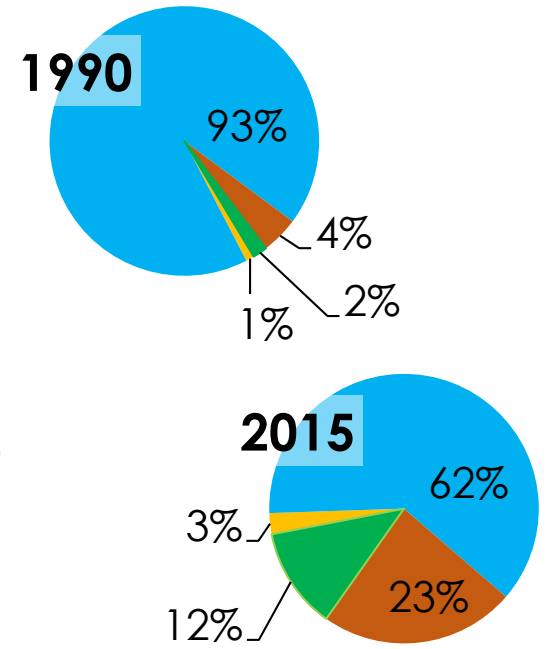
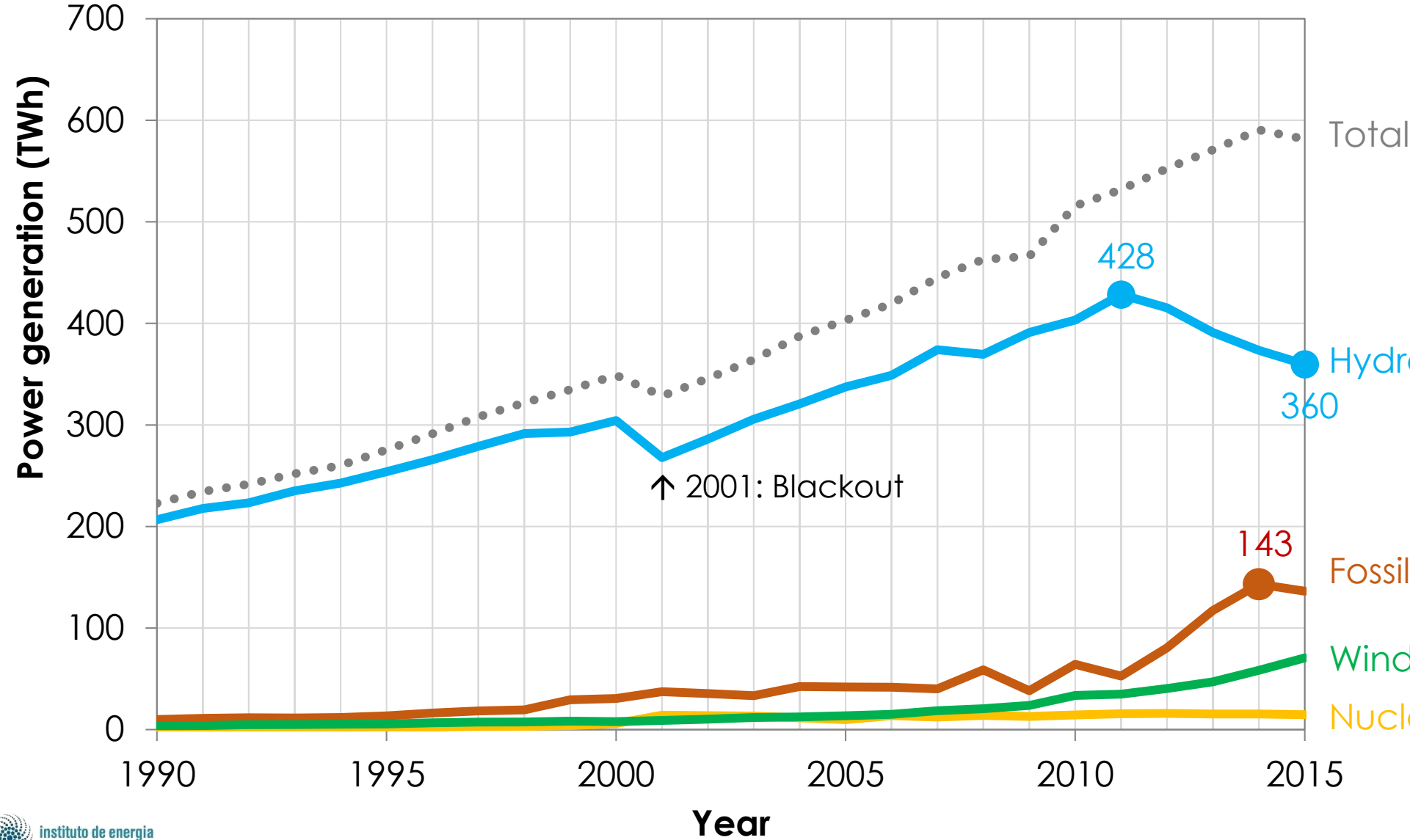


Sources of information: PNLI (EPL, 2016)

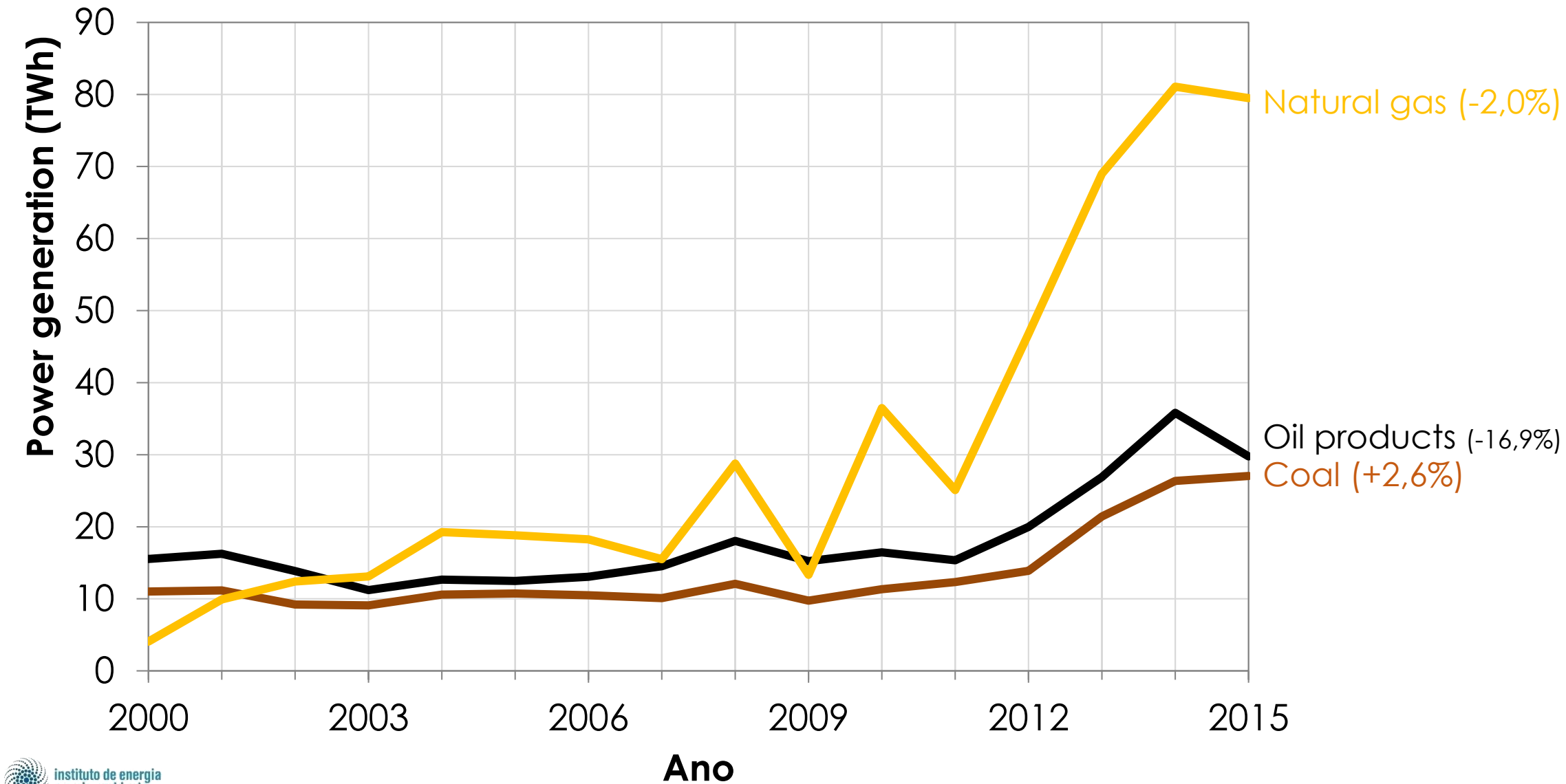
Transporte aéreo de cargas representa 0,03% (0,6 bilhões de tku) da movimentação.

Power supply by energy source

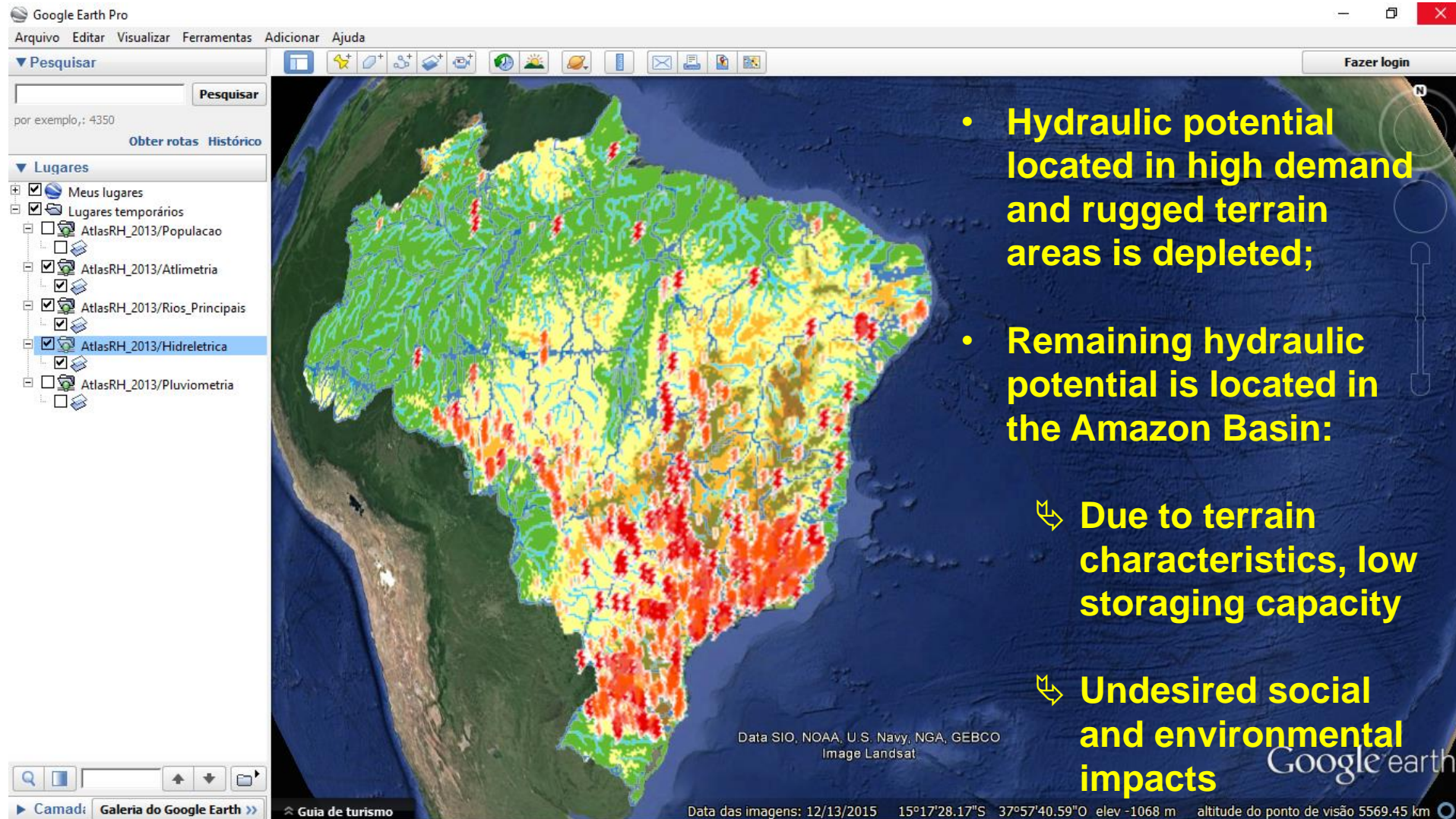
2011-2014 Unfavorable
 ←•••••→ meteorological conditions



Power generation from fossil fuels

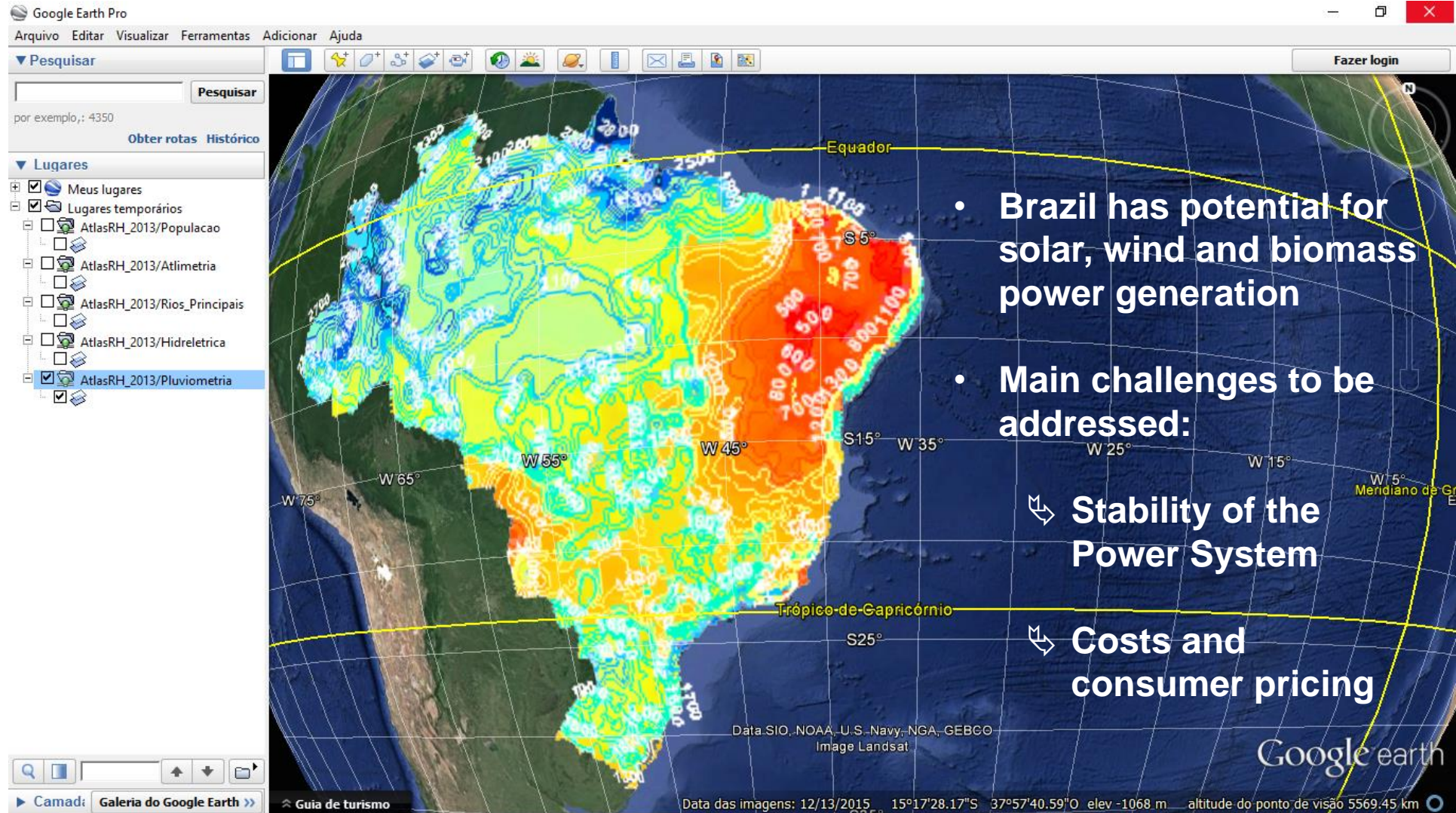


Challenges for power generation



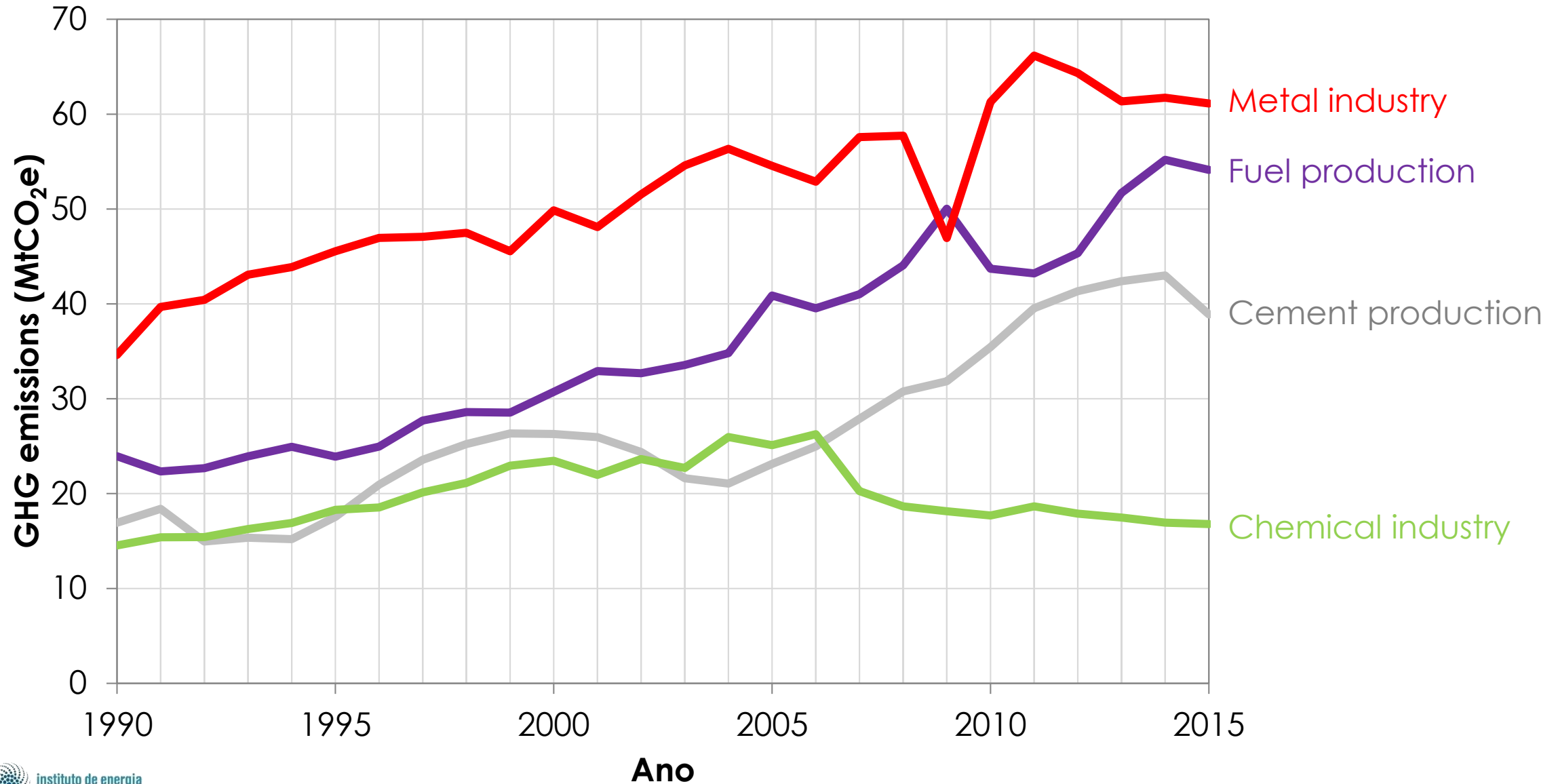
Map data source: Sistema Nacional de Informações sobre Recursos Hídricos

Challenges for power generation



Map data source: Sistema Nacional de Informações sobre Recursos Hídricos

Major emitting industrial activities



- Information and data disclosure
- Transparency of assumptions
- Ease of access for understanding information and methodology
- Opening to dialogue



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Thank you!

david@energiaeambiente.org.br