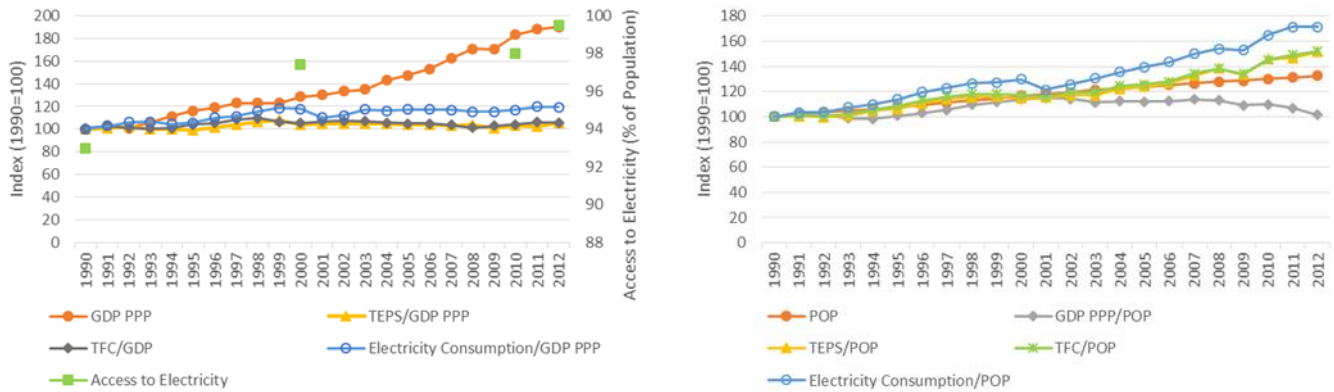
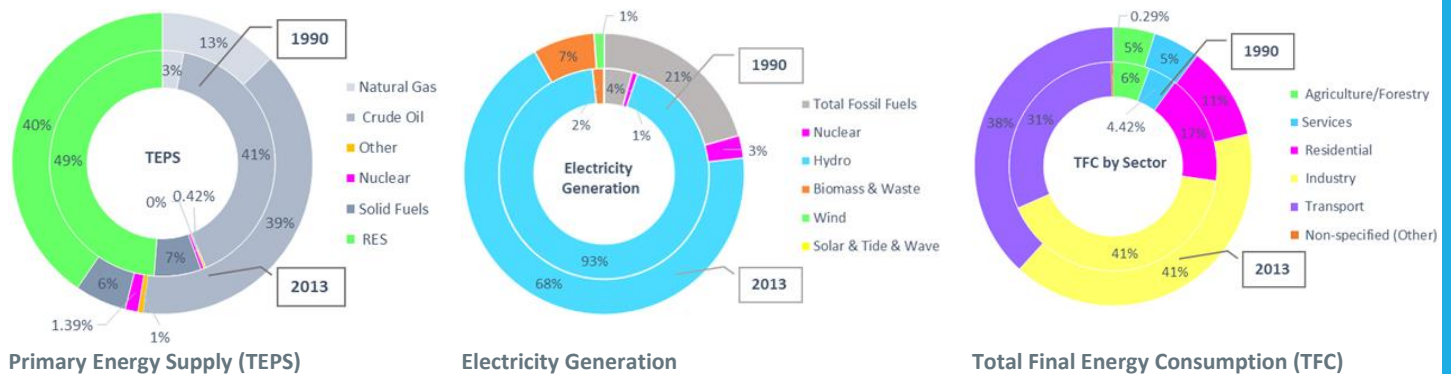


KEY METRICS: Economy Wide Indicators



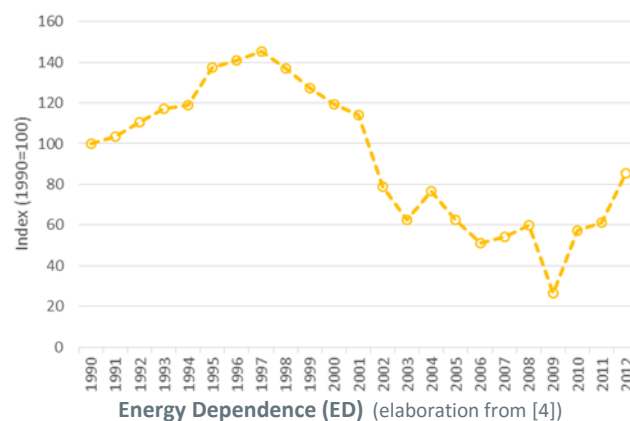
Main Energy and Emission Drivers (elaboration from [1]–[3])

KEY METRICS: Energy System Dynamics



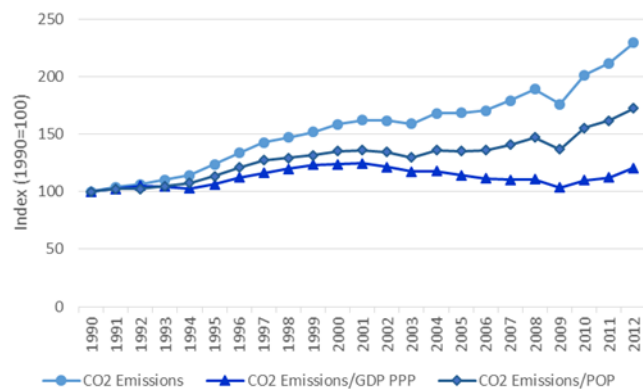
(elaboration from [2], [4])

KEY METRICS: Energy System Indicators

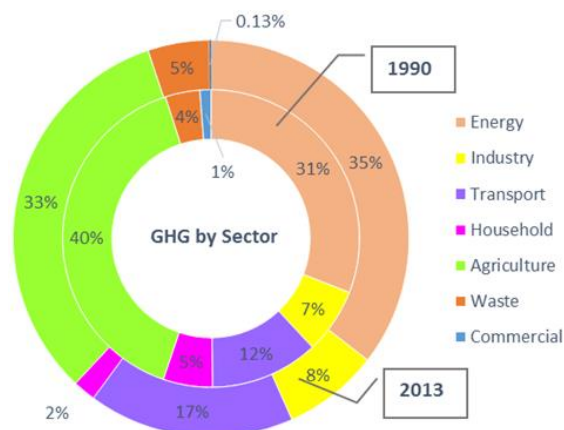


Energy Dependence (ED) (elaboration from [4])

KEY METRICS: Energy – Related Carbon Emissions



CO2 Emissions from Fossil Fuel Combustion Trends



Greenhouse Gas (GHG) Emissions (elaboration from [2], [4])

Energy and Climate Change Policy Scope

- Brazil presents one of the most renewable energy mixes in the world. “Over 41% of its supply coming from sources such as water resources, biomass and ethanol, in addition to wind and solar energy. Hydroelectric power plants are responsible for over 79% of the electricity generated” [5].
- Brazil established voluntary pledges for GHG emission reduction in 2020, between 36.1% and 38.9% of total emissions compared to business as usual (BAU), from 2005 level [5]. This target has been transposed for national legal framework by Law nº 12.187/09 (National Policy on Climate Change), which delineates main lines for climate change mitigation and adaptation. Emission targets have been determined for the following key sectors: Deforestation (24.7%); Agriculture and livestock sector (4.9% to 6.1%); Energy sector (6.1% to 7.7%); Steel sector (0.3% to 0.4%).
- Additionally in 2010, Brazil fixed a limiting target of 680 MtCO₂e by 2020, with the goal of keeping a high contribution of RES in the energy matrix, ensuring that carbon intensity of the economy does not surpass 2005 level, based on Brazilian inventory of Anthropogenic Emissions and removal of Greenhouse Effect Gases [6].
- In 2015, within COP-21 Paris Conference context, a new climate agreement with binding targets for post-2020 period has been reached, under shared responsibility premise, i.e. with the contribution from developed and emerging countries, though at different degrees [7].

- Brazil presented its intended Nationally Determined Contribution (INDC), which consisted of an absolute target to reduce GHG emissions, with LULUCF, by 37% below 2005 levels in 2025. In addition to, an indicative contribution to reduce GHG emissions by 43% below 2005 levels in 2030 [8], [9]. Amongst measures envisioned to accomplish these targets, Brazil intends to achieve 45% of renewables in the energy mix by 2030, through:
 - - “Increase the use of RES other than hydropower in the total energy mix to between 28% and 33% by 2030;
 - - Expand the use of non-fossil fuel energy sources domestically, increasing the share of renewables (other than hydropower) in the power supply to at least 23% by 2030, including by raising the share of wind, biomass and solar;
 - achieving 10% efficiency gains in the electricity sector by 2030” [8].
- Energy efficiency also plays a key role regarding accomplishment of international pledges. National Energy Efficiency Plan, establishes main lines regarding energy efficiency approach for several sectors, such as energy or industry. Amongst existing programs emphasis should be brought to the Brazilian Labelling Program (PBE), the Electricity Conservation National Program (PROCEL) and the Oil Derivatives and Natural Gas Conservation National Program (CONPET). It is expected that the implementation of this Plan will contribute to provide substantial energy (106 TWh) and emission (174 million tCO₂) savings in the coming decades [10], [11].

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