

V Simposio para el Desarrollo Sostenible



UNIVERSIDAD LATINA DE COSTA RICA
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Energy in Colombia

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Ajou University 2021-2022

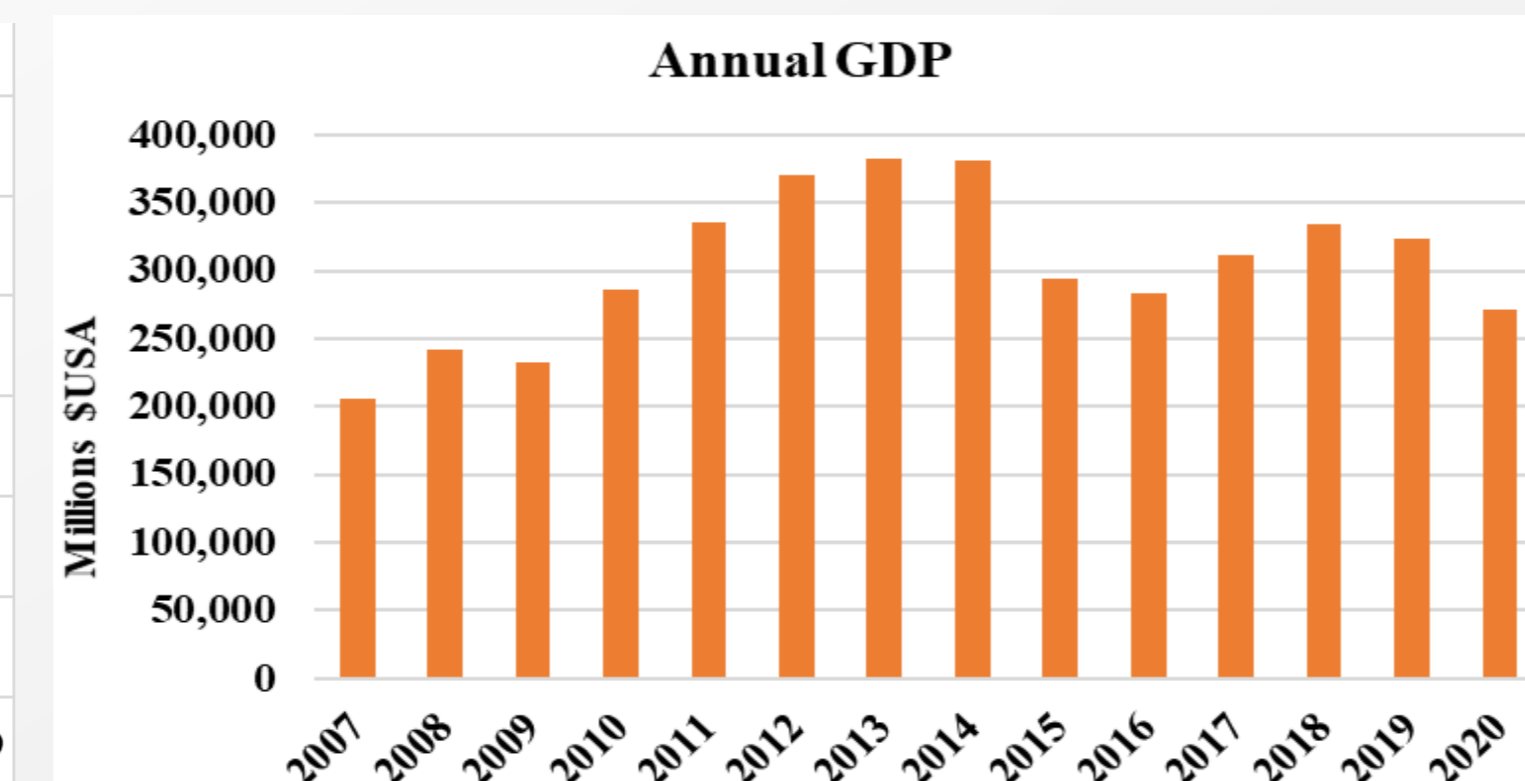
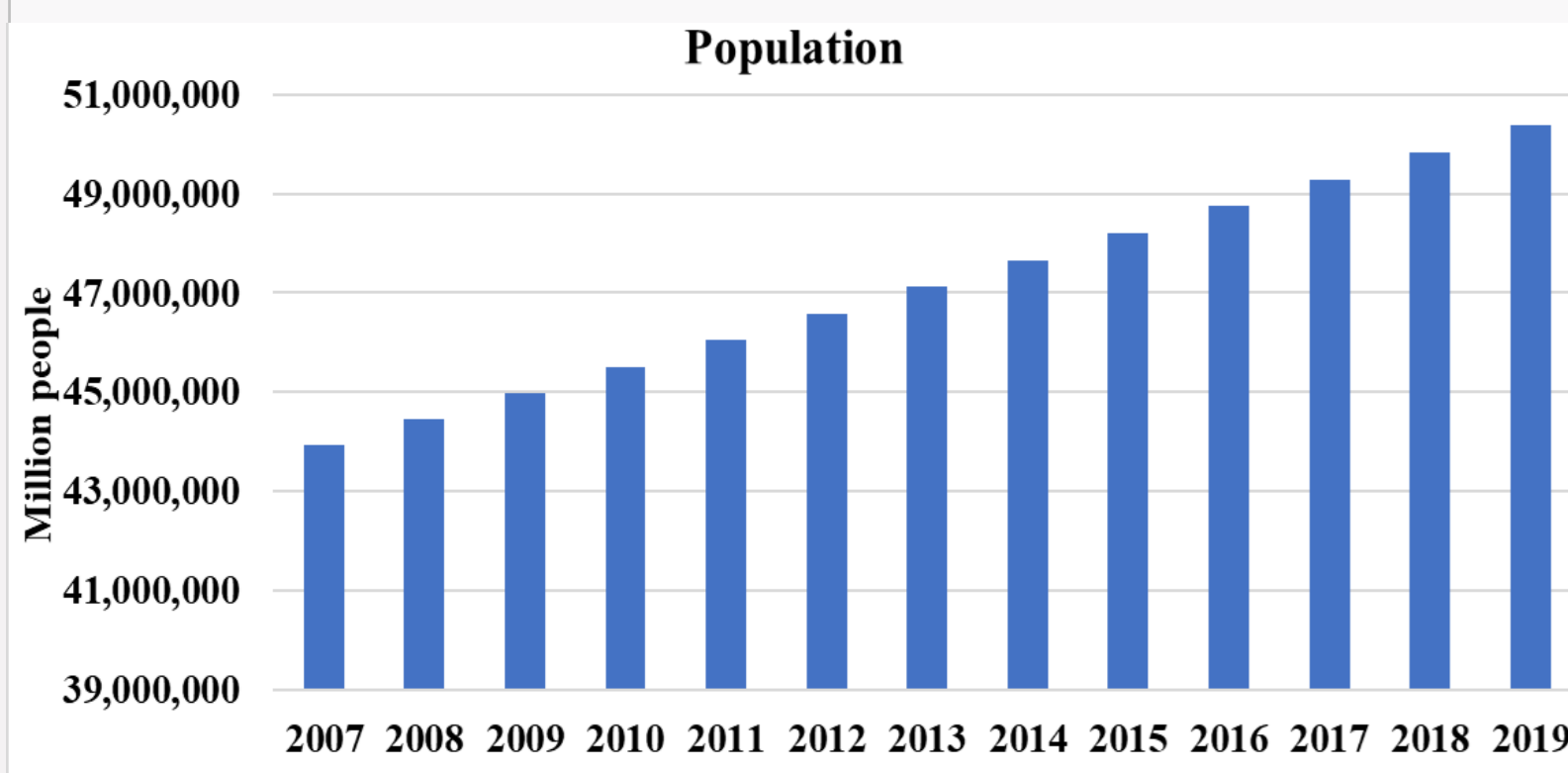
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About Colombia...

Area : 1,141,748 km²
Capital: Santa fe de Bogota
Population 2020
Total 50,372,424
Density 42.23 person/km²
Currency: Colombian peso
Language: Spanish.

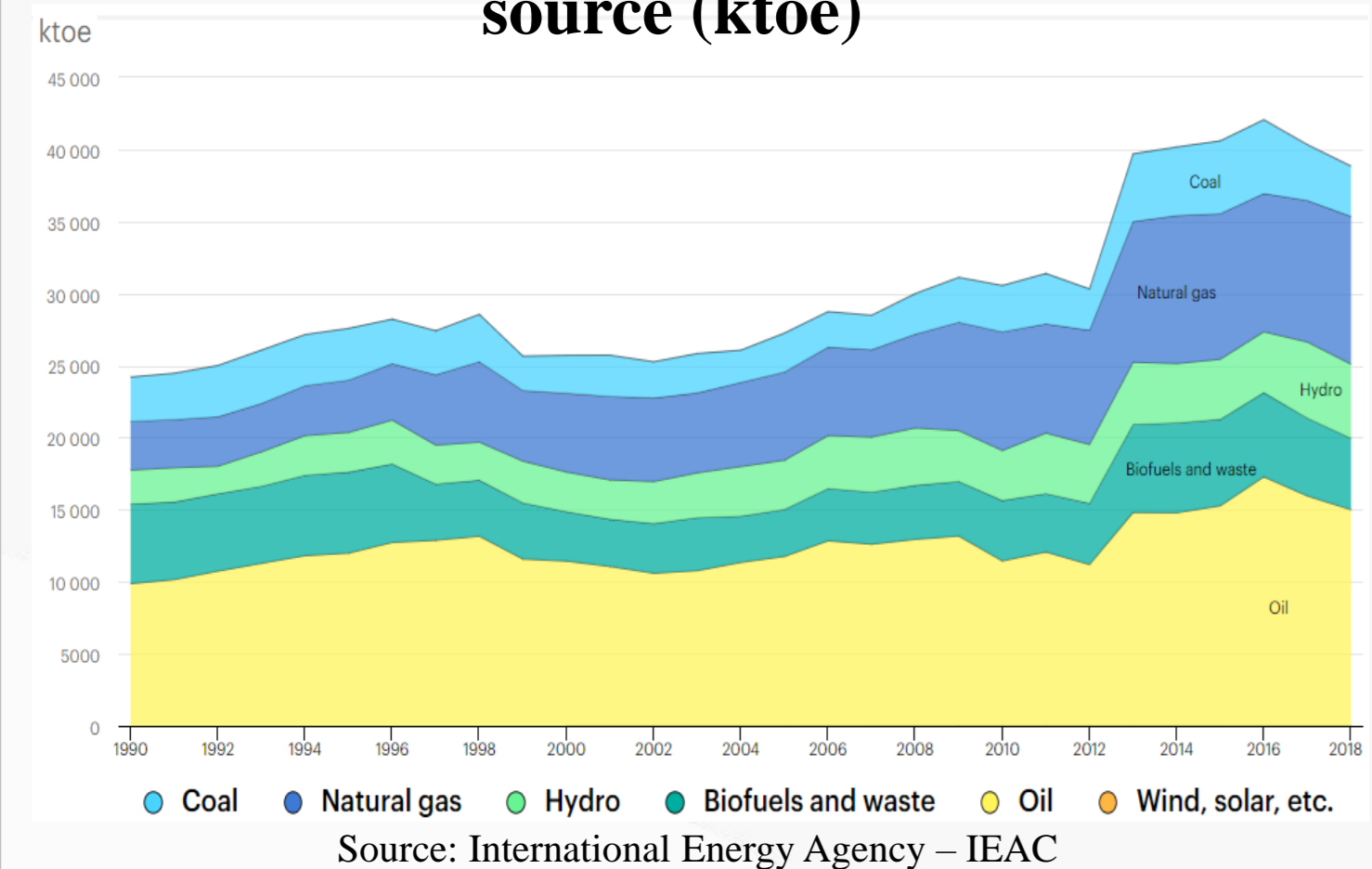


Map of Colombia. Source: Google maps

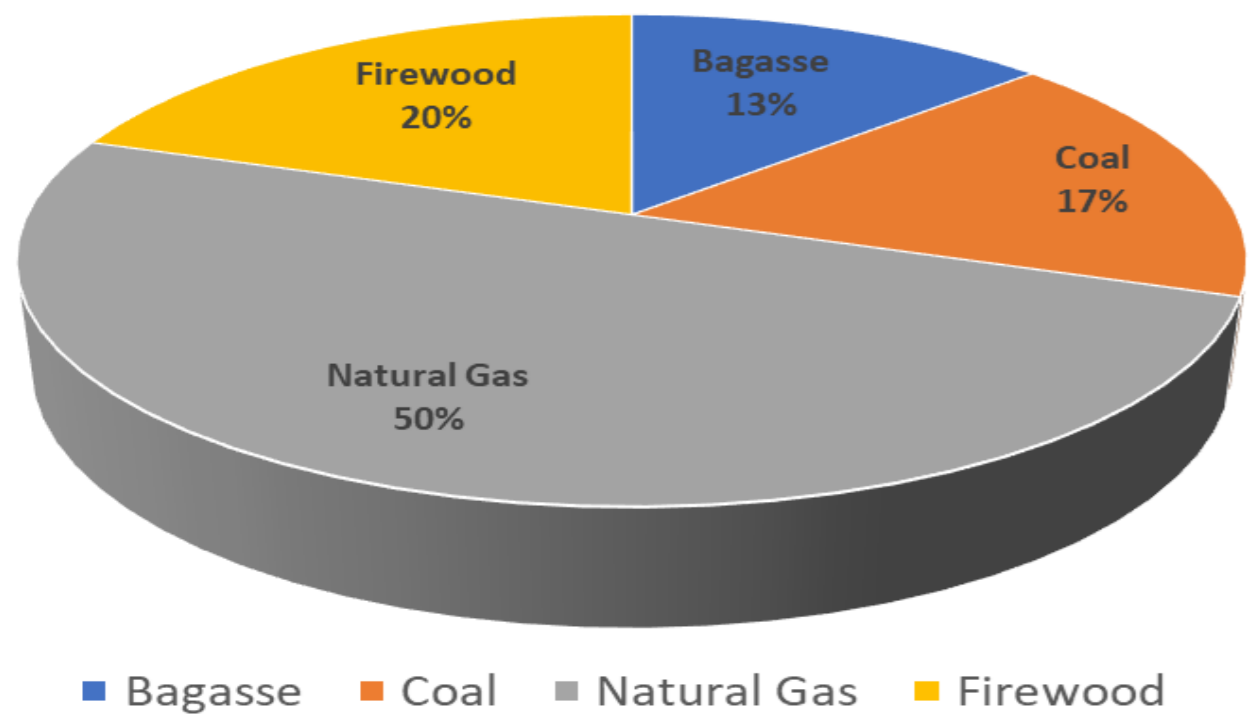


Primary sector supply and consumption

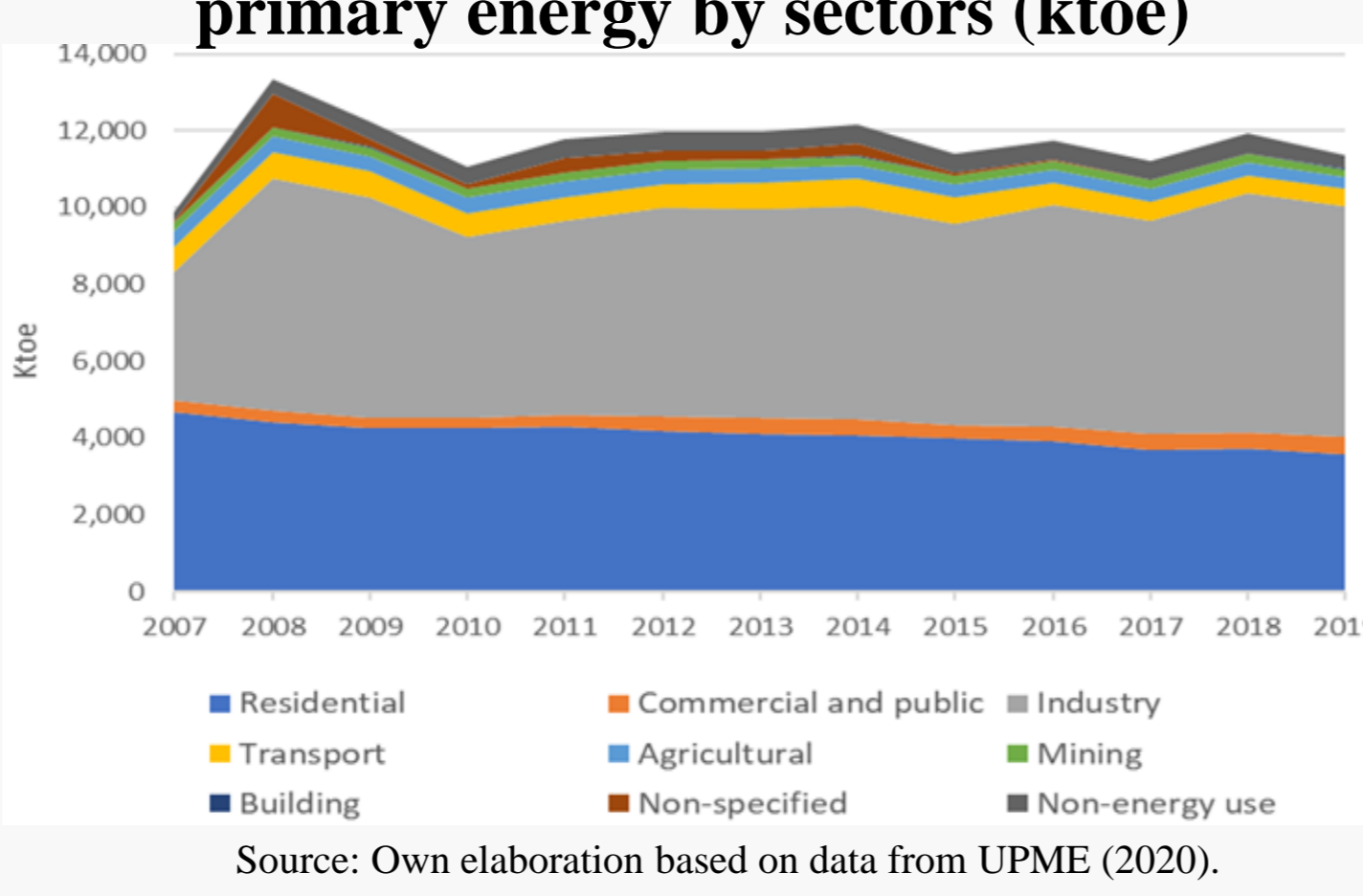
Historical total Primary Energy Supply by source (ktoe)



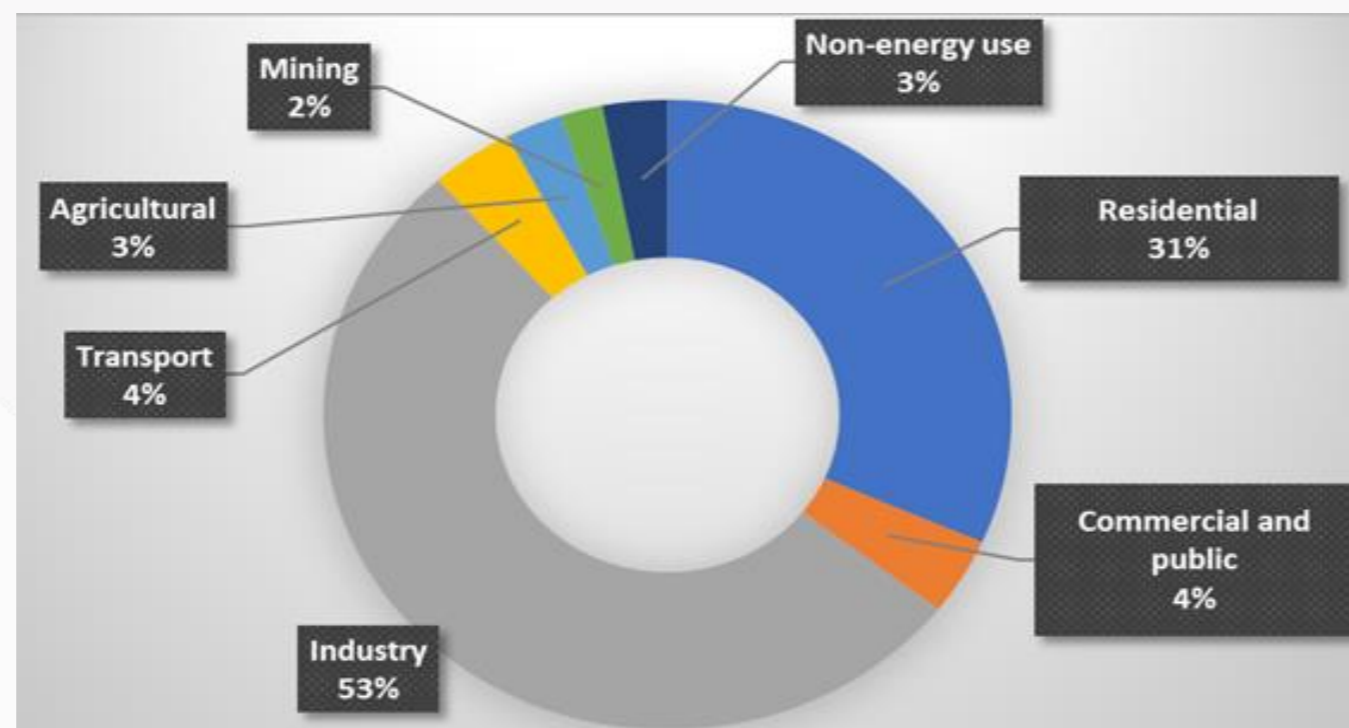
Share of the internal supply for final consumption of primary energy in 2019 (ktoe)



Historical evolution of final consumption of primary energy by sectors (ktoe)

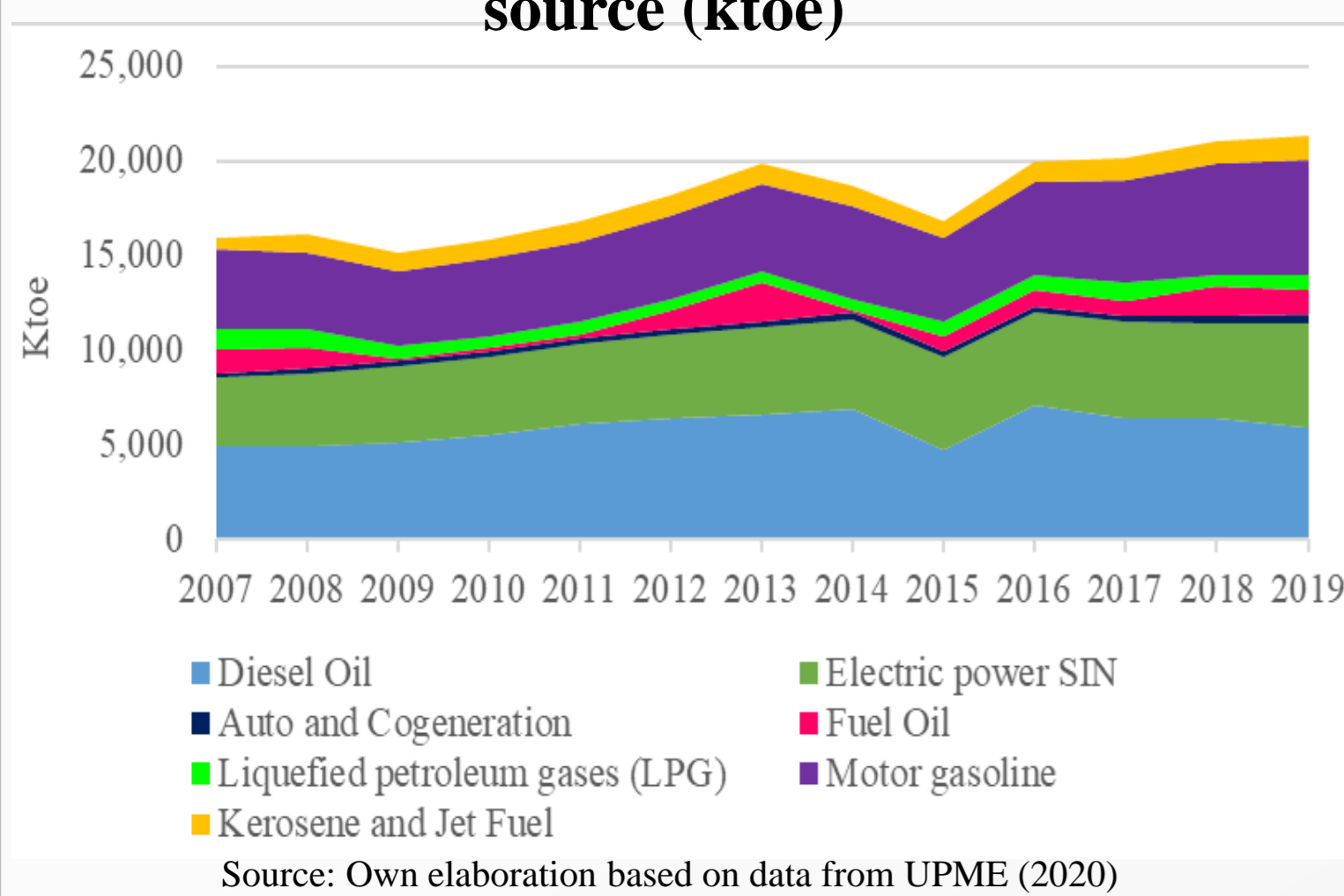


Share of final consumption of primary energy by sectors year 2019 (ktoe)

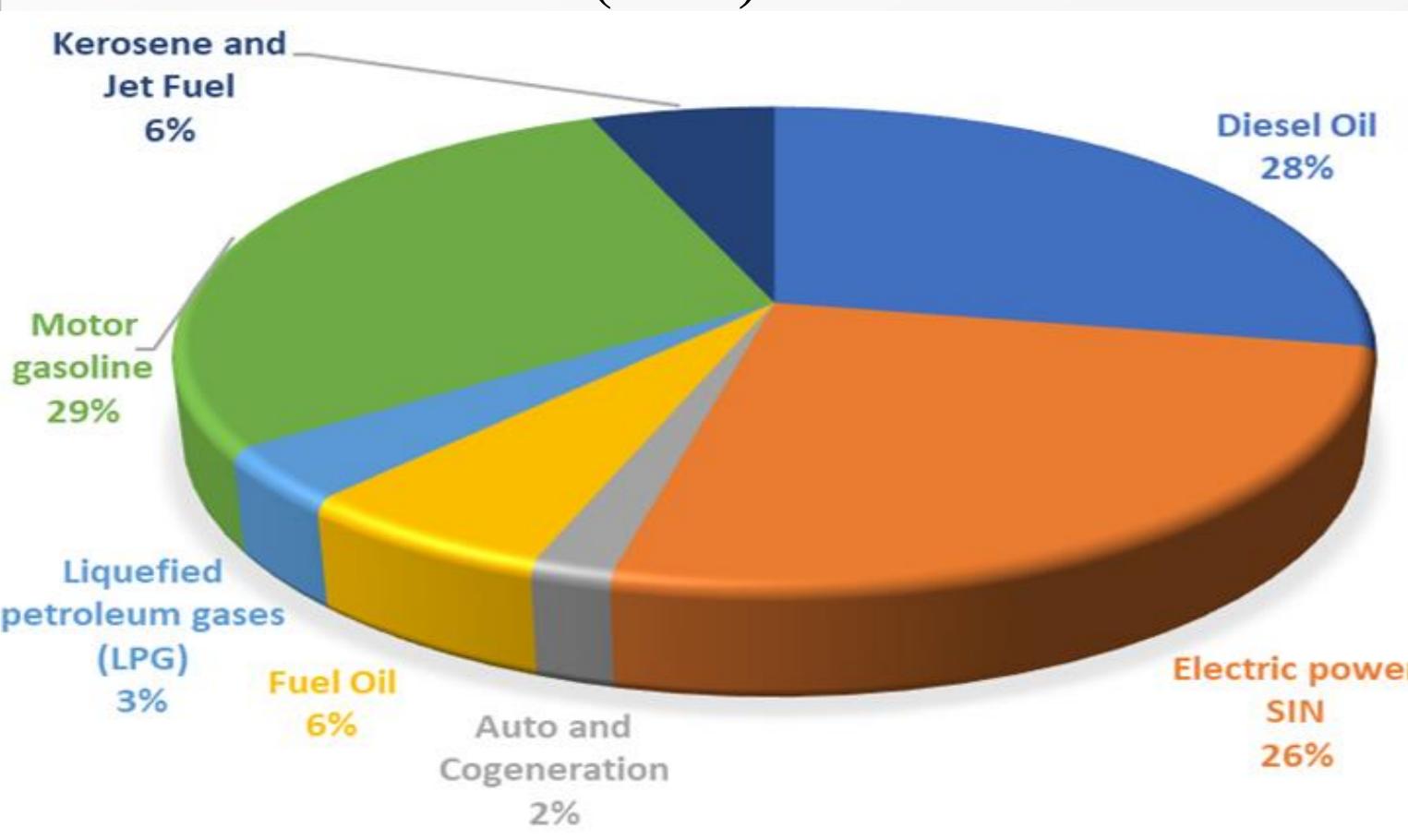


Secondary sector supply and consumption

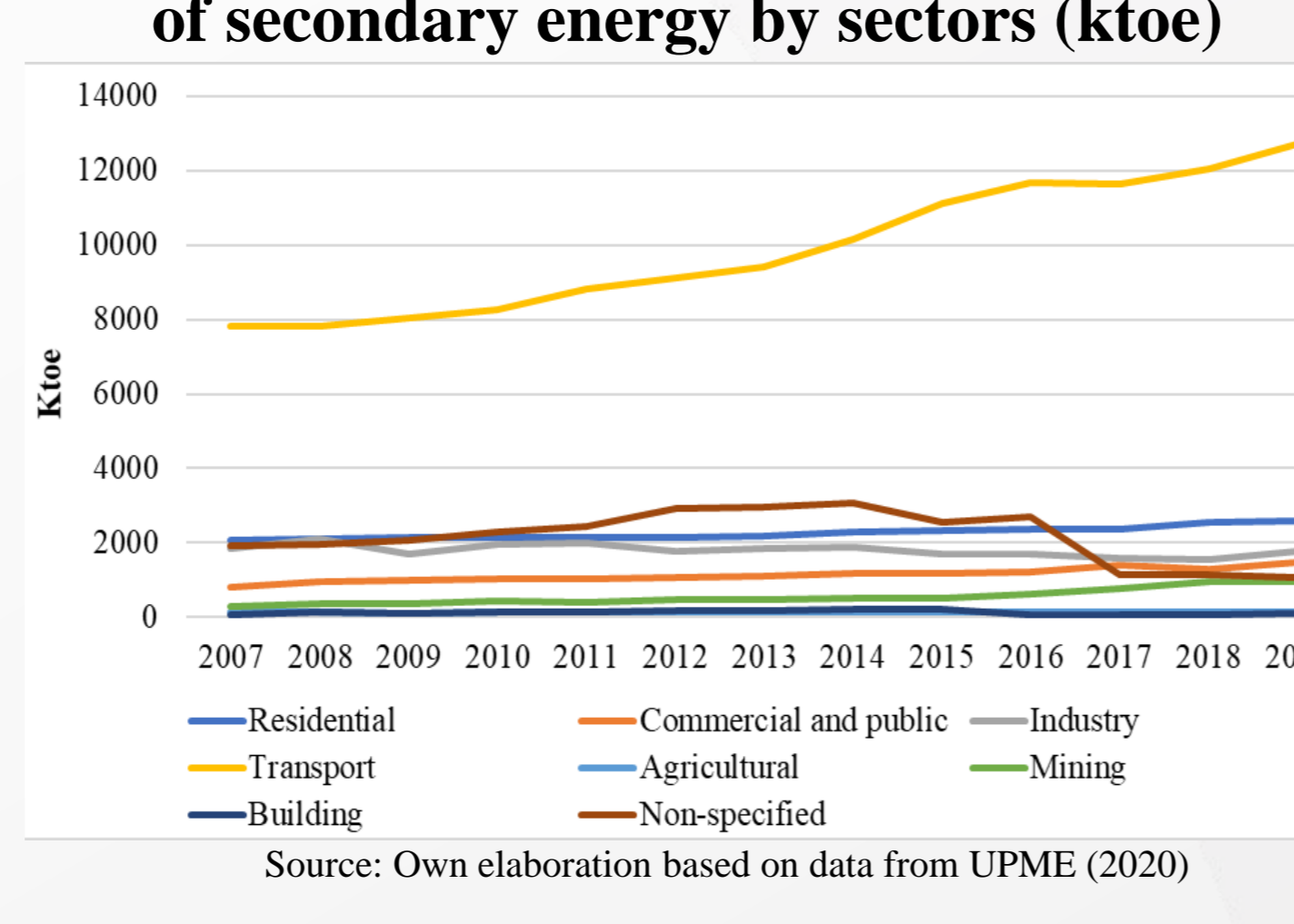
Historical total Secondary Energy Supply by source (ktoe)



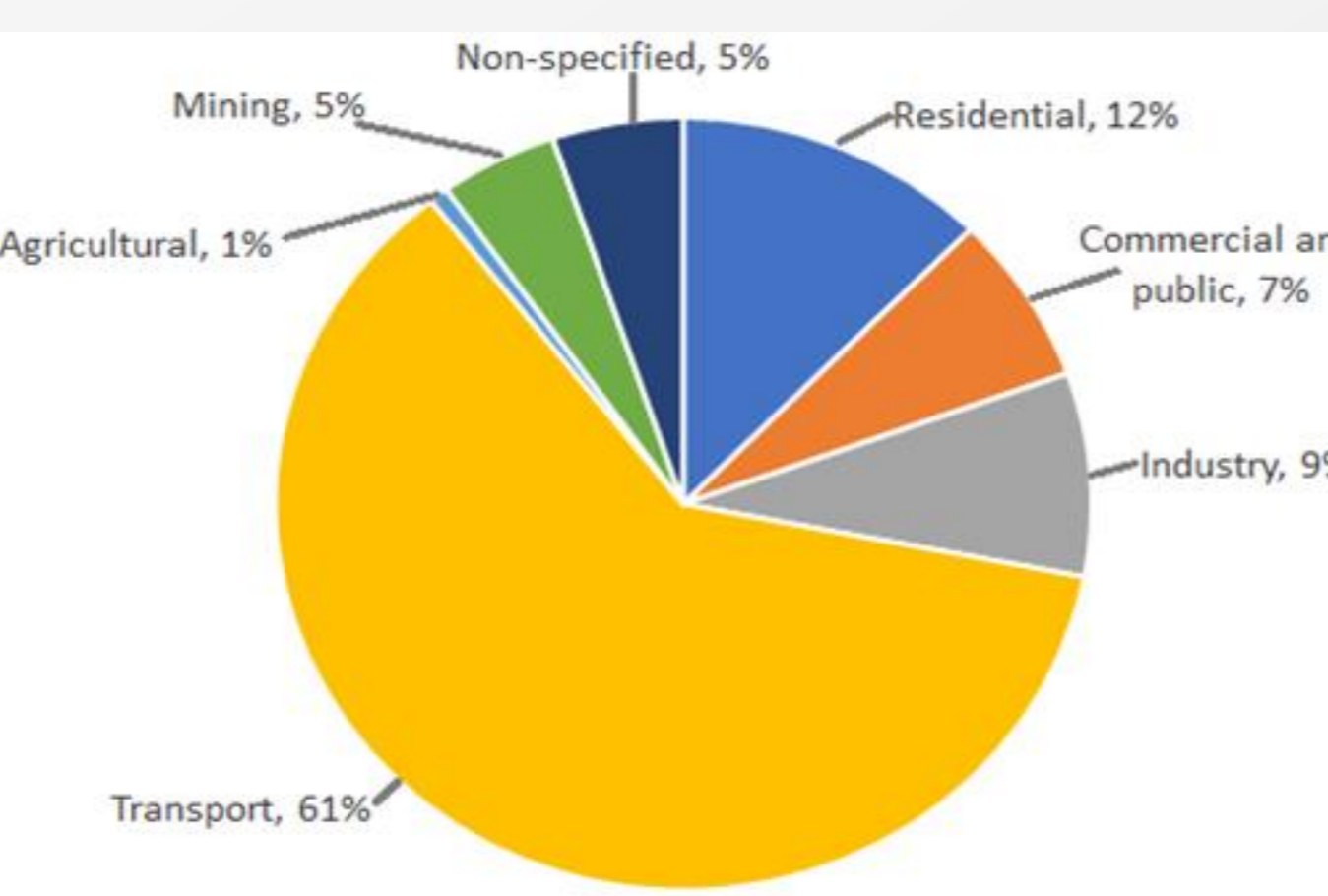
Share of the internal supply for final consumption of secondary energy in 2019 (ktoe)



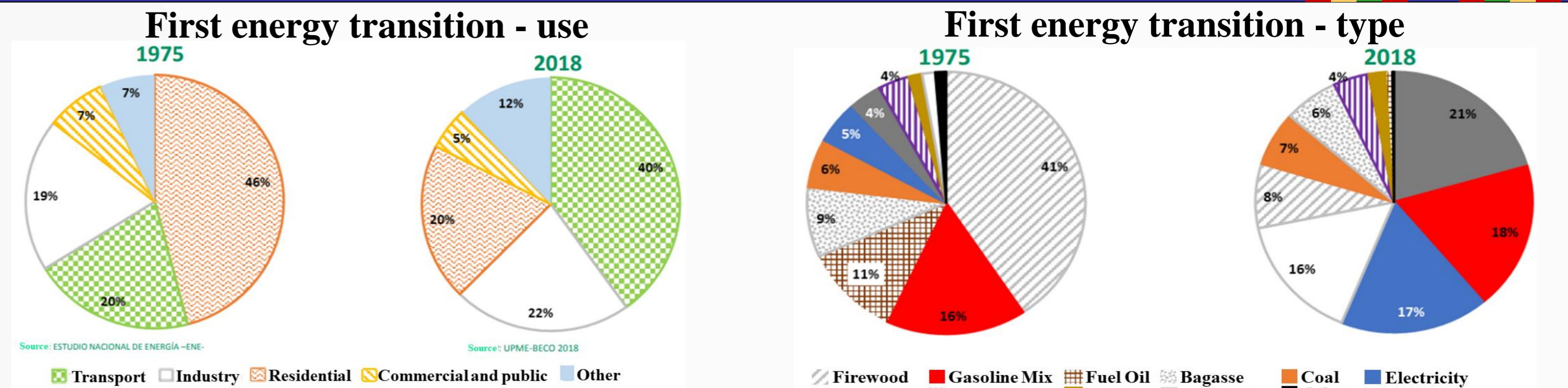
Historical evolution of final consumption of secondary energy by sectors (ktoe)



Share of final consumption of secondary energy by sectors year 2019 (ktoe)



Energy Transition



Renewable energy projects to be inaugurated in 2021



Geothermal projects:

- Las Maracas field in Casanare is the first geothermal power pilot in Colombia, and it was just inaugurated in March of 2021. It has an installed power generation capacity of 100 kW, capable of generating up to 72,000 kWh/ month, which will help reduce emissions from fossil fuel-sourced power generation by around 550 tons of CO₂ per year.
- Project proposed with Ecuador is still being developed to set up a 138 MW geothermal power plant at their border, Tuviño-Chiles-Cerro-Negro.

Biomass:

Potential of energy is approximately 16,260 MWh per year. Optimized design to use biomass for gas or electricity production on farms in rural areas of Colombia can provide a solution for the energy supply difficulties that small and medium-sized farm producers have.

Energy Policy

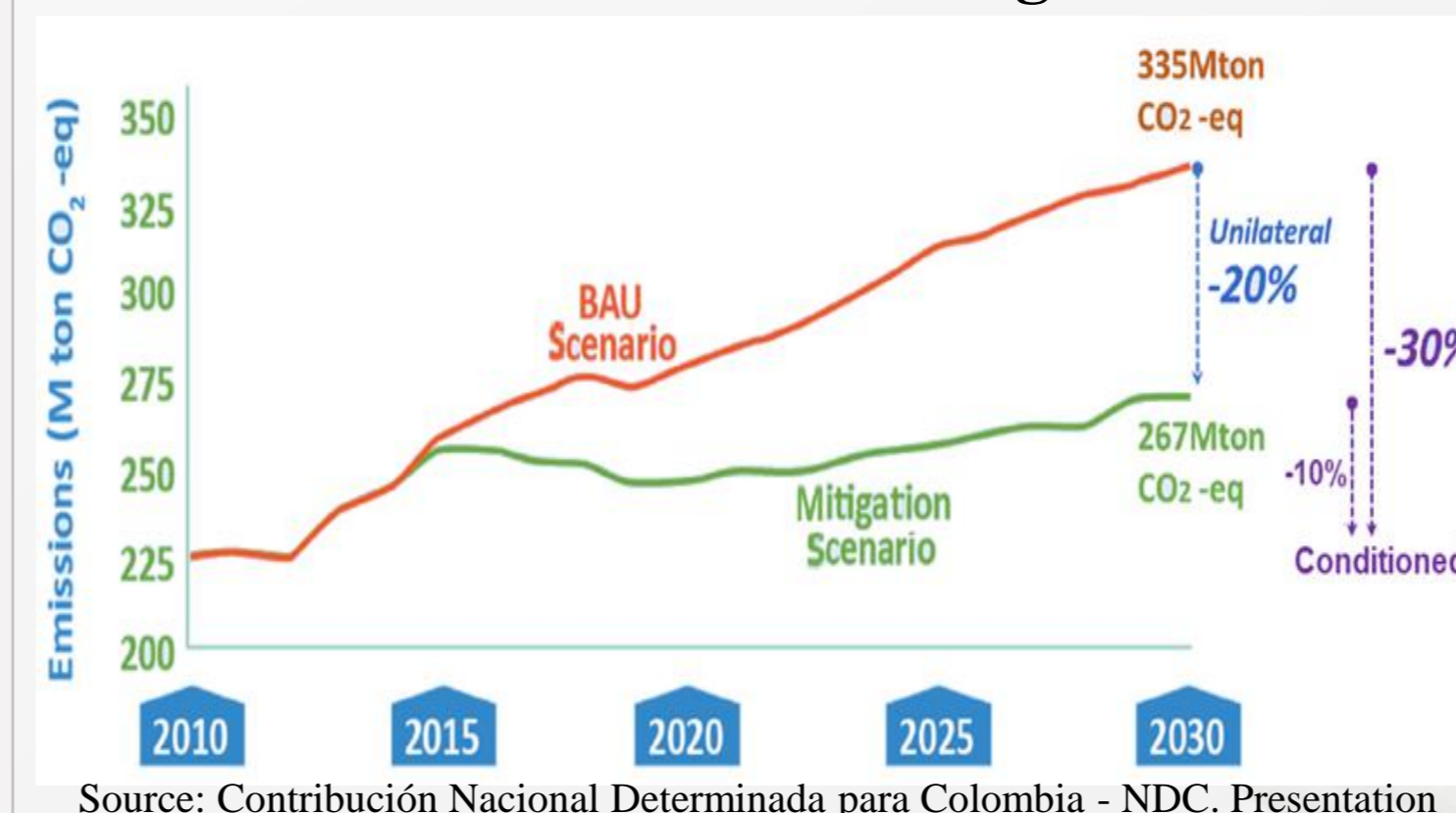
National Energy plan - Objectives for the energy sector to 2050

Main Objective	General guidelines for compliance
Reliable supply and diversification of the energy basket	<ul style="list-style-type: none"> Increase and diversify the supply of hydrocarbons Guarantee the supply of fuel gas and associated infrastructure Diversify the electricity generation basket Make small-scale local and distributed generation feasible Have an adequate transmission network infrastructure Diversify the fuel basket for the transportation sector Encourage the exploitation and use of biomass
Efficient energy demand	<ul style="list-style-type: none"> Efficient electricity rates and natural gas and fuel prices in general Promote energy efficiency throughout the demand chain Increase in energy coverage
Schemes that promote the universalization and affordability of the electric power service	<ul style="list-style-type: none"> Sustainable rural energization plans Normality and quality of electric power and fuel gas service Subsidy policy
Stimulate investments in international interconnections and infrastructure for the commercialization of strategic resources	<ul style="list-style-type: none"> Encourage investment in international electrical interconnections Promote the internationalization of natural gas Identify alliances for the development of logistics and intermodal infrastructure and ports
Maintain income and enable productive transformation and value generation	<ul style="list-style-type: none"> Maintain income and contribute royalties for national and regional development Advance macroeconomic adjustments and productive transformation Promote the generation of clusters around the energy industry and obtain the "shared value"
Link information for decision making and have knowledge, innovation and human capital for the development of the sector	<ul style="list-style-type: none"> Information: a new way to approach your management Knowledge and innovation Human capital for energy development
Consolidate the institutional framework and advance in greater efficiency of the state and regulation	<ul style="list-style-type: none"> Institutional reform Regulation Incorporate environmental and social considerations in sectoral plans and projects and integration of energy requirements in land use plans Building projects efficiently and effectively

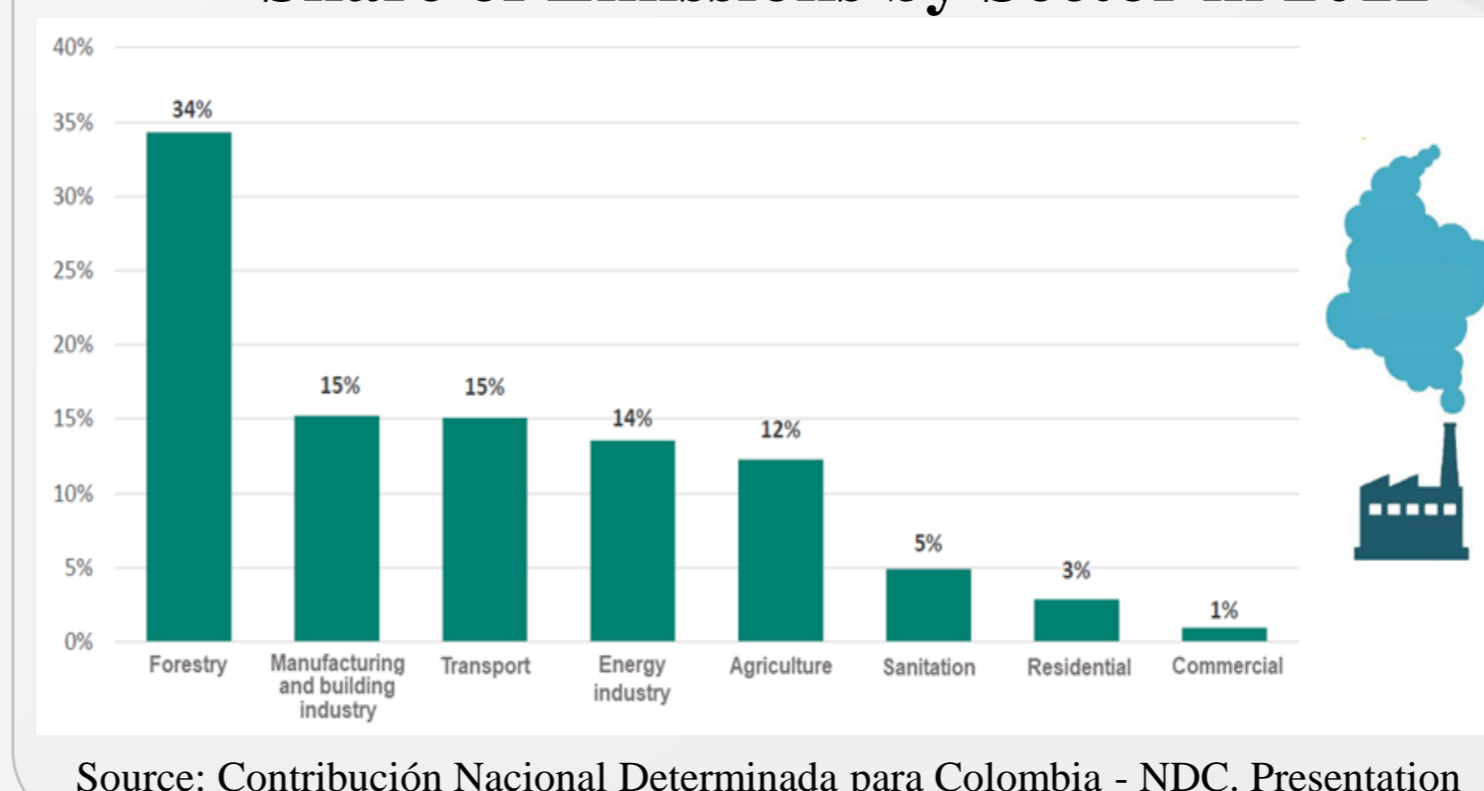
Source: Own elaboration based on data from UPME (2015, pp – 84 – 160)

Colombia NDC and Business opportunities

Colombia's current mitigation NDC

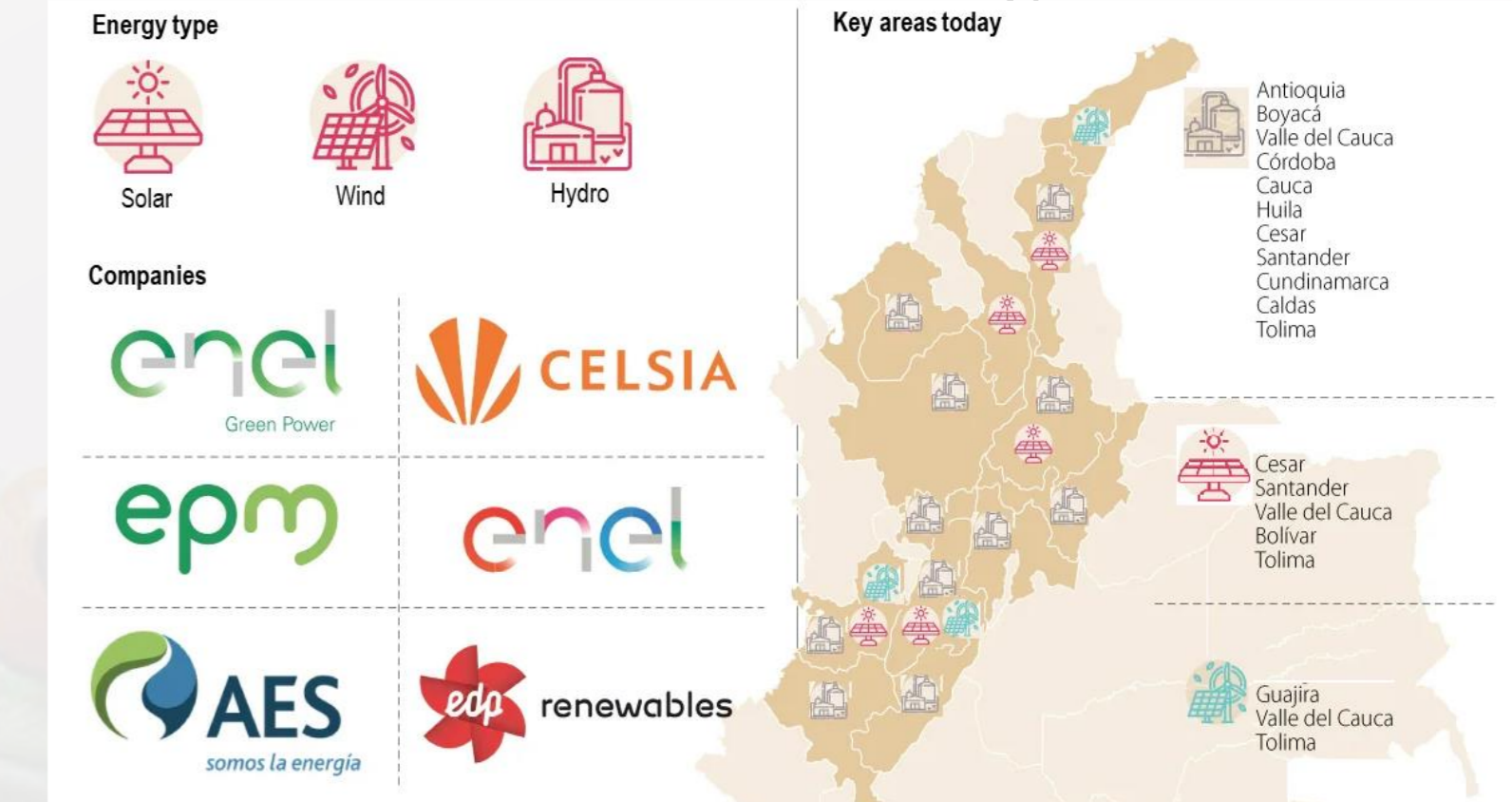


Share of Emissions by Sector in 2012



Source: Contribución Nacional Determinada para Colombia - NDC. Presentation

Investment in non-conventional and Renewable Energies



Electric power generation with non-conventional and renewable sources have focused mainly on solar, wind, **small hydroelectric, biomass (biodigesters)**, geothermal and tidal alternatives.

REFI-TERMO ENERGIA S.A.S
Slovak Technology for worn tires
E-DINA
Supply of renewable, accesible and sustainable energy based on new technologies

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