

Universidade de São Paulo

Escola Superior de Agricultura "Luiz de Queiroz"

Departamento de Engenharia de Biossistemas



LEB 0490 – Sustentabilidade Energética em Sistemas Agrícolas

Balanço Energético Nacional

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Matriz energética - Brasil



<https://www.epe.gov.br/pt/publicacoes-dados-abertos/publicacoes/balanco-energetico-nacional-benr>



Reflexão



Quais as principais fontes de energia no Brasil?

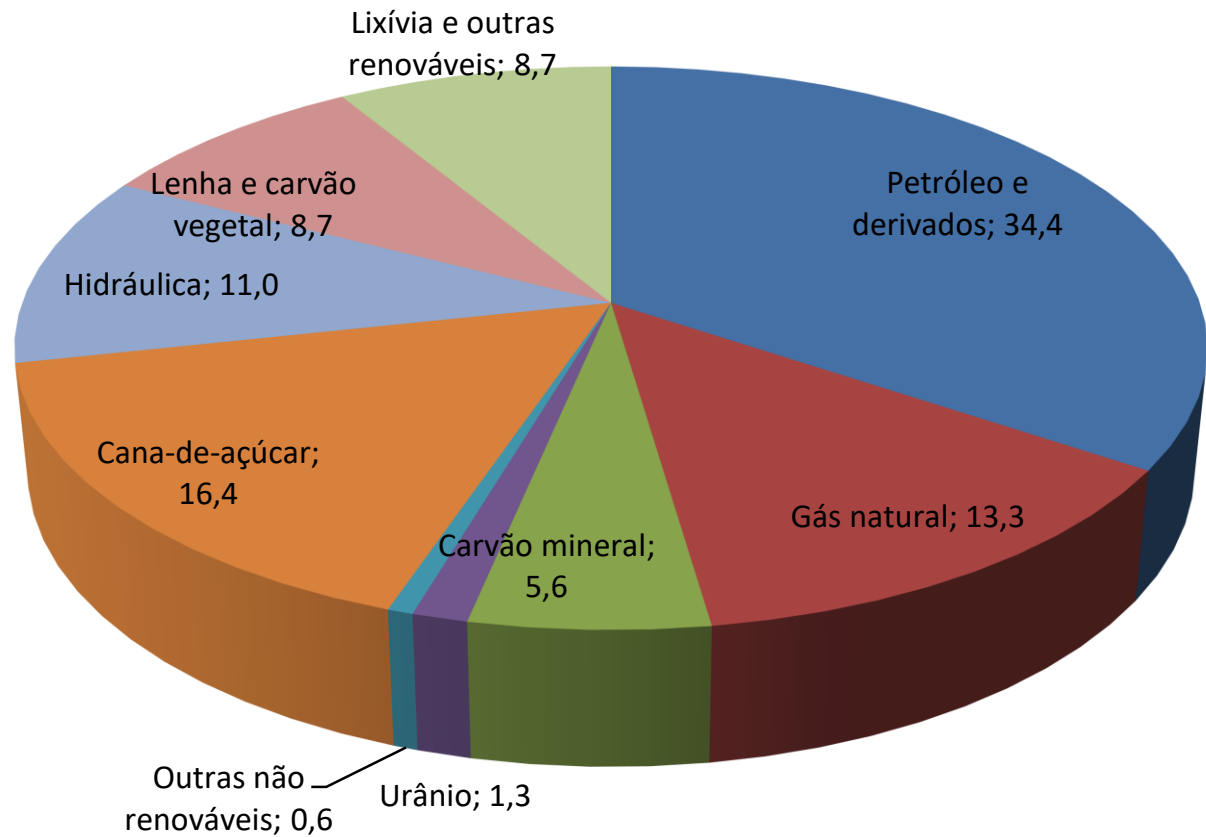


Quais os setores que mais consomem energia no Brasil?



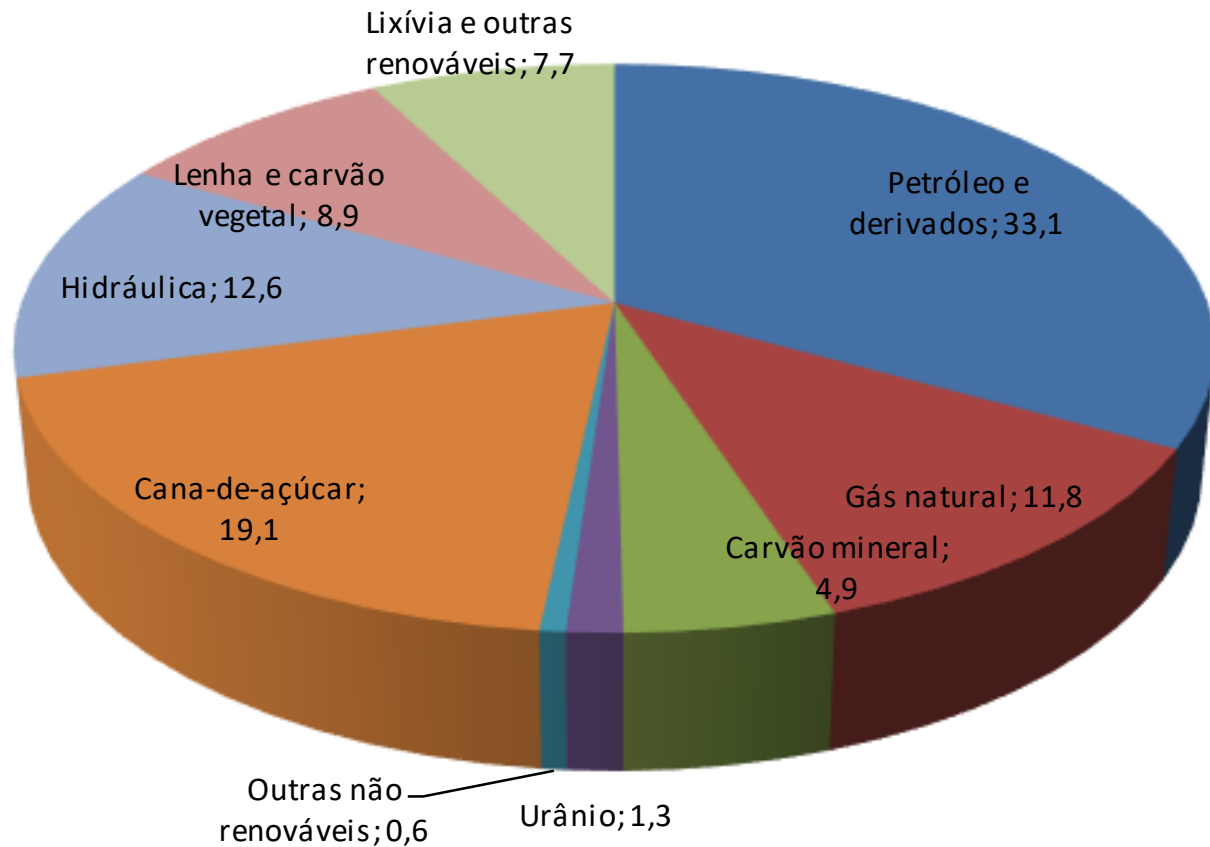
Matriz energética – ano base 2021

Recursos renováveis
44,7%



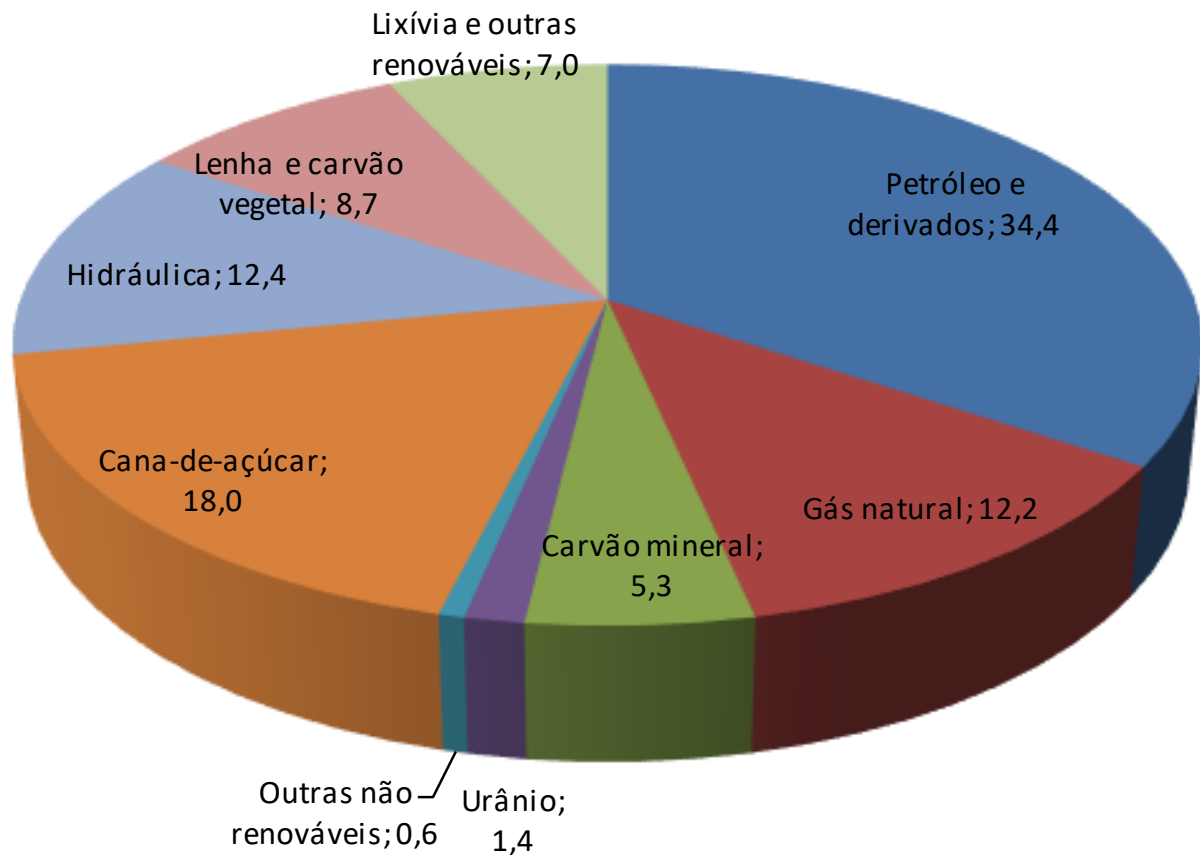
Matriz energética – ano base 2020

Recursos renováveis
48,4%



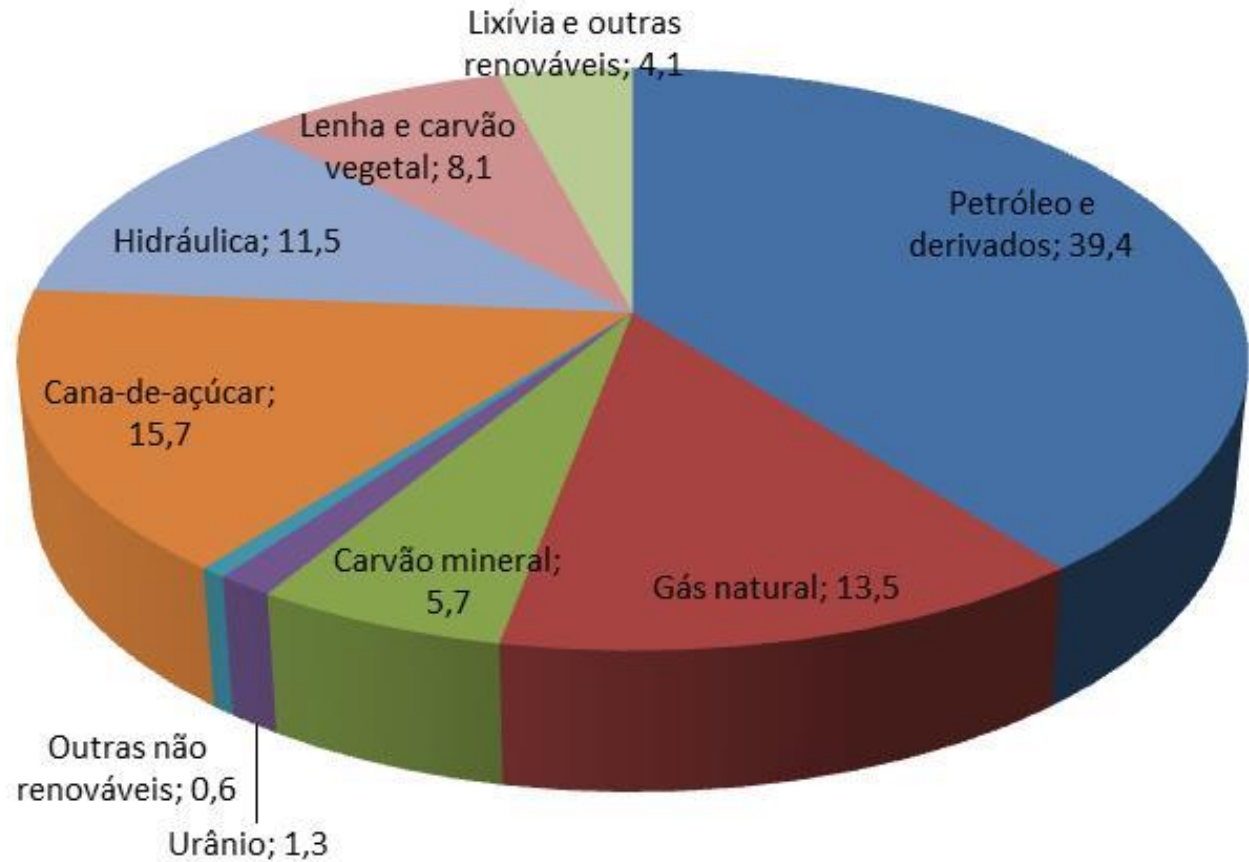
Matriz energética – ano base 2019

Recursos renováveis
46,1%



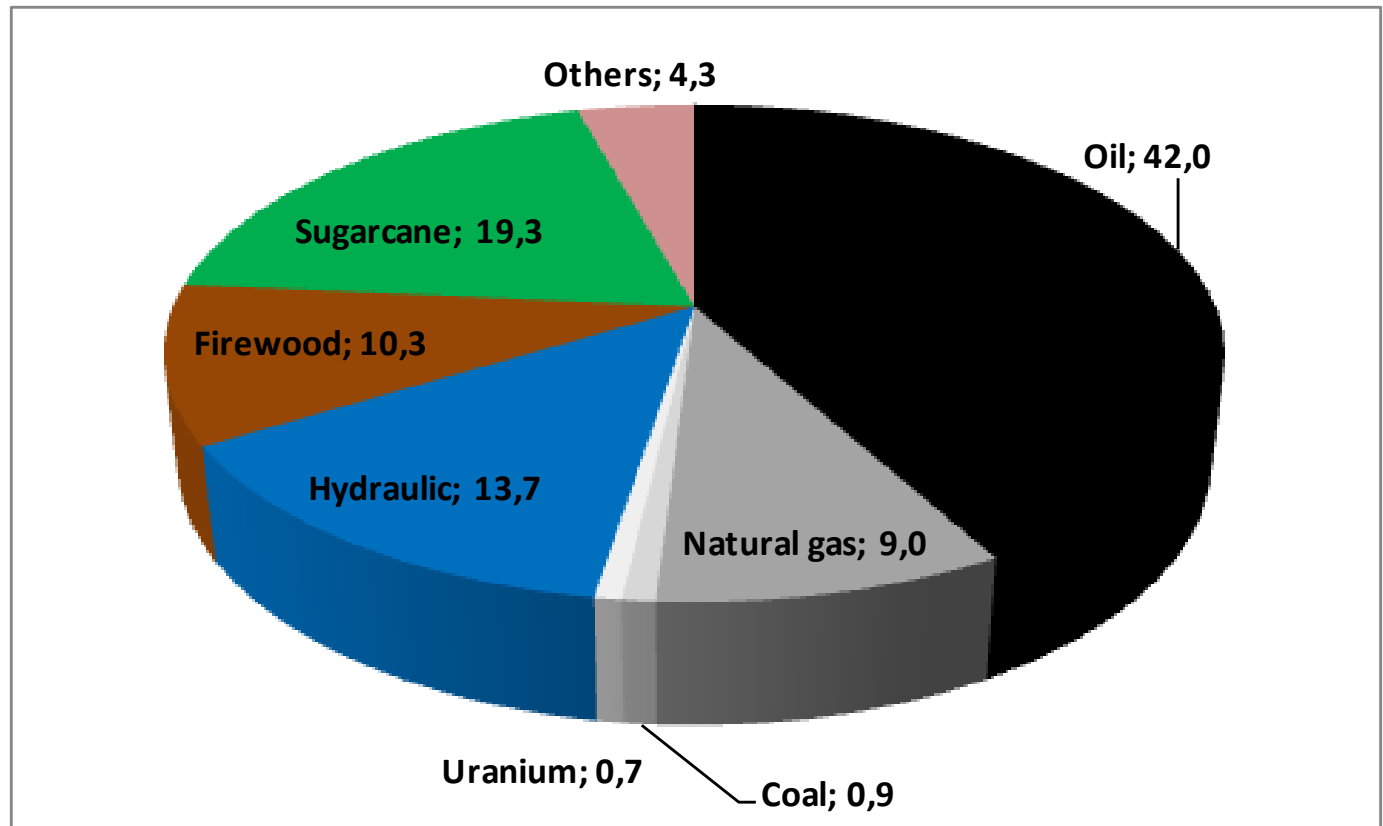
Matriz energética – ano base 2014

Recursos renováveis
39,4%

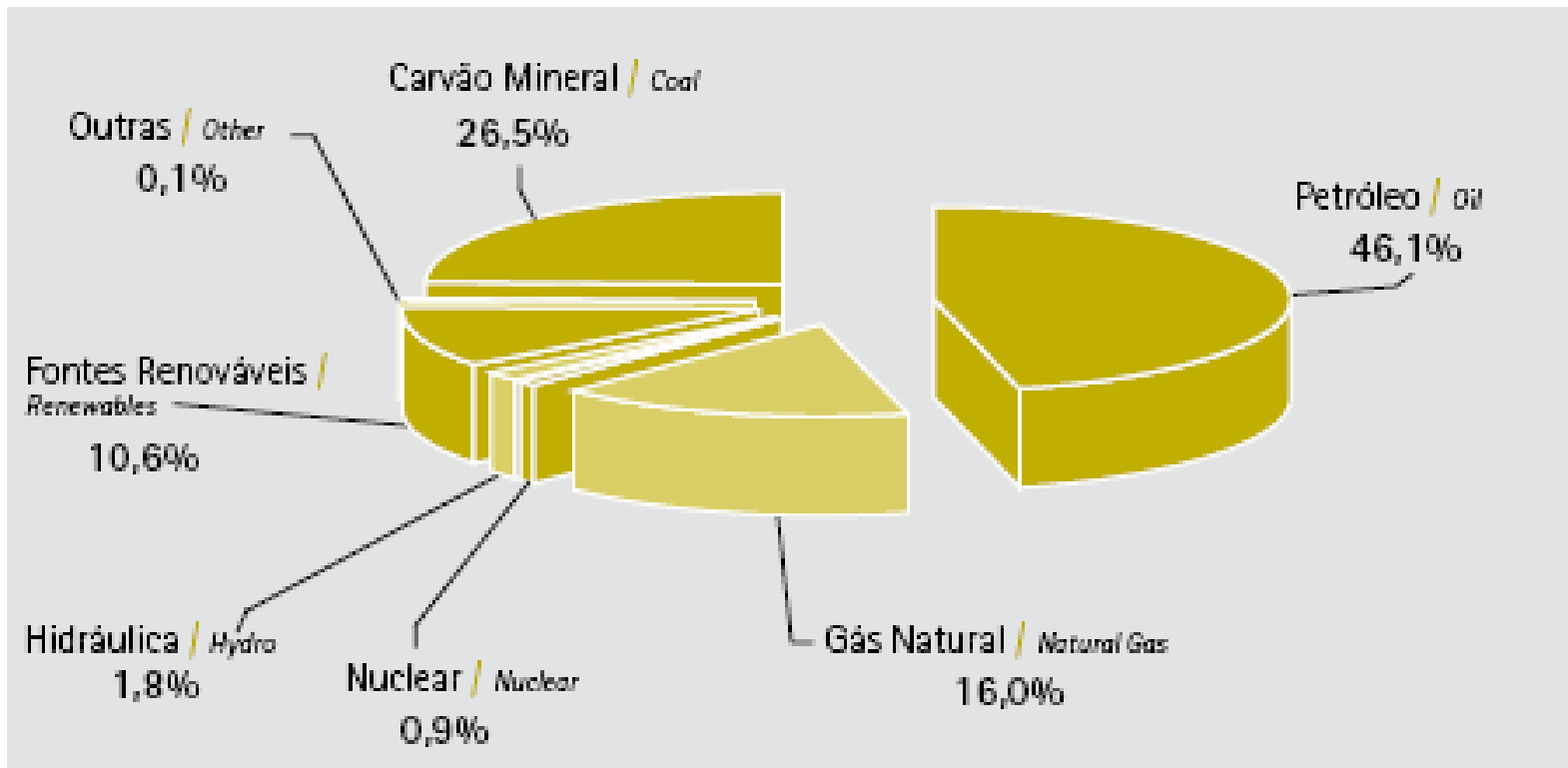


Matriz energética – ano base 2010

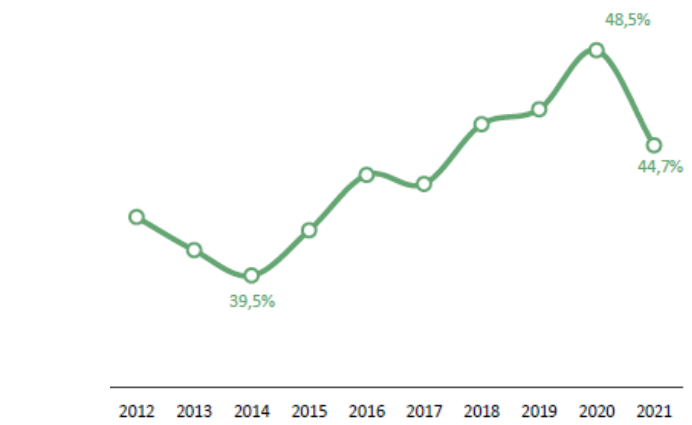
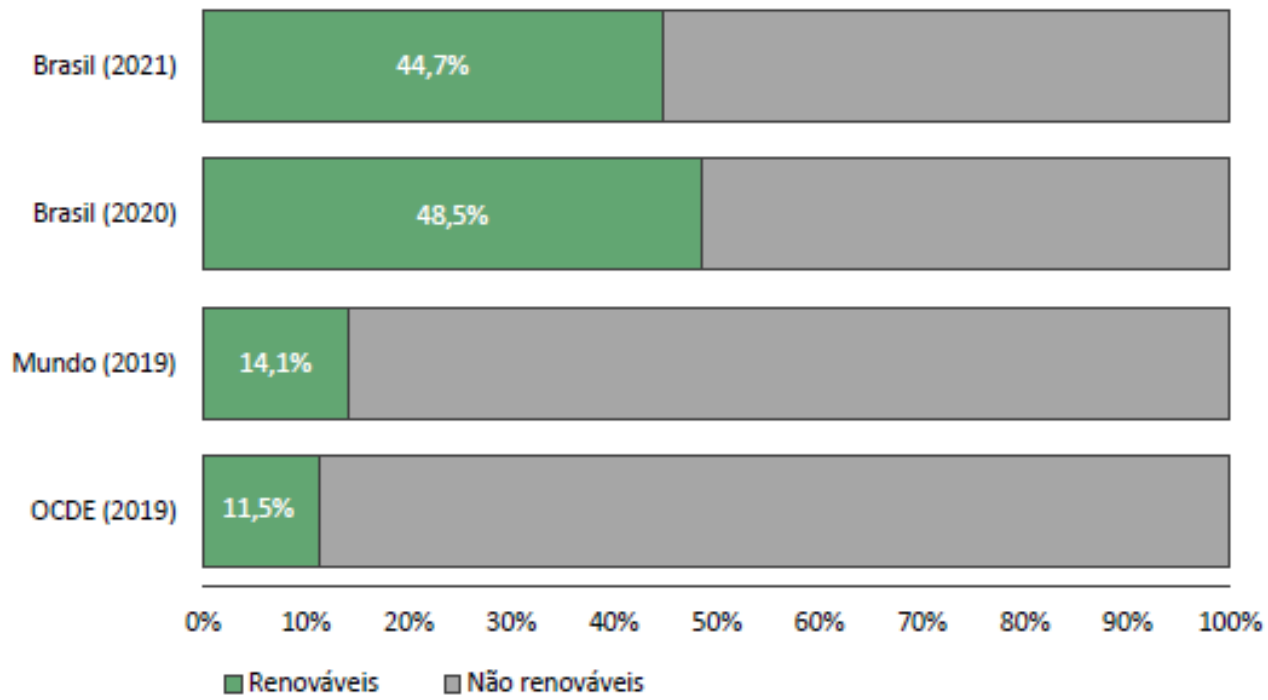
Renováveis: 47.5 %



Em 1973 ?????



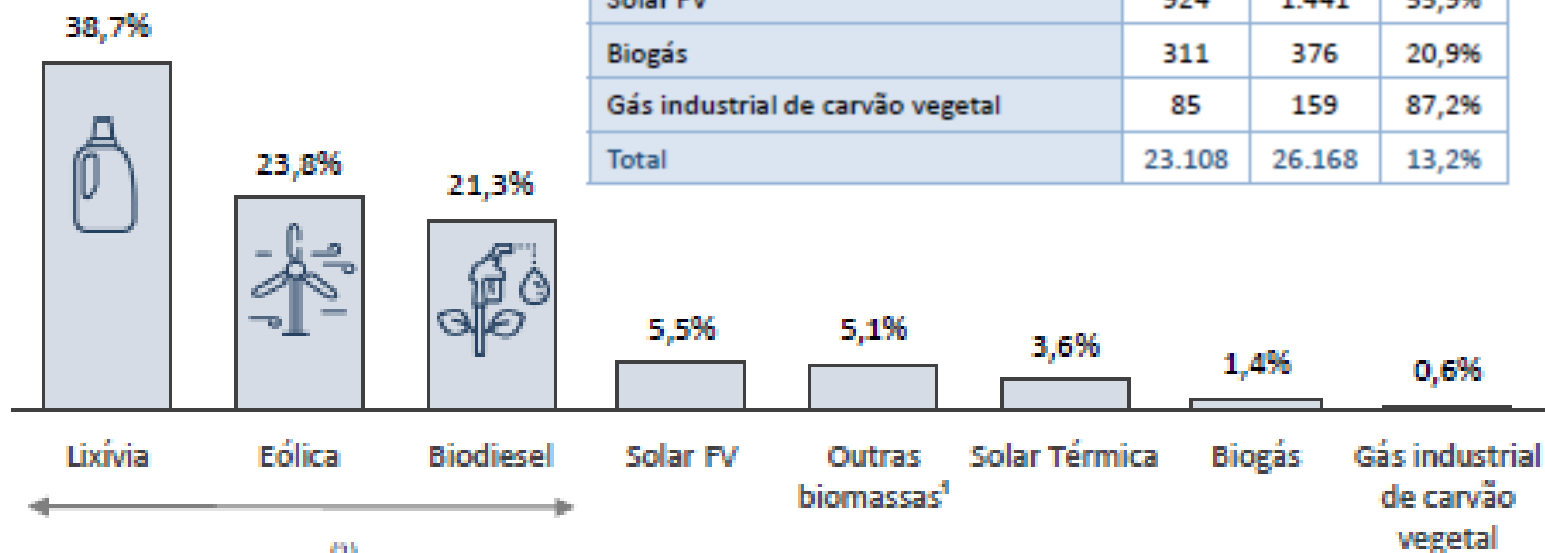
Matriz energética



Composição de "Outras renováveis"

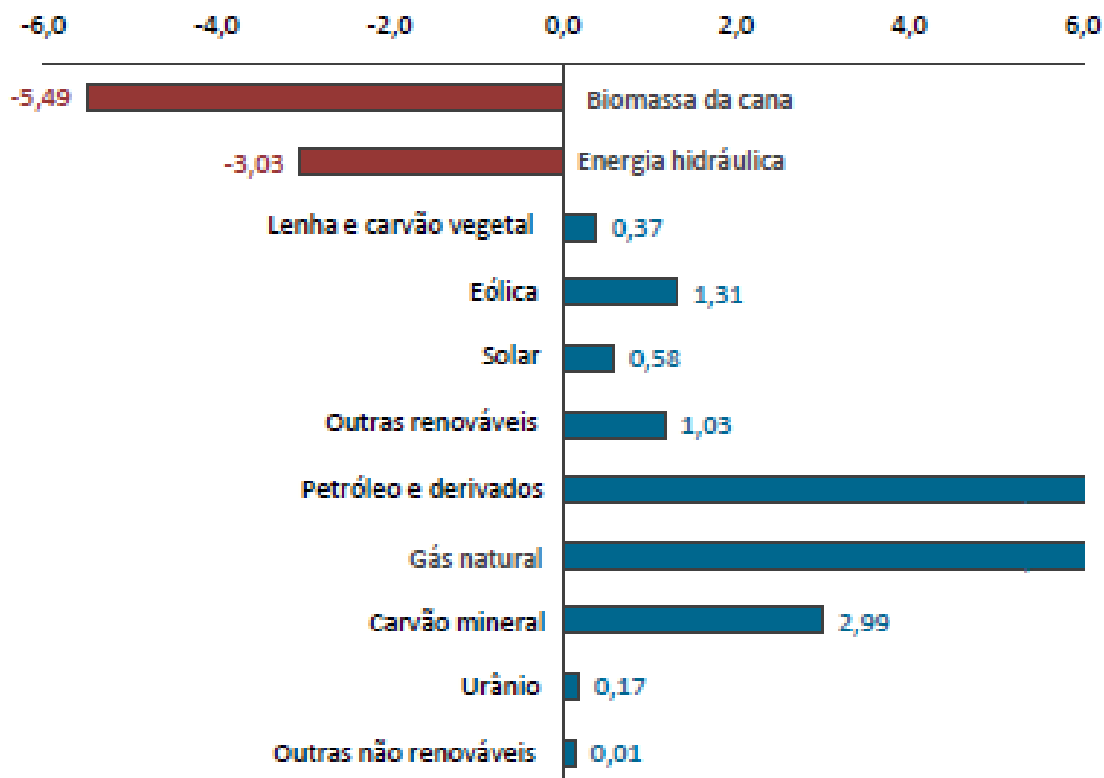


Outras renováveis (10 ³ tep)	2020	2021	Δ 21/20
Lixívia	9.576	10.128	5,8%
Eólica	4.906	6.217	26,7%
Biodiesel	5.300	5.570	5,1%
Outras biomassas ¹	1.139	1.347	18,3%
Solar Térmica	867	930	7,3%
Solar FV	924	1.441	55,9%
Biogás	311	376	20,9%
Gás industrial de carvão vegetal	85	159	87,2%
Total	23.108	26.168	13,2%

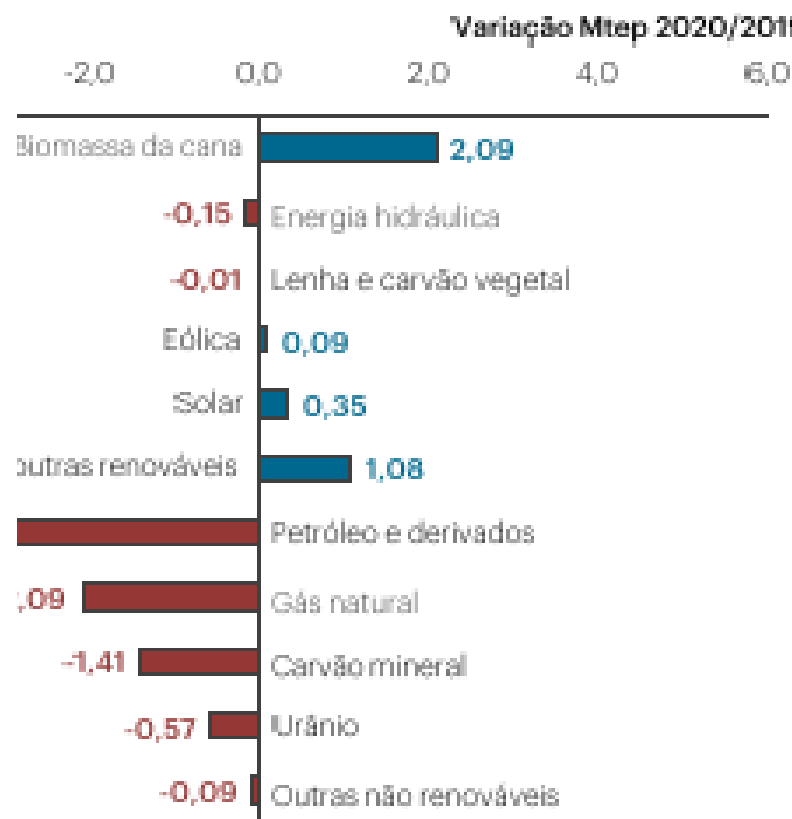




Variação anual



EPE (2022)



EPE (2021)





Consumo por setor



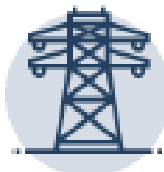
Transportes
32,5%



Indústrias
32,3%



Residências
10,9%



Setor Energético
9,5%



Agropecuária
5,0%



Serviços
4,8%



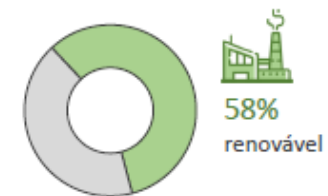
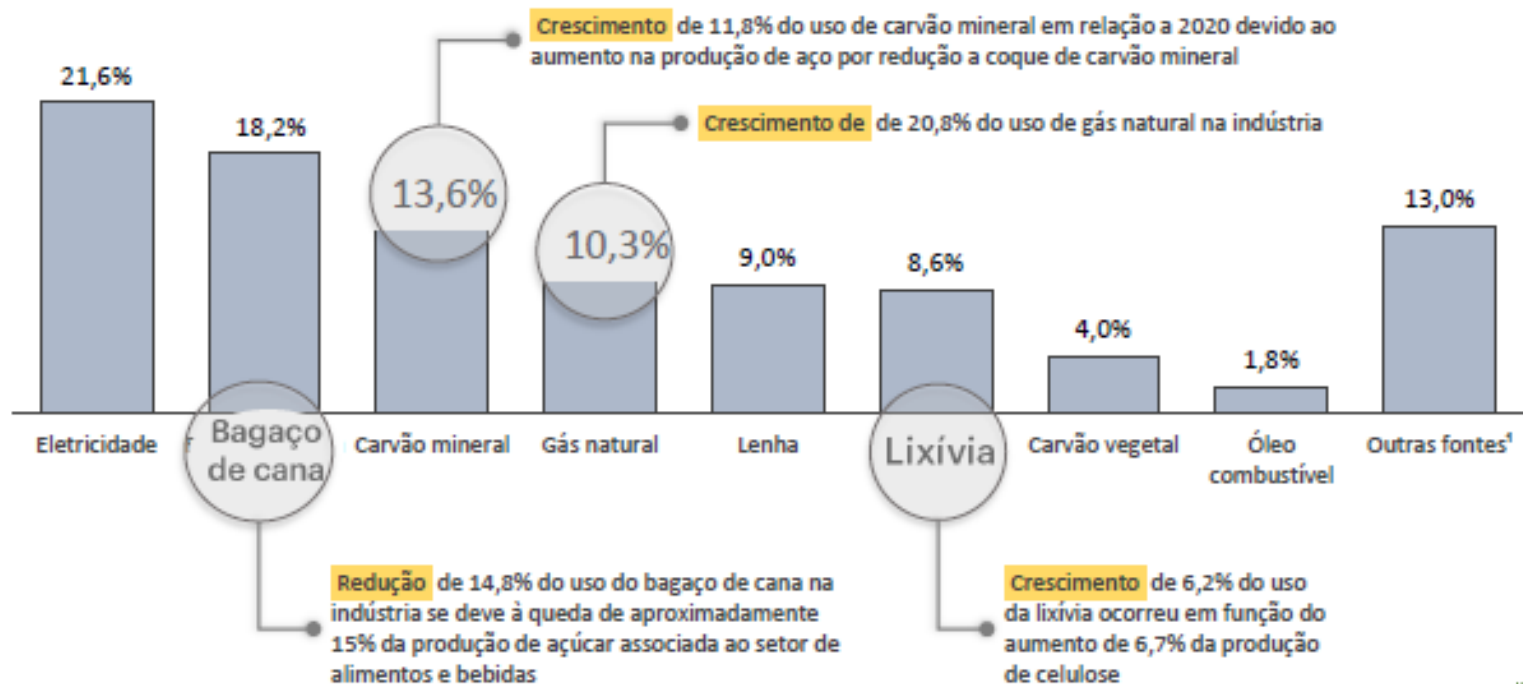
Uso não energético
5,1%

2021
262,1 Mtep

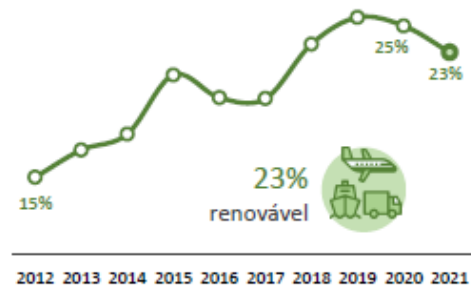
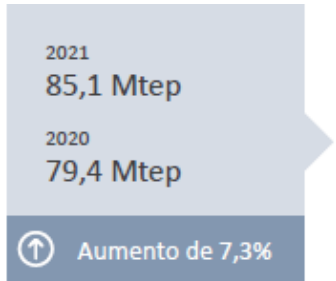
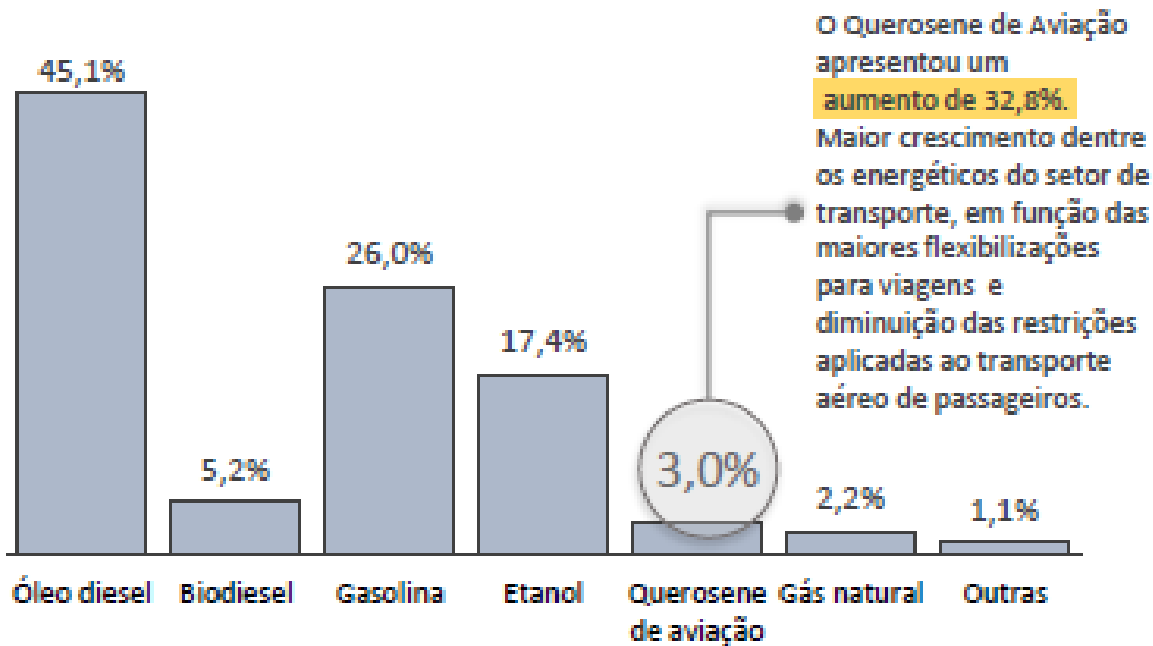
2020
253,4 Mtep

↑ Aumento de 3,5%

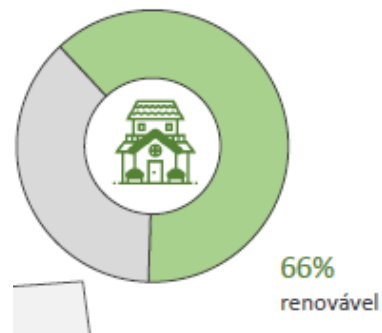
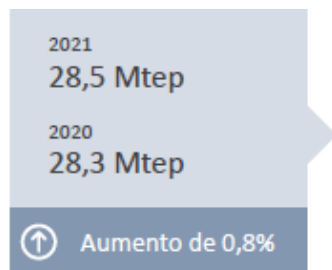
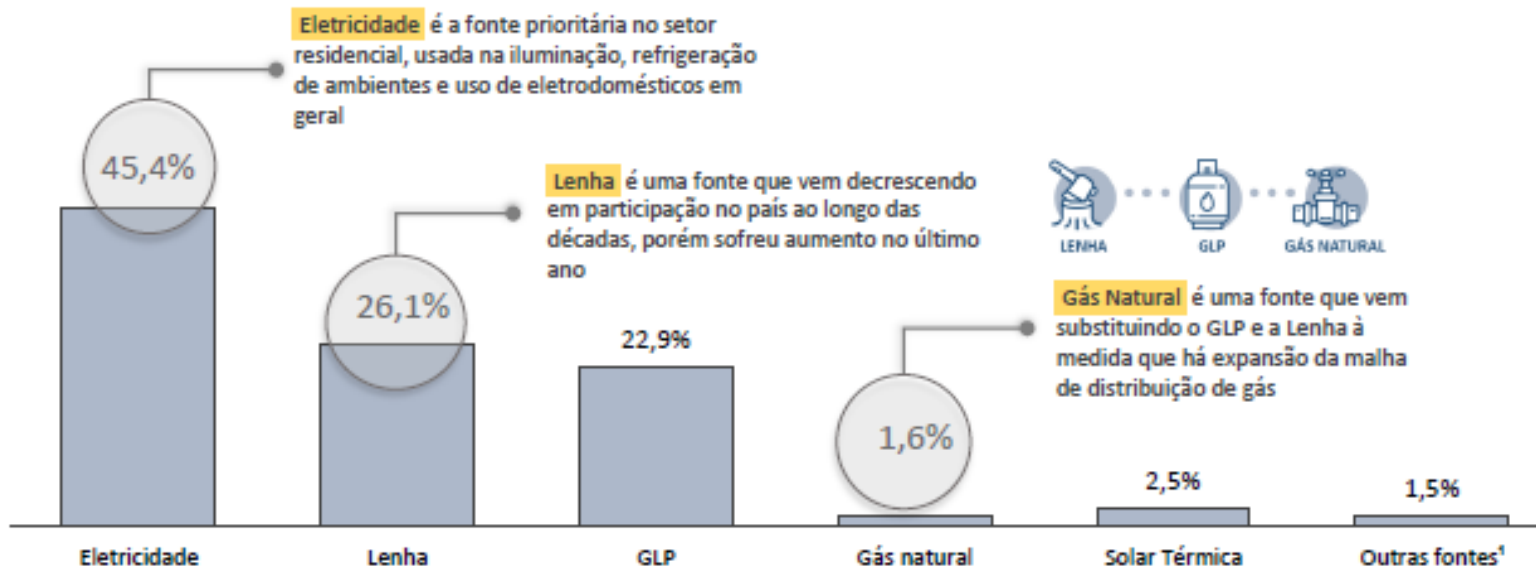
Indústria



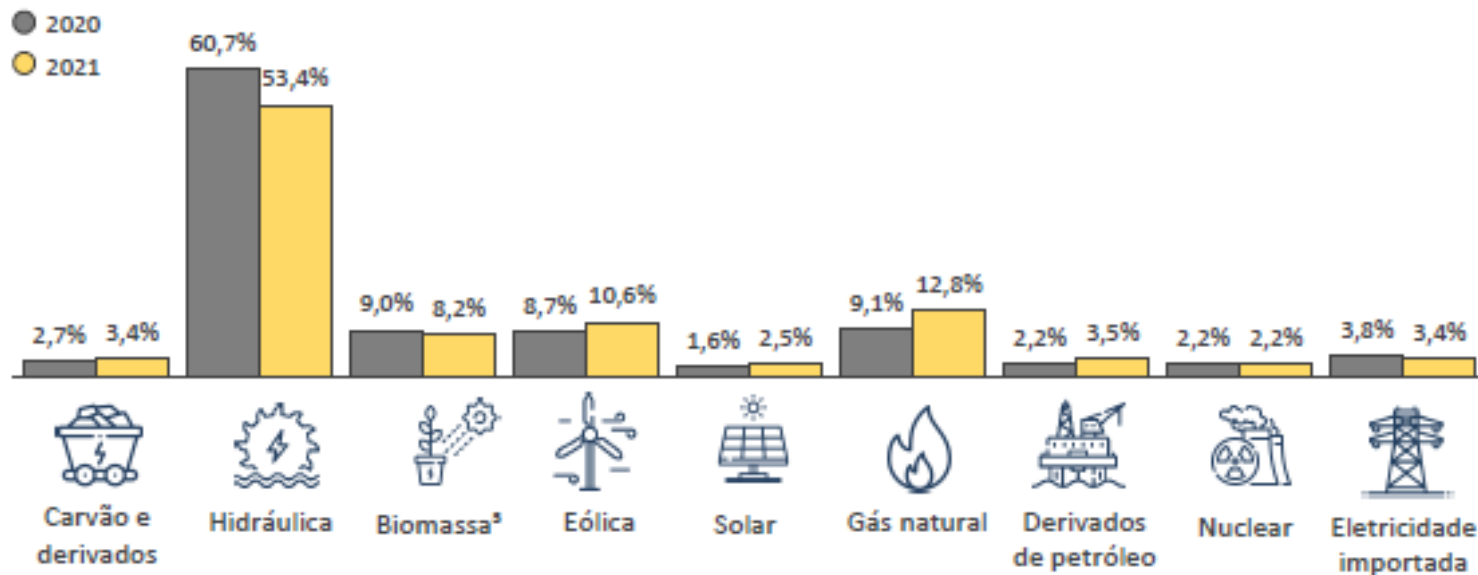
Transportes



Residencial



Matriz elétrica



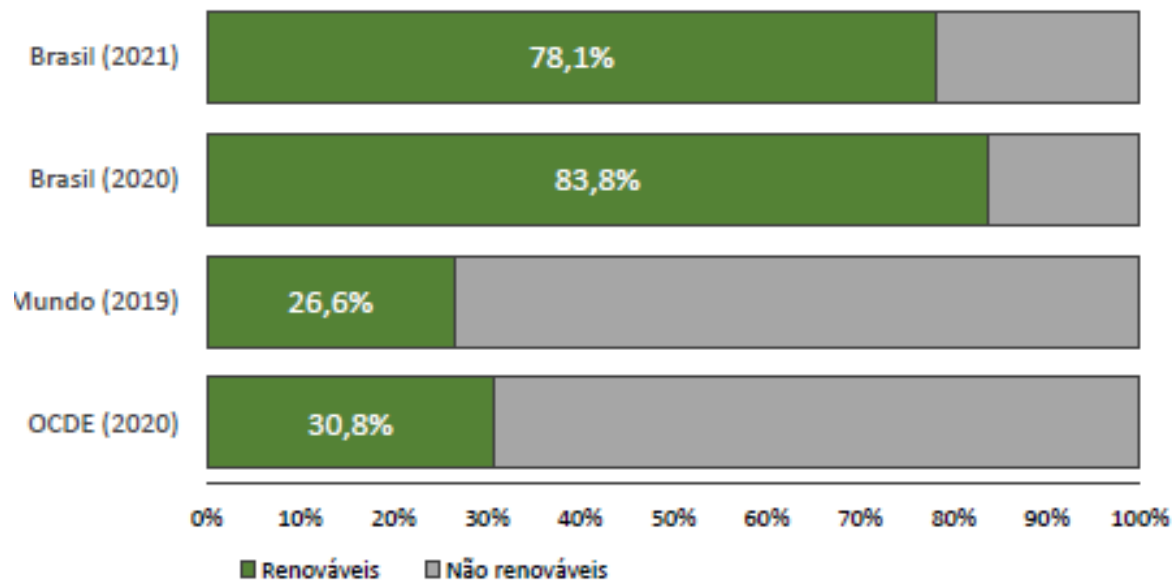
2021 (TWh)
 Oferta Total: 679,2
 Oferta hidráulica: 362,8

2020 (TWh)
 Oferta Total: 653,5
 Oferta hidráulica: 396,4

↑ Aumento de 3,9%
da Oferta Total

↓ Redução de 8,5%
da Oferta hidráulica

Matriz elétrica



2012 2013 2014 2015 2016 2017 2018 2019 2020 2021