

Energia: Um Panorama Geral, Desafios e Perspectivas num Mundo Globalizado

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Quem eu sou?



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Introdução



GEOTHERMAL ENERGY



HYDROGEN ENERGY



BIOMASS ENERGY



WIND ENERGY



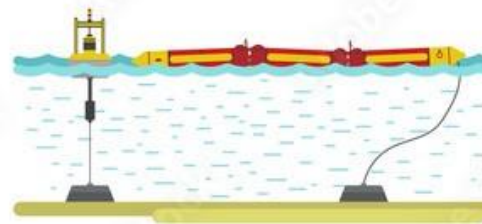
SOLAR ENERGY



TIDAL ENERGY



HYDROPOWER



WAVE ENERGY

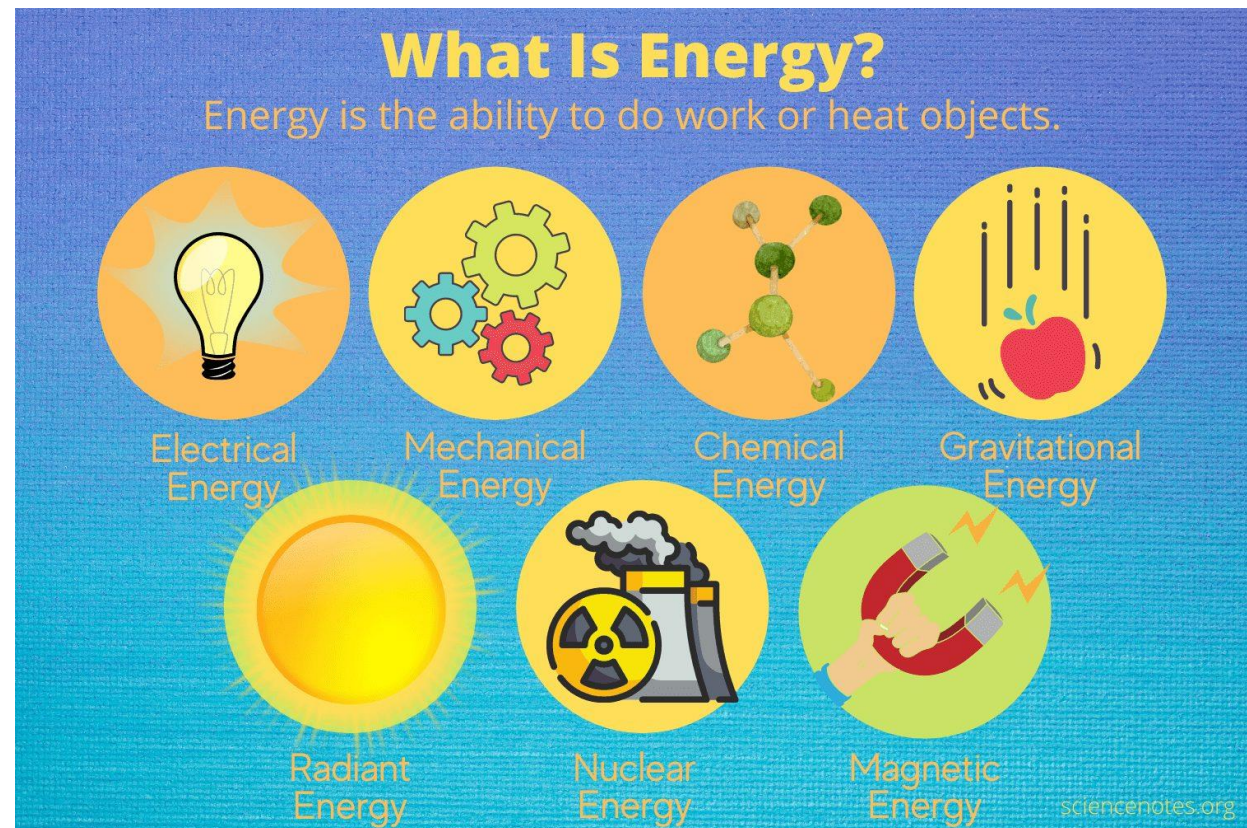


NUCLEAR POWER

- Fonte: <https://www.linkedin.com/pulse/energy-diversification-nigerias-power-sector-abdullahi-haruna-salisu/>

O que é energia?

- "Não há uma definição exata para energia, mas podemos dizer que ela está associada à capacidade de produção de ação e/ou movimento e manifesta-se de muitas formas diferentes, como movimento de corpos, calor, eletricidade etc."



<https://sciencenotes.org/energy-definition-examples/>

RENEWABLE ENERGY



Wind



Hydropower



Solar



Geothermal



Biomass

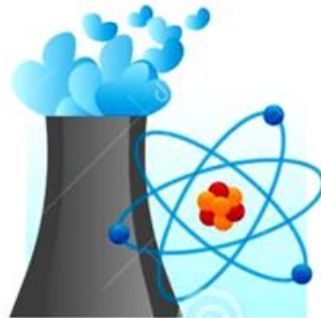
NON-RENEWABLE ENERGY



Oil



Coal



Nuclear

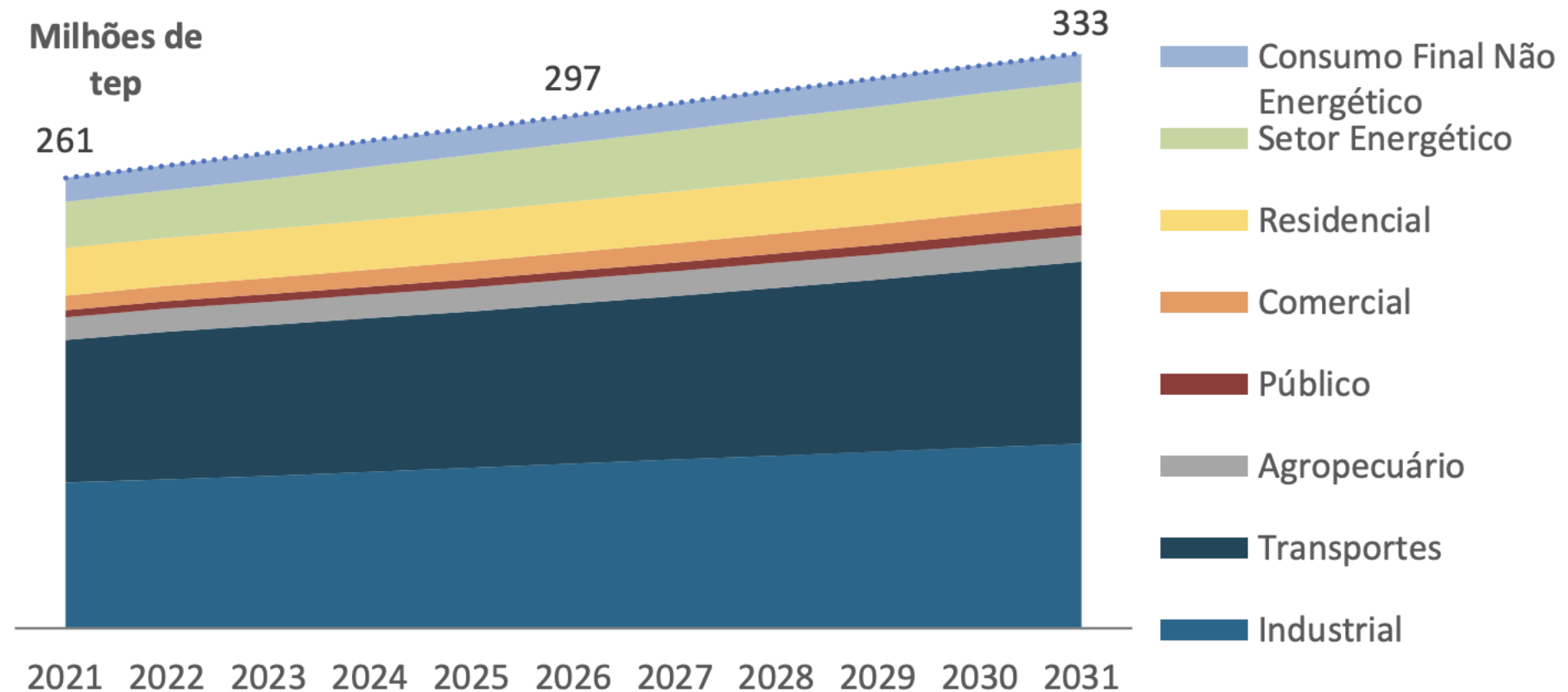


Natural Gas

Fontes de energia

https://www.researchgate.net/figure/schematic-illustration-of-sources-of-energy_fig1_357389325

Consumo de energia Brasil



https://www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-607/topico-637/PDE%202031_RevisaoPosCP_rvFinal_v2.pdf

1984

2020

Desafios Energéticos

Desafios Energéticos

THE CHALLENGE IS OF SUPPLY

TOI

By **2040**, world's energy consumption will have increased by almost 50%

There are still **1.2 bn** people who don't have access to modern energy services

Cooling is a burning issue

The growth of middle class in India & China will see a demand for air conditioning

UN said by **2050**, the demand for cooling will outstrip the demand for heating



RENEWABLE ENERGY IS THE ANSWER

TOI

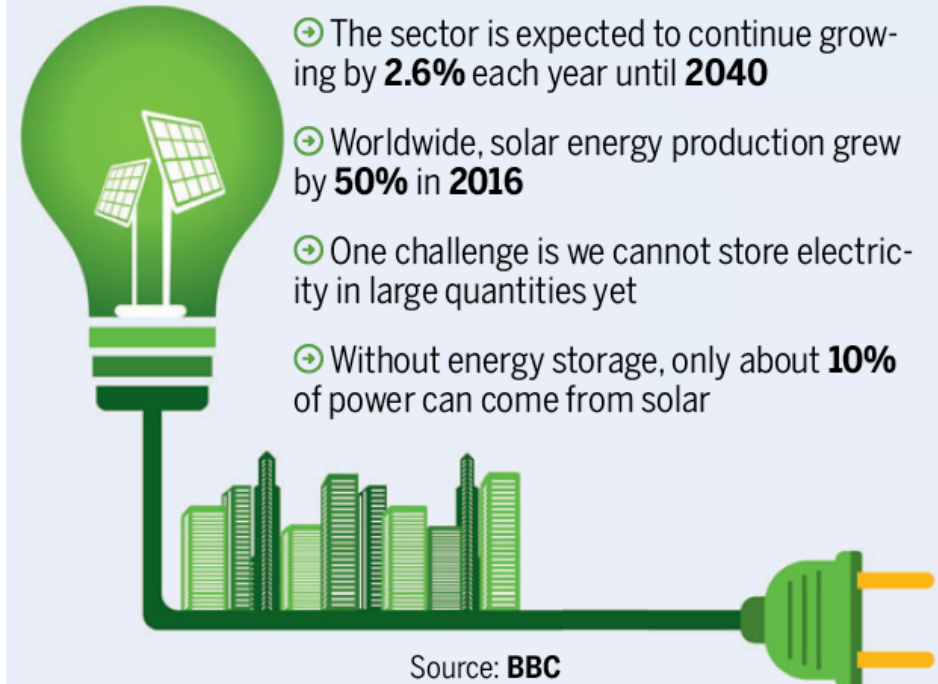
➔ Around **1/5th** of world's energy supply comes from renewable sources

➔ The sector is expected to continue growing by **2.6%** each year until **2040**

➔ Worldwide, solar energy production grew by **50%** in **2016**

➔ One challenge is we cannot store electricity in large quantities yet

➔ Without energy storage, only about **10%** of power can come from solar



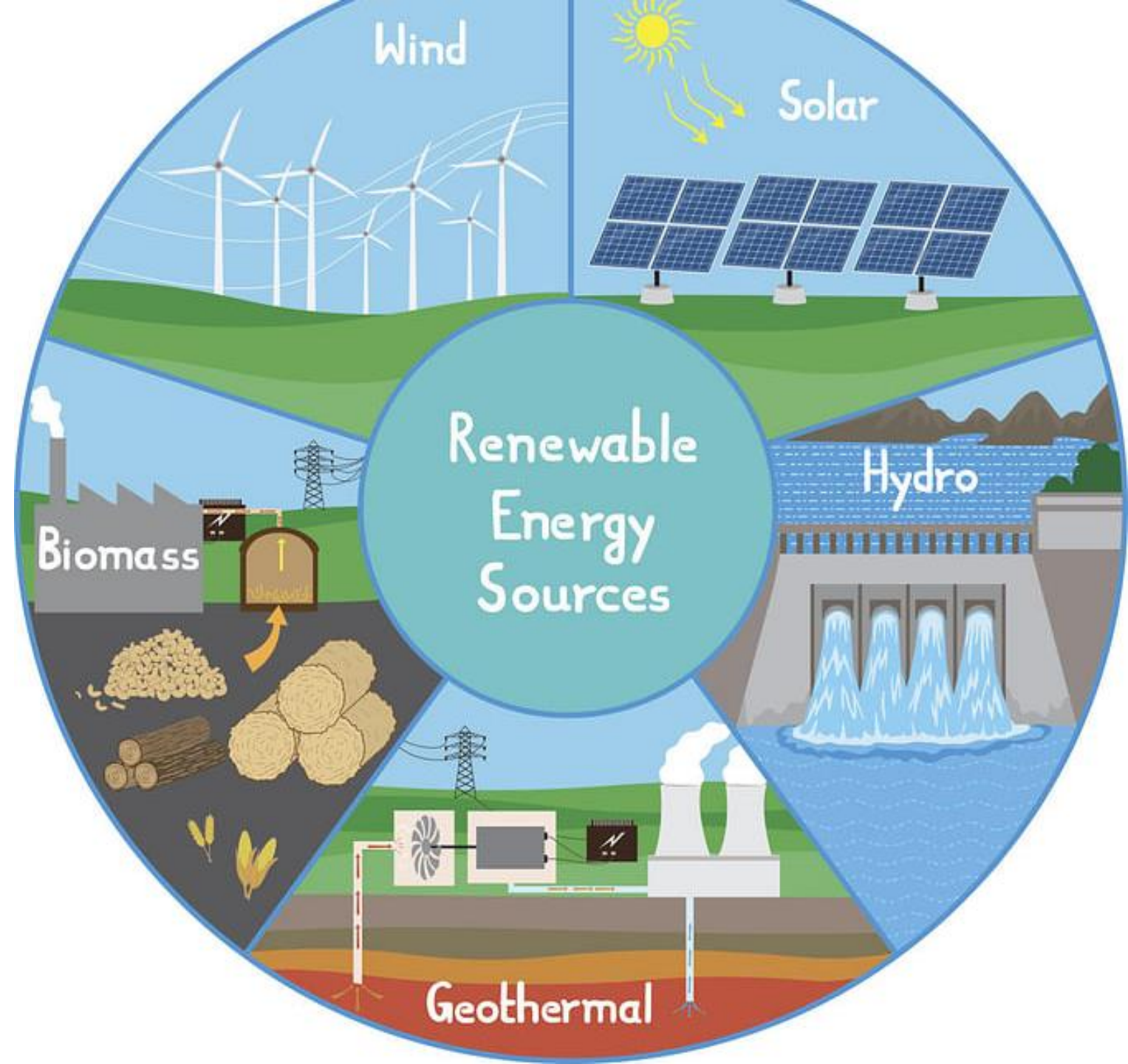
Source: **BBC**

<https://energy.economictimes.indiatimes.com/news/power/key-challenges-mankind-faces-on-energy-front-for-the-future/57713109?redirect=1>

Energia renovável

<https://www.deccanherald.com/science/impacts-renewable-energy-projects-1922246>

11/11/2025



Energia e o meio ambiente



<https://smartairfilters.com/en/blog/25-most-polluted-cities-world-2023-rankings/>

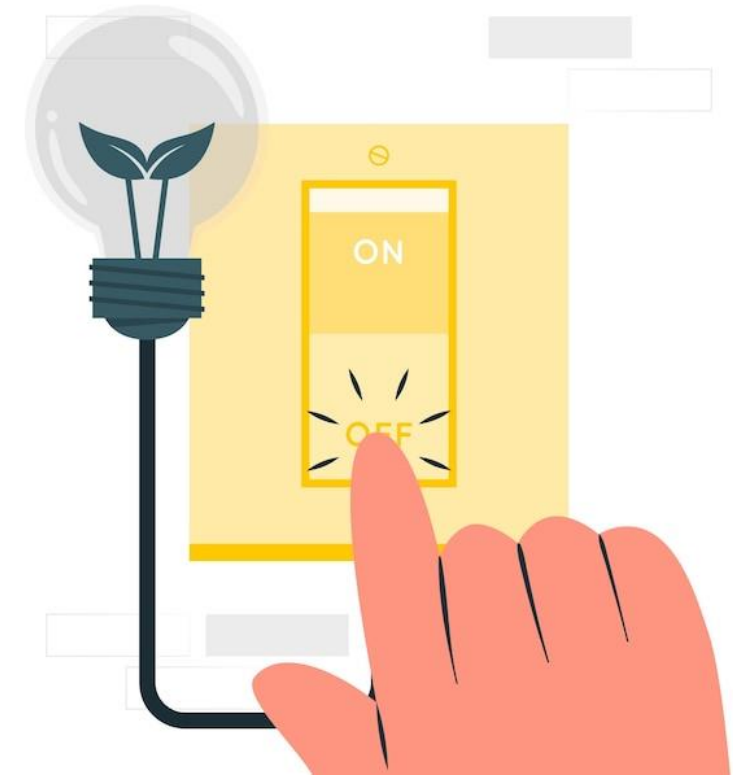


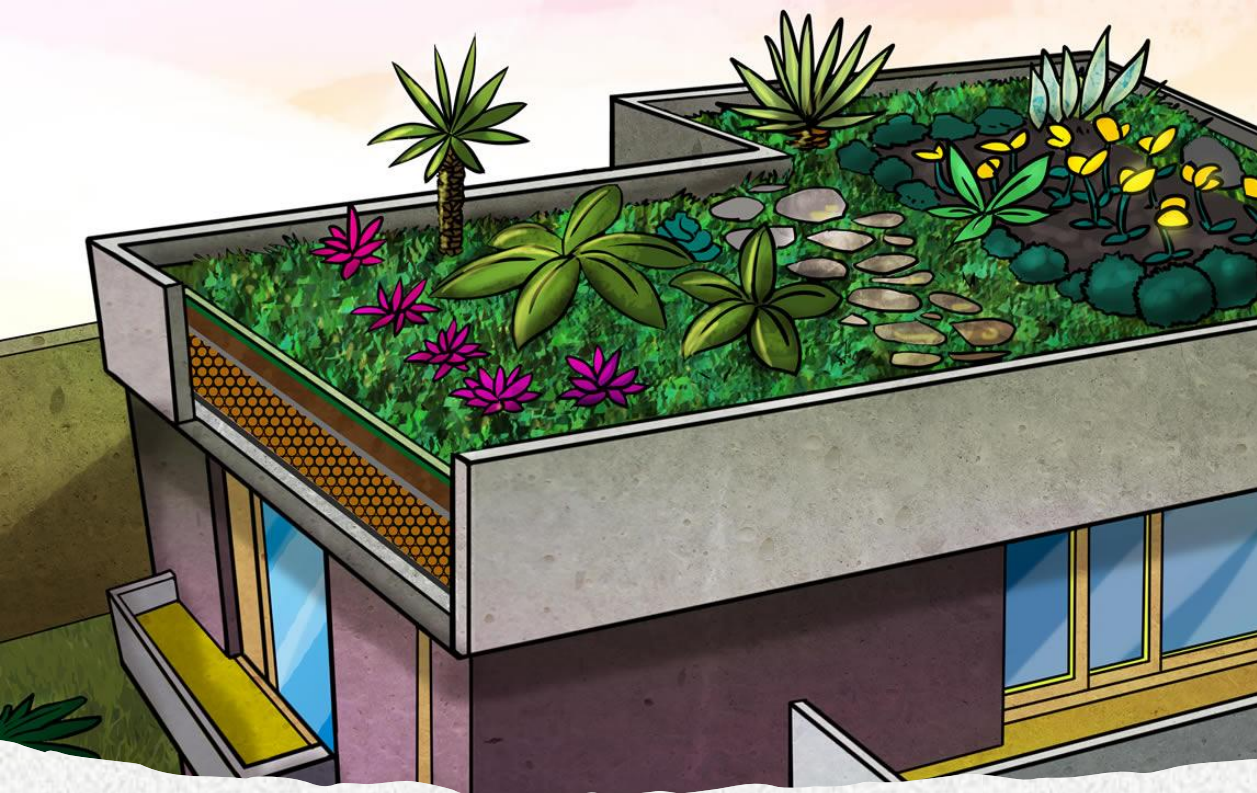
<https://brasilecola.uol.com.br/o-que-e/geografia/o-que-e-impacto-ambiental.htm>

Tecnologias de Energia Limpa



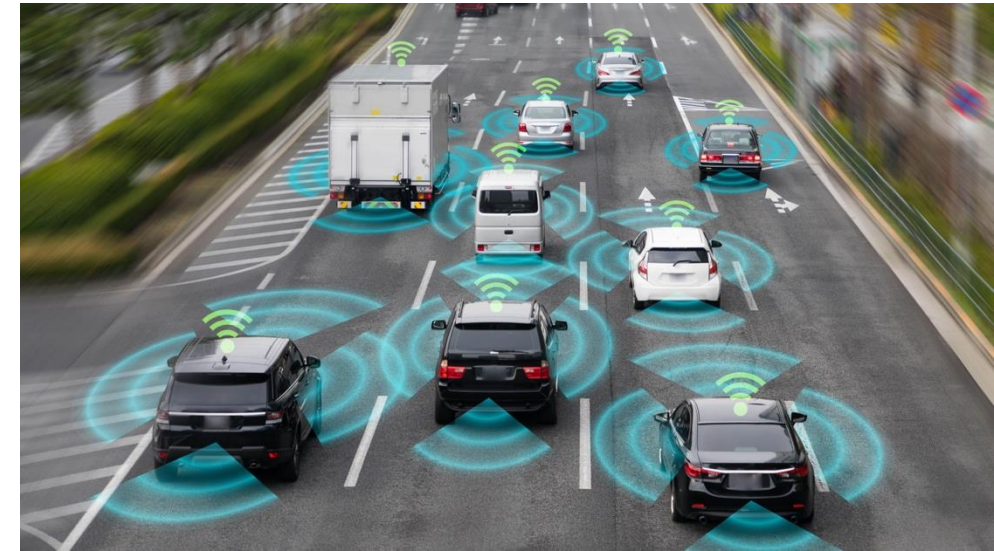
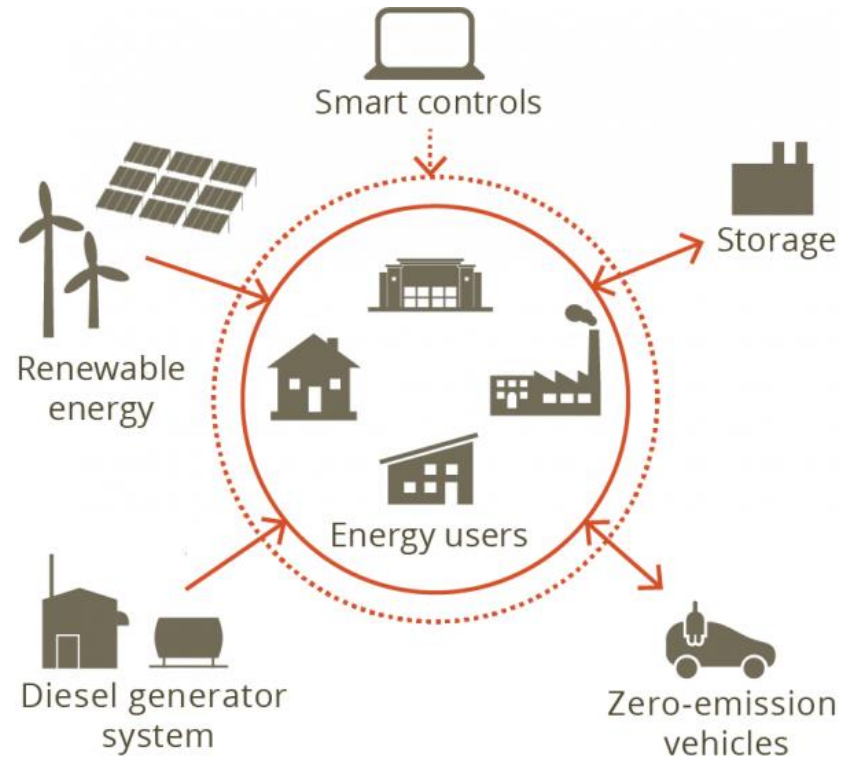
O papel de vocês!





O papel de vocês!

Perspectivas futuras

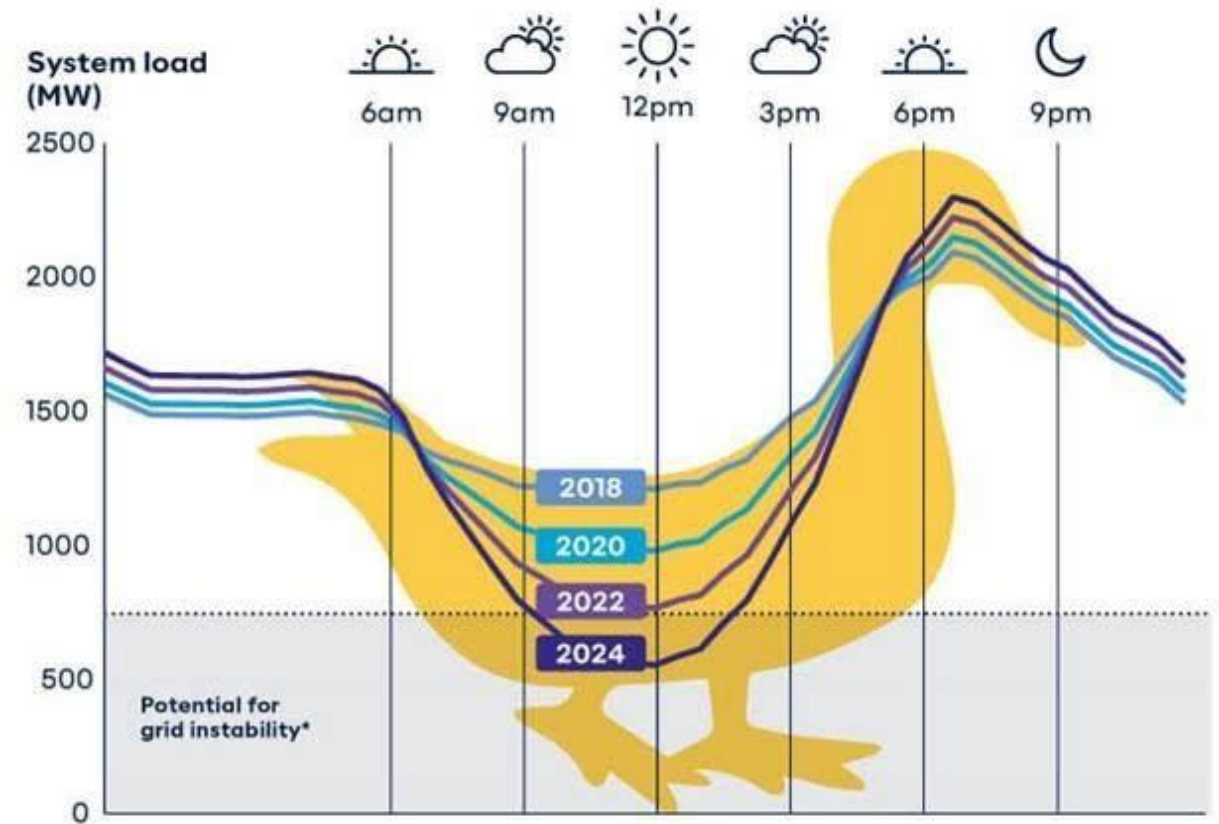




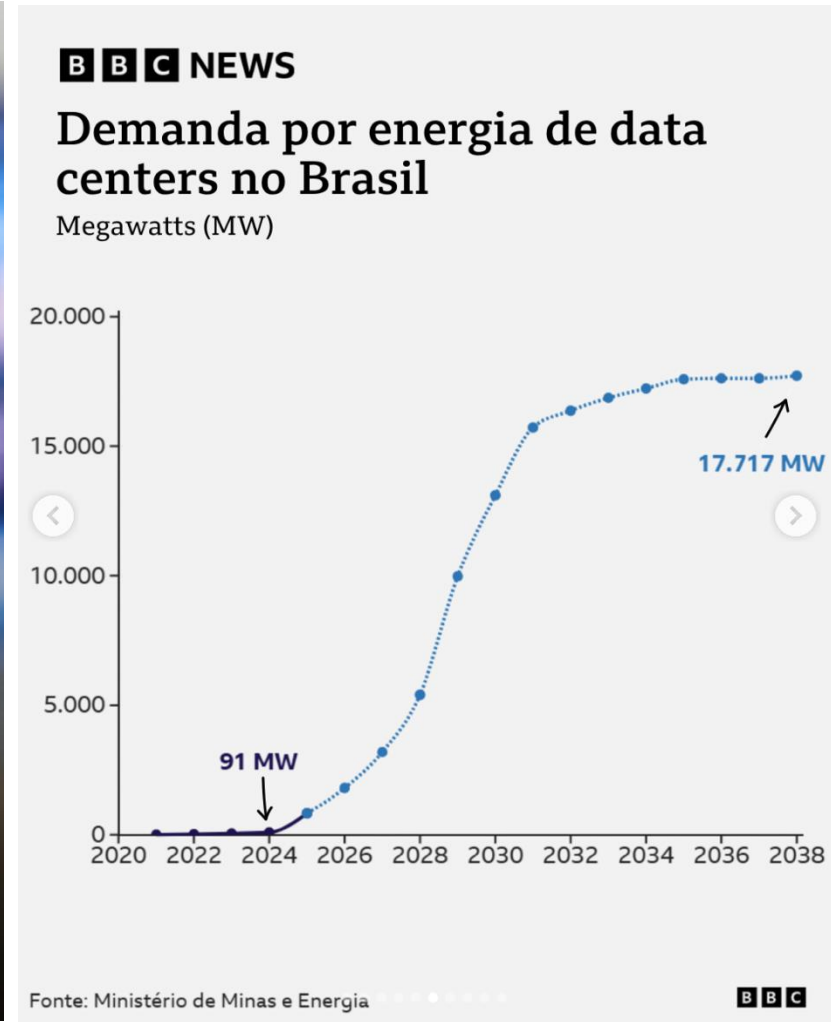
Emergência climática!!!

O Desafio do *Curtailment* no Brasil

- Quando temos energia renovável sobrando... e não conseguimos usar
 - *Curtailment* = desperdício de energia gerada (solar/eólica) que não pode ser entregue.
 - Expansão da geração foi mais rápida que as linhas de transmissão.
 - Resultado: plantas precisam ser desligadas mesmo com sol e vento.
 - Solução: novas linhas, armazenamento e previsão inteligente...



IA e os *datacenters*





Conclusões

Perguntas?

Muito obrigado!

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