Energy Transition: Trends and Challenges Panel - 5th Athens Triennial Meeting

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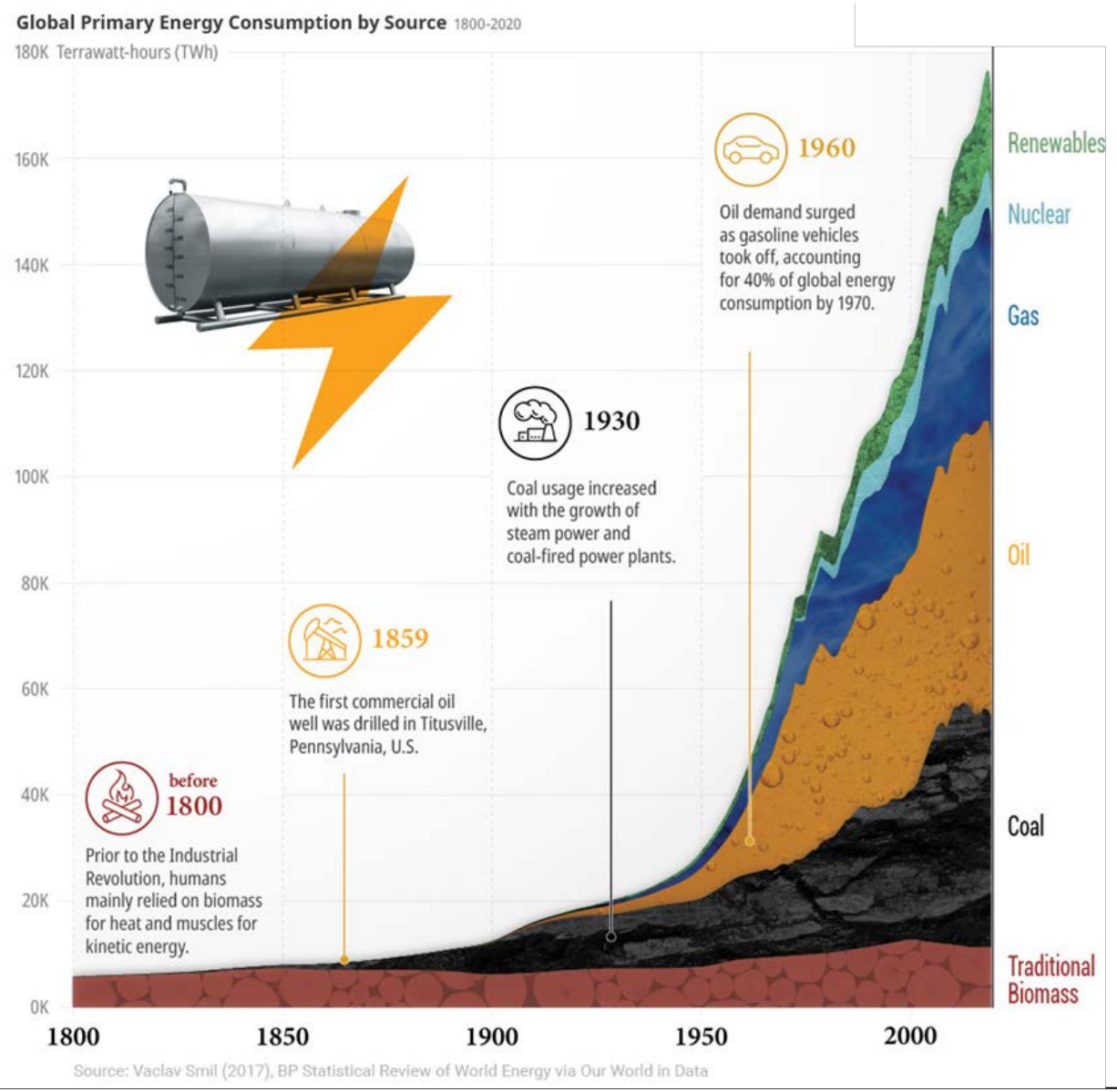
Energy Transition – Not a light switch

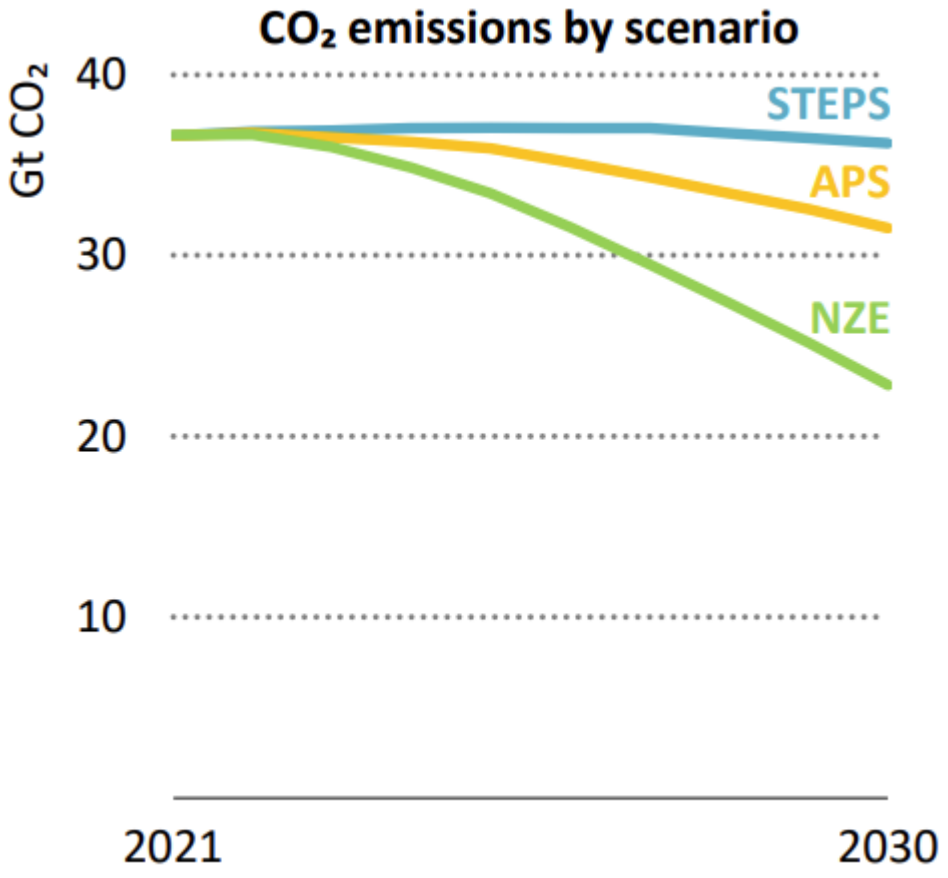
Energy transitions have happened before and come about because a newer, more abundant, cheaper source of energy becomes available.

Oil overtook coal as the main source of energy worldwide in the 1960s.

Europe has been burning Natural gas since the 1950s and LNG began being commercially traded in the 1960s and has yet to become the dominant source of energy either overall or in electricity production.

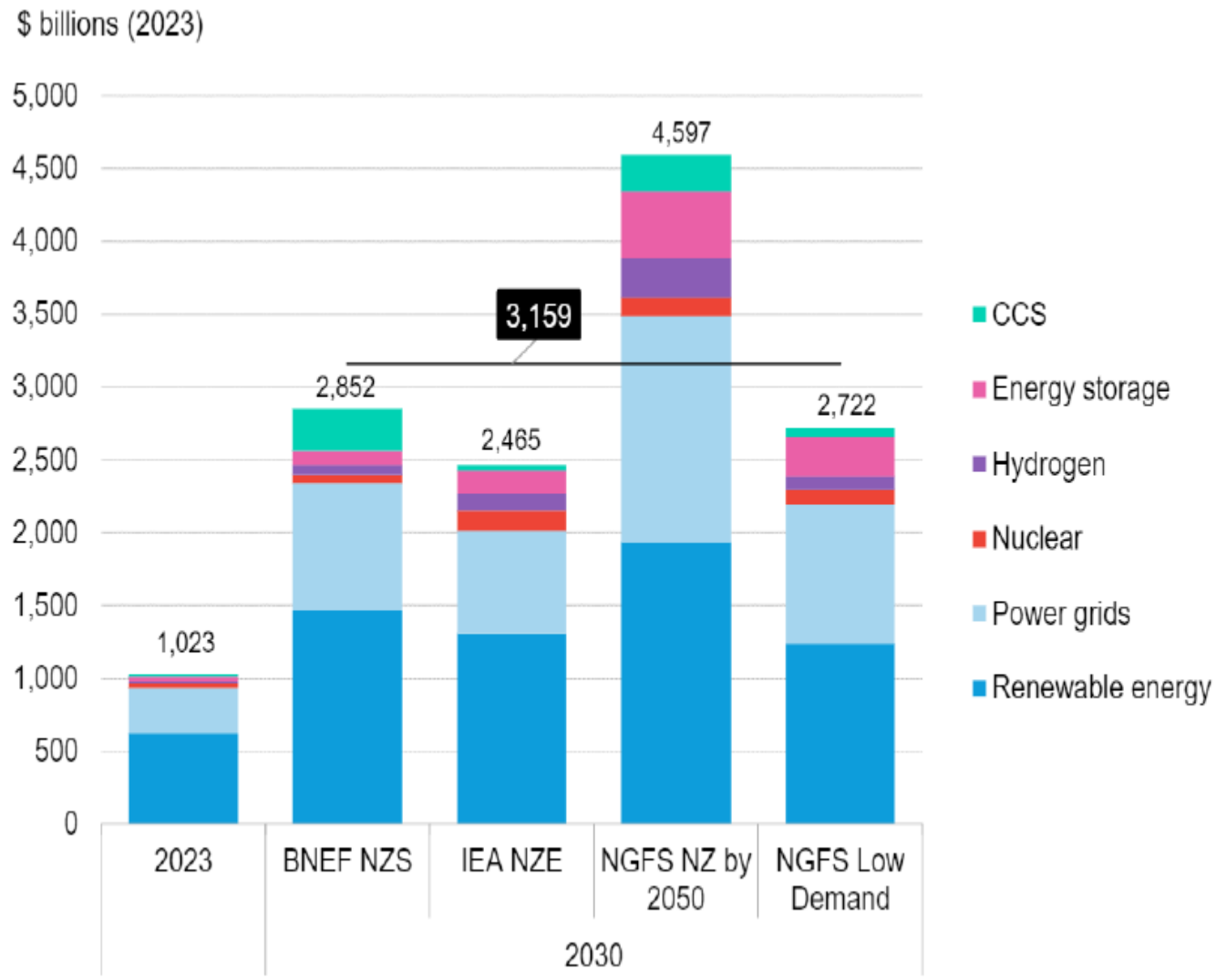
The net zero transition does not have most or possibly any of these characteristics.





STEPS: Stated Policies Scenario
APS: Announced Pledges Scenario
NZE: Net Zero Emissions

Source: WEO 2022, IEA



Source: BNEF Energy Transition Investment Trends, 2024

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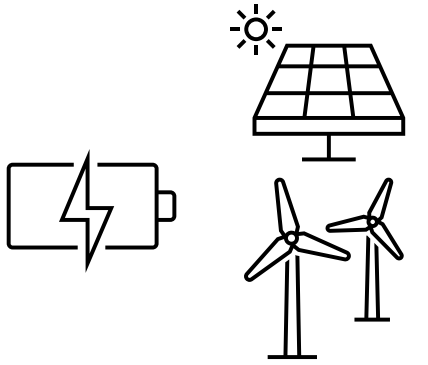
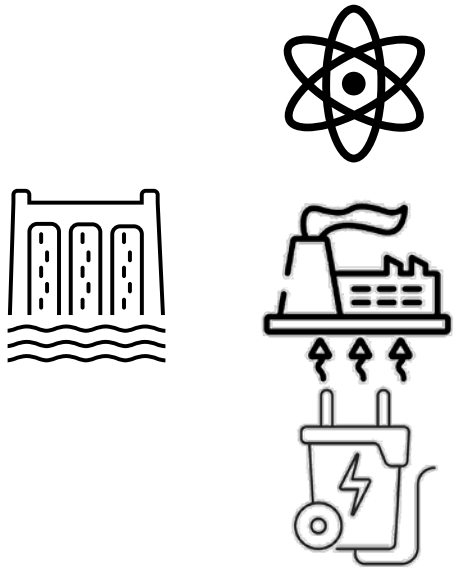
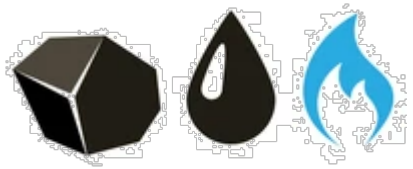


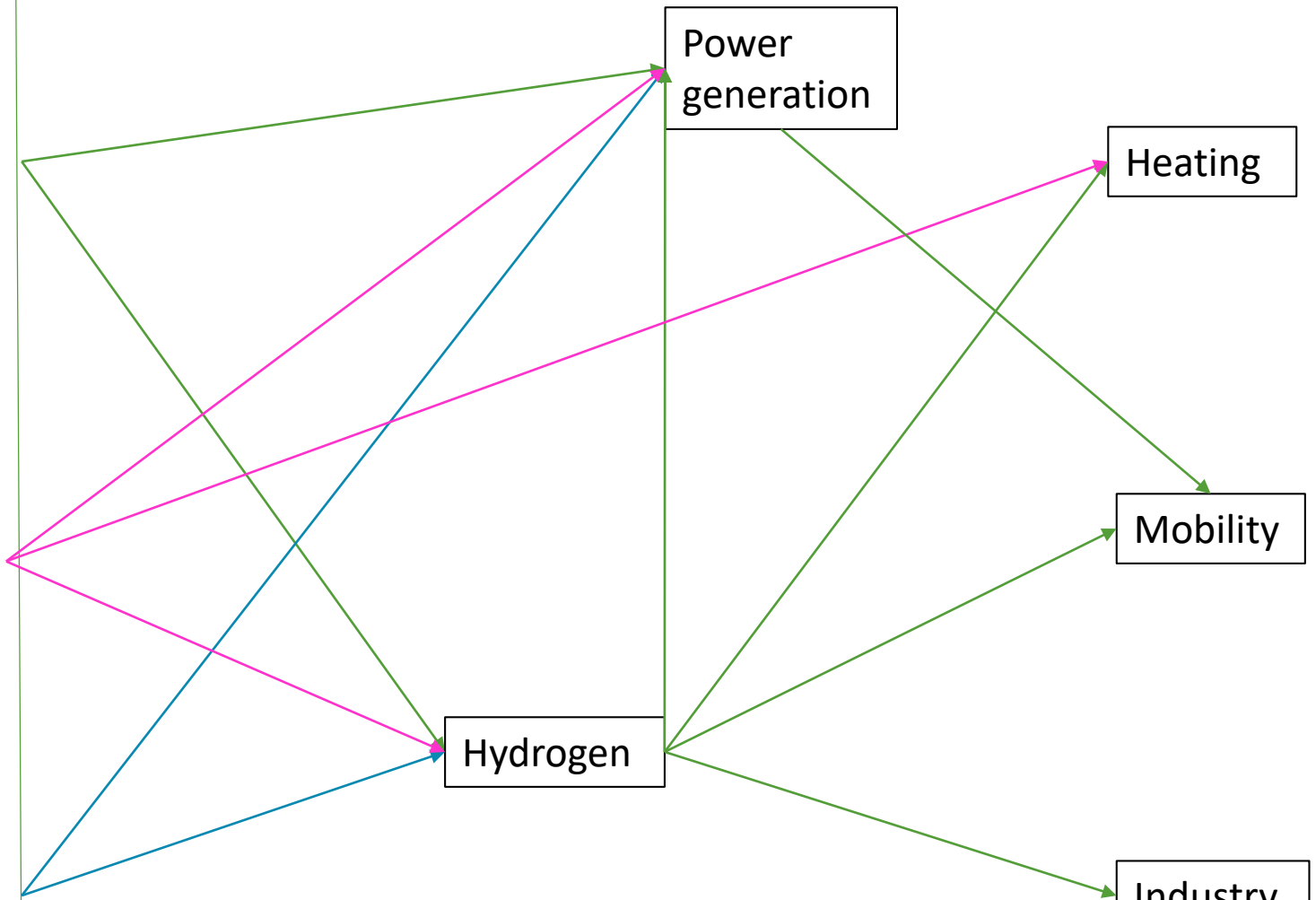
The Posterchild: Intermittent, 0 marginal cost, dependent on location ((5% of global energy)



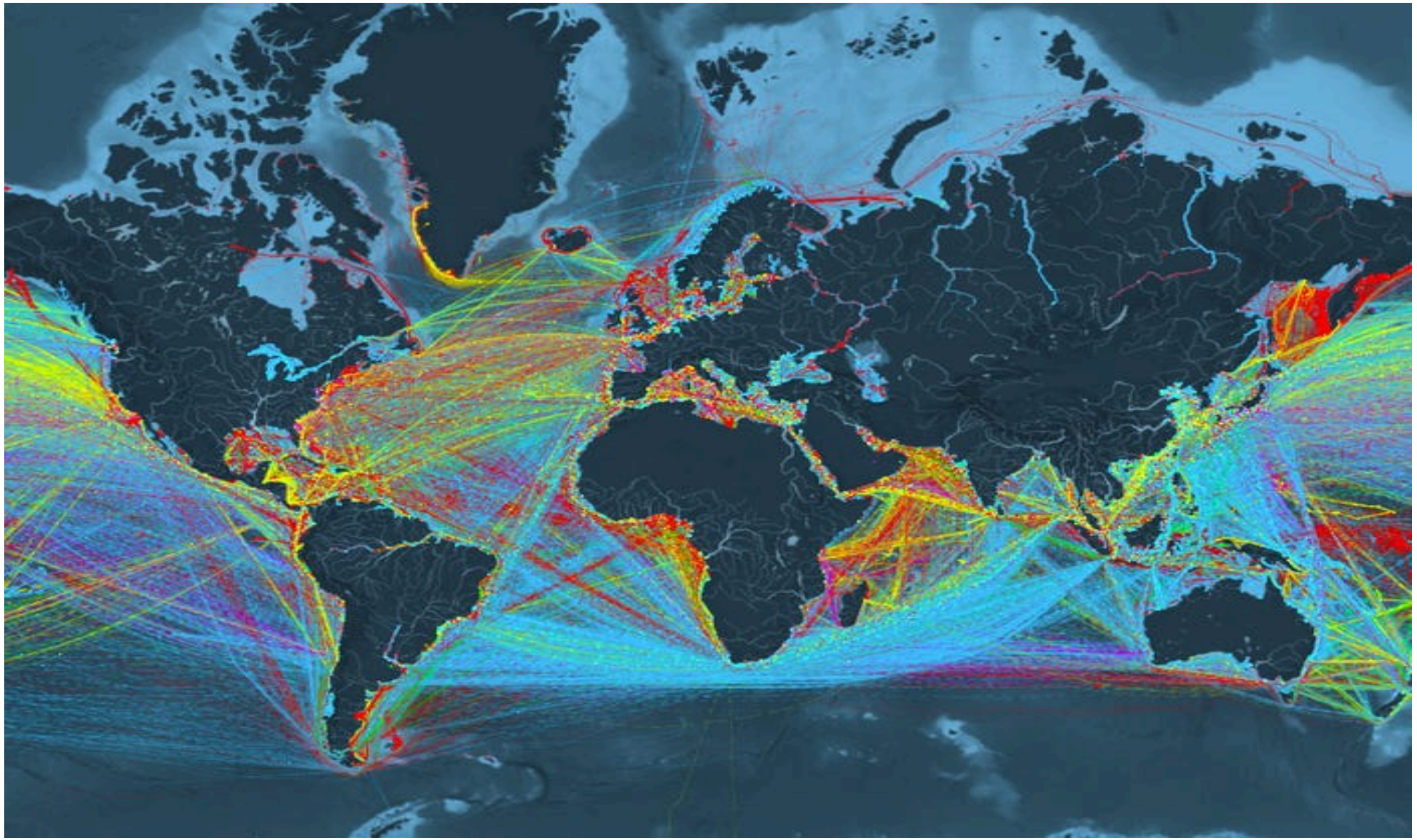
The Forgotten: Baseload, not dependent on imports, 0 emissions ((12% of global energy))



The ones who must not be named ((83% of global energy))

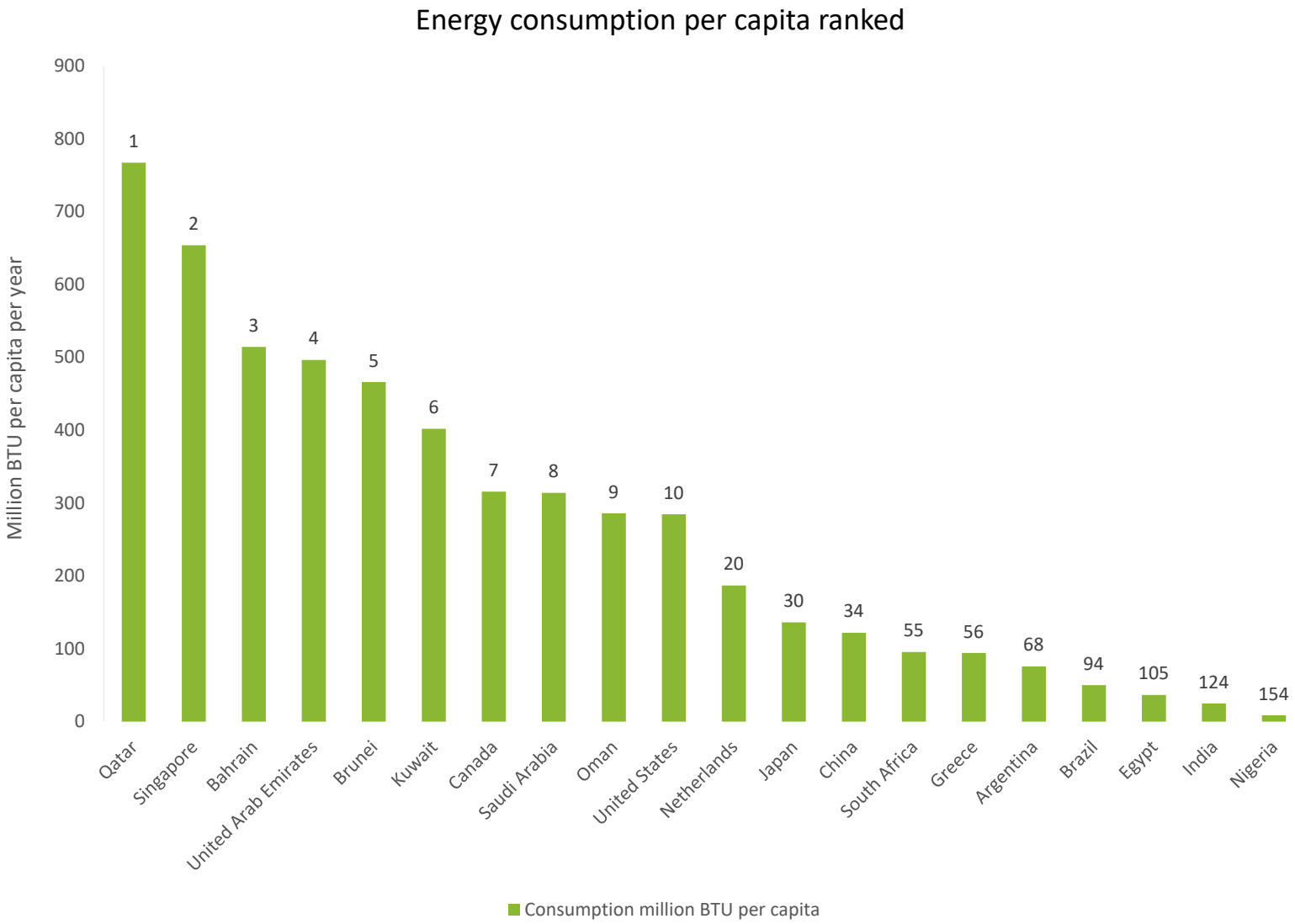


The many faces of the transition that we need



Appendix

The challenge of growth

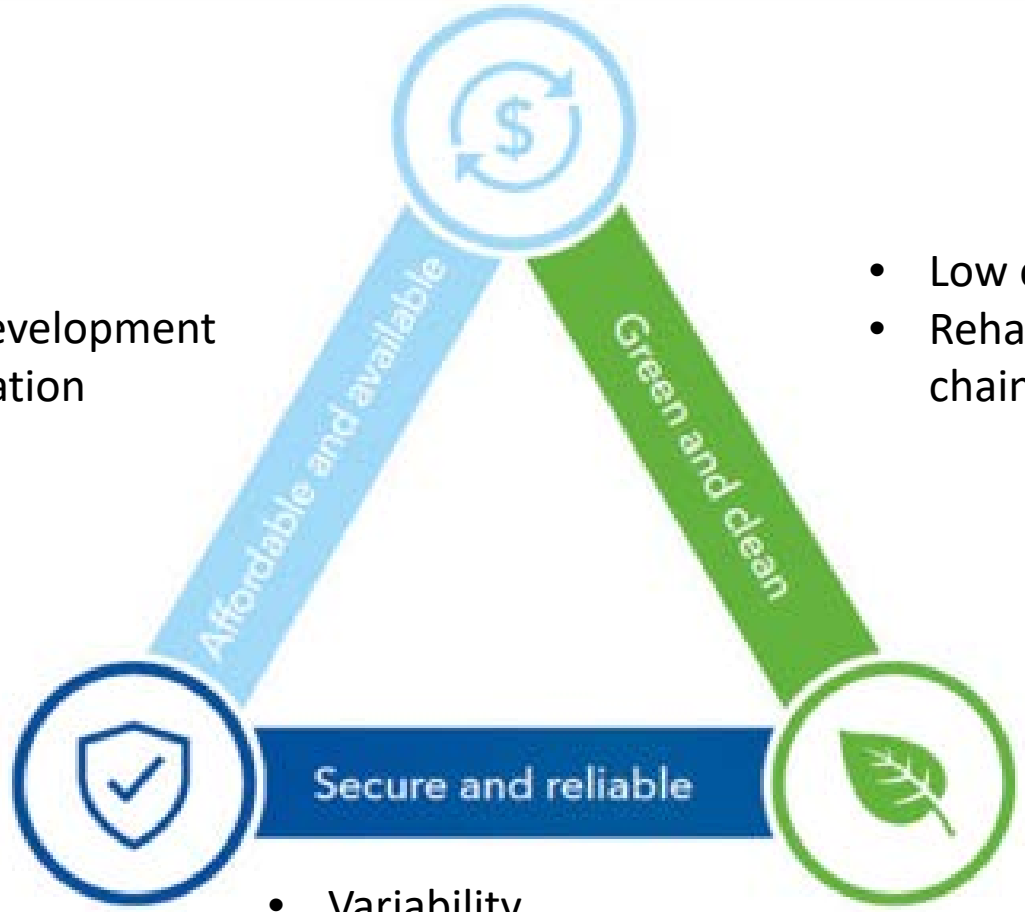


Source: CIA, 2022

The EU 27 population weighted average consumption is about 118 million BTU per capita which would place it around the 38th rank, primarily thanks to being a developed economy with significant energy efficiencies.

Brazil, the largest economy in South America and one that enjoys 89% renewable penetration thanks to abundant hydro only consumes about 40% of the EU 27 average consumption or 18% compared to the US. Brazil still impots LNG when hydro falls short.

- Scale
- Inputs
- Technology development
- Efficient allocation



- Low carbon emissions
- Rehabilitation of supply chains

- Variability
- Trade