



Energy Security Tendencies Amidst Geopolitical Turbulence and Environmental Transitions

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The Energy Transition Concept

1) Coal Era

- ✓ Industrial revolution
- ✓ Colonization
- ✓ World War I: British Navy

2) Oil Era

- ✓ World War II: Caucasus oil fields, Iran: the victory Bridge
- ✓ The US coup d'état against Mosaddeq (1953)
- ✓ OPEC formation and oil shock and counter-shock
- ✓ Persian Gulf Wars

3) Gas Era

- ✓ Russia – Ukraine conflict
- ✓ Nord Stream II

Sustainable transition and decarbonisation

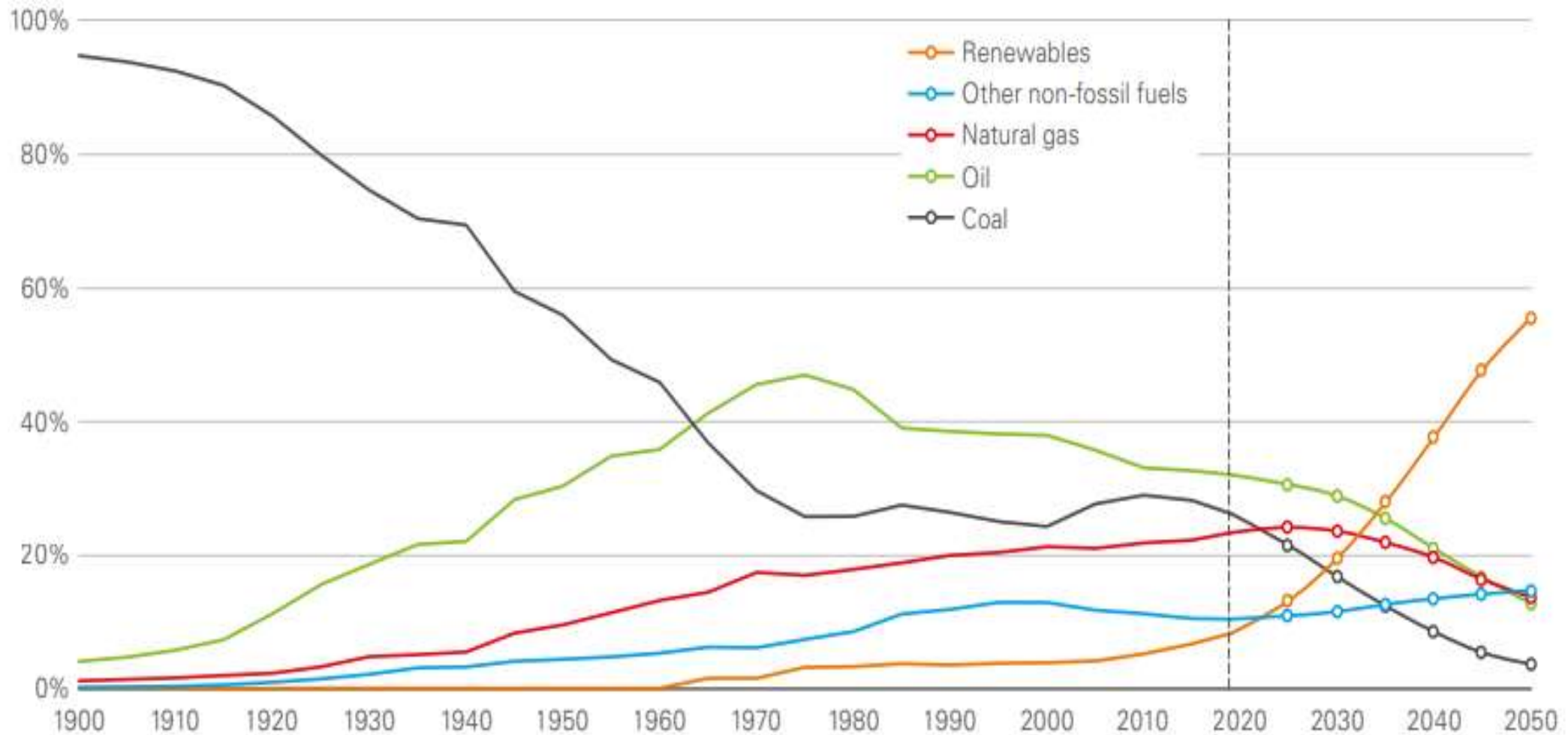


Europe & North Africa - 1942



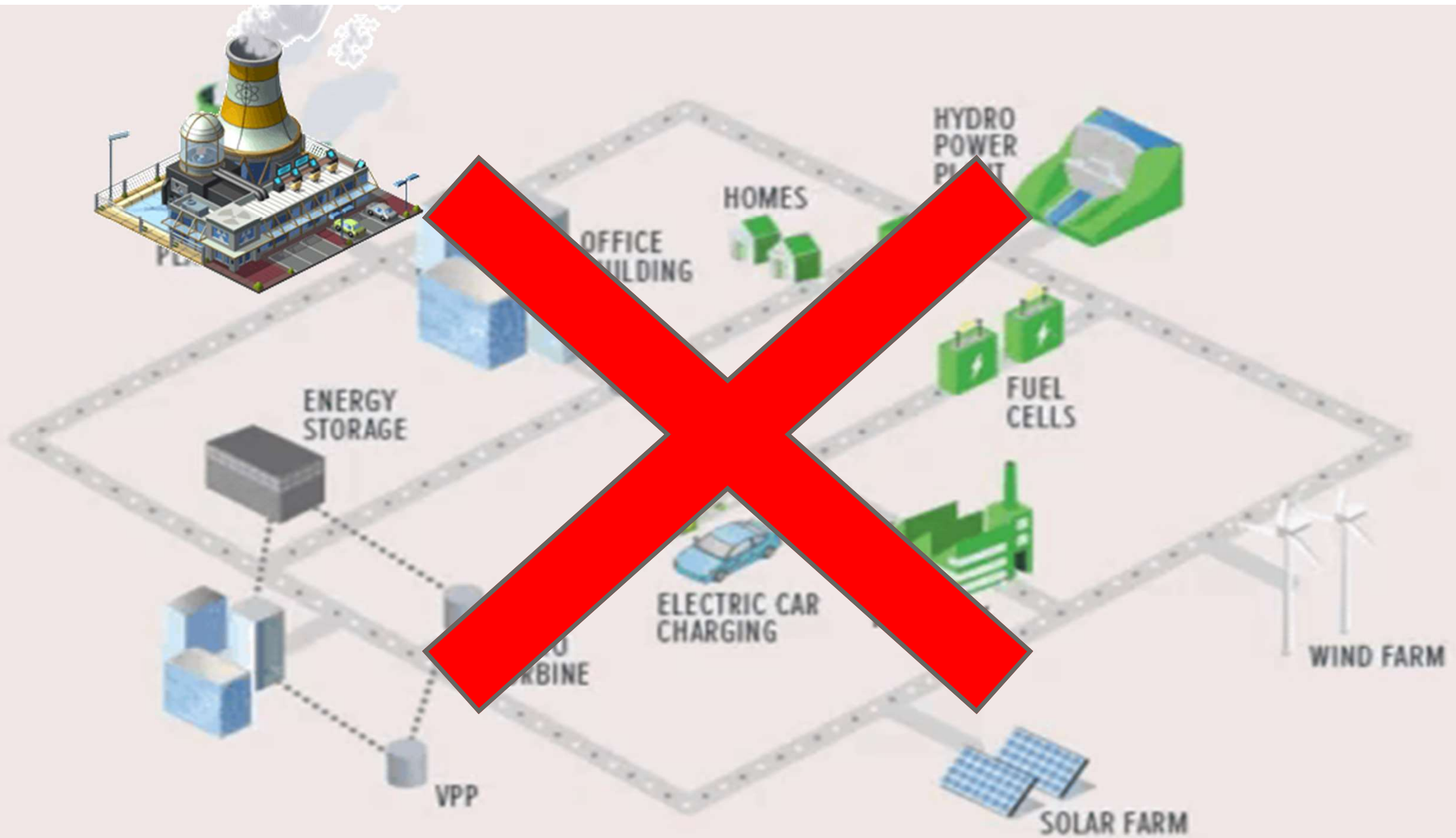
Share of primary energy in *Accelerated*

Share

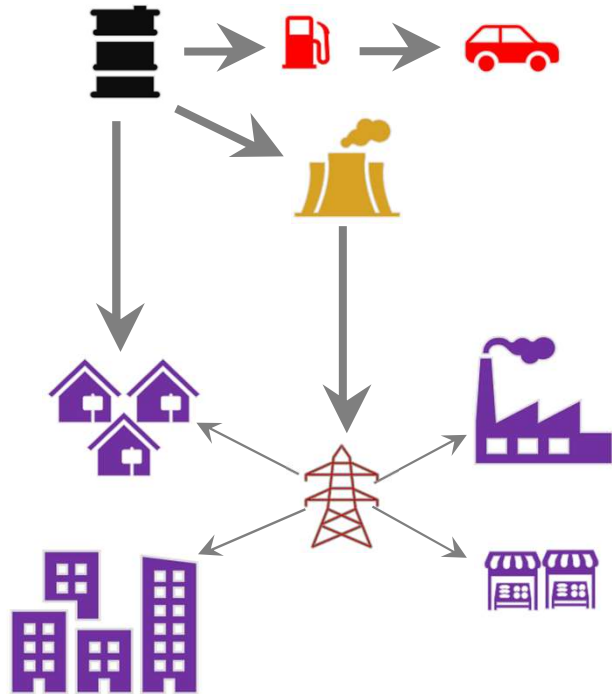


Excludes traditional biomass

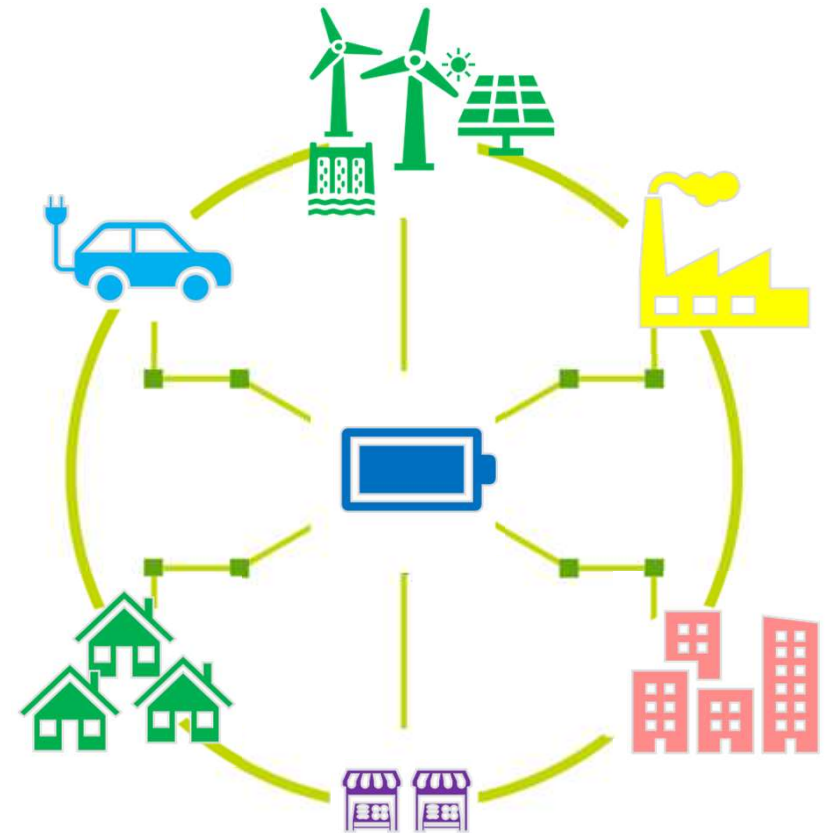
Other non-fossil fuels includes hydro and nuclear



Current energy transition changes the existing linear energy system to a circular one



A linear energy system:
Supply, transmission and consumption are distinctly segregated

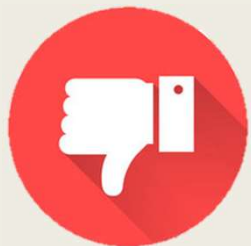


A circular energy system:
It's decentralised, decarbonised and digitalised system

Scholars are not unanimous about the implications of the energy transition



1. Reducing the dependence to external (mainly Russian) fossil fuel sources;
2. Mitigating climate change;



1. From fossil dependence to [material dependence](#);
2. Potential conflicts and contradictions between food and energy security;
3. Cyber security threat;
4. Pollution shift in energy production (especially in short term)



1. De-politicisation of energy?
2. Political instability in petrostates?
3. Future of OPEC, IEA, and other energy IOs?
4. New non-state actors, this time around mineral resources?
5. New resource curse?

Transition's implications for energy security



Availability

Concerns about finite
essence of fossil fuels



Conquering on
intermittency issue



Accessibility

Geopolitical concerns



Access to
geographically bound
renewables



Acceptability

Carbon offsetting



Carbon neutrality



Affordability

Inexpensive and stable
external markets



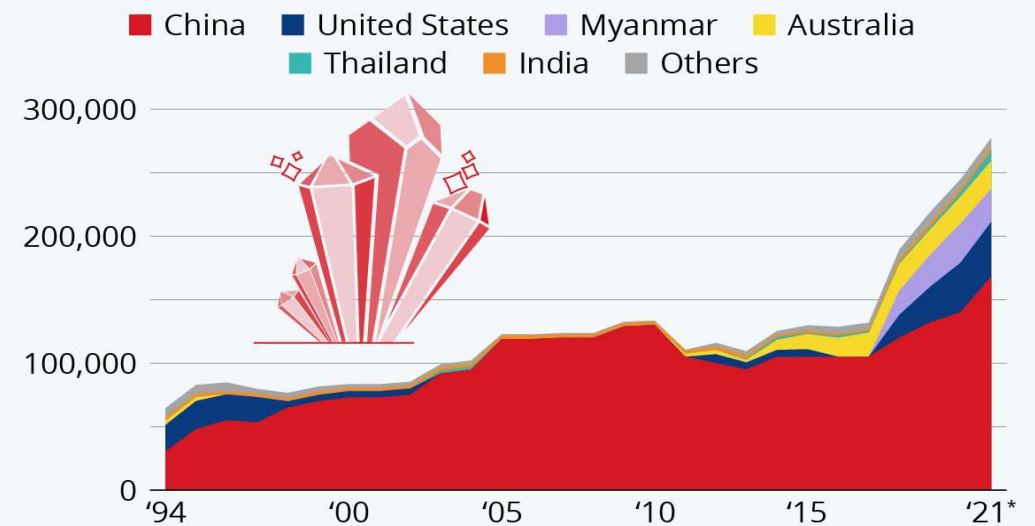
Import vs
production dilemma

Rare earth material: a new dependence security concern?



China's Rare Earth Monopoly is Diminishing

Global mine production of rare earths (in tons)



Documented production only, some estimations

* estimated

Source: United States Geological Survey



statista





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