

The Global Energy Transition

*more than less volatility ahead?*

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International energy transition, no 'one size fits all'; various speed of change

Energy transitions are unpredictable and take time

*Wind and solar energy are growing rapidly. Yet the world's reliance on fossil fuels isn't changing any time soon*

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## The Global Energy Transition

### Delayed and Disorderly

- The EU will be highly dependent on fossil fuels for another 10-20 years  
*While it hardly produces these itself anymore*
- Fossil producers are permanently reluctant to invest  
*Their investments are in line with a 1.5 degree world*
- Producers attach less importance to their reputation as a reliable supplier  
*The quiet time with stable, low energy prices, from 2015-2020, will not return*
- Geopolitics is back as the driver of the markets  
*And will continue to give surprises*

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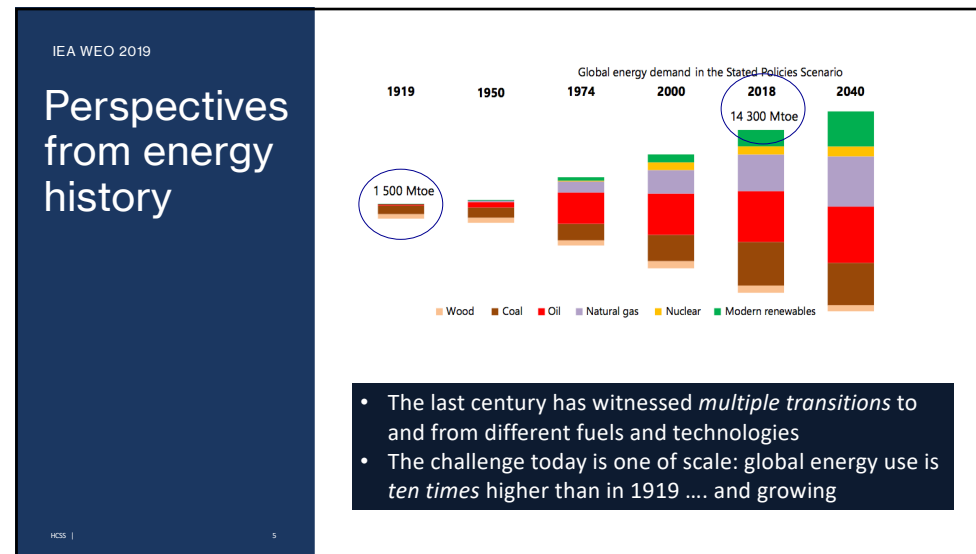
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## Agenda

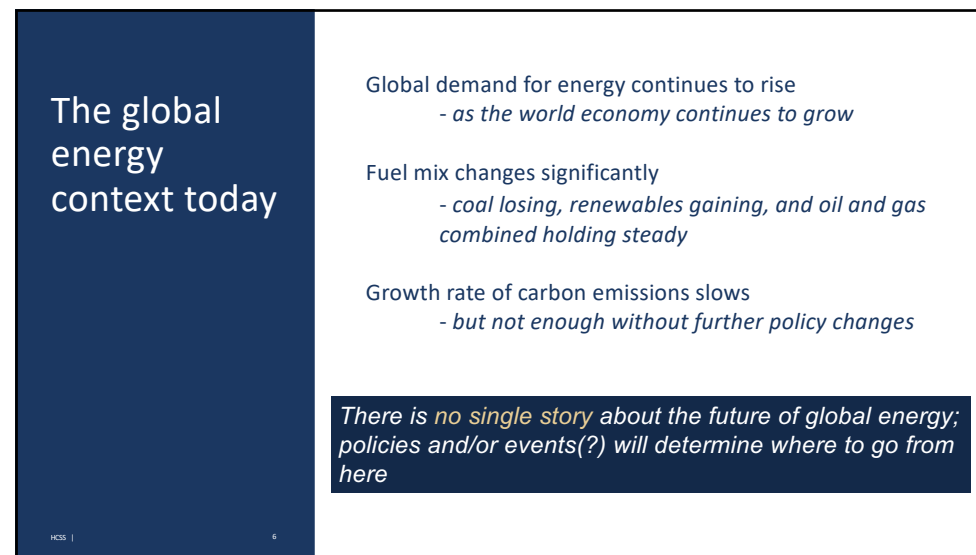
- The risk of disorderly change
- The 2022 energy crisis
- A new geopolitical landscape

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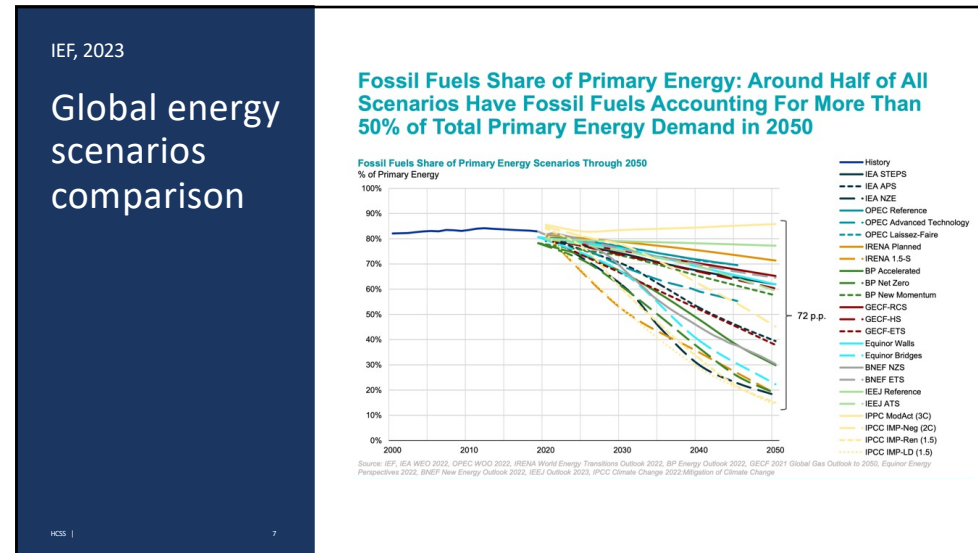
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IEA.org

## Energy security and the risk of disorderly change

Scenarios (e.g. WEO 2022) describe *smooth, orderly* processes of change; In practice energy transitions can be *volatile and disjointed affairs*, characterised by competing interests and stop-go policies

Risks of mismatches between energy supply and demand:

- o lack of appropriate investment signals
- o insufficient technological progress
- o poorly designed policies
- o bottlenecks arising from a lack of infrastructure

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Deloitte, 2021

## The transition is not straightforward

### The new world in terms of supply, demand, and pricing fundamentals

**The supply deficit:**  
the steep drop in capex changed the supply/demand equation

**Supplier (im)balance:**  
OPEC's oil market share from 37% to over 50% by 2050  
oil price volatility and energy security risks

**ESG focus:**  
ability of O&G companies to source capital is a growing issue

**Decarbonisation responsibility:**  
court rulings, shareholder activism to include *Scope 3* emissions

Decarbonization responsibility: Direct and indirect O&G emissions

Scope	Percentage	Description
Scope 1&2	12%	Upstream activities, purchased electricity, and energy for own consumption
Scope 3	88%	Use of products sold, end-of-life treatment of used products, leased assets, transportation, and distribution

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IEA, 2022

## Global Energy Crisis

### Record prices, fuel shortages, rising poverty, slowing economies

- Disrupted supply chains, bad weather, low investment, and then came Russia's invasion of Ukraine
- Russia's invasion of Ukraine drove European and Asian gas prices to record high

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May 2023 Columbia Energy Exchange:: Ann Mettler

## The new age of energy and security

If.... 2022 were an earthquake for the global energy system, *Europe was the epicenter*

- Russia's invasion of Ukraine sent energy prices skyrocketing
- Consumers across the continent struggled to pay their bills
- European governments spent **more than €800 billion** shielding consumers from these high prices
- 2023 prices lower, but Europe's energy system remains precarious

EU is a resource-poor geography:  
we are not yet out of the woods!

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## Geopolitics is Centre Stage again!

End of 30 years period after the Iron Curtain Collapse:

- end of a time of open markets and globalisation
- back to a more divided world
- Western world slammed the door on Russia
- WTO consensus world is over now in an era of great power competition/ strategic collaboratory

Start of a world of  
fragmentation/geopolitical blocks

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## 2022: Geopolitics is Centre Stage again!

### US is the new energy power

America is now a big net exporter of energy, while China remains heavily dependent on imports

- largest producer of oil today
- largest overall producer of gas
- largest exporter of LNG

*Importer of US energy: India, China*

**Shale/LNG is strategic asset for US**

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## New energy order

### European energy markets are looking for a new normal

- *diversification of energy sources*
- *acceleration of renewable energy sources*
- *concerns about energy security*

The transition can be long and bumpy!

Reality: current energy order is still heavily dependent on hydrocarbons (*oil, gas, coal*) and limits policy options despite ambitions for a rapid energy transition

*Energy security remains at the heart of energy policy but is coming at a cost and can derail other objectives*

**Transition to a new energy order will not be smooth and orderly as frictions between the major players on the world stage increase** (*US - China, Russia - West, slowing down globalisation*)

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## Decarbonization

### Mid-term outlook: towards 2035

- **Decarbonization policies** will decrease the European consumption of fossil fuels, but it is uncertain to what extent
- Industry will have to **balance** the remaining demand for fossil fuels with the steadily increasing use of low-carbon sources
- **Hydrogen consumption and electrification** are set in motion but will not develop quickly enough to already dominate the European energy market in the mid-term (2030-2035)
- Imports of **natural gas** are becoming essential for European energy security of supply

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## Geopolitics

### A new geopolitical landscape

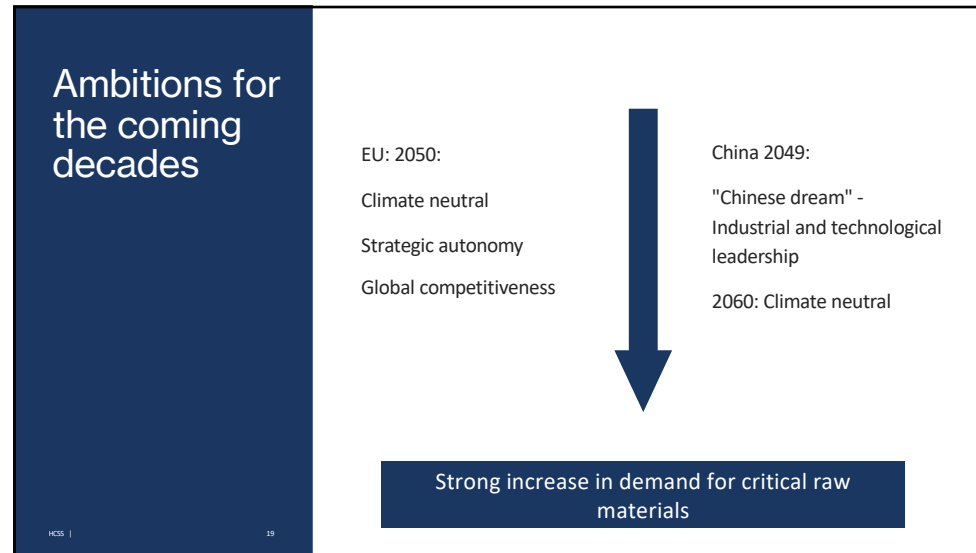
- Power politics in countries with critical minerals and low-cost hydrogen production facilities will emerge
- The development of the new geopolitical landscape is uncertain
- The speed and success of the energy transition therefore relies on
  1. policy choices
  2. international relations
  3. technological breakthroughs
  4. infrastructure development

- Becoming part of the solution will require *collaboration and cooperation* between industries to establish a unified position
- Incremental change in both *infrastructure and market development* is required simultaneously

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