

Webinar

Ukraine War & Global Energy Impacts to 2030 - How clean energy will outpace fossil fuels

Monday 4th April 09:00 New York / 14:00 London / 15:00 Paris / 21:00 Singapore
Moderated by Kavita Srinivasan, Senior Manager, Vivid Economics

Climate Bonds



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Mark Fulton
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Policy Response (IPR)



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Co-founder & Partner,
Kaya Group

What is IPR / energy policy response to Ukraine



Mark
Fulton, IPR



Bo
Lidegaard, Kaya

• Ukraine: Long term reinforces move from Fossil Fuels

We express our sympathies with all those suffering in this conflict.

- IPR is primarily a climate transition forecasting consortium. IPR policy forecasts combined with technology assumptions leads to climate outcomes in emissions and the economy sector by sector
 - IPR has set out a series of “drivers” which have included energy security under the theme of New GEO Politics of Energy.
 - It is under this theme that we seek to assess the impact of the war in Ukraine.
 - Energy security has now increased in importance as a driver of the overall energy transition itself.
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Drivers of momentum makes an accelerated forceful policy response more likely

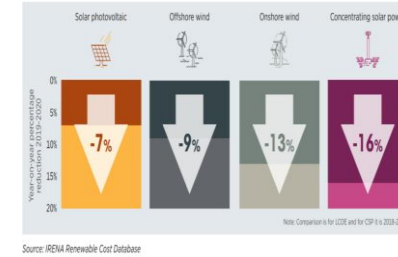
Extreme weather events



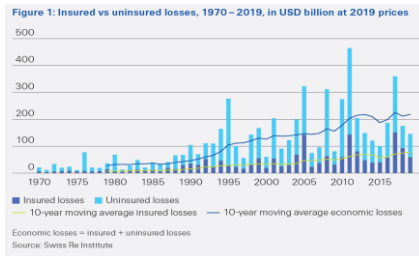
Impacts on security



Cheaper renewable energy



Uninsurable world



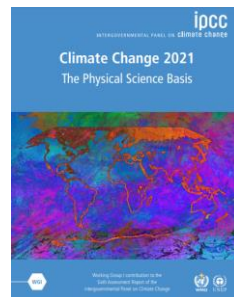
Civil society action



Financial regulator warnings on stability



New climate research



Influence shifting



New geopolitics of energy



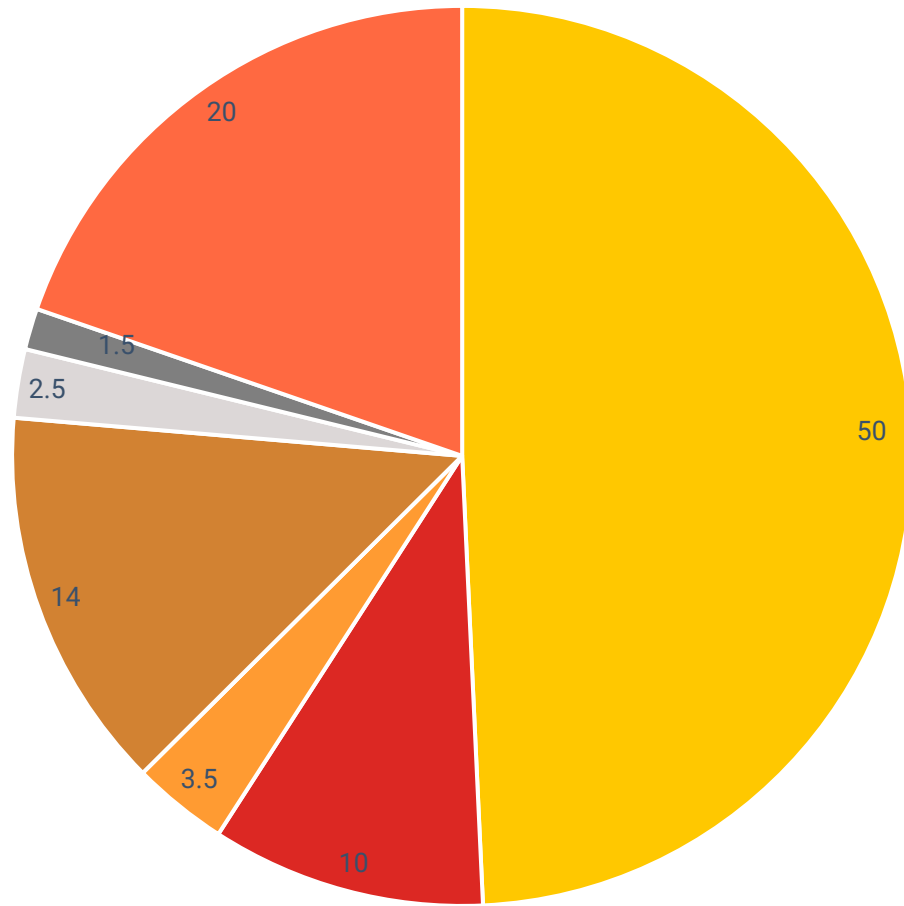
INEVITABLE POLICY RESPONSE

: EU – focus on energy security and industrial policy

- *Synopsis of Kaya's policy analysis for IPR*
 - Ukraine has provoked a major **paradigm shift** towards strategic autonomy
 - Pivot to **energy security and industrial policy** on top of “Fit for 55”. Some elements put on hold - others fast-tracked
 - **Out of gas**: Commission proposal for 2/3rds this year, fully by 2027. **Political pressure to end imports**, incl. oil+coal
 - **Renewables**: Massive ramp-up, finance available, supply chain issues + permitting
 - **Short term more fossil**: LNG, coal/lignite, nuclear – but also push for heat pumps and energy efficiency
 - **Just transition**: Support measures for vulnerable consumers, caps on gas prices, energy market reform and other measures being discussed, including joint purchasing and mandatory storage to secure energy and lower prices
 - **Food security** a real concern: Wheat prices up + fertilizer shortages. EU to provide 2.5 bn Euros until 2024 to most vulnerable regions. Implications for Sharm el- Sheikh COP?
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RePower EU –Commission communication response

Plan to reduce 155 bcm natural gas imports from Russia by 2/3rds end year



- LNG diversification (50 bcm)
- Pipeline import diversification (10 bcm)
- Boost biomethane production (3.5 bcm)
- EU-wide energy saving (14 bcm)
- Solar rooftops front loading (2.5 bcm)
- Heat pump roll out front loading (1.5 bcm)
- Wind and solar front loading (20 bcm)

- US to provide an additional 15 bcm LNG this year and 50 bcm in coming years (2021: 22 bcm).
- Proposal does not include coal (3.9 bcm) or reversing planned phaseouts of **nuclear** (7.1 bcm)
- Commission to present concrete proposals in May, including on poss. energy pricing reform

• US and China – focus on energy security

US: Two competing narratives

- Limited “Build Back Better” package, expected by May
- More drilling + extraction
- Risk of supply chain disruption if China is targeted by sanctions

China: Walking a tightrope

- Equally unattractive to fall on any side. Danger of disruption of economic ties if support to Russia
 - 2060 commitment looks robust with continued rollout of RE but short term more coal (and maybe longer)
 - Pivotal role in global RE supply chains
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: Implications for IPR

For IPR Forecasts we see 3 meta developments at this stage:

- **Reinforcement of medium** (3-5 Years?) and **long term** IPR renewable energy and Green Hydrogen policies and sector forecasts
 - **Short term** (1-2Years) **energy supply crisis for EU** with many uncertainties, local gas and coal use and sourcing of Fossil Fuel supplies outside of Russia
 - So we see the possibility of an **all of the above approach** at least short term where fossil fuel capacity remains longer in the system for security back up but constrained capacity utilisation still allows countries to achieve emission goals,
 - For the **IPR Forecast Policy Scenario (FPS)** this means that the **fossil fuel sector supply dynamics will need reassessing** eg split between piped natural gas and LNG, geography of origin etc.
 - But we **do not see any divergence from trend in demand side sectors**, if anything an eventual acceleration towards more green outcomes
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: IPR Forecast Policy Scenario (FPS) 2021 Sector Implications: energy system

EU Fuel sector mix and geographic source no longer certain

- Move away from Russia sources
- Possible increase in coal use short term
- Nuclear maintained longer
- Gas storage and LNG boosted
- Hydrogen push accelerated
- Wind and solar roll-out accelerated
- Heat pump roll out required to further dent gas dependence
- Energy Efficiency strong focus

US Outlook

- Shale focus short term
- LNG exports short-term
- Support green energy incentives

Key Demand side sector trends remain in place for decarbonising:

- Industry faces sourcing and supply issues but will remain on a decarbonizing trajectory
 - EVs will accelerate even faster, placing emphasis on eventual fuel mix in utilities/electricity system
 - Short run EU utilities may slow decarbonization, long run acceleration in most global jurisdictions
-

: FPS 2021 Sector Implications: Food and land

- Support policies (e.g. tariffs and subsidies) that reinforce food security and support locally sourced food
 - Diversify cereal suppliers in the short run. Ukraine and Russia make up 30% of cereal exports, which will be heavily disrupted if the conflict is not resolved before the summer's harvest.
 - Accelerate shift away from energy intensive fertilizers
 - Highlights importance of “peak meat” to reduce dependence cereals and associated fertilisers coming out of Russia
 - Potential push for environmental deregulation in jurisdictions that want to increase their cereal and fertilizers market share in the short term (e.g. Brazil)
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Perspectives: O&G, power, utilities, energy, transition



Catharina

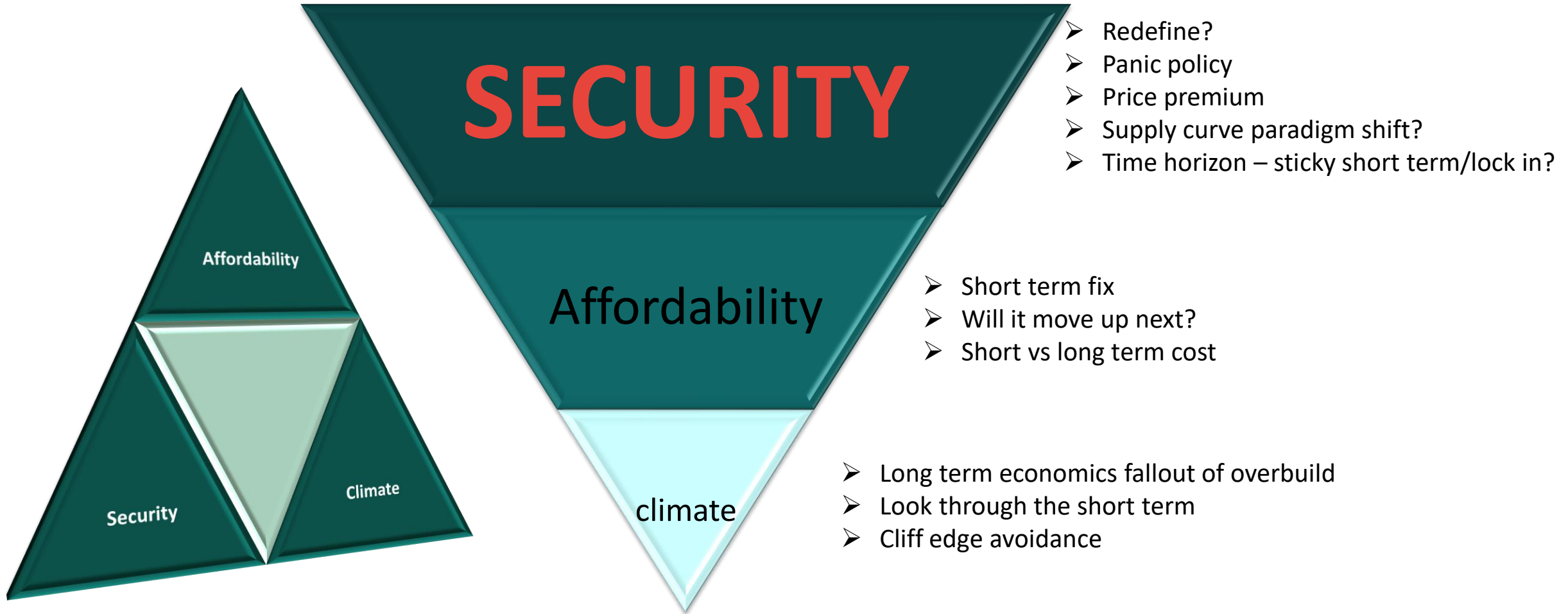
Hillenbrand Von Der Neyen, Carbon Tracker

Impact of the Ukraine war

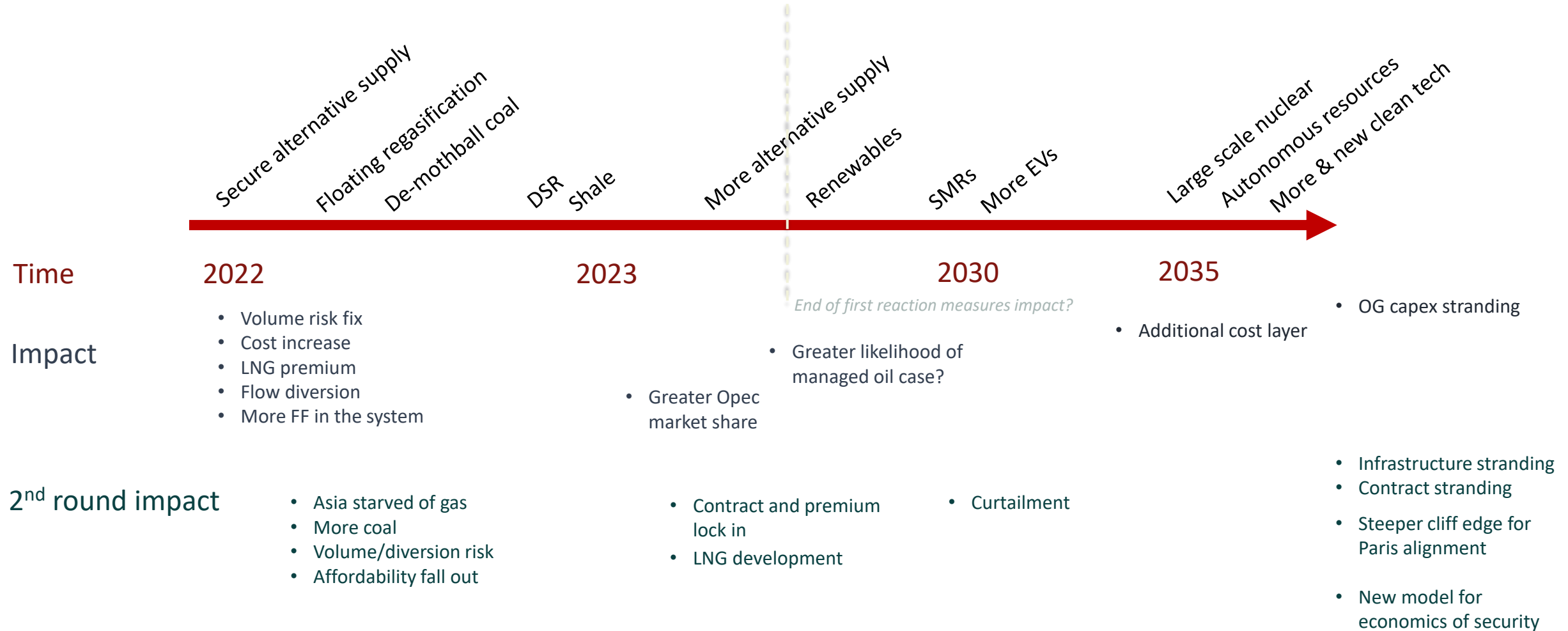
Carbon Tracker, 2022

Catharina Hillenbrand von der Neyen, Head of Research

Trilemma to hierarchy



The catalogue of reactions



Emissions vs economics



Oil & gas

- Security premium
- Autonomous higher cost resources
- Development requires production
- Emissions increase
- Cliff edge?



Power/utilities

- FF overbuild
- Initial emissions overhang
- Later curtailment



Infrastructure

- Overbuild & contract lock in
- Resource development incentive
- Fuel volume overhang

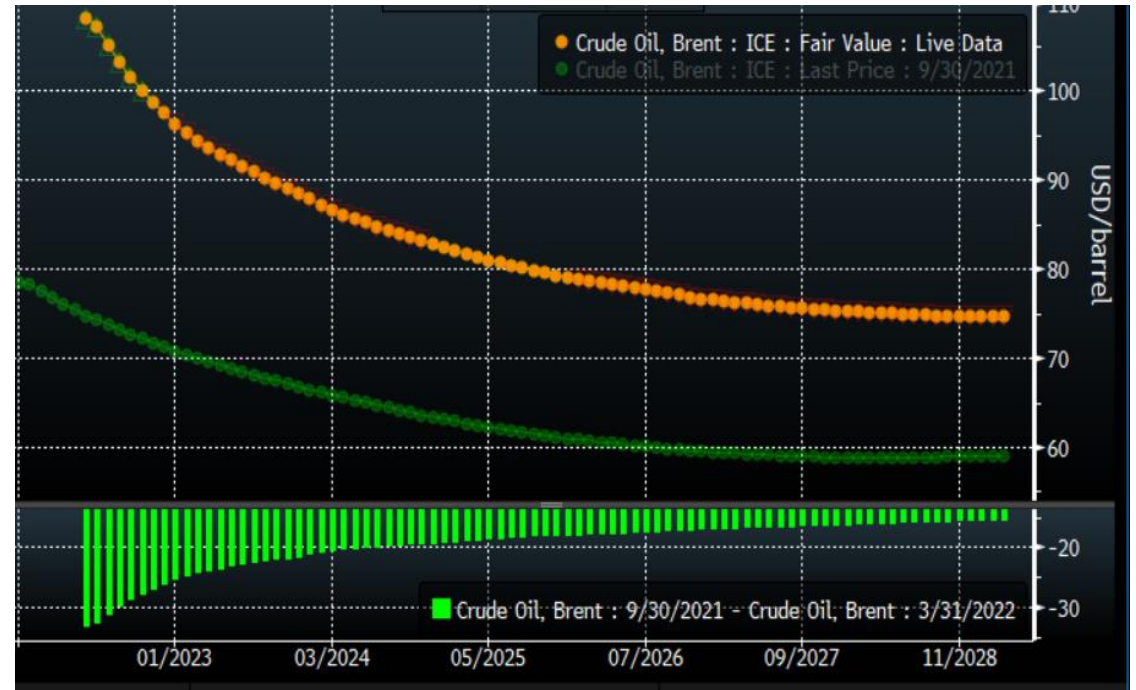
Who pays for the security premium?

It's not different this time

Brent Crude spot vs 2023 maturity



Brent crude forward curve



Source: Bloomberg

-- Mind the investment signal --

Case in point of non linear scenario

Long term

- Risk of USD 1tn wasted capital on price signal and long term demand misappreciation

Short term

- Shale
- Short cycle
- Reliable
- ...and capital discipline?

- Opec spare capacity
- Who is reliable ?
- Opec swinging east
- Market share
- Price point balance and option value

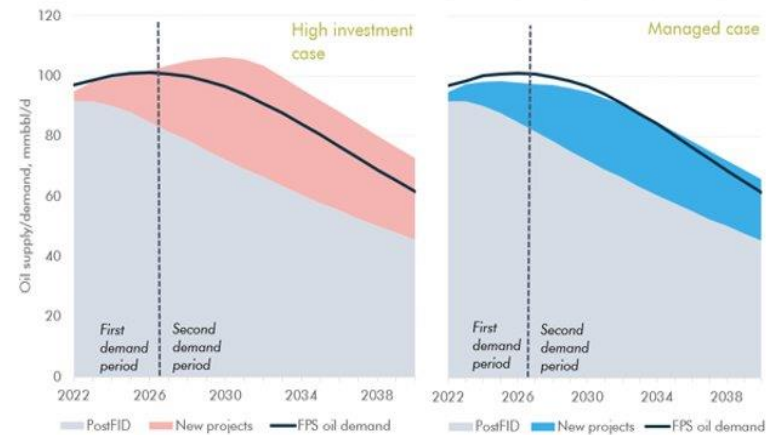
CAPEX (2022-2030) ON PROJECTS APPROVED IN 2022-2026 SPLIT BY COMMERCIALITY AT TWO SUPPLY CASES AND THREE LONG-RUN OIL PRICES



Note: Real prices in 2021 dollars.

Source: Rystad Energy, Carbon Tracker analysis

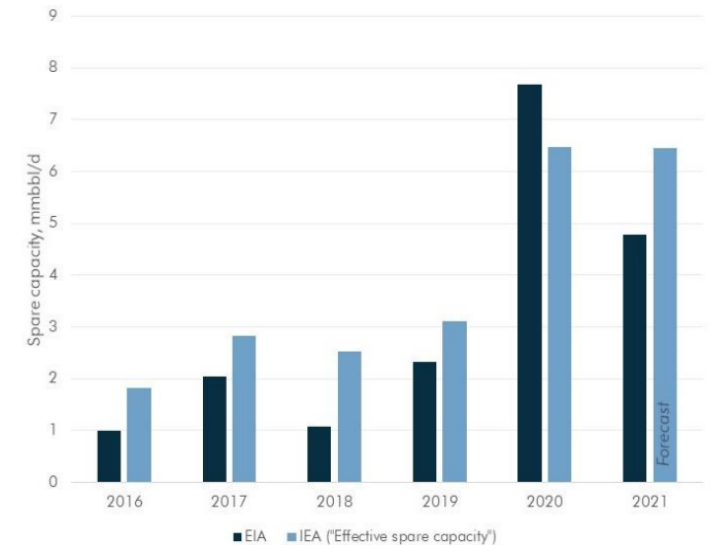
OIL SUPPLY FROM ALREADY-SANCTIONED (POST-FID) PROJECTS AND NEW PROJECTS SANCTIONED IN PERIOD 1 (2022-2026) IN THE HIGH INVESTMENT (LEFT CHART) AND MANAGED (RIGHT CHART) CASES, WITH FPS OIL DEMAND



Note: Includes associated oil supply from gas fields, which we keep constant in both cases.

Source: IPR, Rystad Energy, Carbon Tracker analysis

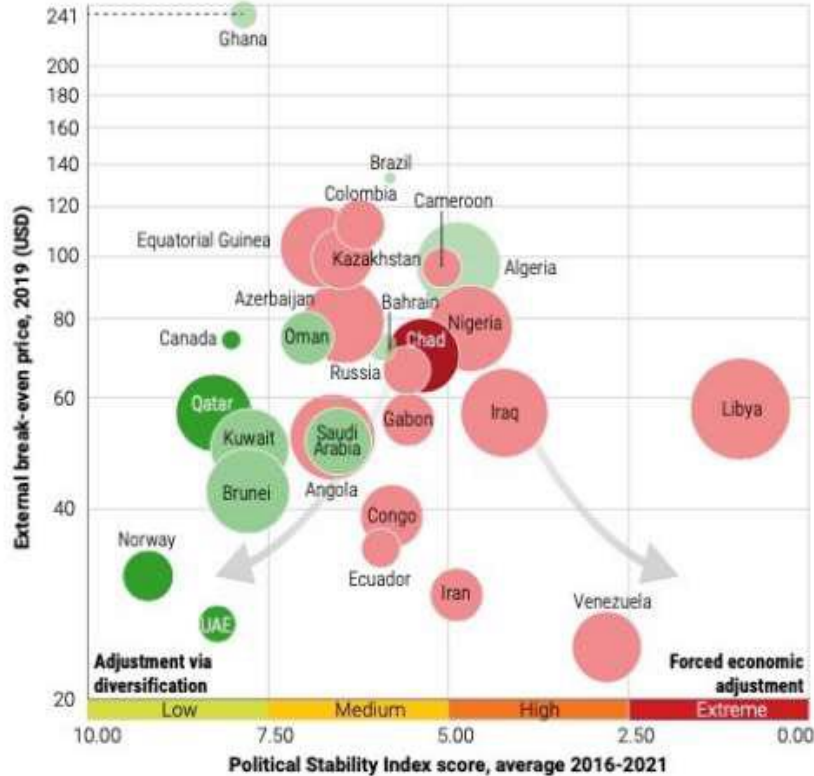
OPEC SPARE CAPACITY ACCORDING TO EIA AND IEA



Note: IEA "effective spare capacity" excludes Iran.

Source: EIA, Carbon Tracker analysis

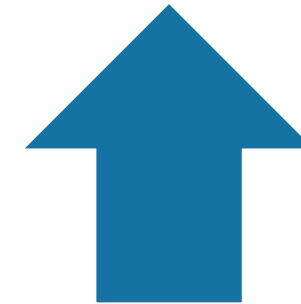
Petrostates – beyond or deeper?



Accelerated stranding
Energy autonomy drive



Security premium
Russian substitution
Option value?



Gas – all about redirection

2021 Production, bcm per Country

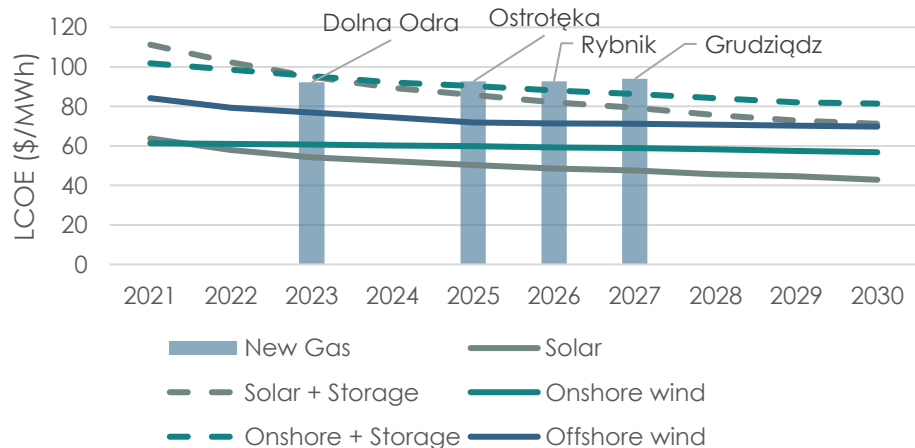
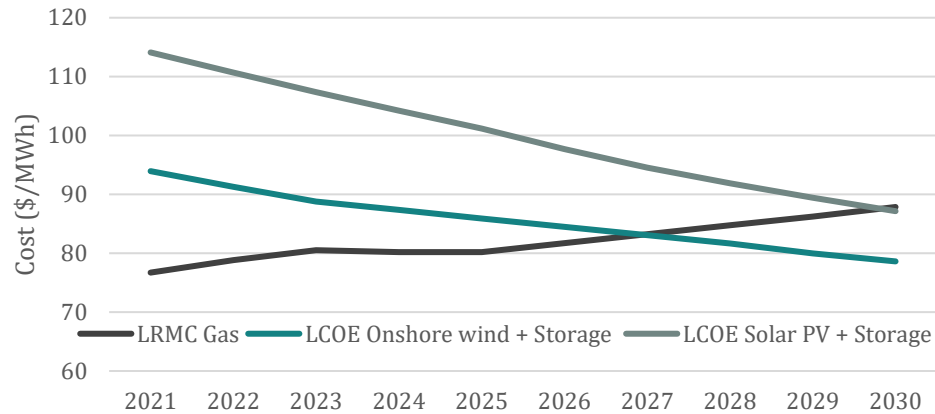


Source: Rystad

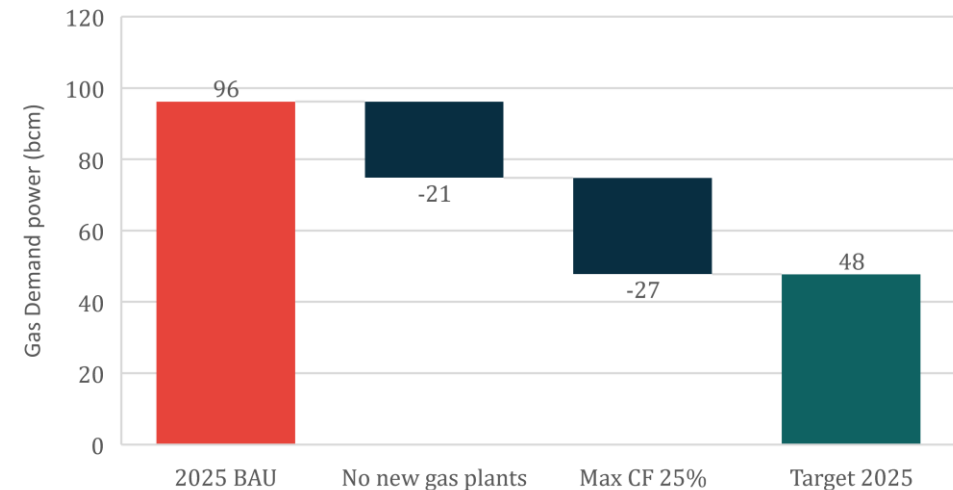
- Incremental US volumes to Europe are redirections – price premium
- Russia diversion to Asia
- LNG to Europe
- Asia starved of LNG
- Infrastructure build need – stranding?
- Power generation plant load factors – stranding/uneconomic operations
- Geographical infrastructure mismatch
- Vessel capacity
- How sustainable will new arrangements be
- Market and flow volatility will increase
- Wealth of nations divide

Power generation – leapfrog

Median LRMC gas vs LCOE renewables with storage Europe



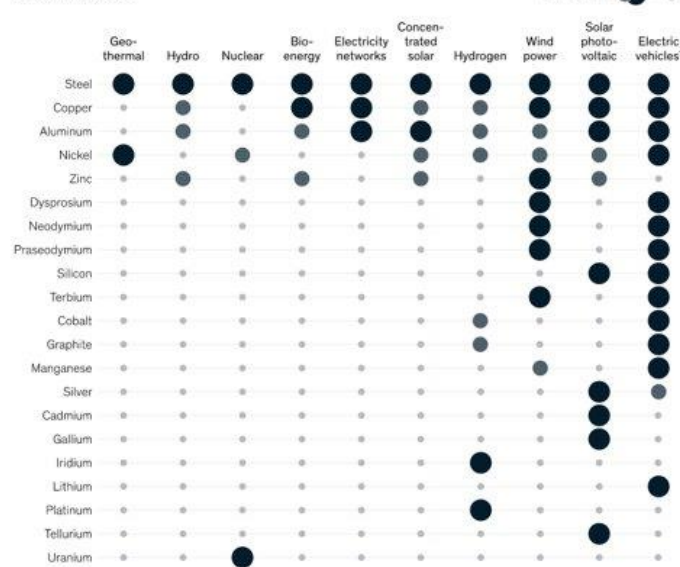
- Replace gas with renewables immediately feasible: 60% of European gas plant run as base load
- Avoid 40% of imports by 2025
- Renewables cum storage cheaper mid-late 2020s
- De-mothballing of coal – greater demise of gas
- Coal to clean
- Security backstop – existing gas fleet



Source: CTI

New dependencies

Materials critical for transition to a low-carbon economy, by technology type



*Includes energy storage.
Source: Critical raw materials for strategic technologies and sectors in the EU, A foresight study, European Commission, Mar '9, 2020; The role of critical minerals in clean energy transitions, IEA, May 2020; McKinsey analysis

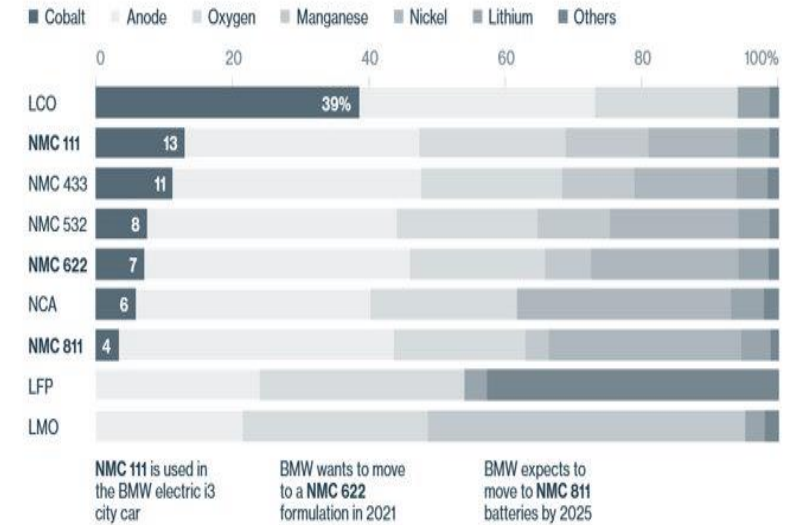
Copper, steel and lithium price



Source: Bloomberg

Battery Chemistries

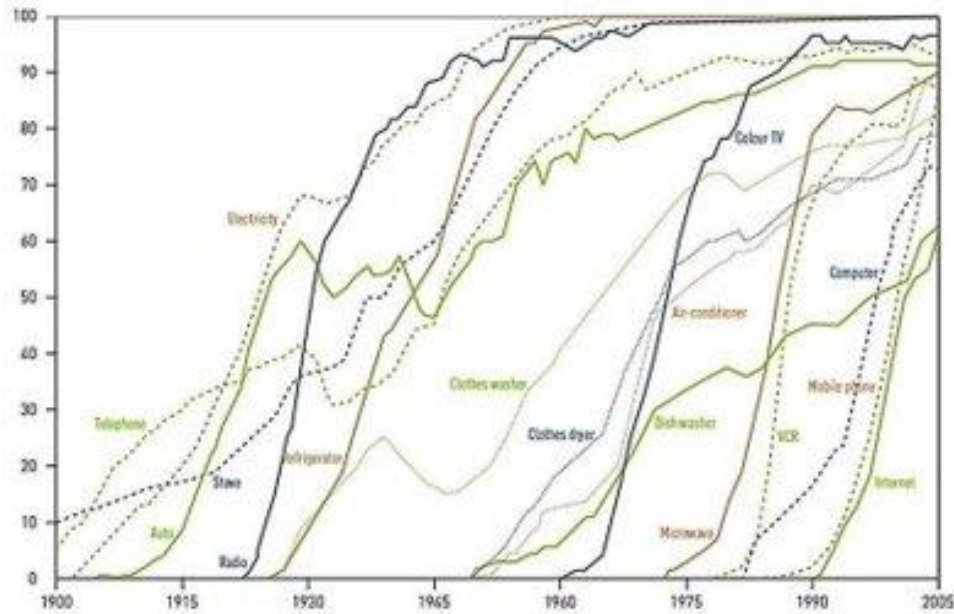
Carmakers expect to gradually move to batteries that use less cobalt



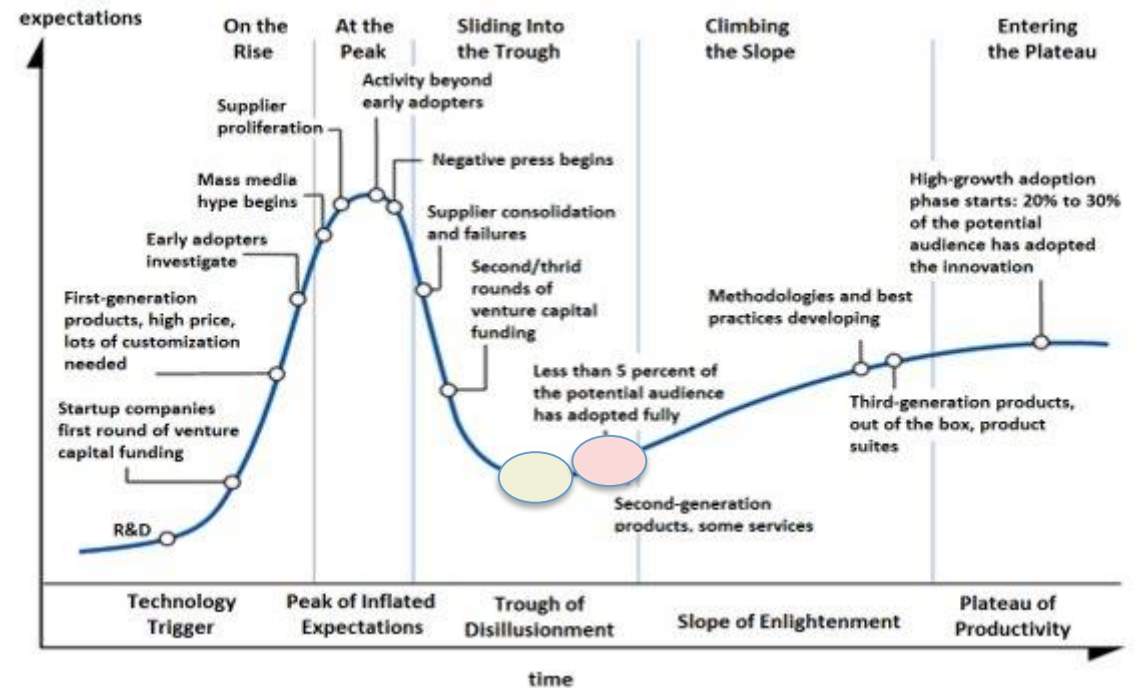
Source: Bloomberg New Energy Finance

- ✓ Innovation
- ✓ Premium for security
- ✓ Avoid sanctions undermining from energy intensive manufacturing
- ✓ Manufacturing repatriation

Energy transition accelerator – sentiment and real



Technology adoption curves for a range of modern innovations. Victorian Government



- ✓ FF demand destruction
- ✓ FF risk and volatility illustration
- ✓ Policies
- ✓ Economics

Green finance, investment impacts, investor reactions



Sean Kidney, Climate Bonds Initiative

Q&A Session

Conclusions

Webinar Resources:

IPR / Kaya Report - March 31st 'Ukraine War: The new geo-politics of energy and implications for climate policy.' [Download.](#)

What's Coming up – Future Webinars - April 27th

Joint Principles for Responsible Investment (PRI) & IPR Event

Launch of IPR Quarterly Forecast Tracker (QFT) Global Policy Trends & Technology Briefings

Date: Wednesday, 27 April 2022, Time: 13:00 - 14:00 BST / 14:00 - 15:00 CEST

[Register here.](#)