

ESG risks of Europe's energy transition: from frying pan to fire?

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How is Russia's invasion of Ukraine reshaping global energy markets?

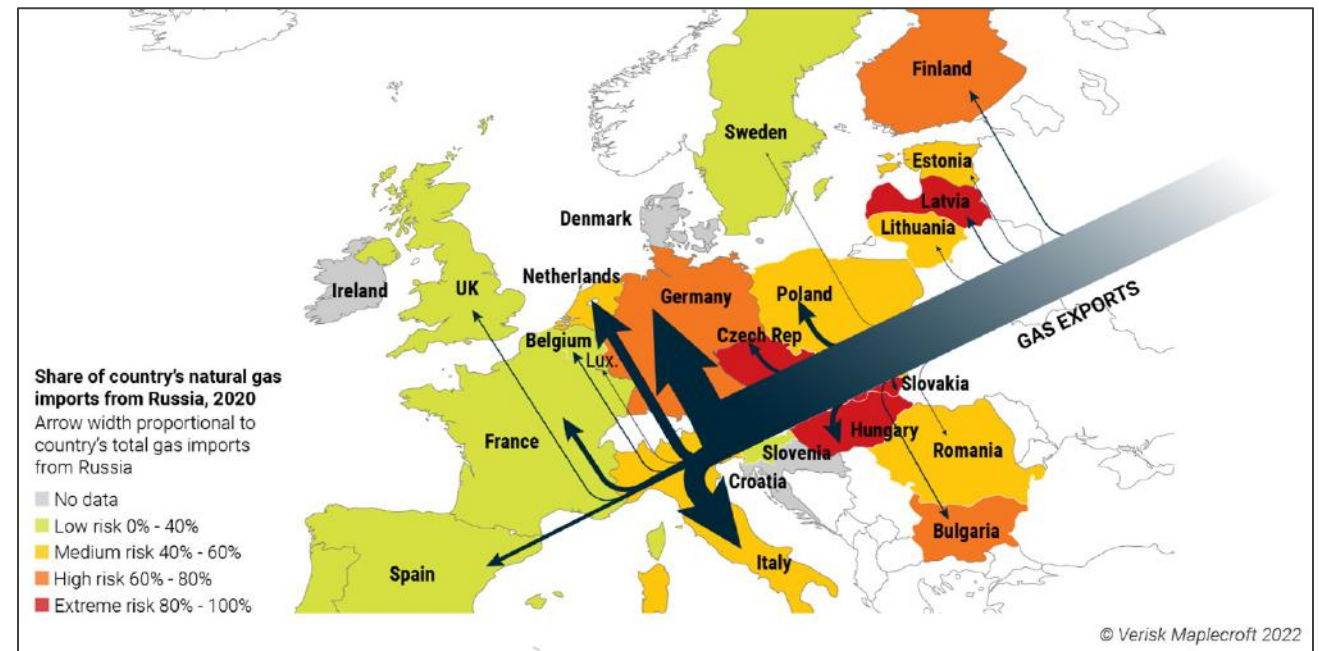
Russia's invasion of Ukraine - defining geopolitical moment of 2022

Long-term implications to shape global policy decisions in 2023 and beyond

The war will not end swiftly. Investors need to factor first and second-order implications into medium- and long-term strategic planning

Food and fuel supply disruption pose major challenges. Social tensions have been exacerbated amid pandemic-led economic downturns

Reactions to supply shortages will shape policy decisions. Governments will seek to assuage social discontent before it manifests as civil unrest or electoral defeat

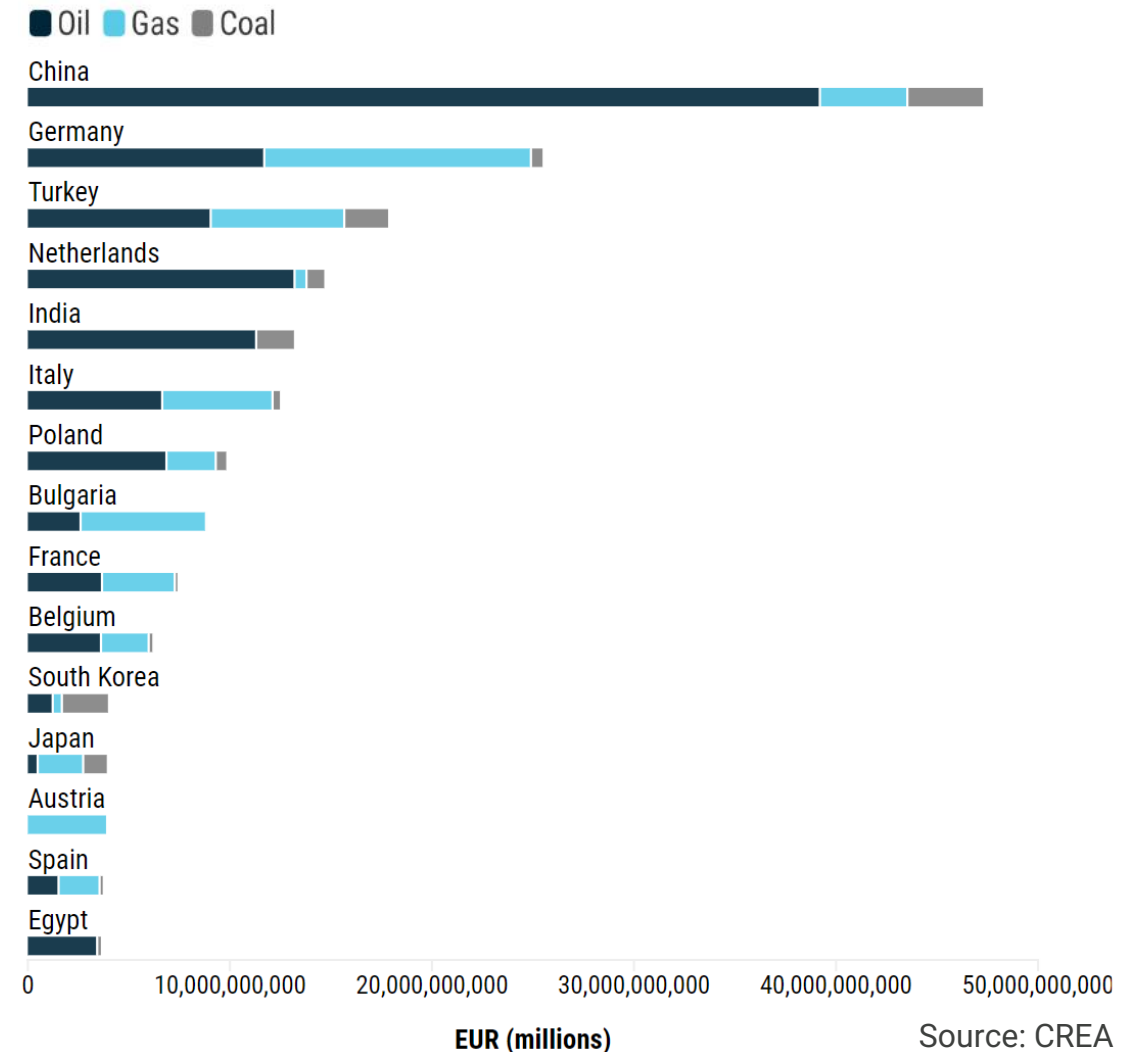


Ukraine crisis has reshaped global energy market

Dilemma of supply security, affordability and sustainability

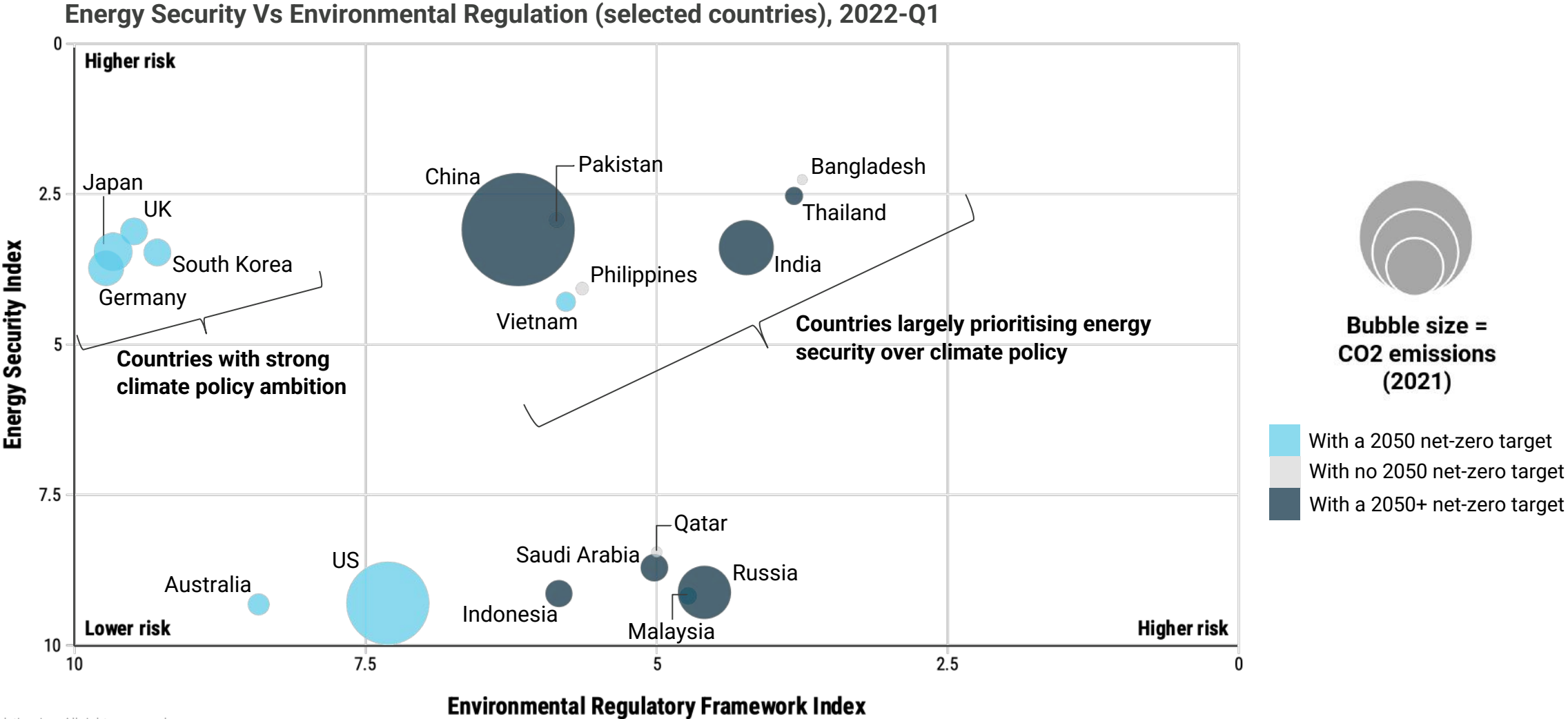
1. IEA calls for supporting the **twin goals** of energy security and clean energy transition
2. Sanctions bifurcate the global energy market with **China, India and the ME increasing imports** from Russia with huge discount
3. Both Russia's **pivot to East** and Europe's reducing reliance on Russia take time
4. Russia's fossil fuels in high demand and create over **\$231B of export revenue** since Feb 2022
5. More Russia exporters target **distant markets**

Largest importers of fossil fuels from Russia since 24 February 2022



Ukraine crisis has widened global division on energy transition

Energy security dilemma will be translated into higher dependency on fossil fuels

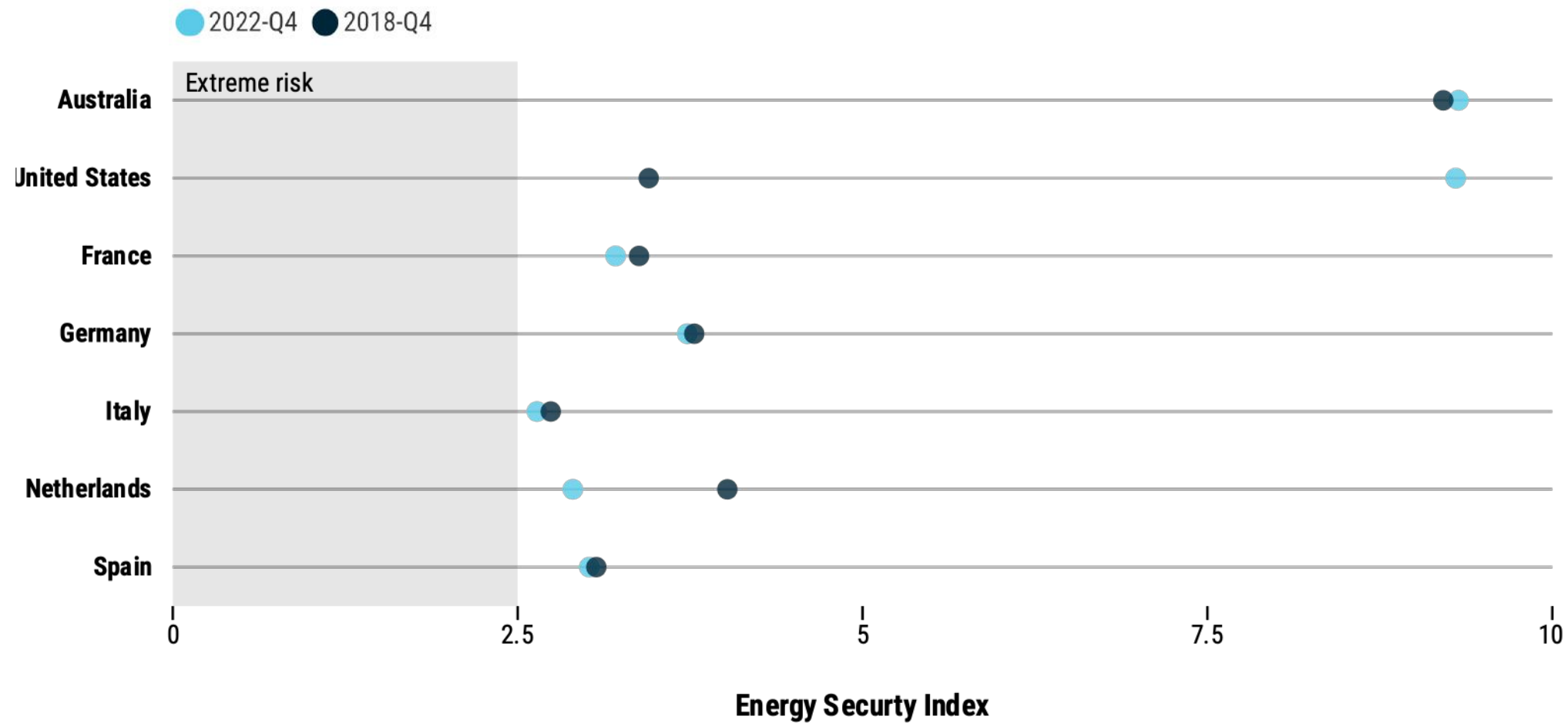


Russia's invasion as an accelerator for EU energy transition

Reckoning of import dependency amid energy security crisis

Geopolitics combines with climate change to drive domestic energy production impetus

EU countries face higher energy security risks compared to domestic energy producers US and Australia



Renewables deployment and fossil fuel phase-outs as key priorities

Accelerated renewables expansion further boosts demand for critical minerals

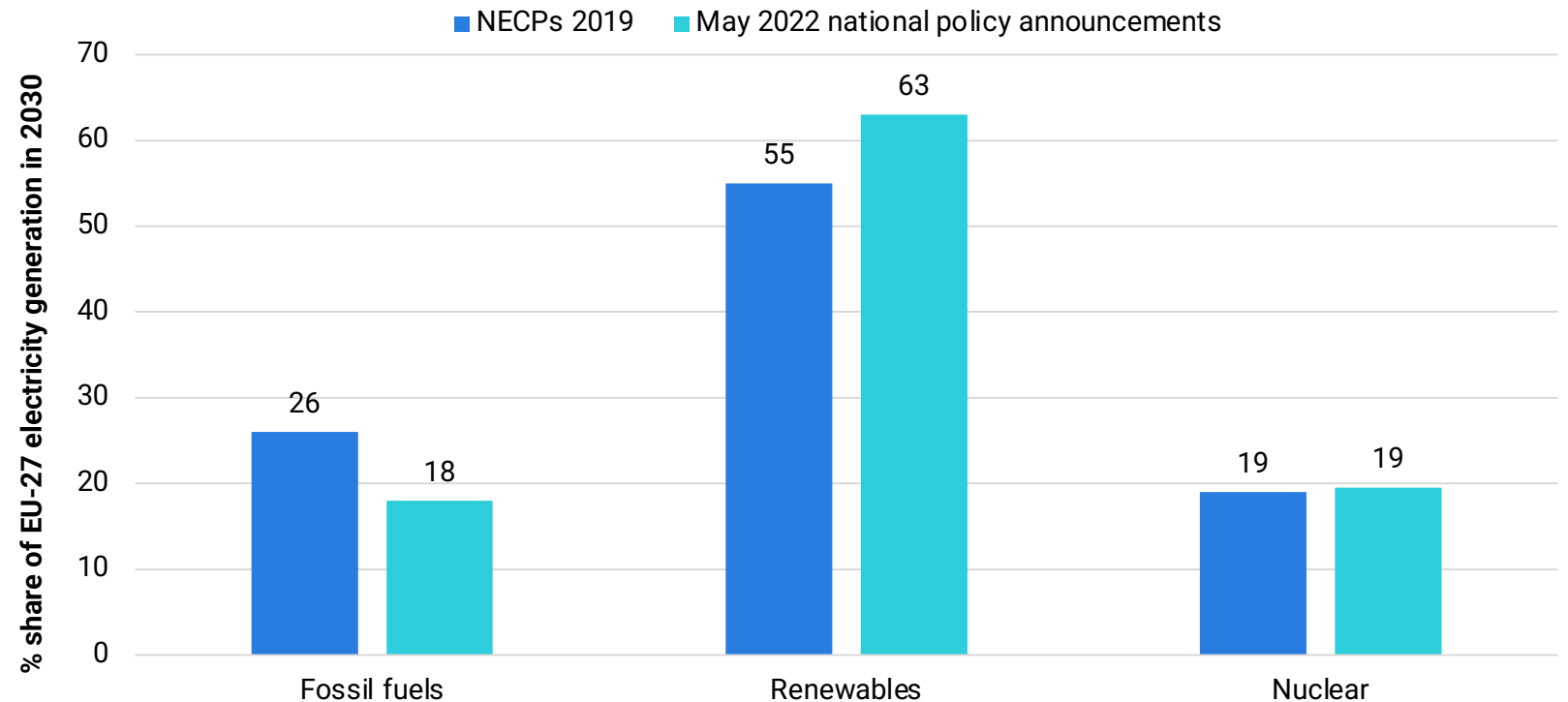
2019 NECPs vs national policy announcements as of May 2022

31% less fossil fuel electricity generation in 2030

63% of electricity from renewables in 2030, up from 55%

19 countries raised decarbonisation targets

Increased commitment to renewables' dominance in electricity mix in 2030



Source: Ember

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The ESG risks of transition
are highly concentrated on
the 'S' pillar

Verisk Maplecroft's Modern Slavery Index

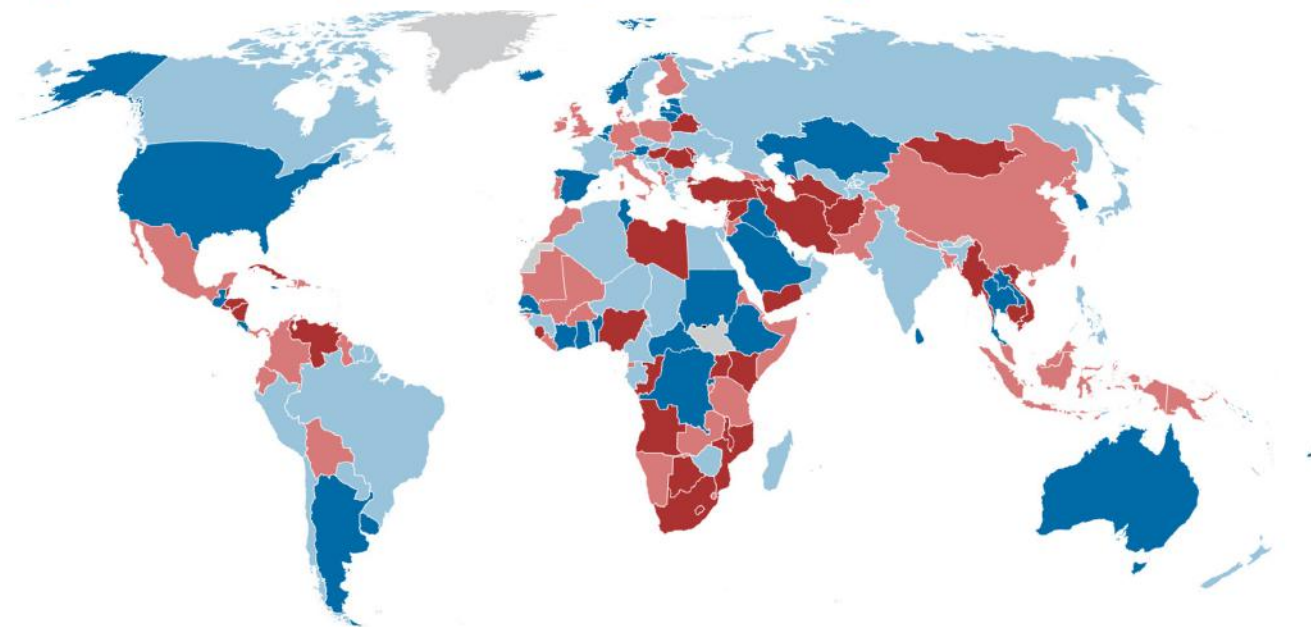
47 countries witness 'significant' increase in risk

- VM methodology:
laws/enforcement/outcomes
- **47 of 198** countries saw a **significant increase in risk** since our MSI data set was launched in 2016
- Key manufacturing hubs such as **China, Vietnam, Mexico, Indonesia and Malaysia** record varying degrees of **deterioration**

Modern Slavery Index Full Index

Score change since 2016-Q3

■ Significant deterioration ■ Slight deterioration ■ Slight improvement ■ Significant improvement

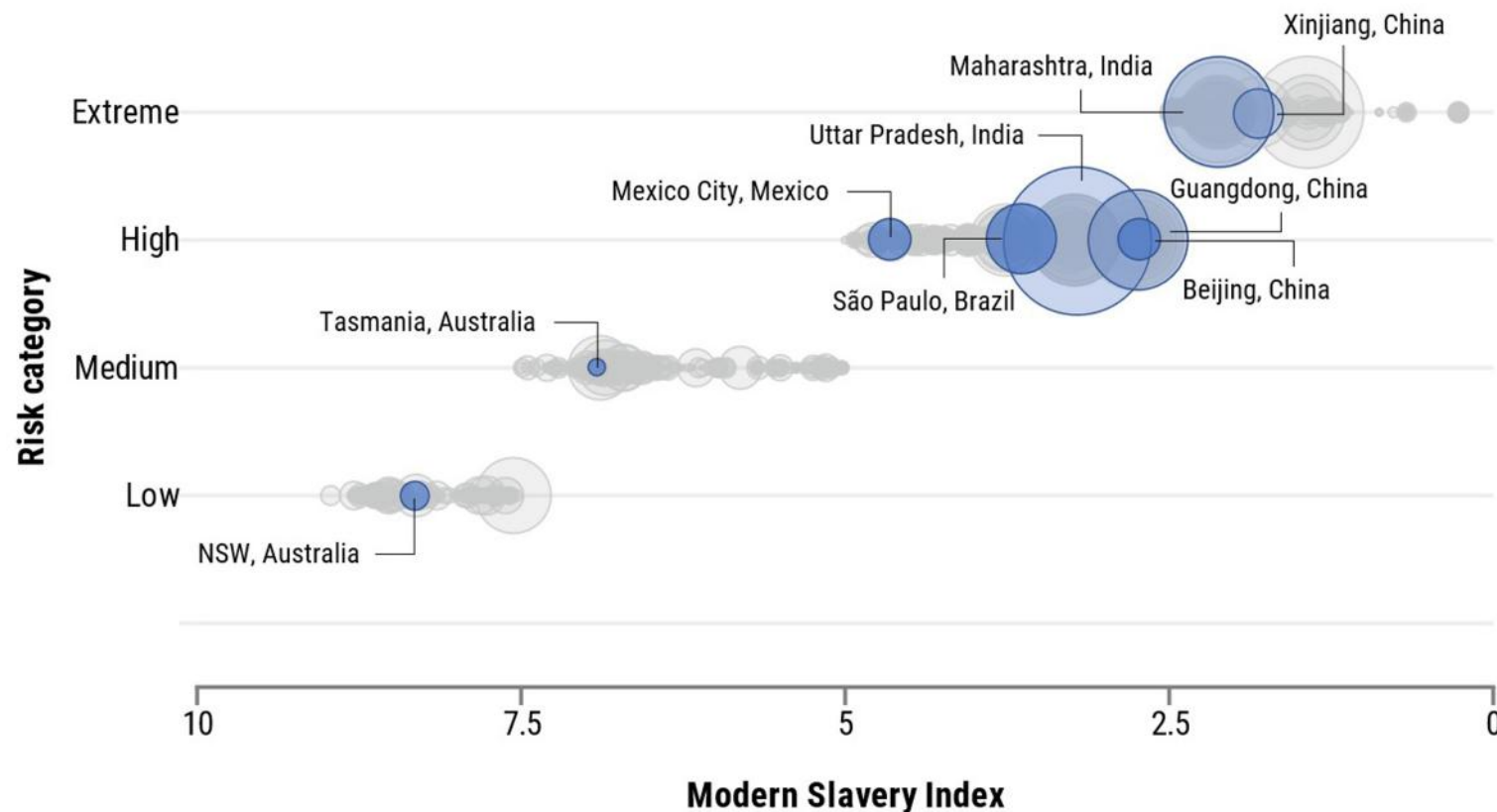


Risk scores are allocated on a scale running from 0 to 10, with 0 indicating highest risk. A shift of +/-0.5 or more is considered significant

Where are modern slavery risks most acute?

Four in five people live in areas rated high or extreme risk for modern slavery

- 80% of the global population live in areas rated high or extreme risk for modern slavery
- We analyse population centres down to subregions (states & provinces) - 66% of these subregions are rated high or extreme risk
- Our subnational index highlights variation in modern slavery risk within a country



Each dot represents one of 3,316 global subregions (states, provinces), sized according to population. Risk scores are allocated on a scale running from 0 to 10, with 0 indicating highest risk. Source: Landscan, Verisk Maplecroft

Why is sourcing from China problematic?

Modern slavery risks extend beyond Xinjiang


- Our subnational data shows Xinjiang, Tibet and Yunnan as extreme risk
- China dominant in energy transition metals & minerals, but there is a human cost
- Diversifying away from China may not be viable, despite the UFLPA
- AFSL complicates accurate risk assessment and auditing



EU proposed forced labor ban poses a threat to bloc's energy transition ...and it would also endanger agricultural and apparel supply chains

Countries most involved in the PV and wind technology supply chain's scores on our Forced Labour Index 2022-Q3 by sector			
	Metals and Mining	Solar Technology & Project Developers	Wind Technology & Project Developers
China	1.44	2.37	3.63
DR Congo	0.5	3.68	4.1
Thailand	1.43	3.95	4.71
Turkey	1.86	4.39	4.81
Malaysia	2.35	4.21	4.97
Philippines	2.22	4.83	5.25
South Africa	2.29	5.59	6
Australia	4.42	6.62	7.17
South Korea	4.65	6.6	7.07
Chile	5.46	7.56	8.22

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What are the implications
going forward?

Corporates face an increasingly complex EU regulatory landscape

Moving beyond compliance with 'S' risks requires investment and expertise

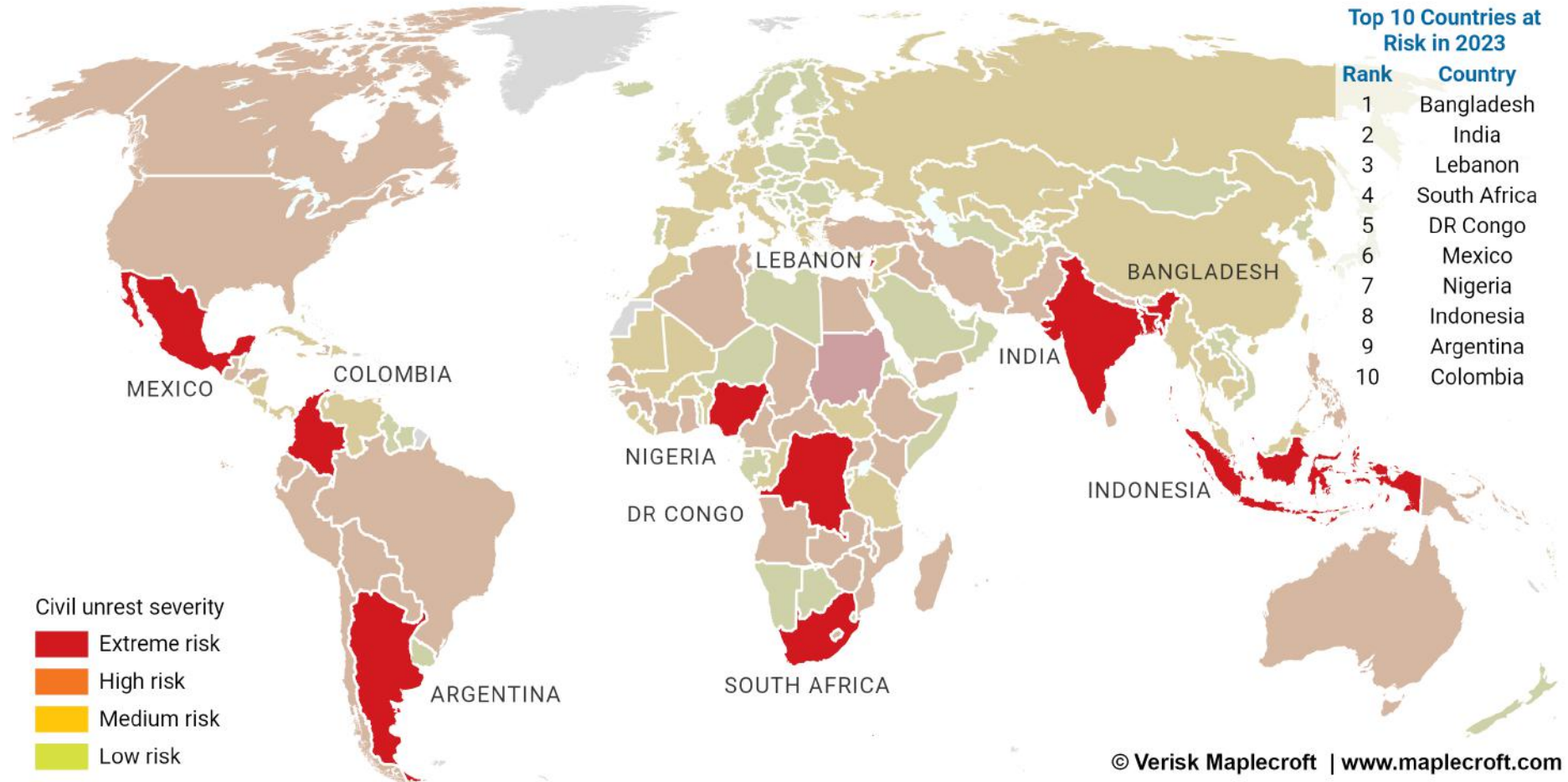
- HRDD is becoming **increasingly prescriptive**. Companies required to demonstrate no forced labour in supply chains
- HR risk and impact assessments need to be **methodologically robust**. **Good data is critical**
- Serious commercial **penalties/consequences** starting to flow (German law and UFLPA)



Where do we see risk in 2023?

Forecasting civil unrest severity across the world

Civil Unrest model: Top 10 countries at risk of severe civil unrest in 2023



Where do we see risk in 2023?

Forecasting civil unrest severity in Europe

Civil Unrest model: Top 5 areas at risk of severe civil unrest in 2023



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