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Independent Thinking

March round-up: climate economics

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11 April 2023

This month, Fathom's economists have taken a closer look at climate change, which offers both huge danger and huge opportunity. With Norway making waves by electrifying its fleets of ferries, we look at how carbon capture projects can be ramped up, how climate change risks can be shared and the impact of higher interest rates on funding the green transition. Read on for a round-up of some of the economic insights sent to Fathom clients this past month.

Norway's ferry-tale transformation (8 March 2023)

- The Norwegian Government requires all new ferry tenders to be emissions-free by 2026; indeed, after introducing the first fully-electric ferry in 2015, 22.8% of routes are now electric or hybrid-electric powered
- The median initial investment on land (e.g., power supply and charging stations) and sea (e.g., batteries for the ferry) compared to the reduced operating costs over the contract period (i.e., the energy costs saved when changing from diesel motors to electric batteries) for 29 electric-powered ferry connections[1] (with contracts of between 9 and 14 years) indicates a long-term cost improvement past the contract period
- Markets need to be incentivised to tackle pollution with Norway taking a carrot and stick approach, implementing initially an obligation to be emission-free combined with the added incentive of a loan guarantee scheme (the Norwegian Guarantee Institute for Export Credits guarantees 900 million NOK of the costs, reducing private investors' risks) and grants from the NOx fund

1. dnv-gl-sammendragsrapport.pdf (regjeringen.no)

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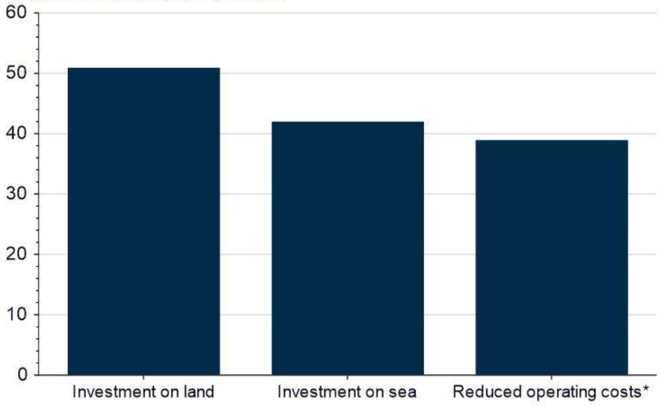
Electrification of ferries, Norway

Median investment, NOK, millions



*Over the contract period

Source: Refinitiv Datastream / DNV / Fathom Consulting

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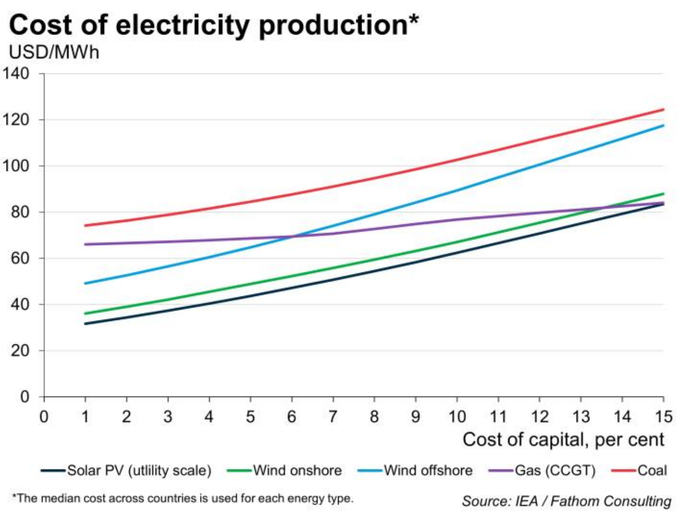
Higher rates impeding green transition (15 March 2023)

- The higher-rate environment is hindering the transition to renewable energy
- Operating costs for energy production are lower for solar and wind than fossil fuels, but the process requires significantly larger upfront investment; this maturity structure makes the cost of energy produced from renewable sources more sensitive to the rising cost of capital[2] than fossil-fuel-generated energy
- The present value of electricity generation from a plant over its lifetime is measured by the 'levelised cost of electricity' (LCOE), which is the (constant) price that electricity must be sold to break-even
- The impact of higher interest rates further pressures governments to provide incentives for green investment; stable investment environments are also crucial to limit increases in the risk premia demanded by investors
- Indeed, a doubling of the discount rate from 5% to 10% would lead to an LCOE rise of 12% and 21% for gas and coal respectively, compared with an increase of 38% for offshore wind and 43% for solar energy[3]
- Even with investors demanding higher returns, green energy still represents a cost-efficient method of energy generation, particularly in relation to coal



2. The cost of capital, or discount rate, is the weighted-average cost of debt and equity financing, and reflects opportunity costs of investment as well as different kinds of risk and uncertainty (e.g., regarding political and regulatory developments).
3. https://www.iea.org/data-and-statistics/data-tools/levelised-cost-of-electricity-calculator

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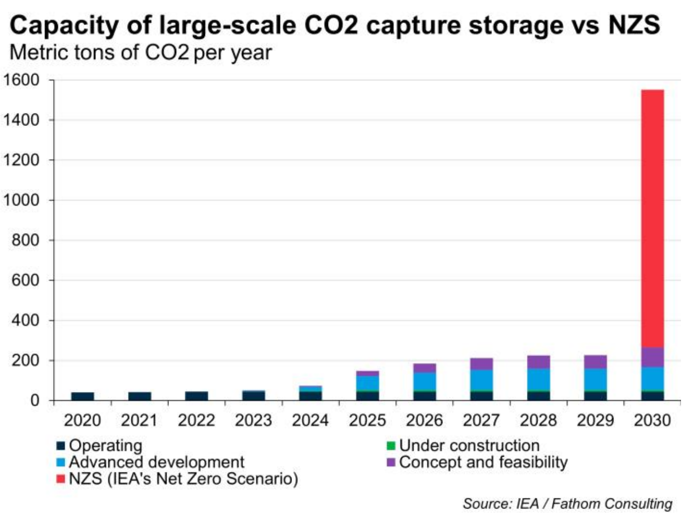
Harnessing technological breakthroughs (29 March 2023)

- Despite significant price declines in other areas of green technology, advances in the crucial area of carbon capture, utilisation and storage (CCUS) have been lacklustre, indicating that while the arc of innovation bends towards progress, rapid improvements are not automatic
- Over the past couple of years, according to the International Energy Agency (IEA),[4] carbon capture, utilisation and storage projects have barely increased
- Meanwhile, the number of projects in design or concept stage ranks far below the required scale to be consistent with the IEA's Net Zero Scenario
- The IEA has argued that a more horizontal supply chain could help. Cold hard cash is probably useful, too — the US Inflation Reduction Act (IRA) expands an existing CCUS tax credit, with a separate bill providing $12bn in public funding over the coming five years
- Historical evidence reminds us that it would be foolish to bet against human ingenuity, while at the same time governments should do all they can to support innovation, as that is the path towards achieving their decarbonisation targets



4. https://www.iea.org/reports/carbon-capture-utilisation-and-storage-2

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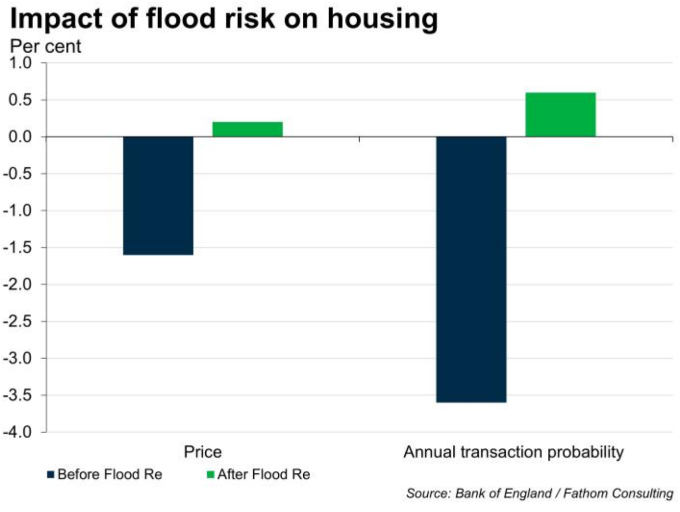
Mutualising climate change risks (5 April 2023)

- With climate change set to increase the scale and frequency of natural hazards in the coming decades, risk mutualisation may become more commonplace, which will have consequences for wealth distribution
- In 2016 the UK public reinsurance scheme Flood Re was introduced, offering insurers the chance to pass on the flood-risk elements of their policies to a re-insurer at a subsidised price, which is funded by an annual levy on insurance companies
- By increasing access and affordability of loss protection to homeowners in flood-prone areas, the scheme boosted house values and made properties easier to sell according to the Bank of England[5]
- Flood protection is not a niche problem; some 5.2 million properties across England are considered at risk of flooding and insurance was unavailable in some of the highest risk areas prior to Flood Re
- In this instance, risk has been mutualised by sharing the costs across the insurance industry, meaning higher insurance premiums for all but with the benefits accruing to homeowners in the affected areas



5. See Garabino, Guin and Lee (2022)

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Chart authors: Kevin Loane, William Hynes, Dimos Andronoudis

Further reading:

Spotting net zero’s investment opportunities

October round-up: Climate economics

Can science alone save us from climate change?

In case you missed it, here’s last month’s round-up:

February round-up: macroeconomic strategy

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