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# **Net Zero: Implications for Mozambique**

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# Net Zero: Context

- **Climate Crisis.** Containing av. global temperature rise to 1.5c above pre-industrial level. On present trend world is heading for 3-5c by 2100. We reach **Net Zero** when the amount of GHGs added to atmosphere is no more than the amount we take away.
- **Policy Shifts.** COP26. EU Carbon Border Tax (& EU push on hydrogen). US administration (push on methane emissions in gas). China: national carbon market: will increasingly affect exporters.
- Even if 1.5c target is met, more extreme weather events ahead. Impact on agriculture, food security & poverty.
- Paris **Climate Finance** commitment for \$100 bn annually by 2020 has not been met (G7 is about \$21bn short of the target). \$100bn should in any case be seen as a 'floor not a ceiling'. + Aid under pressure
- **Transition to Net Zero:** the Covid-19 recession has led investors to take a harder look at O&G. Private capital is flowing to renewables, EVs etc. Accelerating with the **rise of ESG investing** & with central bank concerns over climate Risk inc. impact of fossil fuel '**stranding**' on global financial markets.

# Gas: Market (1)

- **Gas as an energy Bridge? Or a Trap?** Gas prices are currently very high, but producers need to look to the market prospects a decade out. Large-scale renewable investments & breakthroughs in large-scale energy storage (to ensure stability of the grid) will be decisive for gas (& coal) demand.
- If a bridge who supplies? The large (low-cost) fields in the Gulf & Saudi Arabia have the advantage. They are likely to be the last producers left standing in the shrinking gas markets of the future. Size of Rovuma Basin gas deposits & proximity to Asian markets gives Mozambique advantages BUT.....
- **Mozambique, is already late to the market**, and will be face acceleration of efforts to contain global temp. rise to 1.5c. In contrast, new producer PNG is ahead. Majors will consolidate on producers with best prospects, best tax and investment terms (& lowest political risk).
- IEA *Net Zero by 2050* report: no new gas fields required, beyond those already being developed (if world is to meet 1.5c goal). Push back on IEA scenarios by producing countries but they are nervous.
- **If the world busts through 2c**, via bigger fossil fuel emissions, then a larger gas market (inc. for electricity demand by air-conditioning to cope with extreme heat events e.g. the 'heat dome' in the Northern Hemisphere in 2021)
- Irrespective of whether it finds a market for its gas, Mozambique must increase public savings to deal with the impact of an increasing frequency of **extreme weather events**. 'Net revenue' from gas (& coal) is thereby reduced, as public spending on adaption & disaster relief increases.

## Gas: Market (2)

- **Uncertain** whether multinational oil & gas companies will go ahead – and where in the world. Increasingly they favour the largest & lowest cost fields. Asian countries have large contracts with Middle-Eastern producers.
- **The Majors all have strategies for net zero** (using internal carbon prices to grade prospective projects) & are looking to increase their Capex in renewables. Their future is either renewables, shrink & return capital to investors, or delist.
- MNCs will transfer much of the risk in new gas developments to host governments. Reduce government revenue share. Danger that National Oil Companies (**NOCs**) take on too much risk. Some NOCs are looking to diversify into renewable energy.
- Traps (i) **debt**, sovereign but also corporate. Mozambique's credit rating hinges on LNG gas project (Fitch 'CCC') (ii) **local content** built around O&G sector that is stranded alongside the fossil fuel itself.
- For any new gas from Mozambique, it is imperative that its production has the lowest possible emissions. Asian buyers are already establishing **markets for low-emissions gas** (Japan, Korea, Singapore). **China's new carbon pricing** will favour lowest emissions imports. **Market Premia** for lowest emissions supply.
- How? Cutting **methane leakage, flaring & venting** (see UNU-WIDER papers). Carbon capture and storage (CCS). Use taxes on emissions from flaring & venting of gas (Nigeria success). Monitor via satellite data.

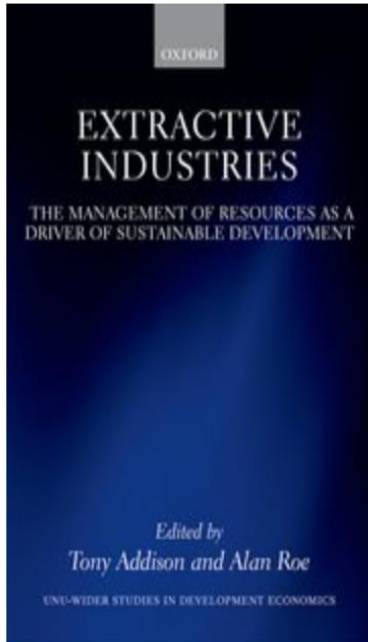
# Other Markets: Coal, Hydrogen, Metals

- **Thermal Coal.** Still a strong market (current prices are still high) & coal plants are (unfortunately) still being built. **Coking Coal** for steel making etc.: new net zero technologies for steel production? Early days.
- But move out of coal by **big MNCs**. Rio Tinto ahead of the game (inc. selling its Tete coal). Anglo-American spun off its coal assets off into separate company. Chinese & Indian companies investing, but could get burnt by national commitments to reduce coal use (e.g. China signalling that coal imports must shrink). Funds could buy coal mines, & shut them down as part of ESG investing.
- **Green Hydrogen.** Potential, using hydro-electric power. For Liquification & export. Strong future growth market. Potential for very large investments. But Saudi and the Gulf are ahead in this game with Asian buyers lined up.
- **Metals.** Very strong demand (prices now above pre-pandemic levels). Cobalt especially, but also lithium and manganese, rare earths. Nickel and copper as well. Electric Vehicle (**EVs**) manufacturers – rapidly growing demand, together with producers of large-scale **battery storage** for renewable energy as well as use in IT equipment, buildings, transport infrastructure etc.
- Low investment in mining. New mines: 10 years to production on average. New **Super-cycle ahead?** Could derail the Net Zero transition itself. **‘Green Mining’** is in vogue – but is it achievable? (achieving net zero mining via CCS, renewable energy, carbon offset etc.). Metals that are mined with low-emissions & minimum environmental impact will command **market premia**.

# Conclusions

- Countries need a **Risk assessment** (inc. climate related 'stranding', revenue volatility) & a plan to maximize their **own opportunities** arising out of the transition to **Net Zero** (renewables, hydrogen etc.) inc. in their own energy systems (shifting away from coal to renewables in energy generation – both in the grid & via community solar).
- The advanced economies bear **much of the responsibility** for the climate emergency & should provide large-scale assistance to the developing world – which will bear much of the cost of the climate crisis. But how **credible** are the promises?
- Given the remaining **Global Carbon Budget** would the world's largest oil & gas producers be willing to give up their share to make room for Mozambique & other smaller developing economies? Unlikely. Many are trying to produce as much O&G as they can.
- **Covered only a few issues today, focusing on markets** – risks & opportunities. Other **key issues** include: ownership & control of resource sectors; transparency (licensing, revenues, local content, SWFs) & corruption; community impacts (& impact on water, biodiversity which are the base of community livelihoods); local content prospects + infrastructure.

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