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Energy Transitionsf

Fostering Energy Transitions in the Global South: Insights from Chile, Jordan, Malaysia, and Kenya

In the beginning of 2019, having just started the project "Investigating Systemic Impacts of the Global Energy Transition" at the IASS, we pointed to the geopolitical and systemic risks the energy transition might entail in this blog post. We argued that, although renewables are often seen as promising a better, more democratic and more equal world, the rise of clean energy does not automatically get us there. More renewables do not mean that the fossil industry will be forced into decline, it does not necessarily foster participatory governance in energy choices, and clean tech may remain an uneven playing field. In short, it is imperative to identify and address the specific challenges and risks for countries in the Global South coming with the energy transition.
Over the past years, our research group set out to unpack these. We specifically took a closer look at possible future scenarios for the energy transition in four country case studies in the Global South. Our aim was to identify leverage points and fields of action to advance their pathways into a sustainable and secure energy future. What did we learn from these four cases? This blog post compares and contrasts the key insights from our scenario analysis, identifies common leverage points, and points to some more general learnings for future research and policy.

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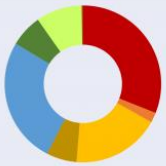
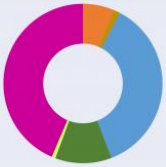
	Chile	Jordan	Malaysia	Kenya
Electricity generation by source Coal, Hydro, Oil, Wind, Natural Gas, Solar PV, Biofuels & Waste, Geothermal				
Current challenges	– oligopolistic market structure – currently mainly resource exporter, but aims to be a competitive actor in manufacturing and R&D	– financial constraints on Jordan's state-owned electric power company NEPCO – long-term purchasing agreements for fossil fuels	– the economy's high reliance on fossil fuels – the state is the largest stakeholder in Malaysia's highly centralised fossil-based energy system	– lack of universal access – affordability issues – limitations in the transmission and distribution network – capacity surpluses that can't be absorbed by demand
What do policy interventions need to address?	– further liberalisation of the electricity market – knowledge transfer	– increase regional cooperation – include stakeholders in energy policy development and decision-making – reform the electricity market	– broaden the range of actors in the electricity sector – involve stakeholders in policy design processes – prioritise green growth in postpandemic recovery programmes	– improving the grid – promoting decentralised energy supply options – further liberalization of the electricity market

An overview of the four case studies. Data for electricity generation from IEA. IASS / ISIGET

1 Market liberalisation and complementary policies are crucial

A first, and central, take-away is that all of the countries would benefit from changes to the electricity market structure, which would enable more actors to participate. More liberalised generation, distribution and transmission was identified as a key factor that would allow for longer-term changes to the energy mix. For this to happen, energy market reforms are necessary.

The case studies also made clear that for energy transitions to happen, measures need to target different policy areas at the same time. In Chile, policy interventions need to simultaneously address a further liberalisation of the electricity market and knowledge transfer for the country to become a competitive actor in manufacturing and R&D of renewable energy technologies. For Jordan, liberalisation and stakeholder inclusion in decision-making are key but contingent on regional cooperation. Provided the country expands cross-border energy connections and finds ways to renegotiate fossil fuel contracts, changes to the energy market can yield their full potential. In Malaysia, the energy market needs to be further liberalised and stakeholders need to be included in decision-making to build a basis for post-pandemic recovery policies that are directed at green growth. In Kenya, both decentralised energy and improving the grid should be advanced, as these two measures can complement each other, and are also interdependent with a liberalisation of the electricity market.

2 The fossil fuel system is sticky and impedes change

Second, the characteristics of the incumbent energy system matter a great deal. Fossil fuels dominate the system in Chile, Jordan, and Malaysia.

The case of Malaysia illustrates how securing profits for national oil and gas companies can stall efforts to expand renewables despite their promising potential. Jordan, by contrast, drives home the point that a rapidly growing share of renewables in the energy mix does not automatically put a country on a permanent energy transition path with growing supply of clean energy. The infrastructure for renewable energy in the country has been built and there is great potential for more. However, the government is locked into long-term contracts struck with fossil fuel suppliers and thermal power plants. The more renewables come online, the more the public purse bleeds money due to capacity payments and an oversupply of fossil fuels. In reaction, and in order to avoid rising debt, the government has put in place policies frustrating the transition. Moreover, as the case of

Kenya illustrates, even if renewable energy occupies a dominant spot in the energy mix, it is not guaranteed to stay this way. Kenya plans to further develop coal and natural gas sources, and also eyes nuclear power as another energy source.
Especially the cases of Jordan and Kenya illustrate that energy policy decisions are driven by the goals of energy security or universal access to electricity. Renewables may be means to reach these aims. But security and access trump environmental concerns. This throws up the risk of a stalling energy transition if fossil fuels are perceived as the easier way to cater policy priorities, or should fiscal imperatives push governments toward a continued use fossil fuels.
The bottom line: due attention needs to be paid to the incumbent energy contracts and the structure of the fossil fuel system as these may impede the transition to renewables.

3 Centralised decision making holds back the energy transition

In Jordan, Malaysia, and Kenya, the energy sector is dominated by the state. Therefore, decisions in the electricity market are often informed by concerns related to the profitability of state-owned energy corporations.
In Malaysia, this is because state revenues derive to a large extent from fossil fuels. As a consequence, the state may well incur losses as the share of clean energy rises. In Jordan, with 20% of public debt linked to the electricity sector, the financial balance of the state-owned electric power company also has ripple effects for the rest of the Jordanian economy. The government-owned single buyer loses money through capacity payments that are due when renewables 'force' fossil fuels off the grid. This has prompted the government to slow Jordan's energy transition. In Kenya, the dominance of state-owned entities has led to market distortions and suboptimal outcomes. As consumers cannot choose their electricity supplier, there is no incentive to provide satisfactory customer service. On top of this, private sector actors are at a disadvantage even when energy generation projects are tendered; not least of all due to a lack of fair allocation criteria.
In Jordan and Malaysia, our analyses revealed a lack of stakeholder inclusion in policymaking processes and, in the case of Jordan, policy consulting by international donors. Deeper engagement with local industry, research, and finance experts would be important to assess the needs of the energy market, and influence decision-making dominated by governments prioritising short-term costs.
In short: where ownership and operational structures as well as decision-making structures in the energy sector are strongly concentrated on the state/government, more inclusion of stakeholders in decision-making processes will support energy transitions.

4 Ambitious energy transition policies are central to advancing value chain positions

Our case studies are in line with recent research suggesting that innovations in low carbon technology still happen mainly in the Global North and China and that many countries in the Global South continue to be excluded from the benefits of globalised value chains. Governments have recognised the importance of better positioning their countries in such value chains. Chile, for example, has initiated various efforts to strengthen its role in renewable energy manufacturing, research and development. Malaysia is already a well-established player as the world's fourth largest producer of PV panels, while Jordan and Kenya have become pioneers in their respective regions in terms of a skilled renewable energy workforce through targeted training programmes. However, making headway into R&D remains a challenge for all four countries. The vast majority of renewable energy patents, for example, are still filed in EU countries, the US, the UK, China and Japan.
To maintain or expand their position in global value chains, it will be imperative for these countries to maintain high ambition levels in their energy transitions, as local demand for goods and services can help industry develop further. At the same time, targeted domestic support programmes are needed, in addition to global knowledge exchange and knowledge transfer.

5 Towards an even low-carbon transition

In sum, our analyses show that individual policy measures can't advance energy transitions if they don't consider which structures (for example in decision-making or in the energy market) need to be

broken up in order to allow for change. It is only by acknowledging these interdependencies that transitions can unfold successfully. The opportunities the energy transition can bring about do not happen automatically. Targeted policies are needed. Without determined action, developing countries and emerging economies risk carbon lock-ins that will see them left behind in a global low-carbon economy.

Determined efforts will be needed to address these risks, particularly in countries of the Global South that are in less favourable positions than the case studies highlighted here. The challenge remains significant as Covid has increased the divide between leaders and laggards in the global energy transition and there's still a huge low-carbon technology gap that can't be filled by existing initiatives. Risks and policy needs are very dependent on context. There isn't the Global South. Rather, countries enter the energy transition from very different starting points that are characterized by specific challenges and opportunities. More in-depth country case studies can help to identify solutions that are amenable to local contexts as our research shows. This way, they can play their part in driving an even low-carbon transition, securing the goals of the Paris Agreement, and advancing energy justice.