2024 State of Power

Energy, Power and Transition

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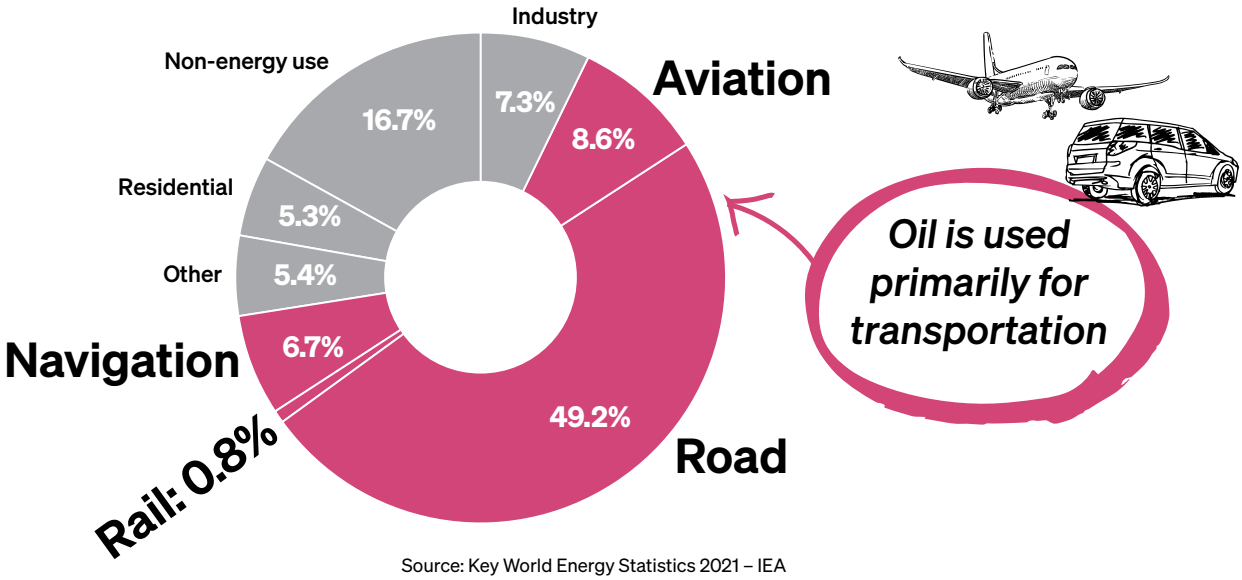

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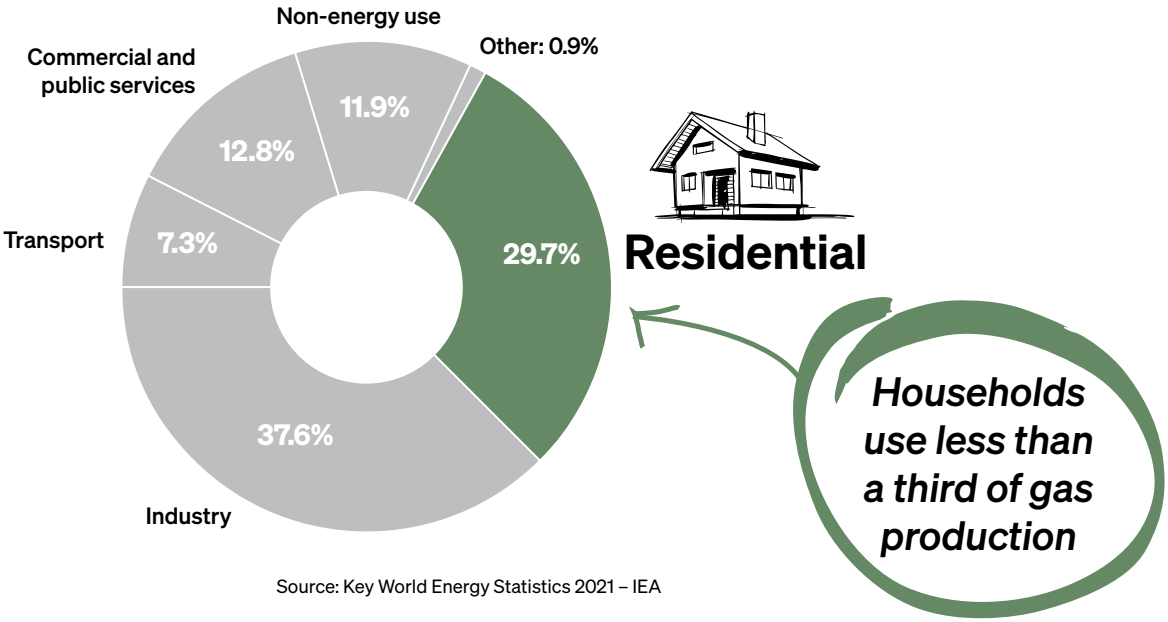

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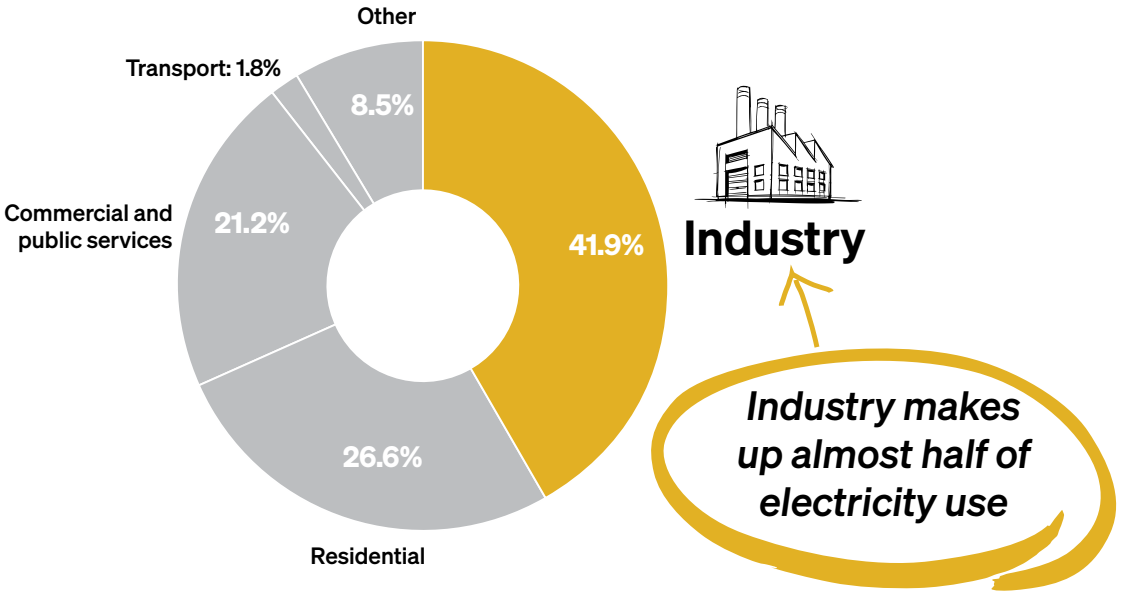

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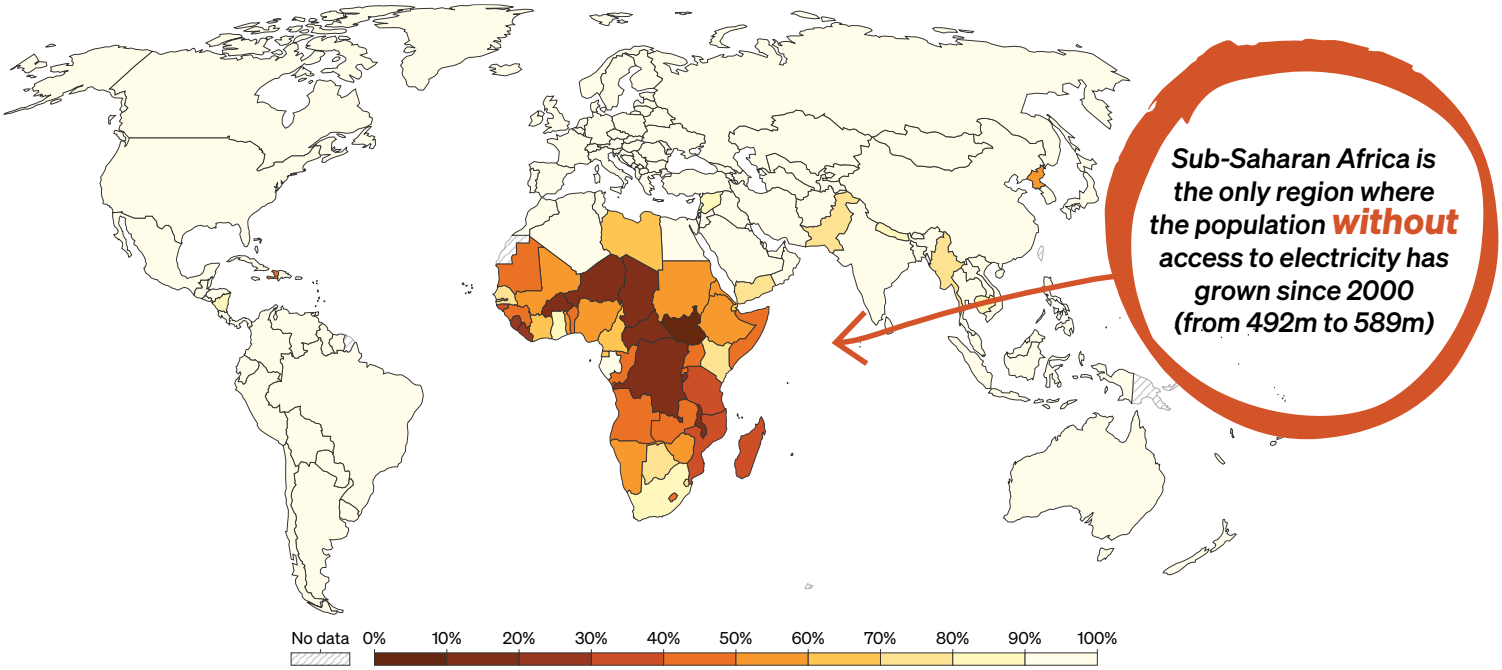

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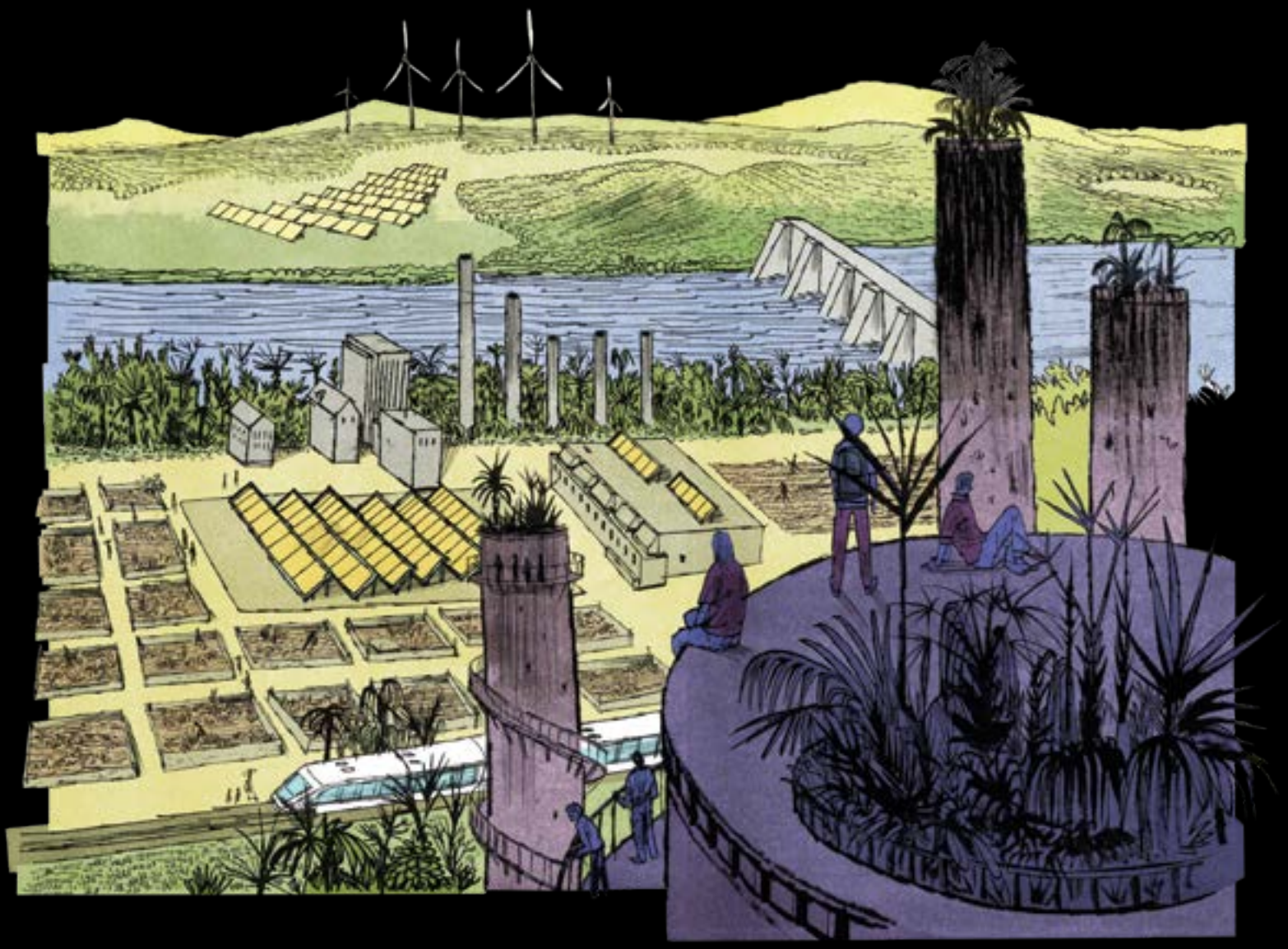

Power Switch

Building a just energy transition in an age of corporate and imperial power

Interview with Tim Mitchell, Thea Riofrancos and Ozzi Warwick

Timothy Mitchell is a political theorist, historian and professor of Middle Eastern, South Asian and African Studies at Columbia University. In 2012, his book *Carbon Democracy: Political Power in the Age of Oil* retold the history of energy in the Middle East, showing how oil weakened democracy, fuelled militarism and empire and created a dangerous myth of infinite growth.

Thea Riofrancos is an associate professor of political science at Providence College and a member of the Climate and Community Project, a left-wing think tank. She works primarily on the politics of extraction, particularly in Latin America and the US. Her upcoming book is *Extraction: The Frontiers of Green Capitalism*.

Ozzi Warwick is the chief education and research officer of the Oilfield Workers Trade Union of Trinidad and Tobago and the General Secretary of the national Joint Trade Union Movement. He is also a founding member of the Trade Unions for Energy Democracy South (TUED South), a new South-led trade union platform dedicated to a public approach to a just energy transition.

Nick Buxton is TNI's Knowledge Hub Coordinator and founding editor of the State of Power report.

Nick: We have examined power relations in the global economy now for 12 years through this report, State of Power. It was interesting to me in this edition on energy that the word power had a very much a double meaning, who has power over our systems, but also the power that energy gives us and the global economy. And so the first question I wanted to pose initially to Tim was how do you feel our fossil-fuel-based energy system since the nineteenth century has shaped the way power is distributed today. And, in turn, how has power shaped our energy system?

Tim: In my book, *Carbon Democracy*, I made an argument that I can summarise in one sentence, that coal made possible mass democracy and oil set its limits. The argument is that in the nineteenth century when industrialised states became highly dependent on coal as a single source of energy, workers had an unprecedented political power because for the first time, they could shut down a country's energy system, in what came to be known as the general strike, where coal workers, rail workers, and dock workers could interrupt that supply of energy. This power was critical to the emergence of mass democracy in the late nineteenth and early twentieth century. Oil undid this, partly because it provided an alternative, so it was easier to weaken that force of organised labour, but also because oil was different, being liquid that came out of the ground under its own pressure. So, you didn't have to send workers underground and you could route it very easily through pipelines and oil tankers in more flexible ways that were more difficult to disrupt.

Even so, oil workers in the Middle East were just as determined as coal workers in Europe to win political and economic rights. In Iran, Iraq, and Saudi Arabia, the three main Middle Eastern oil states, workers organised strikes, such as the general strike in Iran that led to the 1951 nationalisation of oil. But the kind of power that workers had acquired over the energy and political system in earlier decades was lost, especially because oil production was developed in other parts of the world than the centres of capitalist industrial life. That meant a distance opened up between those who were involved in the consumption and those involved in the production of energy, making it difficult for oil workers in a place like Iran to forge links with

political struggles in the West. So, I think oil had a profound effect on the emergence of political forms in the twentieth century through its capacity to undermine democratic politics everywhere.

Nick: Thank you, Tim. Perhaps I could bring in Ozzi because you, of course, have both worked and organised in the oil and gas sector. So how do you see this interplay of energy in the distribution of power through your own experiences?

Ozzi: In the case of Trinidad and Tobago, it was a little different from say the UK. Trinidad and Tobago did not have a coal industry and was mainly agricultural until the emergence of oil, which then began to drive the energy system. The emergence of an oil-based fossil-fuel industry was coupled with the emergence of one of the most powerful unions in our country, which is the Oilfields Workers Trade Union. So, it did build worker power. And that the union was instrumental in bringing about universal adult suffrage and independence. It was oil workers coming out of the labour riots in the 1930s that gave rise to a sense of nationalism and laid the foundations for what would be an independent Trinidad and Tobago, which we declared in 1962. This showed that the broader energy system can give rise to mass democracy.

When I reflect or think about the energy systems, I immediately think of imperialism and the fact that the architecture of the energy system is very similar to colonialism and empire, where you have a small concentration of people or organisations that control it. One of the first modern multinational corporations was an oil company, Standard Oil, in the late 1800s. After World War I, it was oil consortia that made agreements with the British and French empires as they carved up the former Ottoman Empire. And even today, of the ten oil giants, seven of them are US and Anglo-European. Of the other three, there are two Chinese and one Saudi firm. So, you can't talk about the energy system without talking about power. And that relates to global capitalism, which is driven by commodity production, energy production and consumption.

Thea: Once you think about it, it's quite obvious that the structure of our fossil capitalism is tightly interconnected with the structure of global power, economically and geopolitically. It's also true that the tightly connected systems of global power and fossil capitalism have also created important challenges to that system that have exposed its vulnerabilities, chokepoints or weaknesses. We can see that the late 1960s and early 1970s, when what was then called the 'Third World' started to organise. For example, the Organization of Petrol Exporting countries, OPEC, emerged at a time when Third World resource producers were seeking to take control over these resources and for which they didn't receive the benefits. OPEC was one inspiration or even model for a broader proposal for a New International Economic Order (NIEO), which was never fulfilled but still resonates as an idea today. So, energy is not just a site of hegemony, but also a site of contestation. I've researched Ecuador, Chile and other Latin American countries and around the region where there continues to be a powerful idea of resource nationalism, which emanates from workers' unions as well as social movements and popular coalitions. The idea is that 'we, the people' should own the resources and the global North should not keep extracting from us. It is a form of contestation that is also present in our energy transition moment.

Nick: Big Oil's rise particularly in the last few decades has paralleled a massive financialisation of the economy. How are they interrelated? And what's the situation now in terms of the power of Big Oil, both state-owned and private firms?

Tim: In terms of oil and finance, the two grew up together. The large multinational oil companies were also the largest publicly owned shareholder firms and associated with some of the largest banks. One reason for this intersection is first, energy production is enormously expensive and so requires vast amounts of capital. The second is its capacity to generate extraordinary profits that attracts finance. This is not just because of the world's dependence on energy, but because structures of energy production are relatively durable, so once built they are going to produce revenue for decades, which is not often the case with other industrial processes. And it's the ability to capitalise that future revenue that explains the extraordinary capitalised value of large oil companies. Ensuring that money flow is why you get an entire politics of energy security.

Ozzi: In terms of the interplay of energy and finance, if we go back to the 1970s' energy crisis, it was really a financial crisis. Indeed, that crisis played a critical role in the renewal of the United States power over global finance, because it resulted in the convertibility of US dollars to gold, and it led to the reproduction of the petrodollar, which enabled the flow of money from US multinational banks to non-oil producers and less developed countries. It led to this shift from institutional borrowing to commercial borrowing that repositioned US private banks which would then go on to dominate the global finance sector in the same way US oil companies dominate the global energy sector. This led to the serious debt crisis among many countries in the global South and enabled neoliberal advocates and imperial power to impose structural adjustment programmes which consolidated imperial and neo-colonial power relations and entrenched these vast unequal relations of power.

Thea: It's a very contradictory moment to ask this question, because we're in this early but still uncertain and very uneven energy transition. On the one hand, the International Energy Agency (IEA) forecasts that demand – not supply – for fossil fuels is going to peak in a few years. There are also forecasts of upwards of $1 trillion in stranded assets if the energy transition happens – which would be an enormous hit to energy firms and the financial system. This might suggest the fossil-fuel industry is in its death throes. But that's obviously not the case because they have also had record profits, due to geopolitical instability and still growing energy demand and a lot of that demand is still fulfilled by fossil fuels.

There are also new dynamics, such as the rise of private equity investors in fossil-fuel production, outfits that are more opaque, more difficult to govern even than a multinational shareholder-owned firm. As Brett Christopher has shown, these equity firms are moving into energy and infrastructure, which means they increasingly own central social infrastructure. They are often turning over these assets in a vulture fund kind of way, seeking to eke out value and then sell it off. Ironically, they have moved to acquire more dirty energy infrastructure in part because of the divestment of some pension funds and other institutional investments from fossil fuels, which might make it harder to phase out the sector. So, it's a perverse outcome of an otherwise admirable move on the part of some institutions and investors.

Nick: And how are the shifts in energy systems intersecting with the geopolitical shifts with the rise of economic powers such as China and India?

Tim: Well one of the elements of change is certainly the rise of China and India, both as consumers of energy and particularly in the case of China, as enormous producers of energy. But the US too, which had been the world's largest producer for many decades and after the 1970s had gone into decline, with the rise of so-called tight oil, or oil produced by fracking, has had an entire second life as an energy producer. This has been disruptive because it is not controlled by the large oil multinationals who control the price but is increasingly in the hands of new or smaller oil companies, with nobody controlling the price. The result of that has been this extraordinary volatility of oil prices, and the rise of private equity firms is partly because they are able to use that volatility to make money.

Nick: And Ozzi, what about non-US players, such as Venezuela or China? Perhaps you could share a little about the conflict between Venezuela and Guyana that is taking place in your region? What do they reveal about the energy system and geopolitical jostling that's going on right now?

Ozzi: The first thing to note is that US Big Oil, ExxonMobil in this case, remains centre stage. But first to explain the land dispute, which goes back over 100 years to the colonial era when Guyana was British Guyana and Britain was trying to expand its imperialist influence and Venezuela was an independent nation. This dispute was more or less laid to rest when Chávez visited Guyana in 2004 and announced that he considered the issue finished. Things began to change in 2006, when the Chávez government began a series of nationalisations and regulation of the oil sector. Most multinational oil companies had accepted the new terms, except for two, ConocoPhillips and, of course, ExxonMobil. They had demanded tens of billions of US dollars in compensation through the International Centre for Settlement of Investment Disputes (ICSID). However, in 2014, the ICSID ruled that Venezuela pay ExxonMobil only $1.6 billion, which infuriated the then Chairman and CEO Rex Tillerson. A year later Exxon announced that they had found, all of a sudden, 295 feet of high-quality oil, and when you look at the production-sharing agreement between Guyana and ExxonMobil, they were given 75% of the oil revenue towards cost recovery and the rest shared 50:50 with Guyana. They also had an Article 32, Stability of Agreement that says that the government shall 'not amend, modify, rescind, terminate, declare invalid or unenforceable, require renegotiation of compel replacement or substitution, or otherwise seek to avoid, alter or limit' this agreement.

In other words, neither the people of Venezuela nor the people of Guyana will benefit from ExxonMobil's political intervention in our region. So, this is not a conflict between the two populations, but rather a conflict between ExxonMobil and the people of these two South American countries. In fact, just after Guyana signed the Argyle Declaration for dialogue and peace with Venezuela on 14 December 2023, declaring that neither party will use force, a British warship visited Guyana on 29 December 2023.

It should also be noted that in July 2023 President Xi Jinping met with the Guyanese President, Mohammed Irfan Ali. At that meeting Xi Jinping emphasised the relationship between China and Guyana and the important role of China in Guyana. Mr Ali reaffirmed that point and

stated his admiration for China's leadership and global influence. It is clear that Guyana is fast becoming a battleground for global geopolitical positioning. This is another clear example of the inextricable link between the global energy system and imperial competition.

Nick: Tim, in your book, Carbon Democracy, you also looked at how oil politics had shaped militarism, particularly in the Middle East, and in relation to Israel and the 1967 war. Does the war directly or indirectly have its roots with the carbon authoritarianism or carbon militarism that you talk about in the book?

Tim: Yes and no. And indirectly rather than directly. The war on Gaza has its causes in an Israeli state that wants to completely dominate the area of historic Palestine and not tolerate any kind of Palestinian demand for national rights. Where those larger connections to the geopolitics of oil come in is that Israel couldn't get away with this without US financial, military and political support. The influence and the propaganda system that Israel is able to organise to maintain the support of the US government is related to US militarism, which is very much tied to the history of oil. The US spends more on its armed forces than the next ten largest military powers in the world.

This is sometimes explained too simplistically in terms of the US need to defend vital resources such as oil. A better view is that the misleading idea that oil supplies are somehow vulnerable –rather than a cause of our vulnerability to climate collapse – is used to generate the sense that somehow US security in general is at risk. This language of vulnerability is essential to the diversion of such vast public resources into the hands of the weapons and security industries. So, it's not directly to defend oil that the US has got to be on Israel's side, but because, like Israel, and with Israel's help, it is defending the myths of insecurity on which its own militarism depends.

Nick: I want to take the conversation from the military to the ecological sides of this question. Our energy system is clearly destructive to our planet with its impacts on climate, the environment and health, so why has it proved so difficult to change course?

Thea: This gets into deeper questions of politics and power and also the mechanics of the capitalist system. I mentioned the phenomenon of stranded assets. This is an issue as fossil fuels like any extractive sector have a lot of high upfront, fixed and even sunk capital costs. And so you're making the bet that over time, sometimes decades, you are going to get a return on that investment and before that it's just a cost. It's not hard to imagine why owners of fossil-fuel assets are incredibly resistant to transitioning the energy system, even if there are opportunities for them to profit in the new energy system. And given how politically influential and connected the industry is, it are very well positioned to coordinate and delay and deny and do all of the things that we know that they have done. The other issue is that the industry is deeply implicated in the materiality of capitalist life, if we consider petrochemicals or the plastics industry. It's why some people then say it's hard to imagine the end of oil without imagining the end of capitalism.

But there are also reasons that it's hard to change our energy system beyond the interests of the most powerful, for example for low- and middle-income oil-exporting countries like

Ecuador. I continue to be surprised that there is absolutely no plan and no discussion in centres of institutional power about what's going to happen with countries whose entire fiscal basis is tied to oil revenues and who cannot provide social services, public infrastructure, or the basics of governance without those revenues. We can't avoid dealing with the difficult reality that transitioning away from oil would deny a crucial revenue stream to a number of poor, low- and middle-income states.

Nick: And that, of course, very much relates also to Trinidad and Tobago. So, I was wondering Ozzi about your thoughts on the ecological impacts and why it's been so hard to transition from this form of energy?

Ozzi: Thea has raised a concern that is critical for small oil and gas-exporting countries like ours. Our entire economy has been based on oil and gas for many decades and still accounts for almost 40% of our GDP and 80% of exports. In fact, the energy sector contribution accounted for 58.2% of the government total revenue. Without those revenues, we are faced with a National Insurance, which is the entire national social security safety net, under threat of collapse. So, it becomes a real challenge to transition. We are engaged right now in a struggle for a progressive just transition in Trinidad and Tobago, mobilising our membership to steer the government away from a neoliberal transition. They call it a just transition, but it's not. It's nothing more than a cloak to conceal a new wave of structural adjustment programmes. We've had thousands of job losses and still no new promised jobs. What they are doing is actually commodifying and privatising ever more public utilities like water and electricity. And they are not even changing energy sources, as they are signing new gas deals. They are also signing agreements with the same multinational firms for any renewable projects – for example, Trinidad and Tobago is working with BP on solar energy projects. So, we have to protect ourselves from green imperialism and green capitalism.

Tim: Oil has very much shaped our entire modes of economic thought that in turn shape energy and the transition. There is a relationship between the history of oil in particular and conceptions of growth, in which apparently limitless reservoirs of oil were seen to justify an economy based on growth. We can see that today in the continued expansion in the use of fossil fuels that is predicted to continue to at least 2030. And the nature of green imperialism means that transition is uneven too. In most European industrialised countries, possibly even the US, fossil-fuel consumption is lower today than it was in 1990. The continued expansion is mostly happening elsewhere, reflecting the fact that for certain countries finding the capital to invest in offshore wind and utility-scale solar is expensive. There are tipping points, such as the relative cost of renewables becoming cheaper than fossil-fuel sources of energy, but it takes a while for those tipping points to work their way through the system and it's not happening fast enough.

Thea: To add to Tim's reflections, as well as the high capital costs for renewables, the actual profit of these sectors is low and still uncertain compared to fossil fuels. What that means concretely is that government subsidy is very important – which takes the form of de-risking (underwriting the risk), active tax credits, tax abatements, offsetting of capital costs, cheap loans and so on. Most global South countries cannot do that and are constrained by the International Monetary Fund (IMF), its loans and its creditors in providing public investment.

And countries like the US, that can do this, do not do enough to get an energy transition going. Putting aside whether we think states should be underwriting private profits, it's a big issue in terms of why the transition has slowed and why China and the US, for different reasons, stand out in their ability to underwrite any kind of transition.

Nick: As well as addressing the exclusion of countries from this transition, how can we also address ways that the transition can exclude workers or have negative impacts on communities, for example with the extraction of transition minerals in the global South?

Thea: As we look upstream at the mineral inputs of the renewable energy technologies, there's a whole periodic table of elements considered critical or essential, such as cobalt, lithium, rare earths, graphite and so on. And they raise a lot of concerns and dilemmas for global South producers. First because in comparison to oil, it's hard to imagine sustaining a country on lithium revenues, because the size of the market does not compare and they're much more dispersed. So, the question of producer leverage, such as we have seen with OPEC, becomes more difficult. They also come with a lot of ecological and social impacts and also labour exploitation. So, while it doesn't have the same carbon footprint as the fossil-fuel industry, mining has a tremendous amount of local environmental and social harm associated with it and one of the worst records in terms of human rights violations. Agribusiness and the mining sector compete for that nefarious title in terms of where people get killed or where workers get repressed. So, expanding renewable energy technologies as necessary as they are for solar panels, lithium batteries, etc., is concerning from a human rights, governance and ecosocial perspective. We can see a lot of reproduction of neo-colonial relations in terms of their impacts.

So that's a familiar story. But there's also something else happening at the same time, which is a process of onshoring, where the US government, for example, is saying they don't want to rely on these volatile supply chains and want to have lithium and cobalt extracted in the US. On the one hand, we could say that's globally just because the US should pay the ecological social price for all of its extractive needs, but in reality it's not replacing extractivism in the global South as the whole demand pie is growing. And the mines in the US are also mostly affecting Indigenous peoples and rural Latino communities, in other words the same vulnerable populations which are most affected in the low and middle-income countries.

It has also fuelled a race to the bottom as global South mineral producers seek to compete with the US for investment, even though the US government is offsetting capital costs and providing tax breaks to mining companies.

Nick: Ozzi, I know you're involved in movements of workers experiencing the transition and seeking to build a just transition. What's your experience?

Ozzi: As I mentioned, in Trinidad and Tobago we are experiencing an unjust transition. We are still signing new oil production contracts with BHP Billiton, Shell, BP, while the jobs that are left are jobs that no longer have decent terms and conditions. It's almost as though there is a reversal back to the 1930s and 1940s, when workers had absolutely no rights in the energy sector.

Our union is working with Trade Unions for Energy Democracy to present an alternative, framed along what is called 'the public pathway approach'. This looks to lay out a path that would extend public ownership of energy and build a new political economy consistent with the hopes and aspirations of many of us working in trade unions and social movements. This would mean the complete nationalisation of both the energy and power sectors.

History has made it clear that the current energy expansion is inseparable from capitalist expansion. This is what is driving the climate crisis and the breakdown of the world's ecosystem. So, any viable and effective means of curtailing the energy expansion and mitigating the climate impact must involve taking control of how energy is generated and used. Control of energy is critical given technical realities and also from the perspective of political strategy. So, the struggle for energy can provide a clear focus for us in movements to strive for radical, systemic change.

Nick: Tim and Thea, as we push for a citizen-led, a worker-led, more democratic just energy system what do we need to grapple with? What do we need to change about the energy system?

Tim: I can't add to what Ozzi says. He shows us so well that energy is not just a technical question of providing a certain number of gigawatts, but it is where our politics is being organised and where questions of justice and social justice are at stake. And that political awareness has not been there in various moments in the past and therefore its re-emergence is quite promising given the scale of the transition that we've got to go through.

Thea: I want to circle back to something I was saying earlier, which is about the hesitance of capitalist investors to invest in renewable energy, which leads to public subsidies of privately owned infrastructures. This raises the question of why not cut out the intermediary. If the public purse is already subsidising and passing major legislation like the Inflation Reduction Act in the US, in order to get any of this transition going, why don't we think about direct public ownership of generation capacity, ownership of the wires and cables of distribution? In New York State, for example, I've worked on research that supported the Democratic Socialist of America's (DSA) campaign that succeeded in passing legislation that empowered a state-owned entity that owns generation capacity to buy more renewable capacity and to help decarbonise public buildings. The question of ownership is critical now because it's very apparent that we can't rely on the profit motive to decarbonise as quickly as the climate science demands.

A second answer lies with labour unions and labour militancy. In the US, a few years ago, we had an important development when the United Mine Workers that represents coal miners finally officially endorsed a just transition. This is critical, because a just transition requires organising workers who want a transition and to organise around it so that they benefit from it, rather than delaying a transition, being fearful of it and allying with their bosses. Recently we also had this major, important, very militant and creative strike organised by the UAW, United Auto Workers that sought to make sure that workers are in the driver's seat, pun intended, of the Electric Vehicle (EV) transition, because the EV transition can work out in all sorts of ways for workers. There are fears of layoffs, of automation, precarisation. But the UAW decided to be a protagonist, and won tons of amazing contracts that ensure that battery workers and EV

workers will have the same kind of standards as traditional auto work. It's an example of what can happen when unions organise less on the defence of protecting jobs and dirty industries and more on the offence of shaping the kind of renewable energy transition they want. This is not to say that it's not still a very asymmetric battle with corporations and bosses, but I think it lends itself ultimately to more power for workers.

Nick: Ozzi, I wanted to give you the final word. We have a lot of readers of this publication who are involved in energy struggles, up against very entrenched systems of power. What is your message to them?

Ozzi: Well recently, OWTU with other unions of the global South launched TUED South, to show that there is a plausible and legitimate alternative of a public pathway to the existing and failing privatised decarbonise approach. My message is that we must never stop demanding system change. The demands for system change are the only just responses to tackling the climate crisis. When we transitioned to capitalism, it had a negative impact on the environment. So, what is required is to transition out of capitalism for the vast majority of countries, and especially in the global South. Without strong and progressive interventions from the public sector, many of the interventions to reduce emissions will not be possible. An effective progressive just transition will require a well-resourced public service sector. Struggles around the world have shown that it is still possible to make a difference, that human society can transition and be reorganised to protect our planet, and at the same time protect the livelihood of those who inhabit it. That's my message.

This is an edited excerpt of a conversation held in early January 2024.

Who profits from the green energy rush?

Derisking and power relations in Africa's renewable energy finance

Steffen Haag, Johanna Tunn, Tobias Kalt, Franziska Müller and Jenny Simon

Namibia dreams of the economic 'silver bullet' of green hydrogen. Hidden in the 'Sperrgebiet' – a diamond mine under German colonial rule and now the Tsau ||Khaeb National Park – is an area designated for the Hyphen green hydrogen mega-project. This is a German joint venture, which plans to produce green hydrogen on an area three times the size of New York City,[1] touted as a partnership between the two countries.[2] In reality, Hyphen is a debt-based project that risks increasing public indebtedness and sidelining social and environmental concerns.

The project's envisaged success has swept under the carpet all the financial risks and burdens arising from the public–private financing arrangements that characterise the dominance of private finance. Given their limited fiscal capacities, lower-income countries are dependent on foreign public and private financing, leading to increased debt burdens.[3] In view of urgently needed funding for climate mitigation, 'de-risking' is often proposed as the means to deliver green markets in the global South.

De-risking has emerged in renewable energy finance as the panacea for mobilising the necessary financial resources for the ecological transformation particularly in the global South. De-risking aims to attract private investment in green infrastructure by offering public risk guarantees, with the ultimate goal of arresting climate change in partnership with international capital. The economic dangers to which countries expose themselves to, however, with de-risking measures can be seen in Just Energy Transition Partnerships (JETPs) that have been signed, for example, with Indonesia, Senegal, South Africa and Vietnam.

The crucial questions to ask are: Does international finance meet the day-to-day reality of people living close to renewable energy plants? And whose risks are being prioritised in these renewable projects – those of communities, the climate or the company and financial investors?

Projects like the Hyphen hydrogen project in Namibia reveal how the public service of energy production is treated as an investable asset. They generate profits for foreign investors at the expense of creating exploitative and harmful environments for the affected communities.

Global financial markets and structural power in renewable energy in the African continent

The volume of capital seeking profitable investments in financial markets has increased enormously since the 1980s.[4] The pressure on profitability in the productive sector in the industrialised countries, redistribution in favour of wealth-owning social groups and the turn to pension systems based on capital markets have contributed to this development. The growing latitude for financial actors and the creation of new financial practices further fuelled the increase of financial capital.

Box 1. Power in global finance

Global finance is structured by power relations. They affect, for example, the structures and regulation of financial markets or the unequal distribution of financial benefits and harms. This is clear in terms of access to financing sources, the distribution of profits and vulnerability to crises.

Since financial globalisation emerged from colonialism and post-/colonial structured capitalism, African economies still occupy a subordinate position in global financial relations. Among other things, this affects the depreciation of exchange rates and how financial instability forces countries to react to the dynamics of international financial markets. The debt crises of the 1980s forced many countries to accept loans from the International Monetary Fund (IMF) and related structural adjustment programmes. These not only prioritised the repayment of private-sector loans but also placed conditions on countries to push through economic liberalisation, opening up financial markets for global capital. As a result, countries are exposed to volatile financial relations, sometimes called the 'liquidity tsunami'.

See TNI's Primer on Financialisation:
https://www.tni.org/en/publication/financialisation-a-primer

Since the 1990s, there have been investment opportunities in new areas such as housing or information technologies as well as in new parts of the world. Many countries have subsequently experienced repeated liquidity tsunamis:[5] a temporary influx of investment, a change in shareholders' profitability expectations, and a more or less sudden withdrawal of capital.[6] Hopping in and flying out when expectations change, short-term finance in particular increases the risk of recurring financial crises. This dynamic is illustrated by the so-called Asian crisis in the late 1990s or the dotcom bubble in the early 2000s. After the 2008 global financial crisis, the volume of excess liquidity in search of profits has increased, as low interest rates further fuelled the force of the liquidity tsunami.

Today, the so-called green economy, above all the renewable energy sector in economies in the global South, is one of the promising destinations for global financial capital to invest. While there is a need for massive investment in infrastructure, the technological paths and economic gains remain unclear and private finance perceives severe investment risks. Unsurprisingly, therefore private finance seeks to pass these possible risks on to host governments, in the form of public financial support. While finance for public infrastructure has always entailed a blend of private and public funding, *de-risking* aims to reorganise energy economies, encompassing a specific set of instruments along with an accompanying narrative.

Until the early 2000s, 'derisking finance' was used eclectically, referring to business outsourcing, microfinance or pension fund portfolios. In the wake of the financial crisis, de-risking became more nuanced, focusing on macroeconomic restructuring, liquidity risks and financial stability. When the macroeconomic discourse began to embrace the idea of a 'green recovery', this led to a more specific debate, centred on green finance and promising, but still risky, markets in

the global South. The E3G think tank's proposal at the London G20 summit[7] was soon followed by in-depth conceptual research by Deutsche Bank and by the United Nations Development Programme (UNDP).[8] This work suggested a detailed de-risking methodology for market-creating policies to create a promising environment for green investment.

Essentially, the rationale of de-risking is the following: Although costs of renewable energy have fallen dramatically, perceived risks prevent investors in countries across the global South from financing the infrastructure for renewable energy. To mobilise the necessary funds, there is a need for risk-mitigation instruments to make an economy attractive for investment, such as by guaranteeing a stable flow of returns. These instruments provide a safety net for private investors based on a bundle of measures such as risk assessments, export credit insurance, investment guarantees, premium payments, the multilateral development banks (MDBs) as lenders of last resort, technical assistance and political consultancy as well as domestic regulatory initiatives to provide a secure and predictable policy context. De-risking was quickly adopted as a key strategy to address the challenge of financing sustainable infrastructure. A few years after this first UNDP policy initiative, these ideas entered the GET-FiT Program, which funds renewable energy-projects in Uganda and Zambia and also inform the World Bank's multi-country programme Scaling Solar and Italy's RES4Africa programme, to name just a few.

De-risking is now ubiquitous in climate finance, featuring in many policy recommendations from the World Bank, IMF or the United Nations – respectively 'From Billions to Trillions', 'Building Back better' and 'Maximizing Finance for Development'. Large-scale infrastructure and renewable energy projects in line with the Sustainable Development Goals (SDGs) and Agenda 2030 have become investable assets as a means to attract profit-seeking international capital.

The macroeconomist Daniela Gabor referred to this as the 'Wall-Street Consensus', which means that, in contrast to the earlier Washington Consensus, the mobilisation of private financial capital has now become a political and developmental priority. Ultimately, this is a radically market-based approach to development finance centred on the interests of finance capital. As Gabor suggests, this culminates in a 'de-risking state',[9] whose most significant functions are no longer welfare and human or territorial security, but the production of attractive investment opportunities, moderated by investor-friendly institutions, whose structure resembles governmental or transnational chimeras. In the energy sector, this may include energy auctions facilitated by private consultancies and law firms that are aimed at western investors, as the case of Zambia clearly shows.[10]

In what follows, we focus on projects showing different levels of de-risking: the JETP case highlights de-risking at an abstract, inter-state level, the Senegal case underlines the daily realities and Namibia illustrates how it can transform an entire economy.

The de-risking strategy of the Just Energy Transition Partnerships (JETPs)

In the context of renewables in African countries, Just Energy Transition Partnerships (JETPs) have been hailed as innovative climate finance mechanisms. Yet they also illustrate how power relations and structural inequalities are reproduced through renewable energy finance. Negotiated between the G7 and global South countries, JETPs aim to catalyse a shift from fossil fuels to renewable energy. The first JETP, announced at COP26 in 2021 between the G7 and South Africa, involves an initial US$8.5 billion investment to make the transition from coal to renewable energy. It funds projects for grid improvement, power generation, electric vehicles, and green hydrogen and proposes a just transition with a focus on job creation and skills training. A JETP with Senegal, an aspiring gas producer, signed in June 2023, allocates US$2.7 billion for 40% renewable energy by 2030.

While the fact that governments in the wealthy countries are now beginning to acknowledge their climate responsibilities and step up their efforts to provide climate finance, the JETP financing model raises many concerns. First, while many countries across the global South have demanded climate finance, the way JETPs are set up serves the geopolitical interests of the G7 states that aim to strengthen their global political and economic influence, including to respond to the Chinese Belt and Road Initiative. More concretely, only a tiny fraction of the funding comes in the form of grants – 3-4% in South Africa and 6% in Senegal. The rest is in the form of hard-currency loans – which, despite the below-market interest rates, must be repaid. This exposes recipient countries to debt risks when local currencies weaken and debt repayments become more costly, such as in South Africa where since 2000 the Rand has lost 200% of value against the US dollar.

In addition, the JETP financing model also relies on a de-risking strategy. Public money is used to fund private corporations through public–private partnerships (PPPs). In the electricity sector, which accounts for most JETP funding in South Africa and Senegal, this means investing in grid infrastructure to create the conditions for private energy corporations, so-called independent power producers (IPPs), to set up new projects. Specifically, de-risking IPPs entails government subsidies and guarantees for the offtake of the energy produced through agreements to purchase power from the IPPs for a fixed price and a fixed period of time. This secures long-term revenue for the private sector, while exposing host countries like South Africa and Senegal to commercial risks and exacerbating their foreign debt as they provide sovereign guarantees for private finance.

The focus on attracting private finance also means that insufficient funds are allocated for Just Transition measures that are not considered 'bankable', as they do not directly have a return on investment – for instance, a socially sensitive tariff system, gender-sensitive skills training and employment programmes, or technology transfer. JETPs do not support local renewable energy manufacturing, which is where most high-quality jobs and economic value creation are found, and so do not contribute to sovereign green industrial development and long-term employment and community benefits – only 0.6% of the pledged contributions to South Africa's JETP goes to skills development, economic diversification and social inclusion.

Furthermore, because private energy producers not only need to recover their operating costs but also seek to make a profit, this may lead to higher energy tariffs that incorporate profit margins and interest payments, exacerbating energy poverty. Finally, civil society and communities have been left out of the JETP negotiations. The deals are negotiated behind closed doors between the G7 negotiating as a bloc with individual countries, which have repeatedly expressed concerns over the terms and conditions of these deals, which often remain undisclosed to the public. Social movements and trade unions have come up with alternative proposals for just climate finance[11] that focus on debt cancellation,[12] climate reparations and public investments rather than de-risking private finance.

This financing landscape seems far removed from people's daily lives. But global finance in the form of loans, equity shares or any other instrument finds its way into concrete renewable energy projects, such as the Hyphen project or the Taiba N'Diaye windfarm in Senegal, that have significant impacts on people's lives.

Investment adventures in Senegal – the Taiba N'Diaye windfarm

Chris Antonopoulos, the CEO of Lekela, boasts that you need the 'the spirit of an adventurer'[13] to build windfarms in Africa. Lekela is a London-based renewable power company, which has constructed the 160MW Taiba N'Diaye windfarm in Senegal. What is an investment adventure for some has the potential to destroy the basis of subsistence for others.

This windfarm is an exemplary case for how renewable energy production is turned into an asset, providing opportunities for profit-seeking investors that are predominantly based in the global North. This is enabled through an institutional environment of de-risking both by the Senegalese government as well as international development finance institutions, creating the safe and stable environment for European investors. The windfarm is viewed as an investable asset from which distant investors expect a rich return, but at the same time it is the home and site of contestation for the affected communities.

Senegal's energy policy has been oriented towards creating a 'de-risking environment', enabling private energy production. In a recent reform of the power sector, the government shifted towards embracing private finance by removing regulatory barriers and creating a conducive environment for international investors. The core of the reform is the unbundling of Senelec, the national electricity company and off-taker – the purchaser of electricity in renewable energy projects, and the strengthening of private actors in energy production.[14] IPPs tender for production rights, while the regulator's long-term energy planning offers investors a stable basis for long-term investment decisions. The liberalisation of the electricity market opens the market for private energy production and domestic planning aims to make it attractive for foreign capital.

Following this policy direction, since the early 2010s the share of energy production from IPPs has risen to half of Senegal's overall installed capacity, mainly through foreign direct investment (FDI). About half of the country's solar capacity is owned by French companies.[15] The colonial power is back – or perhaps never left.

The Taïba N'Diaye windfarm fits well within Senegal's energy policy agenda. The French company Sarreol developed the project and later sold it to Lekela, which then developed it towards financial profitability with a loan from the Development Finance Corporation (DFC), the US government development finance institution, and an investment guarantee from the Multilateral Investment Guarantee Agency (MIGA), a branch of the World Bank. Lekela was owned by two European-based infrastructure equity funds with opaque ownership structures when the construction began and has since been sold on to other investors. Today, the windfarm consists of 46 wind turbines, a number which is soon expected to double, and currently affects more than ten villages with an estimated population of 25,000.

Private investors' need for a high degree of security leads to a financing constellation and business models that merit closer examination. Lekela sells the produced electricity to the national energy company Senelec and uses the revenue to service the creditors' loans and pay its shareholders the anticipated returns. Lekela is thus obliged to operate on a for-profit basis.

In order not to risk this cash flow, the business model is secured by fiscal de-risking. The Senegalese government provides a bundle of guarantees for electricity off-taking and the World Bank does the same for political risks, thus securing the investors against almost all kinds of jeopardy.

In a so-called Power Purchase Agreement (PPA), Senelec is contractually obliged to pay for all the energy produced – even if there is no demand for it, or the grid is overloaded. This guarantees Lekela's revenue. Over and above this, Senegal also provides a sovereign guarantee to cover the possibility of Senelec defaulting on payments.

Investors may also choose to draw on so-called political risk guarantees provided by the World Bank, such as a political risk insurance (PRI) or a partial risk guarantee (PRG). These guarantees can be triggered in cases such as non-payment by Senelec and the state, expropriation, or war and civil unrest. Thus, apart from project- or technology-based risks, investors are hedged against virtually every form of insecurity.

The profit-driven logic behind the project financing and the need for constant revenues to serve the creditors shapes inequities at the lower end of the windfarm, namely in how it affects local communities. These inequities are even more striking in the contrast between Lekela's own investment tales and grassroots dissent.

Investors like to narrate the story of developmental benefits of large-scale infrastructure projects like job creation. According to Lekela, a total of just 380 people have been employed during construction, all from the surrounding villages. However, villagers clearly express their frustration about this recruitment as the contracts are temporary and mainly for low-skilled jobs.

This is even more problematic because people's land has been expropriated for the windfarm, depriving them of their means of subsistence. About 420 farmers who have been affected by the windfarm have been compensated. Fair enough, the compensation has been above the usual national rate. While this could be seen as a noble gesture on the part of Lekela, the question of land represents the fundamental divide between the investors and the affected community. Leleka's investment story proclaims a modernising – but imaginary – 'from

farmland to wind farm', assuming progress and development, but conversations with farmers give a very different sense of the meaning of farmland – which means life, the basis for food and income. The compensation might alleviate their lives in the short term, but it cannot make up for the loss of their land. The issue of land brings colonialism from the past to the present. The prevailing idea of *terra nullius* justified the illegitimate Scramble for Africa during colonialism, organising land grabs for the colonial plantation economy in ways that we can still see in today's patterns of extractivism.[16]

From the perspective of the investors, the windfarm is entirely a success story of modernity and development. It is assumed to have improved villagers' lives such as by constructing a marketplace, an IT centre in the school or solar panels for local farmers. The official investment story is illustrated with women dancing to express their joy about the investments. It draws on almost every cliché in the book – exactly how Binyavanga Wainaina taught us how not to write about Africa.[17]

The story appears as pure philanthropy leading to progress in the surrounding villages while the investors occupy the moral high ground. As the investors proclaim, the project is 'more than a windfarm'. What the story of Lekela hides is that the windfarm will generate stable, long-term revenues to the European developer, made possible through the de-risking instruments described above. This however shifts risks to the affected communities and onto the state's balance sheets – and thus adds a further burden for the state budget and provides short-term profits for the private company.

Looking at the windfarm from a macro perspective shows how investments in renewables, even in a single windfarm in Senegal, are increasingly entangled in the circuits of global finance. Lekela has recently been sold to the operator Infinity, which owns many IPPs across Africa – it stretches belief that this sale took place without a rich return for the company's previous owners. What this on-selling entails is a disconnect between the owners of the project and the community. At the very least, Lekela has been working with the local communities for several years. The new owner does not have this relationship, which risks undermining any responsibility and accountability for the impacts of the windfarm on local communities.[18] Lastly, what is problematic at the macro-political level is the possible influence that the de-risking instruments grant to multilateral organisations. The threat to trigger a risk guarantee is a disciplinary measure, insofar as if the government does not pay, it must meet the guaranteed sum as the World Bank has the power to impose structural reforms in the energy sector, thus undermining state sovereignty.

The story of Lekela both conceals and downplays all these structural hierarchies. Its narrative includes only two roles: the benevolent European investor and the grateful recipients. Despite – or exactly because of – this narrative, let us not forget that the Taïba N'Diaye windfarm is an investment that affords powerful and wealthy investors a profit from selling electricity that the Senegalese population pays with their electricity tariffs.

It is therefore important to highlight that those who are affected by the windfarm formed a collective to defend the rights of the commune of Taïba N'Diaye (Taxawu Askan Wi), to confront the project developer, demand their fair share of the income and a right to a say in decisions

affecting them. Given the financial superiority of Lekela and its power to define the investment narrative, it is crucial to see what happens at the margins, how people are struggling every day to counter financial power inequalities, and what these struggles tell us about the global financial structure.

Green Hydrogen Dreams in Namibia

From the northwest of Africa to the very south, the rush into renewables takes yet another form. While the Taïba N'Diaye windfarm was built to supply the national energy grid, Namibia's whole emerging hydrogen economy is oriented towards serving European economies. Since 2021, Namibia has rapidly opened its doors to any number of investors, corporates and technical assistance as well as incorporating de-risking institutions to accommodate its goal to become 'a green hydrogen superpower'.[19]

Fiscal de-risking

In order to do this, the Namibian state has constructed a blended finance architecture that draws heavily on an international public–private de-risking ecosystem to set in motion the nascent hydrogen economy.[20] This includes a blended financing platform called SDG Namibia ONE for the de-risking scale-up of the green hydrogen strategy and respective private-sector initiatives. SDG Namibia ONE's concessional capital is meant to drive down the overall cost of capital and thus provide fiscal protection to what the country hopes will be an influx of private investors, ready to deploy capital and meet investment needs. Launched at COP27 in Egypt, the platform is now managed under the Namibian Environmental Investment Fund by two Dutch organisations, Climate Fund Managers and Invest International Dutch.

The platform has received grants for technical assistance from Investment International (€40 million) and the European Investment Bank (EIB) (€5 million) in order to streamline the platform with investors' needs and a further a €500 million concessional loan from the EIB. The government is using this money to finance its equity stakes in the prestigious large-scale hydrogen project under the management of Hyphen Hydrogen Energy.

While such approaches are still highly recommended by the World Bank Group[21] and the OECD,[22] it risks leaving countries more vulnerable to debt crises, and ultimately expands the power and influence of financial lenders. With a state-owned debt of 60%, the addition of loans adds to Namibia's overall foreign debt and puts further pressure on the national budget – should any of the projects fail, it is the Namibian state and its citizens that will be left with the burden of debt repayment. Moreover, both the creditors and project developers are part and parcel of a European network that aims to capitalise on and use green hydrogen and its derivatives for their own purposes. A local bank representative, who was involved in drafting the regulations of the Hyphen investment, put it in a nutshell: *'In reality, it's really money spent to pay salaries of Europeans […]. You'll have these big contracts multiyear offtake agreements but between European institutions'.*

De-risking ecosystem

The rush for the new 'green oil' and the creation of such an enabling environment has put many governments and investors on notice. Namibia has signed memoranda of understanding (MoUs) with Germany, the Netherlands and the EU for the export of green hydrogen. Other investors such as Anglo American, the Port of Rotterdam, Belgium, and several Japanese companies are currently implementing their own hydrogen-related projects.

The most prominent project is located in the Southern Corridor Development Initiative's Tsau ǁKhaeb National Park and run by Hyphen – a consortium between the German energy company ENERTRAG and investment firm Nicholas Holding. The secretive investment firm is registered in the well-known tax haven, the British Virgin Islands, although the operational arm is managed by its subsidiary Principle Capital, which has previously been involved in a controversial Mozambican biofuels project.[23] The projected investment comprises US$9.4 billion, which is equivalent to Namibia's gross domestic product (GDP) in 2020. The plan is to build solar panels and electrolysers to produce green hydrogen in a protected area of 4,000 km², mostly if not exclusively for export to Europe. The Namibian government envisages 10 to 15 more of these projects in the national park.

In order to address political and regulatory risks that may impede foreign capital investment in its nascent industry, such as 'complicated' access of foreign corporates to land, strong environmental safeguards or visa requirements, the German government, among others, has granted the Namibian government a technical assistance programme. Assistance is provided by multinational law firms that will develop policy and legal regulations. The ultimate goal is to create an 'enabling environment' in the interest of German and European investors. Selected firms for example for the hyphen projects are primarily of German and European origin.

Regulatory de-risking

Further proposed regulatory adjustments to accommodate the hydrogen economy are in the making. Currently, there are no dedicated laws for green hydrogen production intended for export, nor an appropriate safety regime to regulate the production, storage, transport and use of hydrogen and its derivatives (such as ammonia). To develop such regulations, Namibia is relying on costly foreign technical assistance from law firms and consultancies and the recommendations of organisations such as the World Bank and McKinsey. Social movement *Affirmative Repositioning (AR)* leader Job Amapunda alleges that Hyphen is closely working with the Namibian government to create the legal framework for its hydrogen economy[24] – indicating that a private project coordinator is effectively shaping the future regulatory framework for an entire emerging industry in Namibia adjusted to its preferences, requirements and needs.

While the Namibian government and European stakeholders celebrate the many agreements, strategies and partnerships that have been established within only a few months, civil society in Namibia has pointed out the danger of recurring financial dependencies, ecological degradation, and social exclusion amidst Namibia's green hydrogen hype.

In terms of regulations, amendments to laws to the advantage of the project developers and in their quest to secure abundant production space for green hydrogen may facilitate land

and water grabs. In the case of Hyphen and its current trajectory, the project will confront the largely unprepared town of Lüderitz with an enclave economy – an export oriented economy dominated by non-local capital – on its doorstep. While Hyphen announced the creation of 15,000 jobs and an additional 3,000 during the construction phase, similar to the case in Senegal, most of these will be temporary and for low-skilled labour.

Aside from precarious labour and living conditions on site, there are also the socio-ecological risks of conflicts over water and ecological destruction. These include the spill of brine from desalination plants into the sea or groundwater, the use of rare freshwater reserves as planned by the German government-funded *Daures project,* the use of national park sites for the Hyphen project, and the huge impact of the planned infrastructure, such as ports and plants on terrestrial and marine ecosystems. Financial markets are blind to such socio-ecological risks – as long as they do not endanger investments. The result is the socialisation of risks and the privatisation of profits especially for elites and international investors – which perpetuate the state's indebtedness to international banks and constrain the space for intervention by civil society.

Civil society has expressed concerns about the lack of transparency and accountability regarding procurement processes, financial agreements and regulatory options. However, rather than engaging with civil society and addressing their legitimate concerns in a democratic and transparent manner, the Namibian government 'warned locals not to interfere in the Hyphen Hydrogen Energy green hydrogen project'.[25] German and European investors and politicians continue to paint the picture of green hydrogen partnerships among equals. The history of German involvement in Namibia's extractive past and present, including colonial occupation and the genocide of the Herero and Nama, are not part of the discussions. It is astonishing to see how quickly capital can be mobilised when wealthy countries' interests are at stake, while there are still no reparations or even formal apologies for German colonial atrocities. When asked to describe the green hydrogen rush in Namibia, one activist responded: 'We want this thing to be called what it really is. This is important. Even if people continue to bulldoze and get away with this thing, it must be called by its name: This is imperialism. This is colonialism'.

The need for socially just and democratic models of financing

The picture these green energy cases presents is ambivalent. There is an urgent need for financing for renewable energy projects. The climate crisis puts the greatest pressure on some of the world's most vulnerable countries and communities. Yet the current form of financing for renewable energy may add to those pressures rather than relieve them. It certainly threatens efforts for global climate justice. Financing partnerships such as the JETP as well as specific renewable energy projects are often a gateway for global Northern interests and may well perpetuate green colonialism. Wealthy nations, domestic elites and multinational corporations all benefit, while the host countries and their citizens assume the financial and environmental risks as profits are privatised, and the state and consumers bear the transition costs.

Following in the footsteps of the 1970s' call for a 'new international economic order', initiatives grounded in a global South perspective increasingly question the global climate finance architecture. The Bridgetown Initiative,[26] a proposal for global financial reform spearheaded

by the Prime Minister of Barbados, Mia Mottley, has created greater awareness of climate debt and a looming debt crisis, with 52 countries already in debt distress, or, in the case of Zambia, already facing bankruptcy. Mottley's demand for IMF Special Drawing Rights (SDRs) struck a chord. At the 2023 Paris Climate Finance Summit leaders convened to restructure the architecture of development finance in such a way that should redirect finance flows and guarantee a fair share of capital. Yet Bridgetown's radical impetus was effectively a lost cause, as the Summit did not result in a debt-relief programme, but only in a piecemeal approach. Leaving aside the real impact of the Bridgetown Initiative, it represents an important contestation of the neo-colonial dynamics in climate finance and a call for just financial flows.

What is needed for justice in climate finance is a constant debate and practice between social movements, civil society, politics and the private sector. But unless this debate is firmly grounded in content and addresses inequalities of power, calling for justice risks being little more than so-called virtue signalling. This is illustrated in discussions of the JETPs. As trade unions and civil society have demanded, the negotiations on investment projects need to be inclusive and transparent, not based on secret deals signed behind closed doors between the donor and recipient countries. Only if this is guaranteed will civil society actors be able to demand more grants-based financing instead of conditional loans.

Demands for justice in renewables projects like IPPs raise further concerns. There is a need to establish financing models that transfer a fair and fixed sum of the returns gained by the private developers to the affected communities. People whose land is expropriated should be fairly compensated because this is often all they have. At the government level, local content rules should require international developers to create domestic economic value. These demands are not abstract or utopian. They could easily be adopted provided there is the political will and space to do so. Yet the fact that such demands are so far from the reality on the ground shows the distance remaining. This calls for civil society and movements in solidarity with those who are directly affected by renewables to apply pressure on international finance investing in such projects.

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We are a research team at the University of Hamburg and conduct research on the global political economy of energy transitions in Africa. Our work focuses on postcolonial power relations. The research project H2POLITICS examines the socio-ecological and developmental impacts of producing green hydrogen in the global South for export to Germany to support its energy transition.

Negotiating a global energy crisis on our stairwell

Lessons from Lebanon

Ebla Research Collective

‘State or generator?’ A question that I have lived with for 31 years as a Lebanese citizen with (no) rights and (many) obligations. I wait impatiently for the streetlamp light, for it is the surest sign that power from the state electricity company is back on. Now a little bulb has stolen its glory, a sign that the power from the generator is on. I’m attached to this little bulb the way I am attached to the little hope that tomorrow will bring us more state electricity power than the day before.

Sami’s[27] reflections on his quiet struggle through the hybrid sources of electricity that afflict his everyday life, expresses the difficulties many people in Lebanon experience on a daily basis. Since the civil war years (1975–1991), people living in the country have had to co-manage the provision of electricity to their homes and businesses because of the daily outages and unreliable supply from the state-owned Électricité du Liban (EDL). With almost 90% of Lebanon’s population residing in urban areas, and in the absence of an effective government system, people are left to fend for themselves (individually and collectively) and, in their buildings or apartment blocks, try to respond to electricity shortages. This co-management of basic public services weighs heavily on most people, and is largely individualised. It has driven more people to rely on informal networks. While some buildings have a generator that is co-owned and managed by the residents, many households subscribe to private providers who operate large diesel-powered generators at the neighbourhood level. These services, on which Sami and most of the country’s residents rely, are also closely linked to political networks in an intricate web of clientelism: the result is a society served by expensive, polluting and unreliable energy.

With Lebanon suffering an unprecedented financial crisis since 2019, alongside the almost total erosion of basic services, including electricity,[28] daily life is like running an obstacle course – a constant struggle to adapt to changing and increasingly difficult challenges. In 2021, the country was plunged into darkness as the government could not fund the necessary fuel imports to keep the lights on. The energy crisis worsened to the point where households were getting only one hour – if at all – of electricity provided by EDL. The reliance on generators became more acute, increasing the dependence on fuels and increasing costs to households. But the recent electricity crisis is not a distinct event – the country has always lived through what could be termed a protracted crisis of infrastructure provision, mainly affecting electricity supply.[29] The experience of Sami and many others has become a normalised aspect of life in the country, where a heterogenous infrastructure of electricity from EDL, private generators, and a slew of electricity technologies power homes and facilitate everyday living.

This situation is a product of state corruption. Since the 1990s, the country has been run by a political–financial regime that nurtures rent-seeking[30] and continues to hijack state institutions for financial and political gain.[31] The electricity sector in particular, besides being dysfunctional and inefficient, has for decades fed patronage networks[32] and burdened the state budget, significantly contributing to the growing national debt and the ensuing financial collapse.[33] At the upper echelons of power, the lack of an adequate response to recovery planning for the most recent crisis and the lack of change in the political system or the sharing of power – which since the end of the civil war has been fixed along sectarian lines – has eroded citizens’ sense of unity and belonging.

Nevertheless, we are compelled by the critical situation facing many households to delve deep into the complex web of formal and informal essential services on which Lebanon's residents have come to rely, and explore how people collectively organise at the building level. We know that buildings or apartment blocks are managed mainly by building committees tasked with maintaining common areas and shared services. In Lebanon, due to the protracted energy shortage, these committees also manage service provision such as a shared diesel generator. Could these committees, local and arguably representative, support an energy transition that is just and sustainable? In light of all this, our research sought to explore these micro-mechanisms at the grassroots level, looking at buildings as a unit of analysis and the building committees as a form of community collective body that might inform alternatives to the failed state-led model of energy governance.

Between May and September 2023, we conducted collaborative ethnographic research in Beirut and its suburbs. Eleven researchers provided perspectives and insights from the daily life of the buildings in which they live. These buildings were located in different parts of the city and covered a range of income groups. We met regularly, read each other's fieldnotes, and discussed findings. Above all, we shared the many ways in which the constant grappling with electricity cuts and search for energy solutions shaped our lives. Looking through a 'transformative energy justice' lens,[34] which emphasises intersectionality and the continuities between energy injustice and other forms of injustice, we explored the extent to which collective organising at the building level can support the democratisation of access to energy and empowering communities as participants, rather than as consumers, in the energy systems essential to everyday life. Seen in this way, these efforts are not viewed as romanticised forms of solidarity economic organisations, but as politically realistic models that reveal how people are trying to make services more accessible, inclusive and democratic, through building committees or collectives of building residents. We found that despite their best intentions and the tremendous efforts these committees expended, managing electricity services in buildings was far from a process of democratisation. The committees' preoccupation with co-managing energy was burdensome and complex, leading to disempowerment and emerging exclusionary practices with detrimental impacts on residents' wellbeing.

Focusing on the building level was crucial since Beirut is estimated to have around 18,000 high-rise residential structures, most of them with more than six floors.[35] By law, committees manage residential buildings that typically consist of privately owned apartments and common areas (entrance, roof, stairwells and other spaces). As such, a committee represents the interests of the apartment owners and is mandated to manage everything related to safeguarding and maintenance of the building's common areas and operations, as well as resolving occasional conflicts between residents. Although not all buildings have a legally registered building committee, when it came to the provision of electricity, residents resorted to these committees to try to find suitable collective solutions.

Finding our way in the dark

The financial crisis led to an economic collapse in Lebanon, where inflation rose to 145% and an increase in the cost of imported fossil fuels meant the price of electricity, gas and diesel increased by almost 600%. This led to an electricity crisis with still further reduction

in state supply, as well as a six-fold increase in the cost of diesel generators. The response to the intense electricity shortage incurred high social, economic and environmental costs, exacerbating income inequality and energy poverty, with 90% of households compromising on paying for basic services. Among the poorest, 20% lacked access to a generator, with low-income households paying a substantially higher percentage of their income for private electricity supplies,[36] while environmental experts estimated a significant increase in emissions, magnifying health risks.[37] In addition, just like elsewhere around the world, these impacts are gendered, with the hardships of supply shortages falling disproportionately on women.[38] The macroeconomic cost was a deepening of Lebanon's dependence on diesel imports that benefit primarily an oil importers' cartel to fuel private generators,[39] further entrenching politicians' networks of power and influence.

At the other end of the crisis are people's strategies for meeting their daily energy needs. Individual or collective solutions in buildings and households are now commonplace. We refer to these as 'micro fixes'; privately led and small scale, constituting a mosaic of energy sources (building generators, neighbourhood generators that sell electricity, solar panels, inverters with lithium or acid batteries). This is also the bulk of electricity generated and effectively the unwritten national strategy for energy provision in the crisis-ridden country. With more people resorting to micro fixes, the country saw an explosion in small-scale solar energy systems, which some celebrated as a 'solar power revolution'[40] that, they argued, could even enable Lebanon to meet its 2018 commitment of 30% renewable energy mix by 2030.[41] However, the country's solar rush has been mainly individual and private-led, underscoring class differentials in access to quality solar energy given the high cost of purchasing the panels, batteries and inverter equipment required. Furthermore, there is a 'looming toxic waste crisis'[42] arising from all the expended batteries and panels, with no plan for its management on the horizon. The lack of an effective subsidy loan programme has driven a profit-based model of the solar energy market, a negative aspect of the energy transition noted earlier.[43] This, along with the complexity of energy provision in Lebanon, brings to mind the question of energy justice. Lacking a 'universal access to affordable, reliable and modern energy services',[44] with severely negative environmental and intergenerational impacts on residents' wellbeing,[45] it is evident that energy provision in Lebanon and the potential transition to renewables are not just.

Thinkers on energy justice define it as a 'global energy system that fairly disseminates both the benefits and costs of energy services, and one that has representative and impartial energy decision-making'.[46] Principally, their vision asserts the right to affordable and sustainable energy, where its provision is transparent and accountable. A year before the height of the crisis, a Lebanese citizens' assembly in 2020 elicited an 'imaginary of interdependence that seeks to create communal integrated networks as a collective small-scale solution at a time when nation-wide solutions are not perceived as possible'.[47] This desire for a locally led solution independent of the central state stems from a lack of trust in the ability of the state or private partners under its wing to resolve the decades-old energy problem, as well as a lack of confidence in renewable options and a dystopic outlook that rightfully predicted further deterioration in energy provision. We highlight people's mistrust of the state and its institutions as testament not only to how entrenched and historic the electricity problems in Lebanon are, but also to how people recognise the corruption in the sector but are disempowered in the face of it.

Living in the electricity crisis

The electricity crisis meant households almost exclusively relied on electricity provided by diesel generators. To clarify, a building generator is owned by a building and serves the residents who have paid for its operation and maintenance, whereas a private neighbourhood diesel generator service is another option to which individual apartments subscribed (for a monthly fee) for only a small number of amps. Sami writes how 'electricity from EDL was always the dream' as that is when he can consume more than the rationed consumption of only 5 or 10 amperes from the generator. The crisis shattered that dream and created an affinity with the diesel generator to which Sami is subscribed, whose owner he feels 'is with us and nothing is against us except our state and its luminescent electricity company EDL'. Sami's feelings reflect an ambivalent relationship to the state and its institutions, the failures of which markedly shape the political imagination in the country. That ambivalence is extended towards the owners of diesel generators too, who have been notable for their greed and lack of accountability.

The electricity crisis entrenched itself as an enduring reality, dictating the daily rhythms of household life. 'We began to plan our lives around these cuts: what time we woke up, what time we got back home, our shower and meal schedule', wrote Yasmin. Everyday chores were organised around the generator schedule and daily life became a constant struggle like 'a never-ending swirl' as Sami notes: the laundry piles; sleepless nights in the summer with no air-conditioning; amps not enough for high-wattage appliances like water heaters. Now their daily life is also being rationed, 'lights go off at 11pm, at 12am or even 1am…time to go to bed, and everyone goes to sleep at the same time'.

Coping and adaptation mechanisms alternated between individual solutions and exploring collective possibilities, often involving experimentation with new technologies. Given the market-driven system in Lebanon, new solutions – the micro-fixes – were available to those with financial means. In contrast, residents who relied solely on the private neighbourhood generator often felt trapped in a dependency relationship, since shifting from one provider to another is costly – if it is even possible to do so. Some exhibited hostility towards these providers as they railed over the spiralling cost of living that the financial crisis brought, but at the same time they needed the power amidst almost blackouts. As Sami wrote, the private providers manipulated people's lives without restraint or oversight. In doing so, they gained even more power as for many people the cost of other options made them the only choice.

Figure 1: Solar panels on balconies in Beirut (Photo: authors)

The crisis is felt more severely by those with health or care needs, such as the elderly and people with disabilities who need to take an elevator to reach their home, but who now have to time their outings according to the generator's schedule. The option of walking up flights of stairs is also difficult for people of all ages, as Yasmin notes: 'I had never realised how high twelve flights of stairs were until I had to climb up them almost every night … going up the stairs, again and again, I started to feel like I was outside of time, like the staircase stretched infinitely and held me in a loop that would never end'. That feeling of the unending – the swirl, the infinite loop – speaks of exacerbation. A fatigue pervades everything, placing at its centre the bodies of those living through the crisis. We highlight these feelings to pinpoint the intangible impacts the crisis has on people, given how entangled everyday life is with electricity. Bodily experiences, ambivalence regarding state and non-state actors, and a seemingly oppressive routine existence can have social and political implications with significant consequences.

The response to the crisis has not only exacerbated existing social and economic inequalities but has – in its very design – further entrenched these power imbalances. For example, the process of rationing power from building-owed diesel generators (to manage costs and mechanical wear and tear) revealed conflicting needs and priorities, and experiences differentiated by gender, family size and composition, as well as financial and social standing. While homemakers preferred a supply during the day, those working outside the home wanted to follow their job schedule, and well-off households wanted more supply no matter the cost. Negotiations and adaptations became necessary, often leading to the needs of the weakest being de-prioritised or even ignored. In decision-making, there was an absence of women's voices, sometimes deliberate and sometimes not, given issues such as childcare and other demands on their time. This dynamic shows that even when decisions are local, power differentials are exploited. The intersection of inequality with community or collective approaches to problem solving in this case have been detrimental to weaker groups, highlighting how justice continues to be a concern even in local-level responses.

In contrast, buildings with financial means and well-networked residents were able to secure diesel more easily, shielding themselves from the worst of the crises. The high-income building

described by Yasmin became ‘a fortress that at once protects and distinguishes its residents from what is outside’. However, the advantages enjoyed by the higher-income households are not without costs borne by the less fortunate. In this example, the noisy 24-hour generator had ruinous mental health and wellbeing impacts on the poorer residents of nearby buildings. Personal connections to influential political parties and elites were exploited to help secure cheaper diesel, while in another building, the committee leader’s connections to a political party further entrenched his dominance over the neighbours.

We see clearly how the impacts of the crisis have fallen most severely on lower-income buildings. Higher-income buildings, despite the crisis, continued to invest in building maintenance and the general upkeep of common areas, whereas those with households of average or lower income began to suffer the decline in visible ways. Privilege and prestige in Beirut’s buildings are no longer the showy entrance, electric gate or gleaming façade, but rather the near-constant hum of a diesel generator providing ample hours of convenience and cool environments to their residents.

Buildings in the midst of the electricity crisis

In a building, three of the common areas that require collaboration to implement energy solutions are: (1) the shared building amenities that need electricity (elevator, water pump, stairwell lights etc.); (2) a diesel generator owned by the building; and (3) the use of common areas to install energy solutions, such as allocating a space for the generator or using the rooftop for installing solar panels. There was a time element to this crisis, as noted by Fadia, who observed how initially neighbours were open to enduring reduced hours, sacrificing comfort and convenience so that shared bills were affordable for everyone. However, as the crisis unfolded over the months and the months became years, that solidarity gave way to impatient co-existence. Feelings changed and assertions were followed by ‘those who haven’t paid their share of the generator bill this month shouldn’t protest’. Lengthy and often antagonistic meetings and discussions took place, pushing people to adopt individual solutions, such as lithium-battery systems for their homes. This alleviated problems for those who could afford such solutions, but reduced the impetus to find consensus-based solutions. Individual solutions became a panacea for people to take care of their own needs and reduce ‘the headache’.

The management of shared amenities raises concerns too. The elevator requires some form of cooperation to ensure it is regularly maintained and its electricity bill is paid, whether covered by the building generator or requiring a separate subscription from a neighbourhood generator service. When residents could not afford to pay or to invest in lithium batteries to run it at all times, some committees opted to limit use only to those who could afford it. Using a remote-control system, the elevator could be called only by those who have paid. With grid electricity now available only for a few hours a day, the elevator was rendered for the private use of the wealthier residents and no longer a basic amenity. In that sense, this mundane building service became a site of the unfolding crisis, producing exclusionary practices and alienation among neighbours.

Figure 2: Elevator remote-control key fobs for the exclusive use of residents who paid for the service (Photo: authors)

The use of common areas, like the roof of the building, proved them to be not so common after all. Much like the city's commons more broadly, such spaces in buildings have often been encroached upon, either by emerging needs for new amenities and services (e.g. water tanks on the roof or shared garden area) or by a neighbour who manages to take over and limit others' access, such as rooftops becoming extended terraces for a top-floor resident. In view of this, and the reported solar boom in Beirut and its suburbs, a question arises of whether households truly have access to building's rooftop. In the buildings we researched, only three had solar panels installed, but these belonged to the few households who installed panels without consultation or agreement with the neighbours, in a *fait accompli*. Although in some suburbs of the city solar-powered electricity services have started to crop up,[48] we did not observe any collective effort to invest in solar energy in our sample. This was discussed in one building with the committee assuming it was illegal, while others decided that the roof space may not be large enough to accommodate the necessary panels.

Such examples show that while in some buildings there were committees that met, agreed, planned and invested in solutions to ease the crisis impacts in fair and accessible ways, these options were not always strategic, effective or inclusive. Although higher-income buildings could resolve problems by collectively purchasing bigger generators, this does not mean that the economic angle is the only factor at play. The intensity of the electricity crisis coupled with mounting financial burdens on families makes cooperation far harder as fewer people can spare the time and financial resources that such initiatives require. Another cause for failure is the length of the crisis (now entering its fourth year) as evidenced in people losing their patience and opting for individual solutions. As such, cooperation ebbed and flowed over time, sometimes emerging in shared spaces and at other times disappearing under the stresses and strains of living in a crisis.

Nevertheless, building committees are still important for the country's towns and cities. Research has shown how they are instrumental in protecting the built environment from

decay, where neglected buildings are sometimes the 'deliberate debris' driven by neoliberal policies that encourage demolition, rebuilding and speculation in property markets.[49] Given that before the crisis building committees were effective in (mostly) maintaining and managing generator services or finding solutions to relatively small problems such as irregular water supply, one question is whether this crisis – in its complexity and multiple impacts – is too big for a building committee to manage on its own. This underscores our call for a critical view of efforts dedicated to localised solutions, especially those that do not sufficiently consider the structural forces that can severely delimit peoples' responses. The concern here is for how effective localised solutions can be when state failure is so stark and how likely it is that these solutions will be successful in the long-term.

A crisis unfolding

The dynamics of building committees can capture how people adapt everyday routines to the constrained electricity supply, which they negotiate with their neighbours to ensure that the provision matches their needs. They can be sites for seeking out collective micro-solutions and we also found life-enhancing and resistance strategies that challenge an unjust energy reality, as residents attempt to achieve solidarity, collaboration, and collective action – if only temporarily. We recounted on-the-ground experiences of the energy crisis arriving at people's doorsteps, requiring them to find collective technical solutions with the distributional and procedural aspects of justice implicit in their decision-making, but also while they succumb to the global, state and systemic energy injustices. We showed that even with good intentions, the added responsibilities in relation to providing electricity proved too complex for individual building committees and increased the burden imposed on them by the failing state. From an energy justice perspective, this is far from the expectations of democratisation in access to energy and community empowerment that we might imagine from policy and activist discourse.

Consider the example of Um-Rami, a 78-year-old grandmother who has been in charge of the committee and bookkeeping in her building for two decades. She writes everything in two little notebooks in which the building expenses and income from residents' contributions over the last 10 years are recorded chronologically. There is also a small metal box containing any remaining cash, bills and receipts. At the end of each year, she calculates the totals and carries them over to the next page. Um-Rami complains of still being responsible for this task, of how she is tired and making mistakes in the calculations. Maya recalls trying to support her over the years by keeping an Excel file with two sheets for each year, one for expenses and the other for income, in order to produce a yearly report for the residents. She too is tired, struggling to find the time between work, housework and raising her children.

Shifting the weight of a solution for the energy shortage – a decades-long national-level problem in addition to a global climate crisis – onto the shoulders of city dwellers like Um-Rami is not a democratisation process nor is it empowering. Indeed, even among younger or more technically skilled committee members, managing such a system is taxing. These committees are struggling to maintain the services necessary for their residents' everyday life while grappling with a dynamic political crisis, currency devaluation, and fuel shortages. Given the scale of the energy crisis and the corruption in Lebanon, the empowering response is not the stopgap measures that Beirut's dwellers have been forced to adopt, nor is it the

deployment of small-scale expensive and environmentally questionable technical solutions, nor indeed thinking that the answer lies in community energy. The energy crisis is political – and demands a political response.

To clarify, energy justice scholars and activists call for decentralised and community-directed energy systems[50] and returning 'the mic to marginalized communities whose voices have been systematically silenced for far too long'.[51] But without parallel political action to dismantle rent-seeking political systems in the global South and the neo-colonial regimes that sustain them and that reap the benefits of unjust and extractivist energy systems, calls for decentralisation and community energy risk reinforcing the injustice. Communities, as we have seen in Lebanon and elsewhere in the global South,[52] are then expected to bear the burden of meeting their energy needs on the debris of failing energy systems, but without the power and resources to do so.[53]

Grassroots efforts are thus arguably better devoted not to deploying technology-focused solutions to the energy crisis, but to helping collectively organise against the politics that caused it. Although the corrupt state elites have succeeded in quelling opposition through a tightly knit clientelist and sectarian-based populist politics, mobilisation has helped move the discussion on services and infrastructure. For instance, previous mobilisations, such as the #YouStink campaign,[54] despite its limited success, rightly pointed to the political corruption that led to the waste crisis, rather than focusing on technical solutions for solid waste management.

Furthermore, for individual households, the building committee as a unit is still of great relevance, certainly as a starting point for defining and voicing community-level needs and priorities. These committees operate within an urban ecosystem; one that encompasses neighbouring buildings in similar circumstances, informal service providers including generator owners and local electricians and, where they are active, local municipal authorities. We saw some examples of this cooperation, such as one building committee that attempted to procure a generator together with a neighbouring one, or sometimes negotiated subscription rates jointly with neighbourhood private providers, while another building committee takes note of a fire at a neighbouring generator to improve safety measures in their own building.

The role of the generator providers, often demonised as a mafia given their monopoly of neighbourhood services and their price fixing, could be managed in a different way.[55] We question this simplistic labelling, given people's mixed feelings that emerged from our study. We argue that there is room to engage them in ways that go beyond transactional service provision. They are supplying services at a relatively large scale that the state is failing to provide and that people are struggling to manage at the level of buildings. The ideal is by no means a continued reliance on neighbourhood-level generator services, given the lack of accountability and the environmental health consequences. Despite being private entities, they are – much like the neighbourhood grocery store – also part of their communities and enmeshed in its network of relations and patronage systems. Support should be provided so that resident collectives can push for improvements in conditions of service, not least the reduction of noise and emissions. A third necessary partner who can support residents are the municipal local authorities. The one building where the municipality took on an active role in regulating the private generator providers, residents benefited from having a less stressful management of their everyday energy needs.

Building committees continue to be crucial spaces for collective organising in Beirut's complicated urban context. However, in efforts to achieve energy justice, the social capital and skills of organisers at the building level, like Um-Rami, might be better invested in strengthening bridges between neighbouring residents, mobilising for effective political change and pressuring service providers and local authorities for more just energy solutions. Years of corruption and the unchecked power of the ruling elite in the country make any effort to support the transition to greener energy or to address energy poverty particularly challenging. Lebanon's energy crisis is not a technical problem that local community-led energy projects could simply alleviate. These insights make us ever more convinced this is a political crisis – from years of brazen power grabs by corrupt politicians who gained influence over its energy infrastructure – and a political solution is imperative.

AUTHORS

This essay was written by **Dana Abi Ghanem, Zeina Abla and Muzna Al-Masri,** and is the product of research conducted by them and the field researchers Amr Dukmak, Fatima Fouad el-Saman, Firas Dabbagh, Karim Khansa, Mostafa Soueid, Mounia Chmailtilli, Rand Berjawi and Watfa Najdi.

Titanic Encounters

Geopolitics at the centre of energy transitions in the Sri Lanka

Gz. MeeNilankco Theiventhran and Kristian Stokke

In 2022, Sri Lanka faced an unprecedented economic crisis with a lack of foreign exchange reserves and nationwide protests aggravated by the lack of electricity, oil and gas. People queuing up for days to fill their cooking liquefied petroleum gas (LPG) cylinders became the image of the energy crisis, which also caused frequent power cuts that devastated the important service sector, which accounts for 60% of the economy. The Government of Sri Lanka was thus desperate to address the energy crisis and sought external support, which enmeshed it in the emerging trajectories of energy geopolitics in the global South, mainly concerning China and India.

While Sri Lanka was still reeling from the crisis, India agreed to support the energy sector through oil and gas loans, which helped to address the immediate problem and gave the government some breathing space. In return, the Indian conglomerate Adani Group secured an unsolicited contract for wind and solar power projects in Mannar and Pooneryn, with estimated investments of $500 million. In June 2022, when testifying before the Parliamentary Committee on Public Enterprises, the chairman of the Ceylon Electricity Board (CEB) stated that the Sri Lankan President had told him that the Indian Prime Minister Narendra Modi had insisted that a wind power project in Mannar should be awarded to the Adani Group without going through any tender procedure.[56]

Further, the Indian Oil Corporation (IOC) was given a 49% stake in the joint development of the Trincomalee Oil Tank farm, which India has been pursuing since the 1970s. Thanks to the economic crisis, India secured what it had aspired to obtain for over half a century. India was also keen to build cross-border electricity transmission lines to export electricity to Sri Lanka. This project began in the 1990s, but Sri Lanka had delayed, knowing it would compromise its energy security. The crisis, however, gave the plans new impetus. Likewise, China used the crisis to pursue its interests in Sri Lanka's energy sector, especially acquiring a $4.5 billion oil refinery at Port Hambantota, which is being developed as an energy hub along with a liquid natural gas (LNG) facility.

Sri Lanka's economic crisis demonstrates the critical role of energy in any economy and why energy sovereignty and sustainability are essential for resilience. It also shows how economically weak neoliberal economies are vulnerable to the role of external actors, mainly when they depend on external assistance for funding, technology and policy development.

Sri Lanka is dedicated to and must undergo a transition towards more environmentally friendly energy sources. Unfortunately, as the examples above demonstrate, Sri Lanka's transition is taking place amidst geopolitical competition – principally China, India, Japan and the USA – seeking to implement various energy and infrastructural projects to gain territorial control in the strategically important country. These regional geopolitical powers' own national interests can impede Sri Lanka's efforts to move to renewable energy.

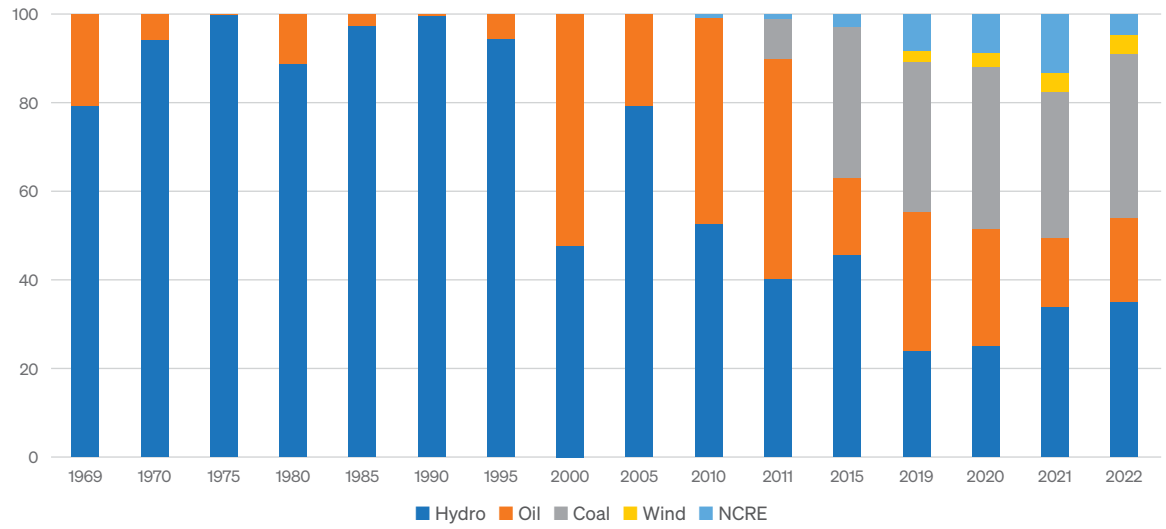
History of China's and India's involvement in Sri Lanka's energy system

For two decades, Sri Lanka's energy policy has been shaped strongly by China and India, which are now regional leaders in energy infrastructure, technologies, and financing. Sri Lanka's strategic geographic location has made it particularly vulnerable to geopolitical interests and competition.

As a lower-middle-income country in South Asia, Sri Lanka has been keen to increase its energy supply in the face of rising energy demand, unstable hydropower production due to climate change, and a lack of public finance and the reluctance of the private sector that makes it hard to start new projects. The country's energy mix has changed over the years and fossil fuels have gradually displaced hydropower as the major energy source (see Figure 1).

This situation compelled the country to seek external engagement in the energy sector from the late 1990s. As stated earlier, three regional powers have become especially influential in Sri Lanka's energy politics: neighbouring India, the emerging power China and its longstanding development partner Japan, each of which entered the country's energy system with specific interests and competences.

Figure 1: Sri Lanka's Electricity generation mix 1969–2022[57]



India is now the world's second-largest importer and third-largest refiner of crude petroleum, the second-largest producer of coal, and the fourth-largest producer of wind and solar power.[58] China is the world's largest producer of coal, and the largest consumer and importer of energy.[59] It is also a significant producer of energy technology and other associated commodities, and thus has global impact on energy markets and trade[60]. China's green technology industry is increasingly recognising the potential for growth in South Asia and has become a major energy player in the region through project investments and as an energy exporter.

Japan has supported the Sri Lankan energy sector since the early 1970s through its development cooperation and technical assistance to enhance the energy system by modernising grids. It offered to build a coal power plant in 1995, but this did not materialise.

In 2006, China also offered to build a coal power plant, and it became operational in 2011. In the same year, India was offered a coal power plant project through a Sri Lanka–India agreement. This project was met with environmental protests, and eventually the 'Green Trincomalee' social movement managed to stop the coal plant through the Supreme Court ruling in 2016 (see Box 1).

Box 1: Opposition to coal-fired energy plants

In December 2006, the Sri Lankan government and the Indian company National Thermal Power Corporation (NTPC) signed a Memorandum of Understanding (MoU) to build a 500 megawatt (MW) coal power plant in Sampoor in the Eastern Province. At that time, the area was controlled by the Liberation Tigers of Tamil Eelam (LTTE). In 2008, following the resurgence of the civil war, the LTTE was eliminated from the area, which was subsequently demarcated as a High-Security Zone. People who were evicted from their lands in the area were not allowed to return and were still more distressed by the announcement that the coal power plant was to be constructed there. A local social movement, 'Green Trincomalee', mobilised support across the country, citing environmental and social concerns. Despite the protests, India continued work on building the plant until, eventually, a Supreme Court order stopped the construction.

These external engagements in Sri Lanka's energy sector, promoting non-renewable sources of energy, have contributed to creating a domestic environment that is favourable to carbon lock-in, including corruption. The Chinese-funded coal plant is a prime example, where coal tenders have continuously mired in charges of corruption.

Multiple reports have found that massive amounts of money have been misappropriated.[61] Investments in fossil infrastructure facilities the Ceylon Electricity Board's agenda for continued reliance on fossil fuels, potentially delaying the adoption of low-carbon technology and the deployment of economically viable renewables[62]. Another recent example of investments enhancing carbon lock-in is China acquiring rights to build an oil refinery at the Hambantota International Port. Even though it is claimed to be export-oriented, it is expected that it will be used for imports that will deepen Sri Lanka's energy dependence on oil.

Sri Lanka's path to renewables and its geopolitical challenges

Sri Lanka pledged its commitment to reducing carbon emissions under the Paris Agreement, which means that it faces the challenge of making the transition to renewable energy. This transition to a cleaner energy system will bring about fundamental and systemic shifts affecting governance, policy, trade and innovation. In reality, however, Sri Lanka remains and is increasingly dependent on carbon-based non-renewable forms of energy, and both domestic power dynamics and the energy geopolitics of India, China and Japan pose the risk of increased carbon dependencies and energy vulnerabilities.

Sri Lanka's plans to move to clean energy are politically and socially complex. Since the mid-1990s, the country's energy demand has been increasing. As it has maximised its hydropower sources, this has created a demand for new energy sources and the government has invited external assistance to develop new energy sources through technology, resources and financing, making renewable energy a new battleground for regional powers.

In 2021, for example, a Chinese company won the bid to construct a hybrid renewable energy facility in the two islands in the northern part of Sri Lanka, which lie in close proximity to India. India was unhappy that a Chinese company had won the tender, since it viewed allowing a Chinese company to build a renewable facility close to its territory as posing a national security threat. After a year-long battle, India succeeding in having the tender cancelled, and eventually offered a loan to build the renewable energy facilities. This outcome illustrates that Sri Lanka's decision-making power in the energy sector, including the necessary transition to renewable energy, is deeply entangled in geopolitics.

A policymaker who was part of the process described it as follows in the following way:

> Over the past decade, we have lost energy independence, and now we do not have energy sovereignty. Indecisive political leadership, the fluidity of interest-based policymaking has put our energy future in the hands of external actors. Even though, as a nation, we want to move to renewables, who drives it has become an issue where we cannot pick and choose. The geopolitics unfolded over the renewable projects in the islands in the North indicates the power of geopolitics and the dangers it presents and the precedence it sets for the future.[63]

If the Sri Lankan state is sidelined, this is even more true of the communities most affected by energy projects. In 2022, the Indian company NTPC, in a joint venture with CEB, agreed to build a 1300 MW solar plant in an area previously designated for the coal plant. For the local population, which had been displaced by war, this meant that an external actor would be grabbing their land for the sake of advancing the green energy transition, but with no meaningful consultation or compensation with them. One local activist[64] said:

The people who are evicted from the lands are still refuged. They are still suffering. They must be allowed to return to their village and their lands. After so much protest, the governments of India and Sri Lanka still fail to understand the socio-economic and environmental concerns. People are always at the bottom of the decision-making protest, and our voices are always unheard.

What these and other examples indicate is that the transition to green energy is becoming a new arena for geopolitics, alongside the competition between different regional powers over traditional carbon-based forms of energy.

2022 economic crisis increases external dependency

The 2022 economic crisis has aggravated this geopolitical competition and has opened new avenues and opportunities for engagement in the Sri Lankan energy sector. One policymaker summarised Sri Lanka's difficulty by simply stating that 'beggars can't be choosers'.

In August 2023, six bilateral energy agreements were signed during the Sri Lankan presidential visit to India. The agreements encompassed a range of initiatives, such as the proposed establishment of an oil pipeline connecting the two countries, efforts to enhance bilateral electricity grid connectivity, including a subsea cable, and collaborative endeavours in the field of renewable energy.

It was claimed that Sri Lanka would gain advantages from India's efficient oil sourcing and processing methods, which can be paid in rupees, mitigating its balance of payments crisis. At the same time, the deal increases Sri Lanka's dependence on India, as the country now purchases finished petroleum products instead of crude oil. To date, Sri Lanka purchased crude oil and refined it locally, which yielded massive economic benefits. The new agreement means that Sri Lanka will have to close its refinery, buy by-products like kerosene, and purchase refined diesel and petrol at much higher cost. The agreement to connect the two countries' electricity grids via a subsea cable also potentially increases dependency as it allows India to sell electricity to Sri Lanka and to export the energy produced from Indian renewable projects in Sri Lanka.

In May 2023, Sri Lanka was forced to open its retail fuel market, which was previously dominated by the state-owned Ceylon Petroleum Cooperation (CPC) and the Indian Oil Cooperation (IOC), also a state-owned enterprise. This opened the door to China, as Sri Lanka approved a contract with the Chinese company Sinopec for a 20-year licence to operate 150 fuel stations and invest in 50 new fuel stations. The licence permits it to import fuel without relying either on Sri Lanka's domestic banks or on India. In collaboration with Shell, Australia's United Petroleum and the US company R.M. Parks have also been approved by the government to set up fuel stations in Sri Lanka. These agreements, which have been made in the context of the economic crisis, increase Sri Lanka's external dependency and generally prolong its carbon lock-in.

The US and others enter the fray

While the US is a relative outsider in the Sri Lankan energy sector compared to India, China and Japan, in 2021, the United States Agency for International Development (USAID) introduced a Sri Lanka energy programme, which is both a strategy and a funding mechanism. It is 'seeking to transform its power sector into a market-based, secure, reliable, and sustainable system by mobilizing investment to deploy advanced technologies, increase flexibility, and enhance competitiveness'.[65] The aim is thus to make energy a market-based commodity.

In the same year, the US energy company New Fortress Energy (NFE) signed an agreement with the Government of Sri Lanka to build an LNG terminal off the coast of Colombo. It also enabled NFE to purchase the Sri Lankan Treasury's 40% stake in a 310 MW power plant, which is a significant contributor to the national electricity grid. This agreement was signed without the knowledge of key political actors, including parliament. There was a massive local protest over the agreement but to no avail.

In the words of a trade union activist who joined the protest against the agreements:

> The sheer audacity to sign an agreement regarding a matter of national importance at midnight without even informing the parliament underscores the nature of geopolitics and geopolitical actors' power on local issues. The government gave in to the U.S. request while talking about patriotism locally. Sri Lankan energy sector is being dissected by influential external actors where it has become murky water.

In the wake of the economic crisis, Sri Lanka has also explored nuclear energy. By early 2023, India, the US and a few European countries had offered to build nuclear power plants in Sri Lanka. In June 2023, the country reached a deal with the Russian nuclear giant Rosatom to build a nuclear power plant that may run two reactors and generate 300 MW. Although Russia is a newcomer in Sri Lanka's energy landscape, it is currently building Bangladesh's first nuclear power plant – the Rooppur Nuclear Power Plant, in which India is also a stakeholder, is the first Indo-Russian nuclear project outside India. India's role in the proposed Sri Lankan nuclear power plant is unknown.

Amid the geopolitical fray, Japan – a long-standing partner in the Sri Lankan energy sector through projects developed with bilateral financial and technical assistance as well as the Japan International Cooperation Agency (JICA) – has been sidelined. Nevertheless, Japan is continuing its 20-year partnership with Sri Lanka on energy policy but has increasingly joined with India in trilateral cooperation in this area.

Although there has been an expansion of renewable energy, this has not been at the expense of the continued development of, and investment in, fossil fuels. In January 2021, the Sri Lankan government approved two coal power plants and two LNG plants, each of which would have a capacity of 300MW, for a total of 1200MW. In September 2021, the President of Sri Lanka stated that the country would prioritise obtaining 70% of its electricity from renewable sources by 2030, yet the current version of Sri Lanka's Long Term Generation Expansion Plan (LTGEP), which covers the 2020–2039 period, anticipates the addition of 55% more coal and oil capacity.

Sri Lanka's energy crisis, triggered by the economic crisis, has renewed the ambitions of the coal lobby, promoting it as a cheap option and encouraging coal imports. External actors continue to be interested in new coal plants, presenting them as 'eco-friendly' and 'clean coal'.

Sri Lanka has also explored LNG projects. In 2017, Sri Lanka and India signed a Memorandum of Understanding (MoU) in which an Indian company was to build a 500MW LNG plant. The MoU referred to a joint venture involving entities from Sri Lanka, India and Japan – but the project never took off, and Sri Lanka delayed the project despite Indian pressure. In August 2022, the government awarded a LNG contract to the Sino-Pakistan Engro Consortium following a competitive international bidding process. In August 2023, the Sri Lankan Sunday Times reported[66] that the government had revoked the Engro project and planned to offer it to an Indian company, Petronet LNG Ltd. LNG is a highly competitive geopolitical space with many actors involved, aware of the untapped gas potential in the Mannar Basin on the western coast of Sri Lanka. In January 2023, the Minister of Power and Energy requested companies from Japan, India, and NFE to develop a joint proposal to supply, build and run an LNG terminal. Table 1 gives an overview of the geopolitical entanglements in the Sri Lankan energy sector, especially in the last decade.

Table 1. A chronology of external involvement in Sri Lanka's energy sector

Year	Country	Project	Amount	Status
2000	Japan	Sojitz Power Station	$104 million	172 MW diesel-fired plant, privately owned.
2006	China	Norocholai coal power station	$1.35 Billion	900MW plant was built through a loan from Export-Import Bank of China.
2006	India	Sampoor coal power station	$500 million	500MW plant was to be built and operated by the National Thermal Power Corporation, India. The court ruling halted the construction on environmental grounds and after protests (see Box 1).[67]
2007	US, Germany and others	Yugadanavi oil-fired power station	$300 million	300MW plant was supported by export credit agencies in the United States, Germany, Netherlands, Poland, France, and Austria.
2010	USA	India–Sri Lanka cross border grid connection	N/A	USAID funded the pre-feasibility study.
2016	India	Joint Working Group on 'Cooperation on Power Sector Between India and Sri Lanka'		India initiated a joint working group to work on India–Sri Lanka energy cooperation.
2017	India and Japan	Building LNG plant		A tripartite agreement between India, Japan, and Sri Lanka was signed to bring LNG to the energy mix.
2018	China	LNG plant inside Hambantota harbour	$500 million	China was awarded the first LNG plant to be built inside the Chinese-controlled port.[68]
2021	USA	Yugadanavi LNG plant	N/A	300MW LNG agreement was signed between the government and US-based New Fortress Energy, which acquires 40% of Yugadanavi oil-fired power station. Following strong public protest it has not yet been implemented.[69]
2021	China	Hybrid renewable park in the Islands in the Northern province	$12 million	The Sri Lankan government cancelled the tender given to Chinese companies due to protest from India.[70]
2022	India	Hybrid renewable park in the Islands in the Northern province	$11 million	Grant from India on condition that the tender be given to the Indian company.[71]
2022	India	Sampoor solar park	$115 million	Indian National Thermal Power Corporation was permitted to build a 135 MW solar park in the land previously allocated for the coal plant.[72]
2022	India	Trincomalee oil tanks development	N/A	India will jointly develop the oil tanks storage facility and have access to the strategic port in Trincomalee.[73]
2022	India	Wind power project in Mannar and Pooneryn	$750 million	Indian company Adani Group was awarded the tender as requested by the Indian government.[74]
2022	China and Pakistan	Supply LNG and a pipeline network	N/A	China-Pakistan Engro Consortium won the tender to provide LNG to Sri Lanka. India protested strongly and in August 2023 it was cancelled.[75]
2023	India	Supply of LNG and a pipeline network		The tender was awarded to Petronet LNG Ltd of India.[76]
2023	India and Oman	Oil refinery in Hambantota International Port	$3.85 Billion	India and Oman were awarded the tender in 2019, but the project stalled. The government cancelled the project in 2023.[77]
2023	China	Oil refinery in Hambantota International Port	$4.5 Billion	Sinopac, a Chinese company, was awarded to build an oil refinery in Hambantota International Port on a 99-year lease.[78]
2023	China, US and Australia	Lease of fuel stations		Approval was granted for three oil companies from China, the US, and Australia to lease 150 fuel stations for each company to operate in the local market. Indian Oil Corporation already owns and operates 211 fuel stations in Sri Lanka.[79]
2023	India	India–Sri Lanka cross-border grid connection		Sri Lanka and India agree to build cross-border grid interconnection.[80]

Against this backdrop, it is essential to assess the impacts of external involvement and funding on Sri Lanka's energy transition ambitions. Sri Lanka has set a 2030 target to achieve 70% renewable energy in electricity generation. Given the prevailing economic conditions, however, Sri Lanka will be unable to meet its climate commitments. Four reasons have especially halted the transition to renewables. First, due to the crisis, local renewable projects have not taken off. Second, the crisis has deepened the reliance on fossil fuels and new energy infrastructure is also inclined in that direction. Third, Indian renewable projects go alongside cross-border transmission, which means that the renewable energy generated by Indian companies in Sri Lanka may be primarily for Indian consumption. Fourth, Sri Lanka has gradually lost its energy sovereignty by privatising and allowing the market forces to decide energy prices. All of this has undermined the core principle of 'affordable energy for all'.

Takeaways from Sri Lanka's experience

The energy transition process in Sri Lanka has been characterised by a relatively subdued and ineffectual approach that calls for more decisive actions. Its transition to renewables has been bogged down by the pandemic and the economic crisis, when the focus shifted back to ensuring energy sufficiency rather than energy transition. The unfavourable economic conditions undermined the possibility of renewable energy uptake and facilitated the continuation of carbon lock-ins.

As Figure 1 shows, Sri Lanka's transition to renewables has been slow, which can also be attributed to weak institutions and a failure to integrate policies and frameworks into a more comprehensive national policy, thus allowing the overreliance on external actors and geopolitical powerplay. The economic crisis has deepened the power of these geostrategic interests and permitted geopolitical actors to dictate the country's energy future.

The transformation of Sri Lanka's political economy following liberalisation has led to a shift away from state control over private capital, resulting in weakened state institutions and limited public finance. As a result, the dynamics of the relationship between the state and the private sector in Sri Lanka have been reconfigured, facilitating the resurgence of geopolitical influence in the country's energy sector.

These factors have resulted in a state characterised by a failing energy transition, in which the process of decarbonisation becomes increasingly dissociated from considerations of energy security, hindering progress towards social justice and limiting its scope. Coal, for example, continues to be supported even though it is the most polluting form of fuel. Despite the urgent need to move towards a post-carbon world in view of the climate crisis, in Sri Lanka, geopolitical interests predominate over the climate and the environment.

The fierce competition for energy infrastructure projects in Sri Lanka proves that the geopolitics of energy is playing an increasingly important role in shaping energy politics, provisions and transitions in similar countries. The influence of traditional powers (former donors, i.e. OECD countries) is waning, and new(er) powers are rising to take their place. It had been anticipated that the development of renewable energy sources would reduce the geopolitics of energy, create affordable and available renewable energy for countries across the global South, and

ultimately assist these nations in meeting their climate goals. However, in Sri Lanka this has not proven to be the case.

A prevalent criticism of North–South cooperation is that it leads to neo-colonialism because it is not based on equitable partnerships. This is primarily because countries in the global North prioritise the extraction of resources from the global South, rather than focusing on adding socioeconomic value to these resource-rich countries. Sri Lanka's situation shows that this dynamic also applies to South–South cooperation. The current situation is characterised by the rise of a Chinese form of neo-colonialism, as well as a neo-colonialism driven by Indian aspirations for regional hegemony. The Chinese investment approach, anchored on the policy of 'non-interference in the local affairs,' has become attractive to many global South countries, whereas the US investment approach has always been known as 'strings attached'.

China and India are positioning themselves as global South leaders capable of providing knowledge, finance, and technology to assist other countries in their energy transitions. This has its basis in a historical background of cultural interchange and the concepts of South–South and post-colonial unity, as well as the arguments that China and India are addressing infrastructural deficiencies in countries such as Sri Lanka. However, as these two Asian countries expand their economic and political influence, it is important to note that they too are seeking raw materials, markets, and geopolitical advantages outside their own territories.

The Sri Lankan case also illustrates that external actors have built their own energy infrastructure there. India and China have been licensed to build oil refineries, and several external actors now own and operate fuel stations. India has won tenders to build and operate renewable plants, including plans to export electricity to India. This is a new form hegemony. It's not just about trading commodities, owning industries or controlling markets but also physical infrastructure that is much more permanent and consequential in terms of national sovereignty.

A final takeaway is that energy infrastructure has considerable power and influence in the political and national economy, providing the space both to facilitate the hegemonic ambitions of the geopolitical actors and to exert considerable control, thereby acting as a counterweight to competing actors. Sri Lanka's economic revival is further undermined by the actions of external actors in the short and long term. When owned locally, energy infrastructures have a massive financial advantage in the long run, as proved by Sri Lanka's hydropower plants. The emerging externally controlled energy infrastructures will gradually erode energy independence and take control of the local energy architecture. The economic crisis has jeopardised the citizens' wishes, and there have been no public consultations on the upcoming energy infrastructures and policies. This is a question of justice and equity.

Concluding thoughts

The Sri Lankan case goes beyond the conventional understanding of energy geopolitics, where energy is seen as a tool for engagement and trade, as it has allowed geopolitical actors to gain geostrategic territorial control and influence over the whole island. Sri Lanka is committed and needs to make the transition towards greener energy, but the country is also a competitive field for geopolitical powers that push for different kinds of energy projects and/or infrastructure, and to gain territorial control in geostrategic Sri Lanka. These geopolitical actors are not only pushing for non-renewable energy, but the clashes between regional titans also hamper Sri Lanka's energy transition. The economic crisis is a critical juncture in the energy (geo)politics that shows Sri Lanka's vulnerability and limited leverage against the larger powers, as most vividly demonstrated by India's inroads since the economic crisis.

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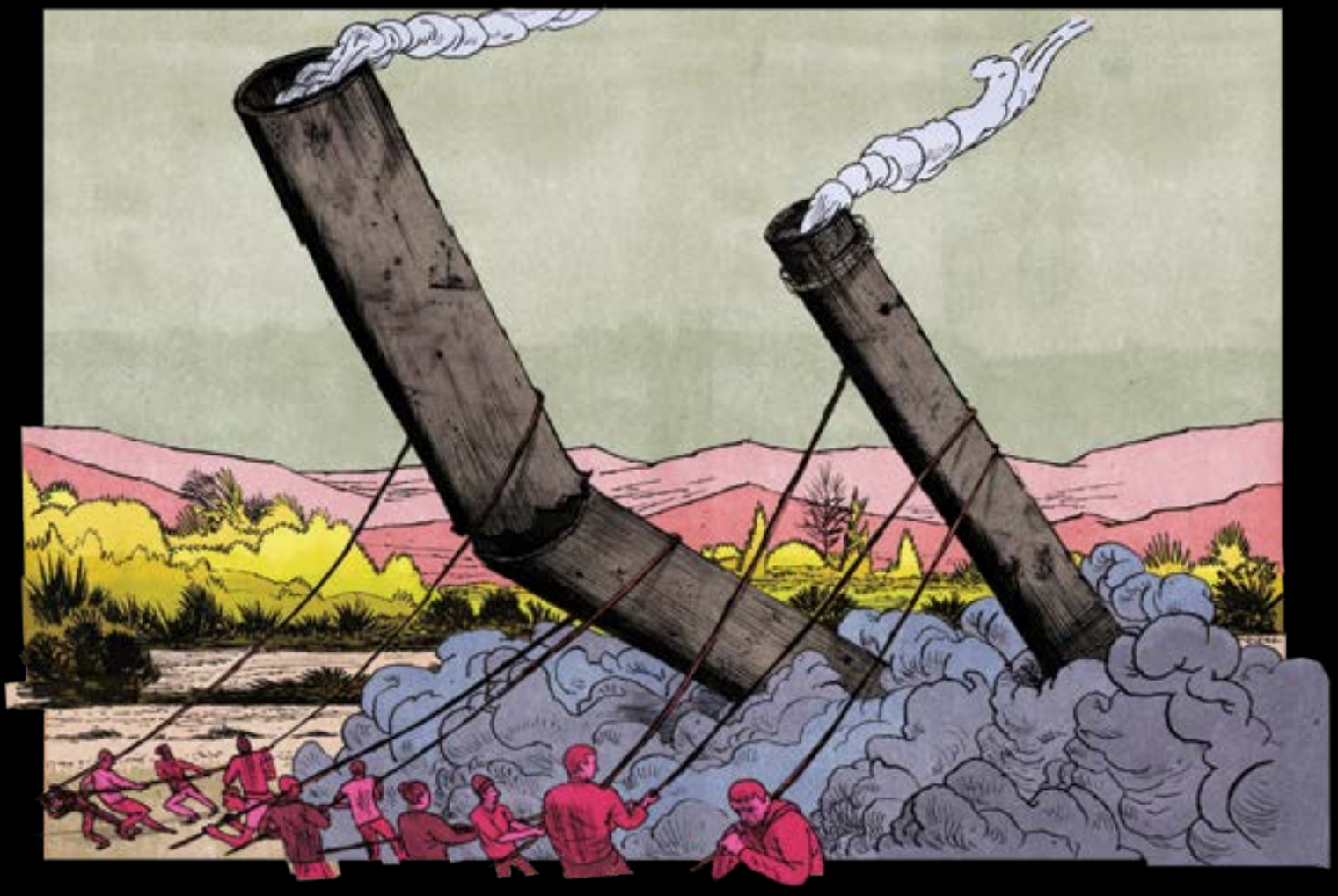


Power-off

Lessons from the struggles against Big Oil

Olivier Petitjean and Clemence Dubois

Olivier Petitjean is a journalist and co-founder of the Multinationals Observatory (Multinationales.org) set up in France in 2013. He is a specialist on corporations and lobbying. Clémence Dubois is the Associate Director of Global Campaigns at the global climate activist network, 350.org. Both are involved in the French campaign to StopTotal. The Multinationals Observatory and 350.org co-published a report in December 2023, *TotalEnergies – This is what a phaseout looks like*, which explored options for regaining control over Big Oil and how states could rapidly phase out fossil fuels within a 'just transition' framework that is democratic, transparent, and inclusive.

How much power does Big Oil have today? Is it as powerful as it was ten years ago?

Olivier Petitjean: It would be hard to argue that Big Oil has lost any of its power in the last 10 years. Of course, large oil and gas companies such as TotalEnergies have come under increased scrutiny, including by some parts of the financial sector, and increased pressure from climate activists. Their 'social license to operate' has been severely eroded. In some parts of the world at least, they cannot assume that they will be able to develop their new oil and gas projects without encountering some stiff resistance.

On the other hand, they have continued to grow larger and richer, and to open new oil and gas frontiers all over the world. In the last couple of years, all the major oil and gas corporations have bagged more profits than ever before: almost $200bn for Exxon, Chevron, Shell, BP and TotalEnergies in 2022. That year, TotalEnergies launched no less than 20 new fossil fuel projects, including in places where there was no fossil fuel extraction before, such as Uganda. TotalEnergies was ranked third among oil and gas firms worldwide that are seeking to exploit new oil and gas deposits, and the first in Africa. Its own official documents state that they plan to increase fossil fuel production by 20% until 2030. So, it's continuing.

Whatever influence they may have lost in public opinion in western countries, they have more than compensated it by building even stronger ties with other governments, particularly in oil-producing countries. What is even more frightening is that on top of that, they have succeeded in gaining more influence than they've ever had on international and national climate policies, as evidenced by the fact that the chairs of COP28 in Dubai last year and COP29 in Azerbaijan this year are both CEOs of oil companies.

Clémence Dubois: The fact that oil and gas majors are still exploring new projects speaks for itself: they still hold too much power, and the pursuit of massive investments to develop new oil and gas fields in the years to come will eventually cost millions of lives.

Yet, we are prone to being tough on ourselves and overlooking our achievements as a movement. The dynamics have significantly evolved over the past decade. There was a time when Big Oil wielded unquestionable authority, dominating without scrutiny. Now, Big Oil is experiencing heightened pressure wherever they go and the active international resistance of citizens poses formidable challenges to their traditional strongholds. If you look at the East African Crude Oil Pipeline project from Total, for example, financing the project is taking years because financial institutions are withdrawing one by one due to the pressure they face, from Kampala to Paris or Tokyo. It's not too much to say that everyone involved has contributed to slowing down the industry, and we know that each fraction of a degree in climate change matters.

What are the principal sources of Big Oil's power – and how are they seeking to maintain it?

Olivier: The source of their power is partly the same as for any other global corporations – money, resources, close connections with governments, and a great ability to join forces to defend their common interests – but they have much more of all that than almost everyone else.

Their power is also the result of decades of privatisation, liberalisation and pro-business policies that have deprived governments of whatever control they might have had in the past on national energy, markets and prices, and of whatever capacity they might have had to conduct the energy transition directly, without depending on big corporations. As a result, many governments have been left with seemingly no alternative but to accept Big Oil's slogan that they were not only the problem, but also the solution – the only solution.

Finally, another important source of power is how fossil fuels are embedded in our industrial economies as a whole and in financial markets. That means a lot of other very rich and influential groups are heavily invested in their prosperity, or at least in not getting out of oil and gas too quickly. Oil and gas companies, for instance, represent a significant chunk of the market value of most major stock exchanges. There is no way that big financial players such as BlackRock will shift significantly away from fossil fuels, as it would also break their own business model.

Is Big Oil affected at all by today's predominant climate policies? How are they responding?

Olivier: In the last decade, Western oil majors – especially the European ones, such as Total – have toned down their criticism of climate action, and they have sought to adopt an apparently more progressive attitude. They publicly recognise that climate change is a big issue and that we should do something about it. But what exactly should be done about it, and who should pay, are the key questions.

To put it simply, what we call 'energy transition' must have three components: developing clean, renewable energy, getting out of fossil fuels, and finally reducing our overall consumption of energy and materials in general. Basically, big oil companies like TotalEnergies want us to talk only about the first component, while adding a lot of technologies that have very little to do with renewable energy such as carbon capture and storage or agrofuels or even hydrogen into that 'green' basket. And they want governments to fork out a lot of money to pay for these, and they want to control the renewables sector. On phasing out fossil fuels, they want to talk about it as little as possible – as we have seen recently when only some very feeble language about a possible fossil fuel phaseout was added in the text of the UN climate summit's Dubai accord. The executives of TotalEnergies, for instance, publicly accept there will be an end to fossil fuels at some point, but only in a distant future. And the third component, overall reduction of consumption, is barely mentioned at all.

What we have seen in practice these last few years is the exact implementation of this programme. There is no progress on fossil fuel phaseout, and only some on renewable energy development, but that is being added to the current energy mix instead of replacing fossil fuels. Sadly, many western governments have basically accepted the version of 'climate action' promoted by Big Oil and are putting their faith in big corporations to deliver the energy

transition – which will inevitably always remain too little, too late, and come at a huge cost for governments, communities and customers, while the corporations and their shareholders will get all the profits and claim all the merit.

Is Big Oil seeking to block an energy transition or to shape it for its own benefit?

Clémence: For five decades, Total and its peers obscured the climate crisis, diverting attention from fossil fuels as the key driver of global warming. Along with Exxon and others, it has been well documented that they deliberately lied about the climate crisis – their knowledge of its causes and their responsibility for it. And the consequences are borne now by our communities: those succumbing to climate impacts today were effectively condemned in a boardroom 50 years ago.

As temperatures have soared in recent years, denying the reality has become futile. In response, Total is ramping up its communication game, rebranding itself as a 'responsible energy major', suggesting a significant shift in strategy. But their purported involvement in the energy transition, as well as by other Oil and Gas majors serves as a smoke screen, enabling them to profit from ongoing fossil fuel exploitation. And they're eager for us to keep buying into their deceptive tales.

Despite its changing narrative, Total allocates almost all of its investments to extracting more carbon from the ground instead of embracing renewable energy. A whopping 75% of its 2022 investments are in oil and gas. By 2030, two-thirds of corporate investments will still be tethered to fossil fuels, impeding genuine progress.

Their defence? Blame the consumers – shifting responsibility to individuals rather than taking meaningful action. But they are the only ones, along with their shareholders, to benefit from this inaction. This is why given the rise of climate impacts, the slogan #makethempay has received so much traction.

What has the climate justice movement learnt – or should have learnt – from decades of challenging Big Oil?

Olivier: Basically, that you can't hope to tackle the climate crisis without tackling corporate power. Parts of the climate movement believed that they could change Big Oil from the outside, whether through engagement, campaigning, name-and-shaming, etc. But Big Oil doesn't want to change and has enough power and influence to avoid or delay change or deflect most of its effects on others. 'System change' won't come from them, as they *are* the system.

There have been very valuable and effective campaigns and actions, which all remain very necessary and very relevant, and on many occasions have achieved victories for the climate movement. Persuading investors to divest from fossil fuels or cultural institutions to give up Big Oil sponsorships is a big deal. So are climate lawsuits against corporations such as Shell, TotalEnergies or ExxonMobil. It has played a key role in undermining these corporations' social 'license to operate'. If we look at TotalEnergies, they have been forced to communicate almost exclusively about their investments in green energy and their climate commitments. But on

the other hand, they are still there and still powerful and still fighting every communication and legal battle with all their resources. So, there's always the risk that our victories remain too little, too partial, and could be reversed – indeed, we are currently in a moment of backlash against some of our previous gains. So, I would say what was missing is an attempt to tackle the power of Big Oil from the inside.

Clémence: The divestment movement is a strong example of a system change approach and achieved remarkable success in the last decade. It strategically bypassed calls for Big Oil to change and instead focused on eroding its pillars of support: its social license, funding access, and influence over government and institutions by asking them to cut their ties with the industry.

Grassroots mobilisation was the backbone of the movement, and we should always strive to organise diverse groups and initiate new local initiatives, tying social justice with climate justice.

As our movement grew, increased scrutiny prompted institutions to divest to avoid reputational risks tied to supporting these reckless industries. Then the targets became increasingly broad, leading to a big domino effect, compelling huge financial entities such as the European Investment Bank, or major cultural institutions such as the Tate or the Louvre to reconsider their traditional support. The divestment campaign, on a global scale, created a unified front against fossil fuel investments.

Legal and political advocacy to hold Big Oil accountable, and collaboration with other social justice movements, has also reinforced our strategic efforts, and, of course, first and foremost, supported frontline communities fighting projects on the ground. Our interconnectedness necessitates collective action and solidarity.

Looking ahead, we should stay focused on a long-term vision, recognising that systemic change requires persistence, adaptability and solidarity. Our evolving movement must continue to learn from setbacks and strive to maintain momentum. In a nutshell, this fight against Big Oil has taught us that the best way to resist them is to organise collectively through a diversity of tactics, but with a shared vision and understanding of how we make change happen.

And how have our movements evolved to challenge Big Oil? What are the big challenges ahead?

Clémence: We've transitioned from solely emphasising consumer responsibility to adopting a more holistic approach that considers both demand and supply dynamics.

Globally, we've notched up significant achievements. Billions have been divested from fossil fuels, major infrastructure projects have been halted, and commitments secured from local authorities and entire nations to transition away from fossil fuels. Our influence is also evident in the discussions on phasing out fossil fuels at UN climate talks, garnering support from over 130 states.

But there are global political trends that threaten progress. Activists are grappling with burnout, despair, and the challenge of recreating the momentum of the 2019 mobilisations. The years

2020 to 2023 have been a tumultuous period, marked by the impact of COVID-19, lockdowns, and a prevailing sense of powerlessness. The rise of the far-right puts the few progressive achievements at risk of a deep and severe backlash. The reality that each additional year we lose necessary action may lead to millions more lives lost is sobering. In that sense, slowing down the industry is an impressive achievement, but not enough.

Internal differences of opinion are another hurdle. Some advocate for a more aggressive, immediate approach, while others stress the need to expand and consolidate our base. While diversity within our ranks is a strength, it also poses challenges in terms of collaboration and coordination. Yet building unity is essential for setting the stage for reaching critical tipping points. We must recognise the gradual nature of our organising efforts and understand its significance in paving the way for larger transformative moments.

What are the main pathways today for undermining or overturning Big Oil's power?

Olivier: It would be nice to think we can just ignore Big Oil and build a different energy system based on renewables, from scratch, independently of those corporations, and just let them slowly rot and disappear. The problem is that they are continuing to invest in new oil and gas production, they are actively undermining political action that would reduce the consumption of fossil fuels, and today they even manage to capture a large part of governments' political support and funding for 'clean' energy. We have to disarm, muzzle, and render them unable to do any more harm. So yes, it's necessary to start building a different system, but we cannot escape some form of direct confrontation with the power and influence of Big Oil.

Traditionally, many people in the climate movement and on the left assume that the best way to do this is through regulation – that governments should step up and force them to change, to exit fossil fuels while not raising prices and firing their workers. It might work in theory, but in practice this is not happening, because governments are unable and often unwilling to introduce effective regulations on such large corporations and to enforce them. Big Oil is already way too big for that. That doesn't mean we don't need regulation, but we also need to reduce Big Oil's power in itself and put it under control. And the traditional way to do that is nationalisation.

One more thing about regulation: when it comes to tackling Big Oil, we don't need just one level of regulation, for instance regulating their greenhouse gas (GHG) emissions. We need a whole range of regulations to act on the different pieces and turbines of the machine – which we detail in our report, *TotalEnergies – This is what a phaseout looks like*. One very important aspect is the regulation of lobbying in the wider sense, including revolving doors and all forms of contacts between officials and industry representatives. If you don't regulate lobbying effectively, you will never be able to regulate anything at all effectively, because you're at risk of corporate capture. If you have strong rules about lobbying and conflicts of interests – such as those that have been introduced by the World Health Organization (WHO) for instance for tobacco – then you have a better chance to get effective regulation that is actually enforced. That is why proposals – such as those of the Fossil Free Politics coalition in Europe – to introduce the same kind of rules for fossil fuels as for tobacco are potentially a key part of the solution – but they need to be applied at all levels of influence, not just at the UN and its climate summits (Conference of Parties, COPs).

How could nationalisation be done given the economic and legal obstacles?

Olivier: The act of nationalisation is not a problem from a legal perspective. It can be done through a simple act of legislation. It has been done in the past, including recently, and even by right-wing, pro-market governments to bail out banks for instance. The question is how much it would cost, and whether it's ethically acceptable that the current shareholders of Big Oil – which are mostly institutional investors such as BlackRock, Vanguard and others – should be allowed to walk out with billions of euros and dollars that they have basically earned by investing in climate destruction.

If France, for instance, passed a law to nationalise TotalEnergies, they would have to fork out in theory about €150 billion to acquire all the company's shares, plus potentially face compensation claims by some shareholders or partners that could argue they have been unduly deprived of potential profits. And that's before taking into account all the costs of getting out of fossil fuel, decommissioning installations and setting up a post-fossil fuel energy company that serves the public.

€150bn is the official market value of TotalEnergies, but there are many reasons to argue this value is vastly overblown, because it is based on the assumption of exploiting all of the company's current fossil fuel assets. This is because they are so-called 'stranded assets'. So, in our report we propose to set up a commission to assess the fair value of TotalEnergies – which is usually done in the case of a nationalisation – but taking account of the specific and problematic nature of those assets. We also explore another more radical option: a requisition instead of a nationalisation. Again, it has been done in the past, but only in very specific circumstances, often linked to a state of war. The argument would be that because of its past abuses and its current sabotage of urgently needed climate action, a company such as TotalEnergies can be requisitioned by the government. This doesn't mean there is no compensation, but there would no longer be a pretence that this is a 'normal' market transaction.

In any case, even €150bn is not too high a price to pay. Western governments have frequently shown in the past – after the 2008 financial crisis and more recently during the COVID-19 pandemic – that they were able to find tens of billions of dollars to bail out the corporate sector and financial markets.

What would effective and just nationalisation of Big Oil look like? How could we ensure it delivers a just energy transition given the poor record of current state-owned energy companies?

Olivier: Needless to say, state ownership is not a solution in itself. There are numerous state-owned companies around the world that are just as dangerous as private-owned corporations. A state-owned company can be even more influential on government policies and priorities, as we know very well in France with the case of EDF, our pro-nuclear, state-owned electricity corporation. For this reason, many people in the climate and environmental movement are very wary about nationalising TotalEnergies.

I would argue that some form of public takeover is necessary and unavoidable to wrest a corporation like Total away from the grip of financial markets. Only states have the resources and the capacity to conduct such a large political, financial and industrial operation. But it must be done as part of a wider democratic process from the very start, involving citizens, stakeholders and of course workers. We propose to begin with a citizens' convention and to introduce the kind of inclusive, transparent and participatory governance that many state-owned enterprises lack today.

There are very good examples to draw inspiration from in the remunicipalisation movement, even if it is generally at a lower level of governance. Nationalisation must be first and foremost a democratisation of the company, both internally and in its relationship with the rest of society. For us, eventually, after TotalEnergies has been taken under public control and has divested from its fossil fuel business, it must be folded into a larger public energy service, or become a citizen-owned company, or a combination of both.

And we think there could also be an international dimension to the process – with different countries conducting the same process with their national oil and gas companies at the same time – Shell in the Netherlands/UK, ENI in Italy, etc. This would give the whole process much more traction, as well as allowing some form of mutualisation of costs. The reflections we have developed about the specific case of TotalEnergies in France are not isolated. There are other organisations and think tanks thinking about this process in various countries.

How do we ensure Big Renewables don't follow the path of Big Oil?

Olivier: Currently, you could argue that Big Renewables are not only like Big Oil; they are the same corporate players. We participated in a recent report coordinated by the Transnational Institute, Green Multinationals Exposed, that makes exactly this point.

As the established energy giants invest more and more in renewable energy, their business is still based on the same model: profit-oriented, extractivist (in terms of minerals and land), detrimental to communities and workers, and neo-colonialist, as many of the large-scale solar or wind projects are in the global South or in remote regions to serve global North interests.

There is another potent strand that we need for the energy transition: one that is focused on reducing consumption rather than just adding capacity, on meeting the needs of people rather than of industries, and on building democratic, partly-decentralised energy systems. The latter version of transition is the only one that's actually viable. The former is a dead end from a social and climate perspective.

Do you believe we can finally defeat these oil and gas giants like Total? Where should we next focus our efforts as climate justice activists?

Clémence: Beating giants like Total is a huge task. But to reignite the flame of systemic change, the movement must confront this sense of powerlessness head-on.

The recent rise in climate activism, seen for instance with Just Stop Oil, highlights the urge to take immediate action. And with the crisis multiplying scarily, it's time to focus on changes that really matter to people. Shifting our strategy means owning the solutions and telling stories that highlight that a positive route is possible, which is even more important if we want to stand a chance to defeat the rise of extreme right-wing movements across the world. The focus must be on doing things right – helping communities without hurting them – while holding those in power accountable.

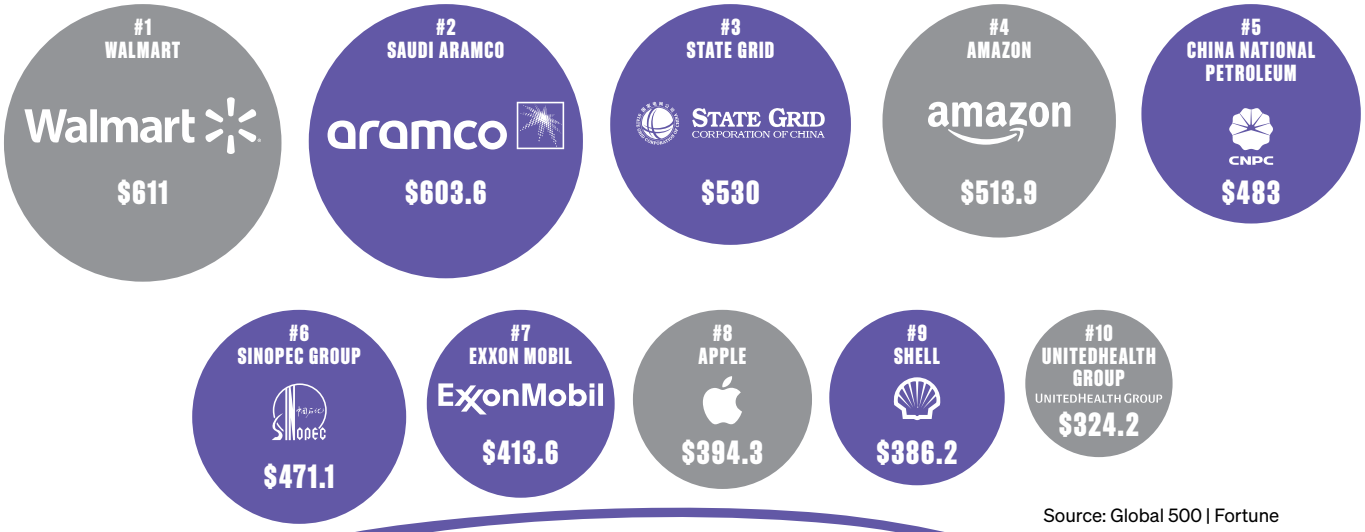
As we are nearly half-way through the crucial decade to tackle global warming, decisions by 2025 are make-or-break. A clear plan by 2025, aimed at the 1.5°C target, must point towards a future powered by renewable energy. Making renewable energy bigger means we need to keep addressing financial issues – we need about $1.5 trillion of investment yearly by 2030.

At 350.org, we're in this with our supporters, offering support and guidance. Together, we're building a foundation for energy democracy and a fair, just renewables revolution. Our community, built through effective campaigns and steady contributions, is a powerful force for a future free from fossil fuels.

Who controls energy?

Big Oil and the top ten companies in the world

Based on revenue, in billions of US$



Source: Global 500 | Fortune

Energy companies make up 6 of the top ten companies in the world

Who are the top ten biggest energy companies globally?

1. Saudi Aramco
State, Oil & Gas
Revenue: $603.6 billion
Profit increase (on previous year): 51%

2. State Grid
State, Electric utility
Revenue: $530 billion
Profit increase: 14.8%

3. China National Petroleum
State, Oil & Gas
Revenue: $483 billion
Profit increase: 118.7%

4. Sinopec Group
State, Oil, Gas & Petrochemicals
Revenue: $471 billion
Profit increase: 16.1%

5. Exxon Mobil
Multinational Corporation, Oil & Gas
Revenue: $413.7 billion
Profit increase: 141.9%

6. Shell
Multinational corporation, Oil & Gas
Revenue: $386.2 billion
Profit increase: 110.5%

7. Uniper
State, electric utility
Revenue: $288.3 billion
Profit increase: -

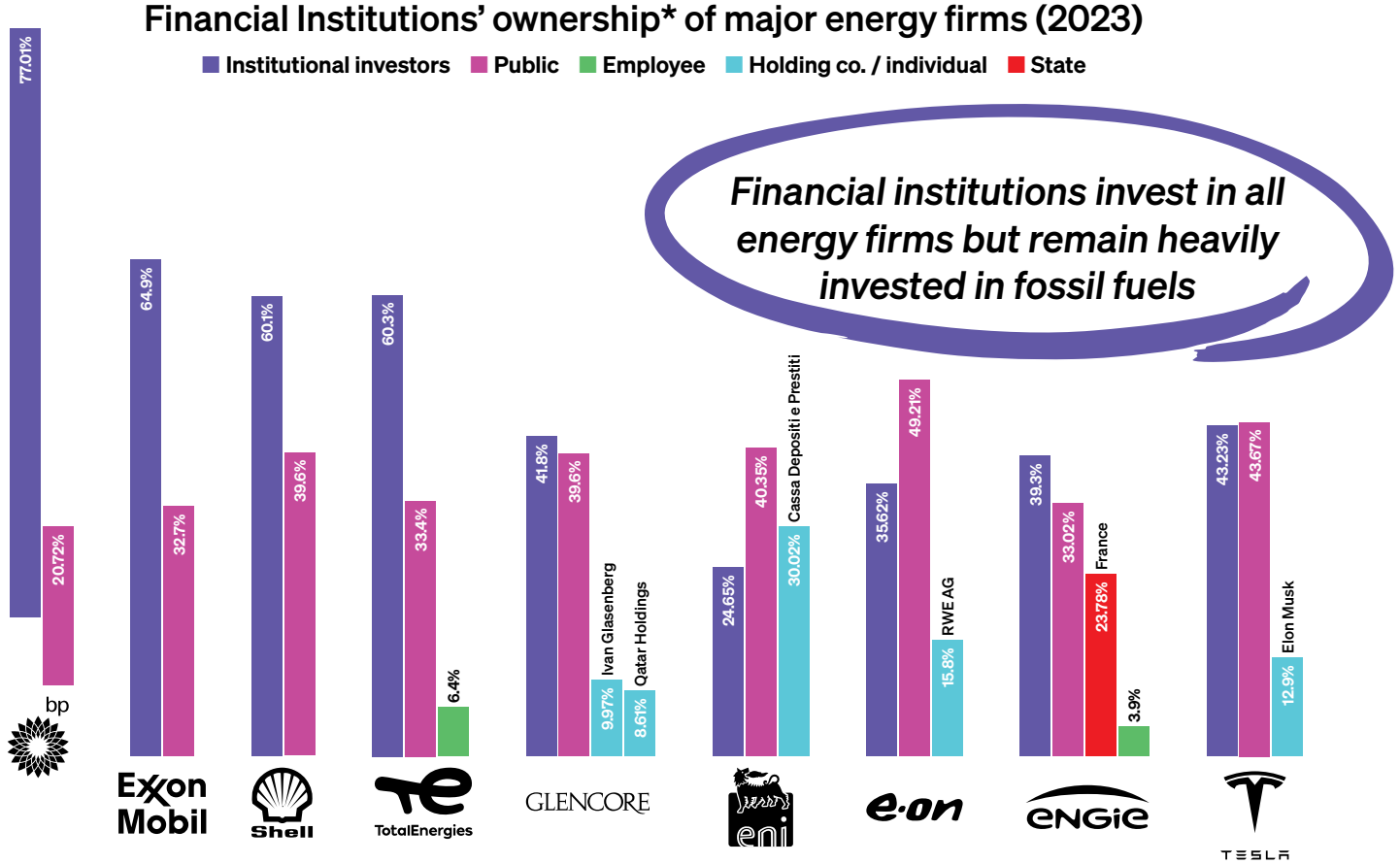
8. Total Energies
Multinational, Oil & Gas
Revenue: $263.3 billion
Profit increase: 28%

9. Glencore
Multinational, Mining and Energy
Revenue: $255.9 billion
Profit increase: 248.2%

10. BP
Multinational, Oil & Gas
Revenue: $248.8 billion
Profit decrease: -132.9%

Who owns the Big Ten?

Financial Institutions' ownership* of major energy firms (2023)

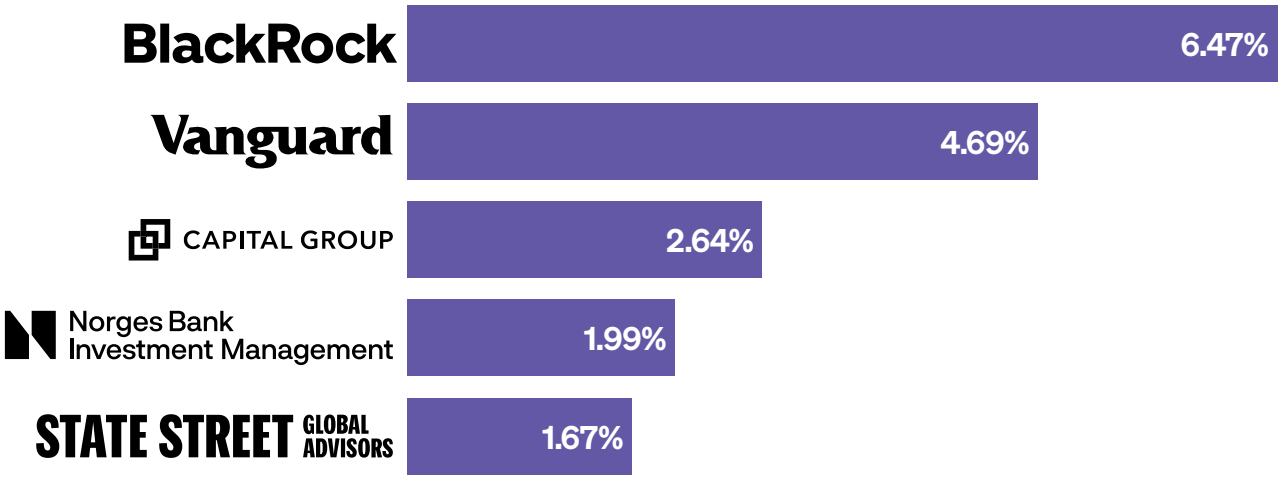


*Institutional investors include bank and investment funds and pension funds. Source: Based on research using S&P Capital IQ, 2024

Who owns the Big Ten?

Top five institutional shareholders of 10 leading energy firms

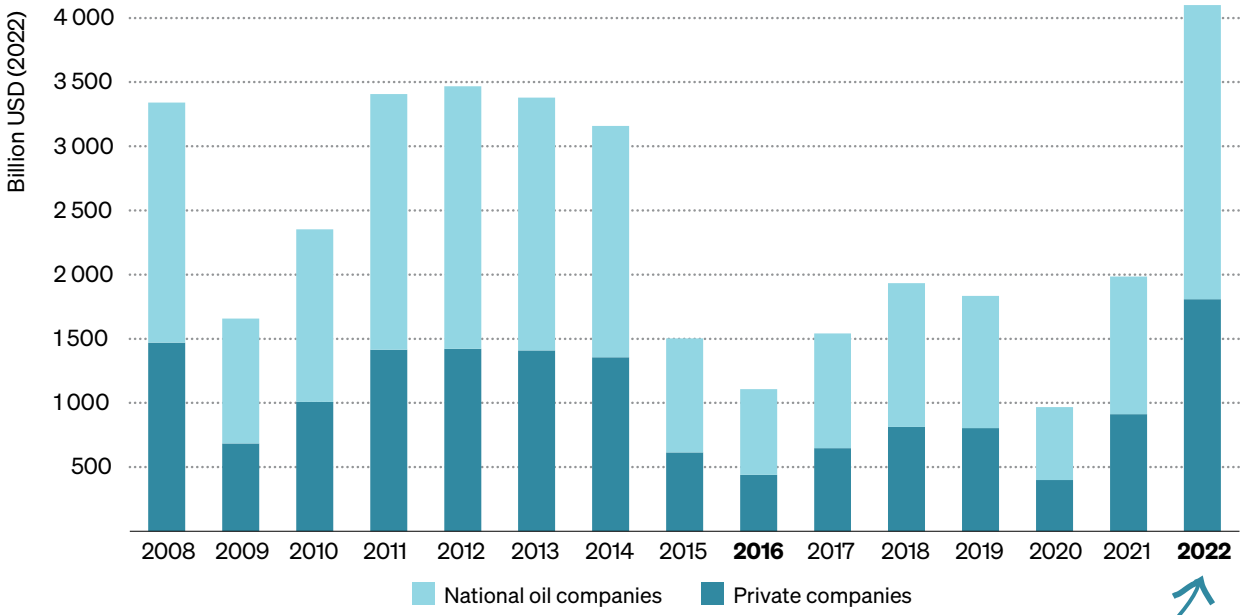
Average ownership share



Companies assessed were top 5 fossil-fuel energy firms (Exxon, Shell, Total, Glencore, BP) and five leading 'renewable energy' firms (Uniper, Eni, E.On, Engie and Tesla) according to Statista.
Source: research using S&P Capital IQ, 2024

Big Oil is booming

Net income of the oil and gas industry, 2008–2022

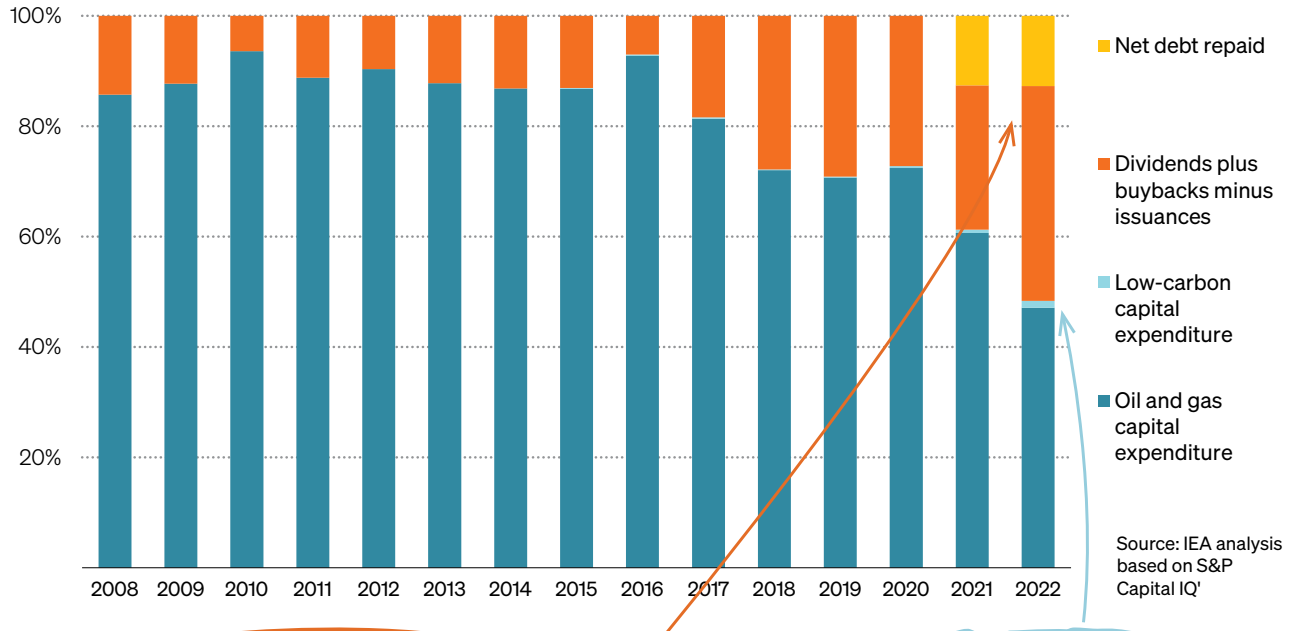


Net income of the oil and gas industry reached a record $4 trillion in 2022, almost four times bigger than in 2016.

In 2022, more than 10% of households in Bulgaria, France, Greece, Lithuania, Portugal, Romania, Spain were unable to keep their house warm

Where do Big Oil profits go?

Distribution of cash spending by the oil and gas industry 2008–2022



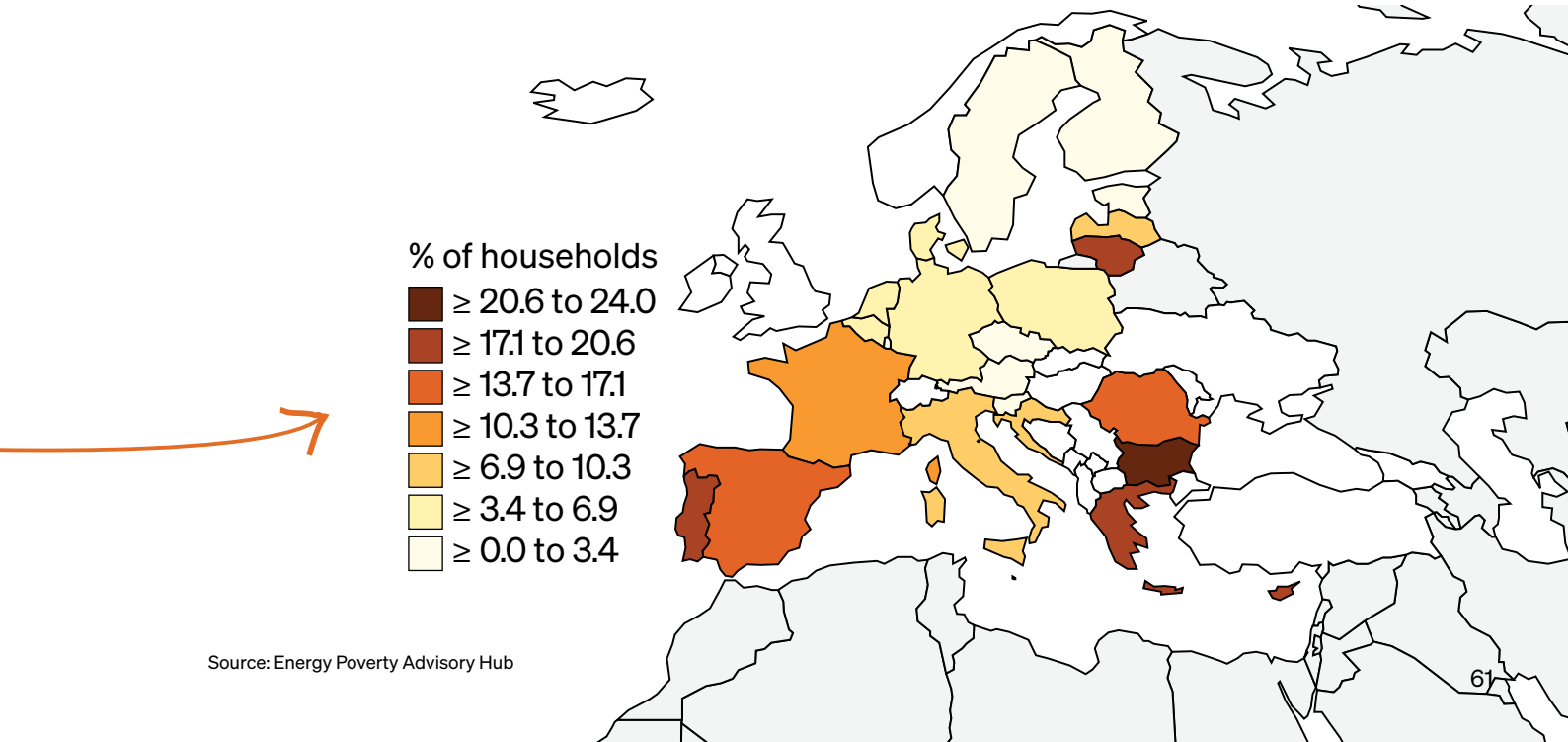
Source: IEA analysis based on S&P Capital IQ'

Record oil and gas income was used to increase shareholder returns and reward corporate executives...

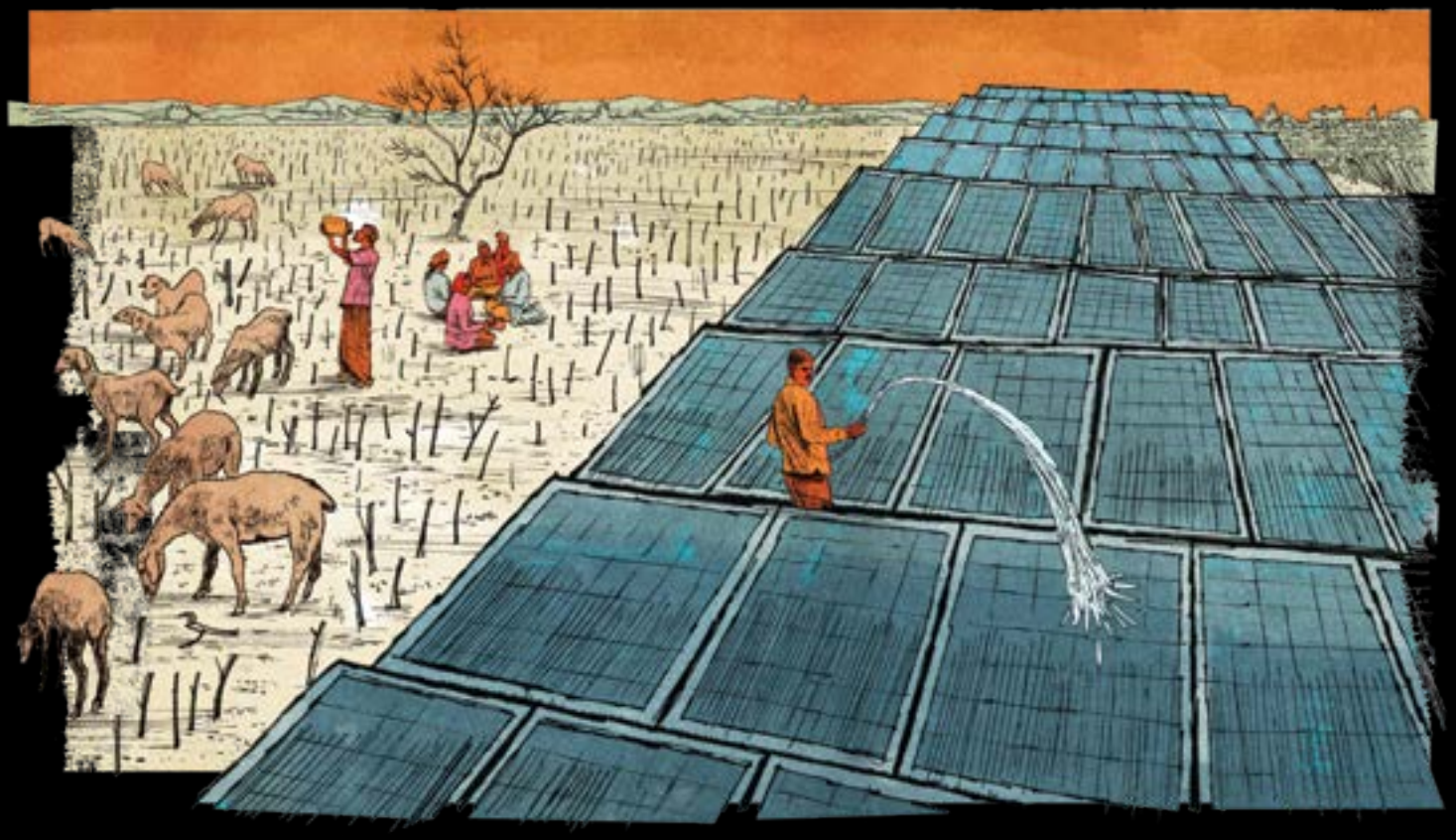
...with only a tiny fraction being directed to clean energy investments.

As Big Oil profits soared, energy poverty did too

% of European households in energy poverty



Source: Energy Poverty Advisory Hub



Decarbonising Electricity

The costs of private sector-led renewable energy, and opportunities for alternatives in Australia, Germany and India

James Goodman and the Decarbonising Electricity research group: Gareth Bryant, Linda Connor, Devleena Ghosh, Jon Marshall, Tom Morton, Katja Mueller, Stuart Rosewarne, Riikka Heikkinen, Lisa Lumsden, Mareike Pampus and Priya Pillai

Subnational regions offer great promise and many lessons for decarbonising electricity, but have so far largely relied on – and are predicted to depend on – the roll-out of large-scale privately owned renewable energy. In our examination of on the ground impacts of this private model in Germany, India and Australia, the evidence is clear that reliance on private renewables deepens inequalities and threatens democratic legitimacy for decarbonisation. However, it can also open up opportunities as the transition forces new agendas, prompting demands for local benefits, social ownership and distributed power. As with energy transitions in the past, the advent of renewables poses critical questions regarding responsibility, agency and capacity, and how we might develop a system that combines social justice with climate action.

Although the context for renewable development in Germany, India and Australia is distinct, there are surprising parallels. There are common factors in relation to enthusiasm, contestation, dialogue and regulation. There are also common technologies allowing the construction of larger wind turbines and more extensive solar farms, along with energy storage to overcome intermittency. There are new options for agri-solar, and new forms of 'distributed' renewable energy, allowing the aggregation of rooftop solar. There is even a mooted renewables export sector, with electricity made transportable as hydrogen or ammonia.

What is most salient in the emerging global renewable energy supply chain is the logic of corporate power and extractivism. Across all three cases we find 'green' neoliberalism in the ascendancy. Large-scale privately owned renewable power has become the norm. The hierarchical structure of energy production, where large generators send power to the grid, and then to the consumer, remains largely in place. Private energy operators minimise their own costs through large-scale installations and seek to capture the surplus from cheap renewable power. With ever-larger wind and solar farms the critical question is the question of land ownership and the related impact on livelihood.

Land is central to livelihood in India. In the south Indian state of Karnataka, in a village surrounded by one of the world's largest solar farms, a local villager sums up the impact: 'For people without land there is no benefit for them. Rather they have lost their livelihood as no one calls them for work'. The solar plant pays rent to the landowners but displaces the rest of the population: 'A village is not just for the big landowners. There are all kinds of people, like people with livestock, labourers, small farmers, and so on. The government should support the villagers. But the situation is bad – the landless are forced to migrate and work outside'.

Likewise, in the state of Brandenburg in eastern Germany, there is some income for landholders, but the majority see no benefit from the local windfarms. As a local mayor commented: 'There are some local residents who become actively against, others who just resign themselves to what's happening. There are a few who are in favour – usually those who profit in some way'. The windfarms are also increasing inequality: 'If they lease their land for a wind farm there are very substantial financial rewards, but the community as a whole doesn't get much out of it'.

Resignation is commonplace. In Port Augusta in South Australia, an advocate for renewable energy who used to work in the local coal-fired power station suggests that 'people are really quite sceptical, reluctant to put any skin in the game as far as even speaking in favour of new projects, let alone actually doing anything to make them happen'. This is a problem for advancing the energy transition: 'It's difficult to get overt public support'.

Across the three sites for major private renewable energy we find common complaints about livelihoods, ownership and inequality in the face of large-scale corporate energy projects. Contestation forces new models into view, initially through demands for more regional benefits, but quickly extending to social ownership and the need for more distributed forms of renewable energy. New sources of social power link with technological change, for instance in relation to agri-solar and forms of household and community energy storage, releasing new potential for decarbonisation.

Neoliberal renewables reinforces private monopolies

The struggle to stop burning fossil fuels for electricity is central to global climate policy. Worldwide, most countries are planning to move to renewable energy, as a 'win' for the economy as much as for climate. Cheap renewable energy – nature's latest 'gift' to industrial society – lays the basis for a new wave of 'green' growth. The International Renewable Energy Agency (IRENA) plans for 75% renewables for global electricity by 2050 from the current 16% – and estimates that 95% of this will be privately owned.

The new development model is dominated by global energy companies and investment funds building large-scale wind and solar plants, capturing the income flow from renewable energy. Despite supply-chain bottlenecks, investors are euphoric about renewables, both for upstream 'critical' minerals and for downstream 'green' hydrogen and ammonia. National and regional governments compete to attract footloose 'green' finance – seeking a stake in the new sunrise industries.

Courting big capital brings big announcements while obscuring the full extent of public support and financial outlay. Renewables companies rely on government regulation to facilitate new connections to the grid, to mandate the purchase of electricity of renewable sources, and to guarantee the income streams that underpin profits. Private investors build and run the large-scale wind and solar farms, generating electricity at an agreed price. Supply agreements, termed 'Power Purchase Agreements' (PPAs), can run for decades, creating a safe harbour for rent-seeking investors. State authorities often invite the private sector to supply blocks of renewable energy, awarding PPAs to the lowest-cost supplier, forcing prices down. These 'reverse auctions' require huge economies of scale and ever-larger utilities – driving out smaller players, including community and non-profit generators, and creating a disincentive for benefit-sharing.

All this comes at a cost. Large-scale renewables create new displacements and corporate concentration drives new inequalities. Landowners in favourable locations benefit the most, entrenching their power; farming livelihoods are displaced; ecologies are transformed. Relying on private investment in renewables fuels corporate concentration and energy massification.

In Germany there has been a rapid shift from cooperative and municipal to large-scale corporate wind power. In India there has been a similar shift from small-scale wind power companies to ever-larger corporate entities, so that by 2022 there were very few Indian companies bidding for national PPAs. In South Australia we found a sharp bifurcation between household solar and the growing leverage of large corporate-led projects.

With these limitations, neoliberal renewables obscure the real potential of renewable energy. It has often been pointed out that renewable energy is scaleable, from the hand-held device to the utility-scale installation. Public infrastructure and finance could be directed for wider benefit. There is capacity and agency for distributed renewables, for energy transformations, and for new forms of energy participation and democratisation. Yet the received wisdom, from IRENA down, is that only large-scale private renewables can address the climate crisis. But whether they secure 'social legitimacy' is another matter, and a crucial component to achieving renewable energy targets.

Neoliberal renewables undermines decarbonisation

Neoliberal energy transition – based on rent-seeking, and monopolisation for capital returns - can undermine decarbonisation. Renewables finance is an asset class, interchangeable with other non-renewable assets. It is not characterised by any need to reduce emissions. On the contrary, the interests of this private investment can often be in direct conflict with the abundance of renewable energy needed for climate stability. Companies rely on scarcity but with the long-term decline in renewable energy costs and virtually unlimited daytime electricity, they face a problem of maintaining profit flows.

Intermittent wind and solar power produce excess energy. In times of excess, prices fall to zero (and below). To protect investors and maintain prices, renewable energy is often switched off. This 'curtailment' or 'spilling' is commonplace – on some days in Australia up to 20% of renewable energy is spilled. The contradiction is baffling: the abundance of renewable energy becomes a problem to be limited, not a virtue to be advanced.

With this, more distributed forms of renewable energy become a threat to corporate market share. The growing prevalence of household renewables in Australia, for instance, proportionately the largest in the world, undermines the profits of utility-scale generators. Rather than supporting distributed energy, policy is geared to the major utilities. For example, in 2023 Australia announced a subsidised floor price for generators, explicitly to further de-risk investment.

Finally, there is the challenge that more industry, fuelled with cheap renewable electricity, accelerates economic growth. Increased throughput means increased emissions. For IRENA, renewables will ensure the necessary emissions cuts, but only if energy demand also falls. The annual 1.1% rise in energy use, lockstep with economic growth, has to become a 0.2% annual fall. For IRENA, growth must be delinked from energy use: a tall order when energy becomes so cheap. Experience suggests the opposite trajectory – that cheap energy fuels energy demand.

Three cases

The focus of our research has been on the states of Karnataka in India, Brandenburg in Germany and South Australia – all are leading renewable energy regions yet are very different in terms of their history and location in the global economy.

Across all three contexts, early promises have given way to active engagement with the prevailing corporate model of large-scale renewable energy development. Campaigners, community organisations and interest groups have evolved a range of political tactics, strategies and aims to contest the private model and the state's de-risking policies that underpin it. In response, governments and companies have adjusted regulations and offered concessions in a dynamic, contested and constantly evolving landscape.

1. Karnataka

Karnataka is now one of the leading renewable energy states in India, such that in May 2023, 54% of installed capacity was from wind and solar power; this compares with 31% coal, 12% hydropower and 3% nuclear (Central Electricity Authority, 2023). Small-scale wind energy predominated until the mid-2000s, when Karnataka became a leading state for utility-scale solar power. Virtually all its renewable energy is privately owned, contrasting with 'legacy' coal and hydropower which are mainly state-owned. Large companies predominate: ten corporates own 58% of solar capacity and 30% of wind power.

Karnataka has had a proactive renewables policy since the late 1990s. The state aimed to attract private investment and reduce energy costs for loss-making state-owned power distribution companies (which provide price subsidies, especially for rural areas). The state has favourable solar and wind conditions and was a net importer of coal-fired power, since reversed with renewables. Renewable power developers now bid for long-term power supply contracts with the distribution companies via reverse auctions overseen by the renewable energy state agency, the Karnataka Renewable Energy Development Limited (KREDL).

KREDL plays a key role mediating between private developers, landowners, distribution companies and transmission networks. Its income comes from a levy on project proponents and it promises to secure all approvals for them within 60 days. It has also set up joint 'special purpose' agencies with the federal government, such as the Karnataka Solar Power Development Corporation Limited (KSPDCL), which established the 2GW Pavagada solar project – the biggest in the world when completed in 2019. KREDL is now planning to more than double the size of the Pavagada plant, to 5GW, and is establishing another 5GW hybrid wind-solar-battery facility in Shimoga, in the north of Karnataka.

The Pavagada example encapsulates the tensions and possibilities of renewable energy development in India. The park spreads across 4,856 hectares (ha) encompassing five villages with a population of 10,000. The area is arid and drought-prone, with high levels of poverty, particularly among women and Scheduled Caste and Tribal communities, and has seen struggles over land rights and redistribution. Land holding remains highly stratified, with some large landowners and many smallholdings, while about half of the population is landless.

The KSPDCL aggregated land from 1,422 different landowners by signing 28-year leases at a fixed price with set incremental increases for this whole period. State authorities auctioned off a number of 25-year PPAs for developers, with the price steadily declining to less than half the average price of coal-fired power. There was some World Bank and Asian Development Bank support and the park attracted large private renewables companies such as Tata, Fortum, Adani, ReNew and Softbank.

Pavagada's land-leasing model contrasts with other approaches to land acquisition that essentially remove people from the land, creating an ostensibly empty space for renewables. Co-existence with landowners offers a better approach, but it poses new questions. Leasing benefits landowners but sharpens inequality. As a landless person said to us, 'people who had more land become wealthier. We are where we are, landless people'.

Leases were negotiated during a drought and landowners felt pressured to agree: 'They came, they asked, we were hungry, we gave it to them'. Rental income for smallholders is not enough to live on, and food security has suffered. As one farmer said, 'If we grew lentils for a year, we would use it for household consumption up to two years… now for every small thing, we are dependent on the market'.

But the landless are the main losers. They have historically relied on seasonal agricultural labour and small-scale animal husbandry, which have been displaced by the solar park. A landless person we interviewed said: 'Before solar it was very good for our sheep. After solar there are difficulties… There is no space for grazing'.

The loss of livelihoods is not offset by employment at the plant. There are some local jobs in security, cleaning and grass-cutting, but not enough. This has particularly affected women from low-caste and Tribal communities, who have lost sources of financial autonomy. As one woman said, 'we have to depend on our husbands' income and they control us more'. They were promised better education, training and jobs: 'We do not want our children to lead a life like us. We want to give them better education, so that they can make a life for themselves'.

Authorities say they had been learning lessons and that a new phase in renewables planning is emerging in the extension to Pavagada and in a proposed 5GW hybrid plant. In Pavagada, a stronger commitment to funding local schools and social infrastructure is reported. However the promised training programmes and jobs have yet to be delivered, although there are proposals for mixed-use, agri-solar energy, to allow farming to co-exist with solar plants. The anticipated partnership with local people remains undeveloped.

The proposed hybrid plant will need to co-exist with local agriculture as northern Karnataka is more fertile and land is more evenly distributed: the land reform movement was successful in this part of the state, and there are fewer landless people. The proposal for a more variegated 'hybrid' model, linking wind, agri-solar and battery capacity, rather than a uniform expanse of solar panels, potentially offers more space for farming. There are also possibilities for co-management, potentially building on established village councils (Panchayats) that have extensive local governance capacity.

2. Brandenburg

Like Karnataka, Brandenburg has a strong commitment to renewable energy. In 2023 it obtained 70% of its electricity from renewables, mainly from wind power. Its 2022 Energy Strategy planned for 100% renewables by 2030. To this end it has proposed a shift to solar: wind generation is set to double, from 8GW to 15GW, but solar is expected to quadruple, from 4GW to 18GW.

A solar rush is now underway. Early in 2023 a government survey found extensive potential for rooftop solar (29GW), solar on degraded or low-value lands (33GW) and also for car-park, water-mounted and agri-solar (up to 270GW). In August 2023 the state announced a 'solar expansion offensive' with a focus on local-level land-use planning initiatives and municipal-led distributed solar, including a local solar levy to flow to affected communities, and subsidies and training to expand the local workforce.

The solar offensive marks the latest phase in Brandenburg's renewable energy trajectory. From the 1990s renewable energy in Germany had a strong focus on cooperative and municipal wind-power initiatives, especially in the west of the country. In Brandenburg, however, larger-scale private wind farms were more common, and this became the norm across the country after the 2017 federal Renewable Energy Law required competitive bidding for all power supply contracts, favouring larger private operators.

A fall-off in the approvals for wind power followed as proposed installations were increasingly contested at the local level. As the federal 'Energy of the Future' panel found in 2021, challenges in rural areas had become 'very considerable'. Legal action was delaying and annulling projects as local people mobilised against large corporate-owned wind farms. There was a shortage of available sites as land-use regulation defined allowable proximity to residential areas, and limited availability of forest lands for instance.

Wind power can co-exist with other forms of rural land use, yet there is increasing disenchantment, especially as the turbines have become larger. Focusing on the southern region of Teltow-Fläming, we found declining local acceptance, as 'gradually, you start to feel surrounded'. There was little local awareness of what was coming. As one resident put it, 'we only really realised it was happening when the towers were there all of a sudden'.

In 1997 the state had prioritised wind power in land-use planning and in 2003 federal legislation required designated 'wind suitability areas'. With this, Brandenburg's five regional planning bodies drew up land-use mappings for wind power. Local critics of wind power had been elected to the local councils, and with a range of union, environment and community stakeholders had effectively re-regulated wind power allocations. As a result, wind power is now restricted to about 2% of the land area, concentrating the industry in particular zones.

The planning process led to more active local engagement and deeper contestation of regional planning. This can be read as a democratising process, where regional and state-level decision-making on energy and 'green' industrialisation became more politicised and scrutinised. Ironically, the advent of large-scale corporate wind power was instigating local involvement, articulated through local governance structures. Importantly, the process was

based on dialogue rather than outright opposition: the group 'Country Life', for instance, favoured 'harmony' with wind power, seeking local benefit from it.

Benefit distribution is a key issue. Virtually all of the 350 wind farms operating in the state are privately owned; only ten are locally-owned. Ownership inequality produces financial inequality. Landowners stand to benefit, as one resident stated: 'I can get 30,000 Euros a year for a hectare of land if I lease it, for some people that means they wouldn't have to work any more'. Localities then bear the cost. To offset this, from 2019 the state government required wind companies to pay a levy of €10,000 a year to local councils; this was strengthened in 2021 with a federal community subsidy of €0.2 per kWh.

Our research found companies were also responding to pressures, with more sophisticated efforts at anticipating and preventing opposition. Companies were initiating consultation at conception stage, rather than waiting until the end of the planning process as allowed under planning law, and were offering wider community benefits. One company had been consulting on the use forest lands for a wind farm, offering a '20:80' model, with community funding set at four times the land rental cost.

Wind energy has precipitated new forms of energy governance, and these are now informing the current introduction of solar power. Solar panels pose a threat to pre-existing land use, and this accounts for the state's current focus on unused roof space, car parks and water surfaces, and on under-used land. The state government is making efforts to address the impacts on agriculture through land-use planning and there is a growing interest in agri-solar that can co-exist with agriculture. There is likely to be some loss of agricultural land, although it is estimated that some 15% of farming is for biofuels, and substituting solar would be more efficient.

Revenue for solar is as much as ten times greater than for cropping: we found landlords being offered 30-year leases at €2,500 per hectare, compared with €400 per hectare for farming. The dangers are clear for leasehold farmers, who can be evicted when their landlords choose solar. This poses a major threat as 73% of farmland in the state is leasehold.

There are economies of scale for solar, just as for wind power, with an often-quoted minimum viable size estimated at 50 ha for a solar farm. There is already a scaling-up. In 2021 the largest solar park in the state, and in Germany, was just 164 ha at Werneuchen near Berlin. A year later there were 55 solar projects approved in the state, covering 2,800 ha. Authorities in Teltow-Fläming had been approached by a developer proposing a 1,000-hectare solar farm. As a solar farm developer put it, there are 'no limits on size, at least no legal limits'. That caveat is important as regulatory responses will be critical in determining the outcome.

Certainly, recent commitments made by the state government on solar energy suggest the possibilities for benefit-sharing are gaining ground. There is a new shift from viewing 'social acceptance' of renewables as imposing a limitation on renewable energy installation, to seeing it as a means to enable wider uptake. State proposals for solar emphasise distributed and municipal initiatives for unused space for solar panels; and there is also a greater acceptance of local-level delivery and planning, including local revenues and re-skilling.

There are new dangers in solar power, but arguably it offers new potential for socially owned and distributed provision. The current state response reflects the several decades of mobilisation, engagement and institutional innovation regarding wind power. Contestation has allowed greater participation in energy governance: the process of 'strategic warfare' over renewables, as one resident described it, is set to continue on new terrain.

3. South Australia

Like Brandenburg, South Australia also aspires to achieve 100% renewable electricity by 2033. In 2023 non-hydro renewable energy supplies about 66% of the state's electricity, 24% from solar power and 44% from wind power. Growth has been rapid: in 2000 renewables supplied just 1% of the state's electricity needs.

In 2002 the State Government had planned for 26% of combined wind and solar, launching a coordinated effort linking investors, locations and supply contracts. There was an early focus on the Upper Spencer Gulf and the so-called 'Iron Triangle' across Port Pirie (with a lead smelter), Whyalla (with a steel plant), and Port Augusta (with a coal-fired power plant, closed in 2016). The Gulf has very good potential for wind and solar power and is well connected to transmission lines, it also has an industrial labour force (albeit with marked social-economic disadvantage) – all factors making it attractive for renewables investors.

As in Karnataka and Brandenburg, renewable energy in South Australia has gone through various stages. There was initial enthusiasm, especially in Port Augusta where it was seen as offering a 'just transition' away from dependence on coal-fired power. The local power station had been a major employer and when its private owner, Alinta, announced closure in 2015, a local campaign demanded a new large-scale solar thermal power plant to replace it.

Alinta closed the plant early, in 2016, with no direct transition to renewables. Yet the campaign had wider effects as the region became a focus for renewable investors. This led to the construction of several large private windfarms including at Lincoln Gap, with 101 turbines on 20,000 ha, and at the Port Augusta Renewable Park, with 50 turbines on 5,000 ha. Large solar is less common, though there is an 800-ha solar farm near Port Augusta, owned by the Bungala Aboriginal Corporation, and a 20-ha solar thermal plant, Sundrop, dedicated to desalination and heating for greenhouse tomatoes.

After an initial wave of investment, state regulations were tightened in 2019, with rules on cumulative impacts, proximity to townships and on access to 'areas of high environmental, scenic or cultural value'. There were also measures on public notification, decommissioning, grid stability, noise levels and wildlife corridors, and, with this, an increase in the allowable height for turbines height from 150 to 240 metres. These measures coincided with a decline in applications, in part with the announcement of a 900-km interconnector to New South Wales due to be completed in 2025, which appeared to draw proposals to the west of the state.

A third phase in renewables development has now come to the region with a growing focus on 'downstream' uses, especially for renewables-based 'green' hydrogen, both for export and for use 'on-shore', such as at the Whyalla steel plant. The state government's Hydrogen Jobs Plan announced in 2023 is now seen as generating a new wave of interest in renewables in the region.

Renewables planning in South Australia has been centralised in the State Commission Assessment Panel, which runs consultations and public hearings. Companies seek to define their projects as state-significant 'Crown Developments', preventing any appeal to the minister's final decision; with this they have access to an expedited 'pre-lodgement service' with a sponsoring department, identifying 'essential State infrastructure'.

Local authorities are sidestepped by the State-level planning process though could they enable more community participation and involvement. Councils collaborate in a Spencer Gulf Cities group, which recently promoted the area as a 'renewable energy "powerhouse"'. Their formal role is limited and they do not even receive tax revenue from renewables as electricity is exempted from local rates. Local councils produced a report in 2018 to challenge this exemption, but the state government has refused to address it.

The tax question, which sees local ratepayers subsidising large-scale global renewables companies, has been a lightning-rod for discontent. Concerns centre on the lack of local benefits, especially in terms of employment. Contractors bring their own workforce and draw on the local labour market only for low-skilled workers, employed on a casual basis. There is no local labour force plan and work is intermittent, though some local employment agencies establish recurring contracts.

Reflecting decades of regional disadvantage, the region has very few businesses able to take up work in the industry. State-level policy does little to address the skills gaps. Planners rely on claims that anticipated downstream industries will bring the jobs, rather than the renewables sector. In the meantime, most of the new jobs come indirectly, in terms of health, transport, retail and hospitality.

As in Karnataka and Brandenburg, host landowners are the main beneficiaries. Lands are arid and wind power has minimal impact on farm income. Each turbine can earn an annual rental income of up to AUS25,000 for about 30 years; 40% of the state is on pastoral leases, land appropriated from local Indigenous peoples and granted to settlers by the colonial authorities. These landowners now benefit the most from renewable energy, re-affirming colonial dispossession and exacerbating inequality.

There is change, though, as land rights gain recognition. The Federal Government was forced to recognise Native Title with the 1992 Mabo case and federal legislation in 1994 enabled Aboriginal Peoples to claim title to lands. After a 28-year struggle the Nukunu and Barngarla peoples gained Native Title in the region from 2016. Some state-owned 'Crown lands' have been returned and Traditional Owners have gained some negotiating rights over leased state lands whenever there is any change in tenure arrangements, such as for renewable energy.

To date, renewables companies have been responsible for a range of ad hoc and highly divisive 'consent' arrangements. As one Native Title holder stated, 'I've had no good experience with renewable energy yet, just a lot of indignity and pain'. An exception is the Bungala solar farm which brought benefit via a lease agreement to employ Aboriginal workers and contractors.

With the Native Title outcome, the Barngarla Traditional Owners (BDAC) signed a ground-breaking land-use agreement in 2022, securing co-ownership as well as leasehold income

from a large solar farm on Crown lands. Royalty payments from mining companies are often paid to Traditional Owners but shared ownership is virtually unknown, except in a growing range of renewable energy projects.

The Barngarla outcome is seen as a major breakthrough. The equity stake means that 'not only are BDAC the landholders and landlords for the entire project, but we will also have a shareholding in the project, making us – the local First Nations People for the area – part-owners of one of the largest renewable energy plants in the State'. With this, arguably a new phase of co-ownership in renewable energy development will be opened.

With 40% of renewable energy at the national level to be located on Indigenous lands, co-ownership has grown. In 2023 there were a dozen renewable energy projects jointly owned with local Indigenous groups; the National Native Title Council stated this required a 're-conceptualisation of the role of First Nations in development'. There is no reason why this model for social ownership should not be extended to other local populations or organisations, redefining renewable energy for regional development.

Possibilities

Land ownership is the key issue for large-scale renewable energy development. Renewables investors seek an empty space for accumulation, exemplified in the sea of solar panels, from horizon to horizon, in the Pavagada solar park. The Australian Energy Infrastructure Commissioner told us that renewable investors favour 'large acreages and a small number of landowners, and no neighbours, no towns or other settlements'. In doing so they operationalise existing land inequalities, from Australia's myth of 'terra nullius' to India's failures in land reform.

Against the creation of new renewables-based landed elite, and the inequality this brings, we have found local people pushing for a more democratic partnership. Narratives of regional renewables reveal a clear imperative to democratise the transition process, to realise its fullest potential for social transformation. Key components would be revenue-sharing, co-ownership of power facilities and co-management of land, better employment and a solar design that co-exists with agriculture. As one farmer in India put it, 'The energy production will continue, the structures cannot be dismantled. Therefore, they should give us partnership'.

Local people argue that renewable energy should be treated as a regional development project – not simply as a power project. It should not displace existing livelihoods and should offer meaningful local benefits. The enormous financial surplus gained from renewable energy is extracted primarily for the power companies: local people recognise this as a great injustice and demand a change in the model. When we visited wind and solar farms we were often told this was work in progress. The manager at Pavagada said that the plant was a 'university' in which new ideas were being tested.

This 'work in progress' is being forced in new directions. Contestation has created new demands for regulation, expanded engagement on regional development, and new initiatives in decarbonisation. At the same time, distributed energy is persisting. Renewables have already established a new household and community energy sector, an energy 'commons' founded on energy autonomy.

There is always the possibility of delay. Energy transition is an inevitability, but its calendar is contested. There is still a dependence on fossil fuels, with substantial lock-in, not least in electricity. Strong public backing is needed to overcome these pressures: displacement, disenfranchisement and disenchantment can only slow the transition. Social ownership and participatory regulation remain weak yet can be the foundation for public support.

The advent of renewables 'socialises' climate change and climatises energy. It plays a key role in advancing emerging social imaginaries in the search for climate agency, and the required ethics of climate-affected life. As with energy transitions in the past, the current juncture offers manifold (still undreamt-of) possibilities.

Contestations force stronger democratic participation and point to a transition based on common ownership, beyond corporate power. The imperative is clear: social control of renewables is now a foundation for climate stability, on a par with any 'common heritage' of humankind.

AUTHORS

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State-run oil companies and the energy transition

The case of Colombia's Ecopetrol

Daniel Chavez and Lala Peñaranda

At the 2024 meeting of the World Economic Forum (WEF) in Davos, the President of Colombia, Gustavo Petro, reiterated the pledge to halt new exploration contracts. 'We have decided not to contract any more oil, gas and coal exploration in response to the need to decarbonise our economy', Gustavo Petro told the world's business and political elite.[81] A year earlier, his message at his first Davos meeting was even stronger:

> We are approaching the point of no return, and that point means the extinction of life. Humanity dies out with capitalism, or humanity overcomes capitalism.[82] Why not swap the debt that countries and productive processes have for climate action in such a way as to free up budgetary resources to undertake adaptation and mitigation? Why not devalue the global debt, which also means a change in the system of power?

'These issues, which a decarbonised capitalism should address, are not part of today's discussions', Petro stated, summarising the challenges faced by indebted and export-dependent countries of the global South in the context of a climate crisis that will have a disproportionate impact on oil-producing states.

The transformation of Colombia's fossil fuel industry is one of the main components of the ambitious energy transition plans of the government led by a former guerrilla fighter and a feminist, anti-racist and environmental activist – President Gustavo Petro and Vice President Francia Márquez, respectively – but the obstacles to overcome are many, diverse and complex.

The pace and scope of the energy transition have been the subject of much-heated debate within the new Colombian government and public discourse. Shortly after the inauguration in August 2002, other officials announced the intention to radically and rapidly transform the hydrocarbon sector. The-then Minister of Mines and Energy, Irene Vélez Torres, an academic with roots in the environmental movement, affirmed at the WEF that Colombia would swiftly shift away from fossil fuels: 'We have decided not to award new oil and gas exploration contracts, and while that has been very controversial, it's a clear sign of our commitment in the fight against climate change'.[83] By March 2003, the then-chief executive of Ecopetrol, the state-controlled oil company, warned that changes would have to be measured and gradual to achieve the energy transition. 'There is no substitution in which you can just flip a switch to turn one thing off and another on', Felipe Bayón told the Financial Times.[84] He added that 'it will take a lot of time, effort and money to ensure that other industries take its place'. In the same vein, he had also said in Davos that Ecopetrol had a gradualist, 20-year strategy: 'The country will need the hydrocarbon exploitation that the company carries out. Ecopetrol could represent 10 per cent of Colombia's budget, and we still need the dividends, royalties and taxes it generates'.[85]

The pledge to halt oil and gas projects had been included in Petro and Márquez's election campaign, but not every cabinet member was happy with such a commitment. José Antonio Ocampo – the progressive government's first finance minister, an internationally renowned economist and former Executive Secretary of the United Nations Commission for Latin America and the Caribbean (ECLA-CEPAL) – had warned that Petro's administration would analyse the

180 existing contracts before deciding what to do next. 'Any energy transition that reduced exports would have to be gradual and prioritise gas self-sufficiency', Ocampo declared to the *Financial Times*.[86]

This chapter focuses on Colombia as a relevant case study for a broader research agenda. It addresses the role of the state in the energy transition vis-à-vis the global economic and financial system, as well as the significance of national oil and gas companies (NOCs or NOGCs) in current debates about energy sovereignty in the context of climate change. The first section analyses the current significance of hydrocarbon production and the prospects of state-run companies in Latin America and globally. The chapter then moves on to analyse issues and tensions that shape discussions about the transformation of Ecopetrol, culminating in a synthesis of ongoing political and policy discussions in Colombia that could be significant for future research and campaigns in other countries of Latin America and elsewhere.

The relevance and transformation of state-run oil companies

In the months leading up to the COP 2022, the political and business weekly, *The Economist,* published an article titled: 'State-run oil giants will make or break the energy transition'.[87] Together, NOGCs hold 66 per cent of the world's oil and 58 per cent of gas,[88] and provide around 40 per cent of the capital invested in these sectors.[89] The title alluded to the poor decarbonisation record of state-run companies. Nevertheless, *The Economist* recognised that Ecopetrol bucked the trend and that the Colombian company 'is involved in wind and solar projects and recently acquired an electricity-transmission company'.

The resilience and immense economic and political power of the oil and gas industry' have been the focus of many recent journalistic and academic publications. An article in *Nature* shows how climate spending lags while the nine largest oil companies in 2022 totalled $457 billion in profits,[90] equivalent to a sixth of the annual investment needed to meet government climate pledges. Three of these nine companies are state-owned or state-controlled (Saudi Arabia's Aramco, Norway's Equinor, and China's PetroChina), and six are owned mainly by private shareholders (ExxonMobil, Shell, BP, Chevron, TotalEnergies and ConocoPhillips).

Ecopetrol and other public enterprises operate in a regional context in which hydrocarbon production is undergoing strong and rapid transformations. According to recent appraisals, oil and gas extraction in Latin America and the Caribbean has experienced "tectonic" and "likely irreversible" changes during the past decade.[91] Production fell from 10.4 million barrels of oil per day (md/d) in 2010 to 7.8 million mb/d in 2022; the region's share of the global market dropped from 12% to 9% in the same period; and the two traditional hydrocarbon-exporting countries, Mexico and Venezuela, show signs of decline in their oil industries.[92] Brazil has repositioned itself as the world's eighth-largest oil producer. Small and sparsely populated Guyana currently challenges the supremacy of traditional producers in the region and has become one of the world's fastest-growing economies. Argentina, Colombia, and Ecuador face stagnant or decreasing oil outputs.

As will be discussed in more detail below, the state's majority ownership of Ecopetrol's shares is an essential factor in the prospects for the transformation of the Colombian company. In the region, the spectre of privatisation of the energy and oil industry had resurfaced when the

ultra-right libertarian Javier Milei, the recently elected president of Argentina, had proposed the privatisation of 41 public enterprises, including nuclear energy plants, the energy infrastructure agency, and YPF, the national oil company. In January 2024, facing strong social and political opposition, Milei was forced to backtrack on his oil and gas privatisation plans.[93]

Regardless of their ownership structure, oil and gas companies are crucial determinants of global emissions and access to energy. Private companies, however, are much less accountable than NOGCs and far more challenging to transform. Private transnational corporations (TNCs) active in the oil and gas sector have been propped up by a complex system of national and international government subsidies that ensure the privatisation of benefits of oil and gas production while socialising its economic, environmental, and social costs. As two scholar-activists have argued:

> Public ownership, by itself, does not guarantee that we will fully replace oil and gas with renewable energy in time to avert the worst impacts of the climate crisis (...). But we do not advocate public ownership because it is a magic bullet – we advocate it because it is our only shot. The profit math is just as clear as the climate math: corporations exist to generate profit and enrich shareholders, both of which require them to produce their product. No amount of shareholder activism can possibly do better than slowing or attenuating the rate at which corporations pursue this basic mandate. 'Market-based solutions', in this case, are a contradiction in terms: the market is the problem.[94]

The same analysts contend that public ownership would make it possible 'to decommission a recalcitrant industry in time to stave off climate disaster', and offer 'an opportunity to build something better in its place'. From a similar perspective and challenging the claim that NOGCs by their nature hinder the just energy transition, a growing number of trade unions, environmental organisations and research centres point to the pursuit of endless growth and capitalist accumulation as the root cause behind the global trend of energy expansion, not a transition.[95] Instead, the alternative public pathway approach identifies state-owned or state-controlled companies as strategic players in limiting climate change and avoiding its worst impacts.[96]

The reinvention of Ecopetrol as an energy company

In the 1920s, the US-based Tropical Oil Company (Troco) obtained the right to exploit oil in Colombia after taking control of the infamous Concesión de Mares. The private company dominated oil production in the exploration, production, refining, transport, domestic distribution and export of oil in the country during the first half of the twentieth century. Following decades of political debates and militant trade union struggles demanding nationalisation of the hydrocarbon sector, the reversion of the Concesión de Mares to the Colombian state led to the founding of the Empresa Colombiana de Petróleos, Ecopetrol.[97]

In 1961, Ecopetrol acquired the Barrancabermeja refinery and, 13 years later, bought the Cartagena refinery (today, the country's largest and second-largest refineries, respectively). In 1970, Ecopetrol adopted its first organic statute, which ratified its nature as a wholly state-owned company linked to the Ministry of Mines and Energy. From September 1983, Ecopetrol increased the scale of its oil production following the discovery of the Caño Limón field, a

deposit with reserves estimated at 1.1 billion barrels. In 1986, Colombia became an oil-exporting country again, and extended its oil self-sufficiency in the 1990s following the discovery of the Cusiana and Cupiagua fields.

Oil production in Colombia peaked in 2014 at 1,040 thousand barrels per day (kb/d), and for the past ten years has been falling despite promising new offshore discoveries,[98] which would take a long time to develop. Despite the fall in production, oil, gas, and mining account for over half of the country's exports. Ecopetrol is Latin America's fourth-largest oil company and Colombia's main exporter. It represents around 30% of the country's exports and provides a vital source of foreign currency earnings in an economy affected by constant fiscal and current account deficits. The company's investment plans for 2024 range between $5.7 billion and $6.7 billion, increasing production up to 730 kb/d and operating 360 development wells and 15 exploratory ones.

The significance of Ecopetrol in the Colombian economy

The full significance of Ecopetrol and Colombia's overall profile as a country dependent on extractivism is evident from the export data. More than half of the country's foreign sales are in the hands of 16 companies, most of which operate in the hydrocarbon and mining sectors.[99] The top 10 are headed by Ecopetrol, followed by mining companies Drummond (coal) and Carbones del Cerrejón (coal). Six of the remaining seven companies operate in extractive industries: Cerrejón Zona Norte (coal), Trafigura Petroleum (oil), Frontera Energy (oil), Reficar (petrochemicals), Cerro Matoso (nickel) and Terpel (petrochemicals). Despite Colombia's reputation as a coffee-growing country, the National Coffee Growers Federation occupies eighth place.

Ecopetrol accounts for approximately 65% of the country's oil and 80% of its gas production; 60% of oil barrels extracted are produced by the state-owned company, and the Reficar and Barrancabermeja refineries are supplied by the Colombian NOGC. Considering its importance in the national economy – around 100,000 jobs depend on Ecopetrol, and that the company accounts for more than 6% of the GDP – the main oil workers' union has expressed concerns about the long-term prospects of the industry if oil and gas production fall:[100]

> Maintaining the oil and gas production to guarantee the supply to refineries to provide diesel and gasoline for the national market is imperative. Significantly reducing investments in production and exploration would jeopardise Ecopetrol's continuity in the future, increase the risk of shortages and undermine national energy security. The country currently has 7.1 years of oil reserves and 7.5 years of gas reserves. Therefore, any reduction in investments to sustain production would shorten this window of time.

A shift away from oil?

The apparent contradictions in the discourse of Colombian government officials, Ecopetrol executives, and trade unionists regarding the speed and ambition of decarbonisation reflect the complexity of the proposed transition. Colombian trade unions have a long tradition of internal debate, and the current coalition government comprises diverse political parties, which need some time to arrive at a relatively coherent position. Nevertheless, progressive

Colombian forces seem to agree on how to move beyond fossil fuels, which can be summarised in the following five points: (1) current exploration contracts will be upheld; (2) exploitation of proven deposits will continue; (3) no new exploration contracts will be awarded; (4) Ecopetrol will diversify its portfolio to include low-emission technologies and renewable energy sources. And most recently (5) Colombia might need imports from neighbouring Venezuela to ensure energy sufficiency during the transition.

The government's plans to transform Ecopetrol into a company that moves beyond hydrocarbon extraction have raised concerns among oil workers. The *Union Sindical Obrera* (USO) has a rich and dynamic internal culture of political debate across its diverse ideological currents, varying in positions and approaches to the just energy transition. USO's members overwhelmingly voted for Petro and Francia and organised to secure their victory. Despite that background, union members have expressed concern about the pace of the proposed transition and the cancellation of new exploration contracts, arguing it puts Ecopetrol at risk of disinvestment and exposes the country to energy dependence. In a statement issued in October 2023, the union commented on the Ecopetrol's proposed cuts:[101]

> Recent decisions by Ecopetrol's managers to curb the investment budget [...] put at risk the continuity of its core business. This decision also has a strong impact on public finances because Ecopetrol contributes an average of $20 billion annually to the financing of the state between dividends, taxes and royalties paid to the nation (...). Thus, in 2026 we will be producing 472,000 barrels per day, which will only allow us to maintain supply to the two refineries, and we will get no income from exports. The reduction of Ecopetrol's investments will result in the contraction of the oil sector in general, given that other companies in the sector rely on Ecopetrol's investments as their main source of income, and if Ecopetrol's budget declines, investment in the sector will fall across the board causing a domino effect.

In response to union concerns and criticism from political and business circles, Ecopetrol's current president, Ricardo Roa, has reiterated that the company's future will not be affected by the energy transition plans announced by the government. 'We've never said that we're going to wind up our traditional business',[102] Roa said at a recent business forum. 'The oil and gas industry in the country is not going to end', he added, explaining how investing funds derived from fossil fuels extraction would be key to financing the transition to renewable energy. The current Minister of Mines and Energy, Andrés Camacho, gave a similar answer in an interview with a Spanish newspaper in which he was asked if the ministry would approve more contracts for oil and coal exploration:[103]

> We have a policy of developing energy exploration as part of the energy transition. That does not mean that we will not do more, but rather that we are taking steps toward new contracts for exploiting geothermal energy, white hydrogen and other types of energy. We are going to develop new contracts for the energy transition. Since the day I arrived, I've said that the transition is being done with hydrocarbons. We will need them for a time, even up to 2040, 2050... If there are no substitutes for the petrochemical industry, we will continue to require hydrocarbons. The idea is that our dependence on them will decrease.

The challenge of diversifying Ecopetrol

Two years before Petro and Francia took office, Ecopetrol had already publicised a plan for decarbonisation to reach net-zero greenhouse gas (GHG) emissions by 2050, including concrete steps to diversify away from oil and gas.[104] The clock is ticking: Colombia has a horizon of 7.5 years of hydrocarbon supply. If Ecopetrol or other companies active in the country do not develop a significant new field before then, the country will have to import all the oil it needs. Energy supply and demand projections for 2050 indicate that Colombia will continue to require gas, gasoline and diesel, so if Ecopetrol is unable to meet the demands of the domestic market, it will be necessary to import from the Gulf or other parts of the world that continue to extract fossil fuels.

More than 40% of the expenditures that Ecopetrol has planned for 2024 focus on the energy transition.[105] The company's business plans highlight the objective of diversifying activities into the broader energy sector,[106] with expansion into areas beyond hydrocarbons. Planned capital expenditures (CAPEX), a good indicator of the real commitment to diversification, includes concrete investments in ISA, a Colombian company active in electricity transmission, roads and telecommunications throughout Latin America that Ecopetrol acquired in August 2021, paying $3.58 billion for 51.4% of the shares.[107] According to business analysts:[108]

> The decision to buy the state's stake in ISA took place at a time when Ecopetrol's official strategic plans did not include CAPEX for diversification outside oil and gas production. The purchase was a response to specific market opportunities outside oil and gas, where potential new business opportunities are assessed on a case-by-case basis. Still, with this move, Ecopetrol has shown strong leadership among Latin American NOGCs with regard to strategies to diversify its core activities.

Ecopetrol's expanded role within the power sector would be crucial since even with the realisation of the more ambitious plans for the decarbonisation of energy generation the country will probably continue to rely on fossil fuels to meet electricity demand for decades. A Javeriana University academic argues that:[109]

> For Colombia to achieve full electrification and meet the goals of a just energy transition, we must have an installed capacity of 120 gigawatts. The country is currently reaching barely 20 gigawatts of installed capacity. That is why the strategy to significantly reduce the participation of fossil fuels in the energy mix cannot be done from one moment to the next. Fossil fuels must leverage this transition.

A recent study on transition challenges in Colombia reports that the total electricity demand in 2021 was 67 TWh.[110] If all fossil fuels were replaced by electricity in 2036, electricity consumption would increase by another 160 TWh. In a scenario where the transport sector is supplied exclusively by biofuels, electricity demand would be 73 TWh lower, but biofuel production on that scale is highly unrealistic – and has potentially negative social and environmental costs.

The Colombian government has publicised a *Hoja de Ruta de la Transición Energética Justa* (Roadmap for a Just Energy Transition).[111] This document systematises a nationwide citizen consultation process in which it was agreed that the transformation of the Colombian energy

system should be based on four principles: equity; graduality, sovereignty and reliability; binding social participation; and a knowledge-intensive transition. In February 2022, Ecopetrol presented its strategic vision for 2040 and its operational and financial goals for 2022–2024. The long-term plan, Strategy 2040: Energy that Transforms, aimed at responding 'comprehensively to the current environmental, social and governance challenges'.[112] A year and a half later, the company updated that plan and proclaimed its goal to become 'the leader in the Americas in the diversification of energy', investing in 'hydrocarbons, low-carbon solutions, power transmission, roads and telecoms'. It also reiterated its will to contribute to a 'Just Energy Transition' and its 'commitment to energy security, the environment and social development'.

In November 2022, Ecopetrol confirmed the suspension of its fracking projects and the cancellation of the agreements with Exxon Mobil. Following years of highly contested internal debates, USO members reached an agreement in a 2019 National Delegates Assembly vote (77 in favour, five against, 22 abstained) to reject the use of fracking and to demand that the government speed up the transition of Ecopetrol to become an energy company focused on renewables. The suspension of fracking had been a campaign promise of the left-wing coalition *Pacto Histórico* (Historic Pact) and a leading demand raised by social and environmental activists during the *paro nacional* (national strike) – the series of protests that rocked Colombia in the first half of 2021, including massive street mobilisations against police violence, corruption, and cuts in health care and public services proposed by the government of right-wing President Iván Duque.

In the context of its Strategy 2040, the company has an ambitious plan to produce 'green' hydrogen, 'green' ammonia, and 'methanol', expected to bring between $20 billion and $25 billion in profits through 2040. In September 2023, Ecopetrol's chief executive announced: 'Between now and 2030, we must have incorporated nearly 1,900 megawatts in non-conventional renewable energy sources and by 2050 between three and five new gigawatts of renewable energy. That is Ecopetrol's goal and aspiration in the energy transition'.[113]

However, for Ecopetrol to expand into the power sector, it will be necessary to change the the legal framework. The *Plan* Nacional *de Desarrollo* (National Development Plan) 2022–2025 passed at the beginning of the current administration laid the groundwork for Ecopetrol to become an integrated energy company by repealing key articles in former legislation that that forced unbundling and prevented the functioning of vertically integrated energy companies.

The challenges of democratisation

The reference to Ecopetrol as a *state-run* and not *state-owned* company in the title of this chapter is not accidental. Over a 40-year period, various governments have attempted to privatise, corporatise and weaken Ecopetrol and other public enterprises, to the detriment of economic and social development and national sovereignty. The policies of plunder became more intense since the 1990s, including several waves of economic liberalisation that aggravated social inequalities and the continuation of the armed conflict, but workers' struggles prevented the privatisation of Ecopetrol.[114]

Since the mid-1960s, Colombia has gone through a so-called 'low-intensity asymmetric war' in which the country's armed forces, left-wing guerrillas, far-right paramilitary groups and

crime syndicates were directly involved, with the engagement of the US government and large Colombian companies and TNCs more or less covertly. In such a context, the distancing of Ecopetrol's policies from the social needs of the working classes led to the company's militarisation, as its control was contested between different sectors of Colombia's ruling class. Links between the company and far-right paramilitary activities – including the assassination of trade unionists and local activists – have been reported in various parts of Colombia,[115] in particular in the municipality of Barrancabermeja in the department of Santander, home to the largest refinery and Colombia's main petrochemical centre.[116]

Intra-class disputes over control of Ecopetrol led to a series of ownership and management changes over the last 30 years. Before 2000, Ecopetrol was an *empresa industrial y comercial del Estado* (an 'industrial and commercial state-owned company'). In June 2003, Uribe's right-wing government decided to make it a public shareholding company, until 2007, when it was converted into an *empresa de economía mixta* (mixed economy company), becoming Grupo Empresarial Ecopetrol. The modification of the company's ownership and management structure also meant a regulatory change: Ecopetrol ceased to exercise its functions as a state agency administering the oil sector, a role transferred to the newly created National Hydrocarbons Agency (ANH). Moreover, these changes meant that Ecopetrol went from being a public enterprise fully owned and managed by the state to a highly corporatised state-controlled company. In January 2023, a Colombian economist characterised Ecopetrol's corporatisation as follows:[117]

> Ecopetrol is *de facto* privatised, even though the state has not sold its majority shares. This is the best form of privatisation for the private sector. Private persons are appointed as board members, private actors manage the state enterprise without contributing a single peso and administer it according to their own criteria and interests. Following the corporate governance rules of the OECD, an ultra-liberal institution of which Colombia is a member, the company is in practice managed not by the state but by private actors.

For some years, one recurring discussion has centred on reforming the company's statutes. The Colombian state controls 88% of the company's shares and thus has the power to submit a list of candidates for the nine-member board of directors through the Ministry of Finance. Since Ecopetrol is listed on the New York Stock Exchange, such appointments must be compatible with the strict criteria established by the Security Exchange Commission (SEC). One option that Petro's administration explored shortly after taking office, which was criticised in political and business circles, was the possibility of adding a seat for a trade union representative. Having an active USO member on the Board of Directors has long been the union's demand. The union' president Cesar Loza told the Madrid daily El País at the end of 2023:[118] 'The majority shareholder [the Colombian state] has already called an extraordinary shareholders' meeting to make some changes to the composition of the board of Ecopetrol. The proposal includes greater participation of women and, most likely, the integration of comrade Edwin Palma, vice-minister of labour [and a trade unionist and former president of USO] to the board'. While Palma's addition would be welcome, USO members we interviewed underscored that Palma is a current government official and would not satisfy the union's demand to include an active trade union member on the board of directors.

Conclusion

Colombia's energy transition has several unique characteristics. The country's president is a former guerrilla and an environmentalist very much grounded in the science of climate change, who points to the limitations of capitalism to meet climate targets. The national oil company has started to implement a radical transformation in its operations and founding mission, with one foot in the NYSE and another firmly placed on the road to a just transition. Trade unions and environmental organisations are eager to have a greater say on the transition, with proposals and demands that converge in some respects and diverge in others.

Like most other NOGCs, Ecopetrol faces enormous challenges, considering its crucial role in providing vital resources that the government needs to finance public services and a just transition, achieve energy security and sustain or generate hundreds of thousands of jobs. The commitment to transform and diversify operations to enable Ecopetrol to become an integrated energy company is unprecedented in the world. However, the adjective '*just*' that precedes the characterisation of the transition announced in the company's Strategy 2040 is not entirely precise in its scope and contents. The pledge is mainly reflected in the announced plans to expand access to energy services as a priority of the subsidiary company ISA. The official documents do not specify exactly how the transformation of Ecopetrol will be integrated into the framework of the Just Transition Roadmap launched by the Ministry of Mines and Energy, especially concerning the distribution of the benefits and costs of the energy transition and the impacts on workers and local communities.

From outside Colombia, the route Ecopetrol should take seems obvious and easy to follow: accelerate its transition away from fossil fuels, diversify and benefit 'from improved resilience and reduced vulnerability to external and domestic pressures, such as oil and gas price volatility, supply disruptions, environmental disasters and investor pressure'.[119] However, our interviews with representatives of government bodies, trade unions, environmental organisations and research centres in Colombia show that in fact the road is much bumpier, narrower and uphill than it might seem, for several reasons.

NOGCs are crucial in the energy transition because they are some of the world's largest oil producers and are often the largest companies at the national level. Researchers, trade unionists and environmental organisations need to deepen and expand their exchanges on the role of the state and the meaning and prospects of the *public pathway* in the energy sector.

Colombia has very few remaining years of energy sufficiency, and depends on fossil fuels for its exports and public budget. This is one of the leading challenges facing the country's decarbonisation ambitions. Current capacity for electrification is nowhere near meeting future needs. The energy transition requires political will along with financial resources. Colombia has proven capacity to generate solar, wind, marine and geothermal energy,[120] but without resources the energy transition is not viable. The approximately $8 billion that Ecopetrol contributes each year to the state coffers cannot be ignored.[121]

Despite tensions and contradictory official discourse on the current direction of the energy transition, significant progress has been achieved, including the commitment to halt new oil and gas exploration contracts, the beginning of diversification of Ecopetrol's portfolio, the

decision to end fracking, and growing debates on the democratisation of Ecopetrol's board of directors.

Further democratisation will imply dealing with the legacy of the Colombian armed conflict and previous links between the far right and Ecopetrol and authoritarian repression, which disproportionately targeted oil workers.

The Colombian experience demonstrate how a just energy transition at the national level can be implemented only if there is a articulation between national plans and global strategies. For countries across the global South, the decarbonisation of the energy system is a monumental challenge. At the Latin American scale, it is feasible to transform the energy mix if there is political will that relies on strong state-owned energy companies as drivers of the transition, as the Uruguayan case has proven after a rapid and massive shift towards renewable generation in the previous decade.[122] It would also be possible to conceive plans to export other types of fuels – e.g. green hydrogen, as proposed by Ecopetrol[123] – but only if the potential renewable sources and the demand for them are sufficiently large. In any case, the restructuring of the oil industry is very complex and depends on a substantial transformation of international trade and financial structures and relations. The president of Colombia proposed in Davos to exchange foreign debt for a commitment to leave oil in the ground. In this respect, it is worth recalling that a similar proposal made by a neighbouring country, Ecuador, during the government of Rafael Correa did not meet with the expected response from the 'international community' and was used to justify a controversial expansion of oil exploration.[124]

Hydrocarbons have long shaped Colombia's economic, political and social structures and spurred its economic growth over the last decade, accounting for around half of its export earnings. In this context, Gustavo Petro has repositioned climate justice at the centre of his political agenda, alongside the fight against poverty and inequality. Whatever the resolution of current debates about the future of fossil fuels in Colombia, it will have a profoundly impact on Ecopetrol's *raison d'être* and the country's identity.

It is unthinkable to think of a transformation of oil extraction or a diversification of Ecopetrol and other NOGCs around the world unless their workers assume a substantial role in the transition, based on experiences and knowledge developed over more than a century. In this context, USO workers have explicitly stated their aspiration for Ecopetrol to lead the transition beyond fossil fuels.[125] They have reaffirmed their interest in retraining and using the skills they matured on offshore platforms to build and operate renewable energy plants. But they also warn that the government's plans must avoid a supply crisis and ensure the flow of revenues that the country cannot reject overnight, especially when it is already clear that oil and gas reserves will be exhausted in less than a decade.

The government led by Gustavo Petro and Francia Márquez is trying to show the world that it is possible to manage the decline and restructuring of oil companies for social benefit. Colombia has proposed the deployment of a global 'Marshall Plan' to fight climate change[126] and has indicated that a tax on financial transactions could be a way to obstain some of the resources that are urgently needed. Debt swaps of forgiveness – as proposed by Petros in Davos, advised earlier by *the Pacto Ecosocial Del Sur,*[127] and discussed at the two most recent COPs after

the Prime Minister of Barbados presented the *Bridgetown Initiative* for a restructuring of the global financial architecture[128] – could help oil-dependent countries to develop less destructive energy sources and continue to fund social policies and programmes. In this context, there is an urgent need to broaden and deepen the discussion on how to reclaim and transform Ecopetrol and other NOGCs in different regions of the world.

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Energy Revolution

A community-based approach to socio-ecological transformation

Tatiana Roa Avendaño and Eliana Carolina Carrillo Rodríguez

As the world changes, harvesting water and energy...
will be the most important thing to do.
To maintain autonomy.[129]

Energy is often analysed in terms of systems or technology – private energy monopolies, state grids, the use of renewables versus fossil fuels. However the most important source of energy is often neglected: that of the energy of communities to envision and enact new systems that not only power homes but also build healthy communities. This community energy is already being deployed by countless peasant, Indigenous, Afro-descendant and urban communities across Latin America and the Carribbean. These community initiatives, which often combine modern and ancestral knowledge and technologies, have once again placed the sun, the wind and water at the service of the people. In so doing, they challenge the prevailing discourse on the energy transition.

In our work as activists and researchers, we have started to document these experiences in a Virtual Exhibition of Community Experiences for a Just Energy Transition. These examples not only engage in production of electric energy, but also seek to build or consolidate community controlled food production or water management, rooted in reciprocal relations with nature and people rather than extractivist ones. These are essentially proposals for a Just Energy Transition. The exhibition, which began in 2020, has brought together over 100 community experiences that showcase the efforts of numerous peoples and communities to contest the privatisation of energy, which concentrates it in a few transnational corporations (TNCs) and excludes people from fundamental decisions in this arena.

This transition has gained importance in the context of the crises affecting the climate, food, economic systems, biodiversity, democracy and water – which some see as a crisis of civilisation. These crises are largely the result of an economic system that has maximised profits and growth by relying on fossil fuel consumption. The devastating consequences of this approach are now clear. Even so, the proposed energy transition frequently centres on corporate approaches that exacerbate inequality and reinforce neo-colonial dynamics in which the global South supplies raw materials to the global North, at the cost of ravaging their territories and violating the rights of people and communities. The promotion of megaprojects to generate renewable energy, and the exploitation of minerals required for the transition and hydrogen production, are at the centre of current debates but maintain the international division of labour.

This situation makes it vital to explore alternative socio-ecological transitions that go beyond viewing energy in isolation, and to rethink our relationship with nature. 'Community-based energies' constitute essential, radical proposals for a more inclusive, just and sustainable approach that challenge the extractivist model. These experiences represent a fundamental shift in our relationship with energy, as they address not only electricity but also aspects of everyday life, our own physical energy, as well as the sun, wind and water. A broader understanding of energy views it holistically and as a right and a common good.

This essay explores aspects of community-based energy systems across Latin America and the Caribbean, focusing mainly on Colombia's potential to overcome today's challenges and offer effective solutions. We present examples of some of these initiatives and highlight their capacity to integrate multiple energy sources, promote food sovereignty and strengthen local communities. We also reflect on women's crucial role in building and sustaining these proposals, as well as the obstacles and challenges they face on the road to a more just and sustainable world.

Community energies: where did the concept come from what does it mean?

Community-based approaches to alternative energies already have a long history. Since the late twentieth century, numerous communities have been confronted with extractivist and infrastructural projects, such as mega-dams, which threaten to destroy their lands and way of life. For example, the Sogamoso hydroelectric project in Colombia, built by the Canadian corporation Isagen on River Santander, destroyed the livelihoods of riverine communities. The dam's wall prevented the migration of fish such as *bocachico*, which are the basis of the local economy. Furthermore, the river's flow now depends on energy releases, and downstream communities often experience floods that destroy their crops and endanger their lives. Women have been among the most affected, as they lost fish sales and local tourism as sources of income. Young women also experienced abuse and violence, including sexual violence, during the construction of the dam.

What happened at the Sogamoso is not an isolated case. There are other riverine communities and territories that have still not been recognised as having been displaced by development and have often received no compensation. Criticism of the energy model, especially hydroelectric mega-dams, prompted Censat Agua Viva and other movements resisting dams in Colombia, both to stand up to the power of the large energy corporations, and also reflect on their relationship with energy and create solutions to achieve energy self-sufficiency and autonomy. A group of organisations gradually came together to push for an organisational[130] and capacity-building process focused on energy issues.

The goal was to engage in the energy debate, create alternatives and tackle the climate and socio-environmental crisis. The resulting proposals aimed to establish new relationships with nature, energy and related technologies. The ideas this generated extend far beyond the current capitalist model and are connected to the ancestral practices and traditional knowledge that still exist across Colombia. This process was consolidated by the creation of the School for the Training of Technicians in Community Energies which has helped shape the concept of 'community energies'.

This concept refers to knowledge, practices and transformation processes related to food and the production and consumption of energy. Community energies promote changes to the power relations in the mainstream energy system by redefining the relationship with nature and all forms of life, focusing on local self-sufficiency and autonomy and generating new forms and uses of energy that prevent waste and misuse, as well as decentralising energy generation, and also address the problems of water scarcity and pollution, deforestation, and

loss of biodiversity and soil fertility. They help reduce greenhouse gas emissions (GHGs) and are essential to guaranteeing universal access to energy.

All these proposals are based on local realities, respond to specific needs, and show that socio-ecological transitions are viable and already underway. They are based on social processes that promote autonomy and a decent life and also defend our physical bodies and territories.[131]

The Virtual Exhibition of Community Experiences for a Just Energy Transition

Some examples of community energies are showcased in the Virtual Exhibition of Community Experiences for a Just Energy Transition, referred to earlier. The exhibition highlights and aims to give visibility to alternative energy initiatives and practices developed by social organisations across Latin America and the Caribbean. Box 1 sets out its objectives.

Box 1 Objectives of the Virtual Exhibition

- Give visibility to experiences that have succeeded in resisting and responding to local energy challenges, while promoting energy autonomy.
- Promote collaboration and social networking among communities by exchanging knowledge and experiences.
- Make practical and real contributions to creating options for a just energy transition at the local level and encourage communities to adopt local alternatives.
- Foster the debate on the energy transition from an environmental justice perspective.
- Provide content that can be used by people working in various fields (researchers, decision-makers and community members) in their advocacy, training or communication initiatives.

By the end of 2023, the exhibition had recognised **119** experiences as energy autonomy alternatives, involving **21,083** families and **122,226** beneficiaries. The exhibition recognises a wide range of initiatives on the self-management of community energy that use technologies such as biodigesters, bicycle-powered machines, Pelton wheels and solar panels; and highlights experiences that link energy and water justice and food sovereignty (for instance peasant markets, agroecology, plant nurseries and family and community gardens). The exhibition also showcases experiences related to the reuse of organic and inorganic waste for energy and food production, as well as the production of arts and crafts. In addition, there are proposals on eco-neighbourhoods, self-management of health care by transforming medicinal plants into care products, the recovery and preservation of seeds and traditional dishes and rainwater harvesting among others.

The challenges of community energies

While working with the community energies, both at the School for Technical Training and in the Virtual Exhibition, we have identified common challenges, one of which is the underestimation of their potential. It is often argued that it is impossible to sustain a country's entire energy grid solely on the basis of community energies, a claim that raises several issues.

First, the energy transition is not only about changing the energy grid by using alternative technologies, but entails the more fundamental issue of our concept of energy. What purposes does it serve? And for whom should it be produced? By shifting the focus on the energy transition we may be better able to understand other crucial aspects, such as the need for a cultural change whereby energy is no longer treated as a commodity, but as a right and a common good that sustains the fabric of life, its care and what many peoples and communities defend as '*buen vivir*' (living well), '*Sumak Kawsay*' or '*vivir sabroso*' (living joyfully). This is a discussion that needs to be situated in the local context of each territory and community.

Turning to Guatemala, the Community light in the Zona Reina in defence of the territory is a project in which several Mayan communities in the department of Quiché promote energy autonomy through the use of community turbines. These turbines emerged in communities displaced during the armed conflict from the late 1950s and particularly in the 1980s. The first initiative faced many difficulties, as they defied the corporate hydroelectric model that dispossesses communities of their lands and natural assets. However, the idea of community-run electricity spread to other communities and, with the support of the Madreselva Ecological Collective, more than 60 have adopted this initiative. The turbines generate considerable benefits for the local community and the fees managed by local authorities are affordable. They have also implemented community-based forest protection programmes and agroecological farming practices. Young trainees maintain the infrastructure, and the Collective continues to support projects and promote autonomy and a dignified life even in the face of extractivist models.

This brings us to a key issue: the question of scale. Extractivism and geopolitics have led to the belief that unless a given technology covers the entire system, it is useless. Therein lies a major trap that hinders people's ability to deal with their own problems, taking account of local specificities and needs. Community energies challenge this view precisely because they are locally based but are not necessarily confined to that location in isolation, but take different forms in different regions and coordinate their efforts and capacities with other experiences – being community-based does not necessarily mean being isolated.

Another example is the use of biomass to generate energy. A major source of conflicts in rural and urban areas concerns the management of organic waste. In many cities, rubbish dumps or landfills are full, and some have even collapsed, with serious impacts for those living in the surrounding area. The proposal to use waste to produce energy and fertilisers is a response not only to this problem, but also to deforestation, which is the main cause of GHG emissions in most Latin American countries, including Colombia. The Colombian Network of Biomass Energy (RedBioCol), also a member of the Biolac Network, uses waste in biodigesters to reduce pressure on forests and jungles, generate energy, and reduce the costs of energy supply and fertilisers. It thus defies the energy and agri-food system that makes families dependent on expensive energy inputs and costs. The generation of gas from waste has strengthened local

economies by adding value to their products and strengthening their energy autonomy. Often considered suitable only for rural areas, this technology has also been used in urban settings, such as universities, public institutions and even residential complexes.

Therefore, while fostering communities' autonomy we should not conceive them as entities that are not open to dialogue with other experiences and even the public sector and the state, provided that the latter are receptive to the demands and needs of community energies, respect their autonomy and their own organisational structures. It is crucial that institutions recognise the nature of community energies and include them in developing public policies related to the food, energy and water systems. This should be done within a participatory land-use planning framework that acknowledges and incorporates the proposals that are already operational at the local level – which would require them to truly guarantee the right to participate in accordance with the needs and characteristics of local realities.

There should also be public funding for research on community energies, and a willingness to provide incentives, financing and support for such proposals as well as supporting the educational initiatives being developed at the local or regional level, and to promote broader public discussion on this issue. These educational initiatives should seek to strengthen experiences and local technical expertise to consolidate communities' autonomy in implementing and maintaining the technologies. Moreover, communities should be supported to sell their surplus local energy to the main electricity grid and to their neighbours, without having to register as a public service company. It is also important to promote and support the development of community micro-grids.

In relation to scale, it is also important to highlight the experience of *Adjuntas Pueblo Solar*, led by Casa Pueblo. Faced with the devastation caused by Hurricane Maria in Puerto Rico, which left the population without electricity for several months, Casa Pueblo decided to launch what it called the 'energy insurrection' by implementing a process of converting the municipality of Adjuntas, a town with a population of 18,000 in a mountainous region of Puerto Rico, to solar power. Initially a movement to resist a mining project, this experience evolved into a process that gradually incorporated the debate on energy as a key to achieving energy autonomy and democracy. Adjuntas Pueblo Solar has installed hundreds of solar panels and started building their own micro-grids to generate their own energy autonomously, locally and in a decentralised way. Their approach prioritises the provision of basic services and the most vulnerable households, including those with medical needs who require constant technological assistance. Thanks to this initiative, they could now potentially become independent of the electricity grid in Puerto Rico, which is controlled by a corporate monopoly that is not only unresponsive in times of adversity but actually increases inequality. This experience exemplifies the potential of community energies to operate on a broad scale while putting autonomy and solidarity first.

Another common challenge that community energies face is related to the installation and maintenance of technologies and equipment due to the constraints imposed by technoscience and limited access to this knowledge. Technology plays a fundamental role in the energy industry, and powerful energy corporations have used it strategically to consolidate their dominance and create dependency on them. Their massive investments in infrastructure and technological

development have enabled them to gain control over the generation, distribution and access to energy in most parts of the world. They have focused on conventional technologies, such as fossil fuel power plants and centralised distribution networks, which require large investments; once in place, they impede the entry of smaller, sustainable, community-based competitors. Moreover, they have promoted metering and data-management systems that supposedly improve energy efficiency but have also been used to maintain control and limit the choice of cleaner and decentralised energy sources of (pro)consumers. The result is the sustained reliance on highly polluting and expensive energy sources, thus perpetuating the influence of these major energy corporations, at the expense of more sustainable and decentralised alternatives.

Peoples and communities have always seen technology as an obstacle to being able to implement their projects. In response to this problem, the *School for the Training of Technicians in Community Energies* was set up to allow various grassroots community organisations to share experiences and conduct training aimed at improving the promotion and sustainability of technologies in communities that defend their territories and help improve production processes and the quality of life. At the school, communities have developed knowledge and exchanges on solar drying, efficient stoves, solar energy and biodigesters, as well as other ways of relating to energy, technologies and a local community. Juan Pablo Soler recalls the construction of the school:

> In 2013, we began to create a methodological training process, which we have been redefining over time based on the things that learning by doing tells us we need to change – in other words, a methodology that is constantly being updated, that started as an exchange of experiences and now, has become a space, a training school. [...] To build a school based on practice, and we began to incorporate some principles, ones based on, for example, "Learning by Doing". In the case of alternative energies, we didn't wait for someone from outside to come and install the technology in the territory because that would make us dependent on them. So, we started developing knowledge transfer educational systems to put an end to our dependence. The local residents are the ones who set up and operate the systems.[132]

Other challenges for community energies include access to and the cost of certain materials, centralised power generation, limited knowledge dissemination, the lack of political will, government support and policies that foster and strengthen energy autonomy and decentralisation, the privatisation of services and common goods such as water and energy, the impacts of the climate crisis, political violence and the criminalisation of the work of social organisations, the lack of focus on radical change in some approaches to the energy transition and the post-growth debates.

Thus, many of the challenges facing community energies are rooted in the differences in the way we conceive energy, how it is produced, for whom and for what purpose. Despite this, community energies have succeeded in overcoming some of these obstacles, usually through forms of *mingas* or *mano compartida* (community work*)*, *convites* (community meetings*)* and other traditional local practices that help them break down economic barriers. Community revolving funds have also been used to make loans individual projects, as in the case of

the indigenous communities of Tolima, with the support of Grupo Semillas (Seeds Group). Occasionally they have also received small amounts of external funding to help develop a local-level project. Finally, local governments have also supported community projects, as in the case of Lebrija in Santander, where moved by the experience of the School for Technical Training, the mayor decided to fund the construction of hundreds of stoves, with the help of community technicians.

These experiences demonstrate that community management of energy is viable and that communities can achieve energy autonomy, create concrete proposals for moving away from fossil fuel-based energy, while developing technological and methodological innovations in the process, and diversify their energy sources. They also illustrate that women can actively participate in building and sustaining this kind of experience. They provide examples of the creation and intergenerational transmission of knowledge, improvements to the quality of life and show that communities can re-assert their own ways of conceiving of and living in the world. In short, these proposals bring together knowledge and practices that create and propose more just and sustainable worlds based on autonomy and dignity. They involve a broader understanding of energy and our relationship to it and cultural exchanges that lead to a more conscious use of energy and our common goods, thus contributing to a more comprehensive understanding and lived experiences of socioecological transitions.

In terms of their comprehensiveness, several proposals related to community energies have adopted multidimensional approaches that combine different energy sources, organisational or community processes, and their own contextual knowledge. Here, we would highlight the experience of *The Baskets of technologies and practices: a proposal for energy and food sovereignty of Lo Bueno del Monte,* led by the UTA Foundation and the Tosoly Farm 'Lo Bueno del Monte' in Santander in Colombia. This initiative works to revive traditional farming practices for producing rice and wheat to reinforce food sovereignty based on an agroecological approach. To achieve this, they created the 'Sustainable Lifestyle Schools', where they explored and proposed the concept of 'community baskets of technologies and practices'. To create these baskets, communities have to present detailed proposals based on their specific reality and plans, which include information on the equipment and knowledge required for agricultural production (e.g. production of biofertilisers, rainwater harvesting, family gardens), self-management of energy (e.g. biodigesters, solar dryers, and bicycle-powered machines, among others), and the exchange of knowledge and collective work in rural communities.

Comprehensive community energy proposals recognise and integrate multiple energy flows ranging from the sun, food and human energy to various production processes. These proposals are designed to respond to various community needs. They regard relationships as ongoing, mutual exchanges among different elements of nature, rather than simply market transactions. In the case of the UTA and the Finca Tosoly 'Lo Bueno del Monte' initiative, they have managed to help several rural families coordinate to develop energy and food sovereignty, thereby strengthening their production activities. There are also many experiences that integrate a variety of practices, knowledge and technical tools designed to address the needs and priorities of their own specific contexts.

Women challenging the centralised patriarchal energy model

Women play a crucial role in developing and sustaining these initiatives and contribute to projects whose main objective is to build a dignified life, ensure their permanence in the territories and promote 'good living' for their families and communities. Often, without thinking of themselves as feminists, the women engage in anti-patriarchal, anti-capitalist and anti-extractivist practices and promote an alternative cosmovision. They focus on eco-dependence and interdependence, the fight against the commodification of water, land and energy and the defence of territorial autonomy. The prevailing discourse on energy and the transition tends to be male-dominated and linked to corporate interests, and therefore excludes other relevant voices and perspectives. However, we believe that concentrating on proposals that explore other ways of relating to energy creates a space for diverse voices from the community, the territory, women, youth, and children, among others.

Some of these projects have helped facilitate women's daily chores related to care work and the social reproduction of life. The experience of the *Mujeres de Roble Greenhouse: Solar energy for planting medicinal plants and just transitions* led by a group of Afro-descendant women in the Valle del Cauca is a noteworthy example. These women installed cisterns and a rainwater-harvesting system, meaning that they no longer need to travel long distances to fetch water like they used to. Furthermore, the greenhouse is now equipped with solar panels that enable them to harvest solar energy for various activities. They can listen to the radio and continue working in the greenhouse after sunset, allowing them to spend more time with their co-workers. The greenhouse has also become a source of income, as it is where they grow and transform medicinal plants into health products, which both contributes to their economic autonomy, and also strengthens their community role in recuperating ancestral knowledge.

Another example along these lines are efficient stoves, 'which consume less wood, thus helping to reduce deforestation. In addition, 'wood gardens' are promoted to produce the necessary fuel so that women and children no longer have to go out to gather large amounts of firewood. The stoves also improve women's health and reduce the respiratory problems caused by traditional wood stoves. The *Efficient wood-burning stoves and wood gardens for community-based forest conservation and good living* is a concrete example of this.

Final thoughts

To meet the urgent need to transform the energy system in the context of socio-ecological transitions calls for a profound sociocultural transformation of the existing approach to production, management, ownership and consumption. This involves reconfiguring the hegemonic energy model, marked by the concentration of large private corporations that control the generation and distribution of energy. We must move towards an alternative approach that grants local initiatives a central role, democratises energy production and generation and promotes these proposals based on a cross-sectoral approach, which is driven by organisations, communities, cooperatives and other forms of community organisation.

More specifically, institutions should offer tax incentives and financing to strengthen, develop and implement this kind of experience, alongside a favourable regulatory framework that recognises and promotes such initiatives. In addition, access to the public power grid should

facilitate the integration of power generated at the community level, establish mechanisms for fair payment of surplus energy contributed to the grid and permit its commercialisation among neighbours. Furthermore, it is essential to ensure the participation and involvement of these experiences in decision-making processes for the energy system, as well as the defence and vision of the territory – one that regards food, energy and water not as separate, and develops more integrated views, pathways and policies. Other aspects that need further exploration include the promotion and national development of technologies and materials that reduce dependency and the costs of inputs.

These questions lead us to the need to raise the visibility and strengthen community energies so that they can increasingly form a network and an alternative system that promotes care and the reproduction of life through the energy, food and water sovereignty of each region. Community energies need guarantees for their proposals. They also require more visibility and to be recognised and respected, highlighting their community and autonomous nature as a core factor. There is also a need to establish an equitable relationship between them and the national and international energy system, which transforms the power relations imposed by big energy corporations, which implies recognising them as essential actors rather than seeking to co-opt or force them to adopt formal structures as companies or other entities. These need to be supported, among other measures, by financial incentives, training and capacity-building programmes for local developers, support to reduce national industries' dependence on foreign technology, and local technical assistance programmes.

The just energy transition will progress the more we take control of energy, how it is produced and how we choose to use it.

Strengthening community energies means putting the reproduction of life in the centre!

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Socialising Energy

Lessons from radical housing campaigns in Germany

Communia Collective

In September 2021, 59.1% of Berliners voted in favour of expropriating and socialising large housing companies within the city-state of Berlin. This marked the first time in 40 years that a social movement in Germany had successfully rallied for public and democratic ownership on such a grand scale. But the movement achieved more than just a referendum victory. 'Expropriate Deutsche Wohnen & Co.' reintroduced the topic of ownership into mainstream politics, garnering international attention.

Even more crucially, the campaign resurrected the concept of socialisation – a long-forgotten rallying cry of the labour movement – as a feasible political demand in Germany. This has implications that extend beyond the struggle for affordable housing in Berlin. Socialisation, both as a demand and a tangible movement practice, could be applied to other areas of the economy, particularly the energy sector. Given the escalating climate crisis, socialisation campaigns are not only desperately needed, but also increasingly realistic.

The idea of socialisation for a fair and swift energy transition meets an energy sector currently undergoing intense transformation. The path of this transformation is hotly contested. At a simplified level, the ruling bloc can be seen as a battlefield between a historically entrenched, conservative fossil-capitalist project and the emerging green-capitalist hegemony. While certain elements in the old fossil-neoliberal hegemony, such as individual capital factions in the energy industry, together with conservative and reactionary parties, strive to uphold their business models against current climate policies, a diverse group of political actors is aligning within a green-capitalist hegemonic project.

This includes some environmental associations and think tanks as well as green and, to some extent, social democratic parties but also business associations and segments of the capitalist class like the German automotive industry or the hydrogen economy.[133] The project is centred on mobilising private capital through a blend of incentives, subsidies, and industrial policies. However, the breadth as well as the diverging objectives between civil society actors and factions of capital, and the hesitant and incomplete union involvement, bring with it a host of internal contradictions and potential weaknesses. The German federal government, which includes the Greens, Social Democrats, and liberals, encapsulates these internal contradictions within an unstable governing coalition.

Although a green-capitalist hegemony is not yet firmly established, it is very likely to consolidate its position in the coming years. However, this is no cause for celebration – the green-capitalist project is grossly insufficient to address the magnitude of the climate crisis, and it is dysfunctional due to its reliance on transferring the costs of transformation onto most of the population via the market. As a result, it will remain politically unfeasible and unnecessarily prolong the green transition beyond what we can afford.

These discrepancies were particularly highlighted in recent political developments in Germany. An intense debate sparked by a new law, which mandates that from 2025, 65% of heating energy in newly installed systems should be from renewable sources, laid bare the limitations of policies based solely on regulatory changes, market design, and incentive structures.[134]

The response to the Green Party-led Ministry of Economy's initiative to modernise the housing stock was eye-opening. On the one hand, the severe media backlash against the Greens' legislative plans can be attributed to the remaining fossil-capital factions. They exert their influence to thwart plans that could have a negative impact on their profits in the gas sector, which still dominates Germany's heating technology today and divert attention by presenting hydrogen as the solution. On the other hand, the public has valid concerns about policies based on regulatory measures that leave private property and profits unscathed. Tenants, already grappling with a financialised housing market, understand that they will bear the brunt of the costs for modernising the housing stock.

The debates over the proposed transition away from lignite mining in Germany provide another example of the inability of prevalent green-capitalist politics to act in an energy system primarily reliant on private capital. Rather than simply directing a publicly controlled energy company to bring forward the lignite phase-out, the local, green-minority government of North-Rhine-Westphalia had to negotiate dirty deals with the fossil industry for minor concessions. Lignite, the most emission-intensive fossil fuel, is likely to become unprofitable within the next five to ten years. Despite this, the negotiated deal only advanced the phase-out from 2038 to 2030, provided generous compensation payments to energy companies, and allowed the continued exploitation of lignite reserves until 2030.[135] This led to a heated battle over the village of Lützerath, which is threatened with destruction by the plans of the energy giant RWE to expand a 66 km² lignite mine. Climate activists argued that burning the remaining lignite and thus upholding RWE's property rights conflicted with climate justice and the 1.5°C target. The village became a symbolic battleground due to brutal police violence against climate activists occupying it, epitomising the conflict between private corporate interests and the urgent need for a swift energy transformation.

The 2022 energy crisis, triggered by the Russian war of aggression on Ukraine, has once again underscored the limitations of an energy system grounded in private ownership. It has laid bare the problems that marketisation brings with it. The design of the European energy market, which makes energy a tradeable commodity, led to a huge surge in consumer prices, while simultaneously enabling large energy corporations to amass billions in profits. The German government's countermeasures – relief packages and lukewarm energy price subsidies for consumers – mitigated the most severe social disruptions but left corporate profits unscathed. If the energy sector had been publicly owned, prices could have been readily regulated to an acceptable threshold. Once again, the reaction to the crisis showed that private ownership and the appropriation of profits from basic services remain sacrosanct – even for Green Party politicians.

These recent episodes alone demonstrate that the current transformation strategies are not only inequitable and excessively slow-paced, but also dysfunctional and ill-suited to the magnitude of the crisis. The necessary swift and socially just transformation is at odds with private ownership and the marketised energy system. The prevailing approach to the energy transition prioritises a political model that incentivises, subsidises, and regulates market participants, rather than channelling public investment towards establishing publicly owned, democratically operated energy production and supply. In this way, existing property and power relations are stabilised and transferred into a new green-capitalist framework. However,

if market design and ownership structures prevent a solution to the climate crisis, these must become the main site of political struggles.

Socialisation, re-municipalisation and the Berlin expropriation movement

Resistance to privatisation is as old as neoliberalism itself. While numerous successful re-municipalisations and defensive battles have managed to slow down the neoliberal onslaught on public ownership in Germany, the Left continues to find itself on the back foot.[136] However, 26 September 2021 marked a significant turning point when the trajectory of battles against the detrimental effects of private ownership began to shift. The 'Expropriate Deutsche Wohnen & Co.' campaign triumphed in a referendum in the city-state of Berlin, advocating for the expropriation of all private housing corporations owning more than 3,000 flats within the city. Much to the surprise of many observers and participants, a decisive majority of 59.1% of voters supported the resolution proposed by the initiative, which had been spearheading an impressive campaign for three years.

This campaign galvanised several thousand Berliners, transforming them into activists committed to dismantling the stranglehold of colossal, financialised corporations on Berlin's housing market.

The activists met with resounding success and have since tirelessly campaigned to ensure the will of the Berliners is upheld and the referendum is executed. Their struggle persists, as representatives of the real estate and construction sectors are well coordinated. Despite the poor reputation of private real estate among Berlin tenants, it is regarded as an acceptable partner by Berlin's governing Social Democratic Party (SPD). The SPD's aversion to expropriation is so strong that following its re-election in 2023, they opted to form a coalition with the conservatives rather than continuing the progressive alliance with the Greens and, notably, the Left (which support socialisation). The movement remains steadfast in its fight for the implementation of the referendum result, through tenant organisations, demonstrations, and other means.

The Berlin initiative has its legal basis in an article of the German constitution that has remained unused in the 70-year history of the (West-) German state. Article 15 of the German basic law offers the possibility of socialising land, means of production or natural resources irrespective of the will of private owners. While it makes clear that the current owners must be compensated, expert opinion is virtually unanimous that compensation can be below market value. Interestingly it specifies that socialisation means not just the expropriation of assets but also their transfer into the common economy (*Gemeinwirtschaft*). This is generally understood as involving the democratisation of decision-making and orientation towards public welfare rather than private profit.

The campaign built on the growing consensus in German society that neoliberal policies went too far. Following the privatisation drives in Germany from the era of Chancellor Helmut Kohl in the 1980s and 1990s, extending well into the 2000s, a potent countermovement for re-municipalisation has been brewing in Germany for the past 20 years. Between 2005 and 2017, the energy sector alone witnessed 284 re-municipalisations of public infrastructure that had

previously been privatised.[137] This surge was propelled by local citizens' movements. In 2013, a citizens' referendum compelled the city of Hamburg to repurchase all municipal network infrastructure (including water, energy and heating). Rural municipalities re-acquired privatised grids and formed supra-regional municipal associations, and some previously state-owned housing was repurchased in Berlin and other locations. The trend towards re-municipalisation is a promising sign for the revival of public ownership of public services and for the socio-ecological transformation. However, the momentum has faltered in recent years, suggesting that the peak of the re-municipalisation wave may have already passed.[138]

The expropriation struggle in Berlin is based on a very similar political starting point, but goes far beyond re-municipalisation projects. Berlin was hit by a massive wave of privatisation in the 2000s. After a banking scandal involving a state-owned bank, Berlin found itself on the brink of bankruptcy, prompting the local government to enforce a stringent austerity programme. Hundreds of thousands of formerly municipal flats and plots of land were sold at an embarrassingly low price to hedge funds, private companies or pension funds. Following numerous mergers, acquisitions, and overall market consolidation, these flats now belong to a handful of large Europe-wide groups such as Vonovia, Heimstaden, or Adler. In the early 1990s, over 500,000 flats in Berlin were state-owned – by the end of the 2000s, only 250,000 remained.[139]

Berliners are acutely aware that these corporations do little with these flats beyond exploiting them for profit through escalating rents and speculative valuations. Consequently, Berlin is now in the midst of a housing crisis. The city has a high influx of people and a strong demand for housing, a situation that private corporations are exploiting by raising rents exorbitantly and constructing expensive new flats rather than affordable social housing. As the campaign activist Isabella Rogner stated in a 2023 summer hearing in the Berlin parliament: 'When I assess the past two years, my primary observation is that the situation on the Berlin housing market is worse than ever for us tenants. If this trend continues, we will have lost the city that you the Berlin government all claim to defend in a few years. You have the opportunity to save this Berlin, to preserve the homes of millions of people and to shield them from displacement. The instrument for this, socialization, is right before you'.[140]

The expropriation campaign focuses precisely on the obvious failure of the privatisation of housing. Instead of seeking to re-municipalise these flats by buying them back at overheated market rates and hoping that the private owners will be willing to sell, the campaign has taken a big further step. It proposes to expropriate big housing corporations at well below market value and – interestingly – to not return them into state control. The campaign has presented a concept for the administration of the flats to be expropriated, in which the tenants, as well as representatives of civil society, make decisions in council structures, with the state playing only a minor role. Critically reflecting the experiences of state ownership in the 20th century, the initiative presents an imaginative model centred around the radical democratisation of decision-making.[141]

Socialisation as the campaign proposed went far beyond classical models of ownership: expropriation of large companies, compensation below market value and radical democratisation and de-marketisation. These ambitious demands were the campaign's starting point – and

they triumphed. The initiative presented a concept that proved convincing: Berliners have long had good experiences with communal housing or municipal water supply. While far from perfect, there were political and organisational experiences with public ownership of these public service sectors. Coupled with a political programme that adequately tackled the scale of Berlin's housing crisis, there were broad majorities in favour for expropriation. As recently as 2018, when the campaign was launched, such an outcome seemed unthinkable.

In Germany, there is awareness of various forms of state ownership in basic services, even under capitalism: municipal water companies, state schools and municipal housing are part of people's lived experience. However, public ownership is rarely fully democratic and seldom completely rejects the profit motive in favour of focusing on public goals. States or municipalities are just as capable as private owners of pushing for the extraction of profits and underinvestment in critical infrastructure. This is especially true if assets have to be bought back at market rates, thereby constraining the possibilities of public actors. Moreover, state property is always at risk of being privatised once more when budgets are tight. Despite some good experiences with re-municipalisation, which have led to improved quality of supply and cheaper prices, there is no discernible trend towards a wave of public ownership appropriate to the problems of the 21st century – especially not in the energy sector.

The German energy sector and the role of local, small-scale ownership

Re-municipalisation or the establishment of new municipal or cooperative companies alone will not be enough to manage the energy transition quickly and in a socially just manner. There is a need to socialise large corporations to break their market power, direct massive investments into renewable energy generation at scale and to transform the sector overall, together with workers, who have both the organising power and the knowledge necessary for the transition. Much depends on not having to buy back assets at market value and properly democratising energy companies – and this will be possible only within the framework of socialisation.

The current ownership structures and marketisation in the German energy system are a product of the Europe-wide liberalisation of energy systems that have been pushed through since the 1990s in the context of the creation of a single EU internal energy market. In essence, the EU energy deregulation packages since 1996 have fostered a system in which private corporations have been able to seize significant segments of the energy sector, and energy, once considered a 'natural monopoly', has been transformed into a tradable commodity.

Current ownership structures in the German energy system have also been shaped by laws that were negotiated by the Green minority in government in the early 2000s. The promotion of renewable energies has been regulated since 2000 by the Renewable Energy Act, which was basically a mechanism for incentivising the construction of renewable energies through a consumer-paid feed-in tariff.[142] This subsidy mechanism with a guaranteed purchase of green electricity created a secure market environment for private, small-scale investments and was extremely successful as a model for this period. In retrospect, however, this subsidy mechanism helped initiate an expanding de-risking model of green transformation, which has been observed ever more intensively in recent years.[143]

The German energy transition was largely driven by small private actors: energy cooperatives, private individuals with solar panels on their roof, municipal utilities or medium-sized energy companies that invest solely in renewables. The feed-in tariff gave small market players a regulatory framework and economic security that has long secured investments in renewable energies and even led to the German solar industry to be the world market leader for a short time.

From the 2000s, the German 'Energiewende' (energy transition) was a decentralised energy transformation project featuring a diverse range of actors and was consequently lauded and replicated internationally. While small-scale, private ownership clearly often benefits middle-class consumers and does not necessarily support workers and poorer, urban populations, at least there was proper investment in renewables. Up until 2019 cooperatives, individuals and farmers held a share of 40.4% of renewable energy in Germany.[144] This is currently shifting however: the proportion of small-scale citizen energy (*Bürgerenergie*) is slowly but surely declining. Project developers, banks, investment firms, and the four major energy corporations that dominated the fossil market are swiftly moving into renewables. Their share is expected to continue increasing in the years to come, with local, cooperatively owned, and small-scale energy producers set to continue losing their share.[145]

Socialisation for democratic public ownership at scale

Local, small-scale ownership and re-municipalisation must play a role in the energy transition. However, it is evident that a socially and ecologically just energy transition must in addition focus on building large-scale public and democratic models with the long-term aim of a complete decommodification of the sector and provision as a universal public service.

Socialisation as proposed by the Berlin initiative means the large-scale expropriation of privately owned assets and their transfer into democratically governed and publicly owned institutions centred around public goals. Socialisation has demonstrated its viability as a movement strategy, particularly because it politicises the antagonism between large privately owned corporations and the public. In the energy sector this is relevant and necessary especially with regard to large energy production corporations and transmission networks operators.

Energy production in Germany used to be dominated by four big fossil fuel companies.[146] While these companies have long underinvested in renewables they are now moving into the sector and threaten to privatise the future of the energy system. At the same time, these corporations still retain and are partly expanding their fossil assets and thus have a huge interest in maintaining fossil fuel production. Their investment in renewable energies is growing but contingent on future profits. A fast and socially just energy transition will not be possible without the assets as well as the knowledge and skills and labour of workers in the existing fossil sector. Rather than incentivising private actors and effectively subsidising private profits with public money, it would be more efficient to take companies into public ownership and directly finance the transition, especially if the social costs of the transition are taken into account.[147] Socialisation and state financing of substantial investments in renewable capacities through democratically governed and publicly owned energy institutions could create quality, unionised jobs in the renewable sector and manage job losses in industries that

need to be downscaled or phased out, such as lignite-mining or the automotive industry. In contrast, a transition based on private ownership will never be able to provide workers with secure pathways into future sectors. Socialised companies could also efficiently make the necessary investments, since they are not forced to provide a market return to shareholders, thereby reducing capital costs for the transition.

Socialisation not only involves the transfer of ownership but also critically includes democratic governance and a focus on public welfare. Socialised energy corporations would need to be governed by consumer representatives, environmental associations, and workers, with the state playing a minor role. At the same time, they would need to be anchored in clear public policy goals such as the provision of affordable energy, renewable investment targets, and knowledge transfer to the global South.

Socialisation presents a solution to similar issues concerning transmission grids. The German long-distance transmission network is currently divided among four private companies, funded through grid fees paid by consumers. These fees are determined by a state agency and include a significant return on equity. Consequently, shareholders of these companies receive a guaranteed profit, underwritten by consumers. At the same time there is a lack of investment, which creates regional imbalances and hampers the expansion of renewables. Instead of this, the long-distance transmission grid should be governed democratically at the national level. Governance of transmission networks should follow clear public and democratically set goals such as a needs-based expansion of renewable energy and be governed by workers and elected representatives.

The socialisation of big energy corporations and network operators needs to be complemented with public democratic ownership at the local level. Local and decentralised renewable production could be partially driven by energy cooperatives. In cities, elected energy councils could develop decarbonisation and energy-reduction plans to be implemented by democratised municipal utility providers. Public regional utilities could link local decarbonisation plans with the supra-regionally coordinated expansion of renewable energies and storage capacities.

A democratic energy transition in a socialised energy sector is thus underpinned by diverse models of democratic public ownership. The complexity of the energy system, with varying functions such as transmission, distribution, and production operating at different scales, calls for a multitude of democratic governance mechanisms and institutions.

Therefore, a socialised energy sector should be understood as an integrated, multi-tiered system featuring a wide variety of public and democratic ownership models that mutually reinforce and enhance each other.[148] This isn't just about ownership –it's about governance, participation, and accountability. It is also about creating structures where decision-making is shared and the benefits are distributed more equitably. This includes the socialisation of large energy companies and transmission operators, re-municipalisation of local grids and energy production as well as the support and promotion of small-scale local and cooperative ownership. It is about ensuring that the people who are affected by energy policies have a say in shaping those policies. Such an energy system has the potential to bring about the requisite energy transformation in a manner that is not only quicker and more efficient, but also more

equitable. It's about crafting an energy future that prioritises the welfare of the public and the planet, ensuring that energy is accessible, affordable, and sustainable for all.

Socialisation as the core of an emancipatory alternative to green capitalism

This brief sketch of democratic energy transformation based on socialisation would obviously contrast immensely with currently dominant policy approaches. We propose that socialisation can be the core of an emancipatory project, which counters the current capitalist capture of the energy transformation. The transformation towards a state-led green capitalism is by no means a firmly established hegemonic project and there remain significant contradictions that provide opportunities for a new wave of struggles surrounding public ownership.

An emancipatory counter-project to green capitalism is still inadequately defined and organised, let alone sufficiently prepared to strategically generate counterbalancing power in the long term. The challenge of establishing such a hegemonic project is twofold. On the one hand, there is an ongoing need to resist the delays in the energy transition that the reactionary-fossilist faction is advocating (and, in part, to form necessary alliances with actors of the green-capitalist project). On the other hand, there is a need to articulate an inspiring and action-inspiring critique of the emerging green-capitalist project.

Even if this emancipatory alternative project is not yet fully established, there is currently fertile ground for new alliances. Pioneering projects such as the cooperation between Fridays for Future youth movement and the service sector union Ver.di for joint industrial action in the public transport sector give hope for a new phase of struggles in the mobility sector. In 2024, climate activists and trade unionists will once again unite, rallying for improved wages and increased investment in public transport. The turn of parts of the climate movement towards trade unions, as well as the corresponding climate turn in parts of the trade unions, could form the basis for further alliances. Already, the fractures and internal contradictions of green capitalism offer entry points to separate individual actors such as trade unions and, to some extent environmental associations from the green-capitalist project and win them over for Left–Green alliances.

Any successful political project requires a popular core that can provide an anchor for alliances. We are convinced that a radical public ownership agenda based on the socialisation of the energy transformation can form this popular core. Although an emancipatory political project will not achieve hegemony in the short term, there is a growing emphasis on building power around public ownership and socialisation. In the Rhineland, parts of the German climate movement are drawing inspiration from the successful Berlin expropriation initiative. The campaign 'Expropriate RWE & Co.' aims to socialise private energy infrastructure in the federal state of North Rhine-Westphalia, challenging the two major energy corporations RWE and E.ON. They propose to transfer them into a public and democratic structure to drive the local energy transition. The initiative is working on legal possibilities for expropriation, as well as concepts for a democratised energy system, thereby doing pioneering work for a socialised energy sector. Other parts of the climate movement are also starting to develop strategies on socialisation in the context of the climate crisis (in the energy sector and beyond) and aim

to spell out concrete campaign ideas at a strategy conference in early 2024.

The socialisation of energy transformation could present a unifying core for emancipatory politics, because it offers concrete improvements in people's livelihoods by lowering and shifting transition costs, while providing a course of action that is commensurate with the scale of the climate crisis. Socialisation can and has been a successful and convincing campaign goal, as it allows the majority of the population so share in the gains of transformation, such as through cheaper electricity and energy prices (and in the long-term provision as a universal basic service). It thus offers an optimistic outlook to those currently suffering under neoliberal capitalism, demonstrating that even in the midst the climate crisis, substantial improvements in individual material living conditions can be achieved through collective solutions rather than individual market-based ones.

Socialising energy corporations and transforming them together with workers in the sector, who provide both the knowledge and the power resources to do so, is necessary and possible. While there have been local and regional struggles surrounding re-municipalisation there is a lack of movement experience in fighting for and shaping public ownership at a level that responds to the climate crisis. With a socialisation agenda we can mould concepts of broad public ownership into concrete and achievable movement goals.

Socialisation, potentially through referenda, allows strategic entry into state-level terrain and power without necessarily assuming a political party form, thus laying the groundwork for alliances of diverse actors. Given the legal foundation for socialisation in Article 15 of the German Basic Law and the initial practical experiences gained through the Berlin expropriation movement, there is a unique opportunity to develop movement practice around establishing forms of democratic public ownership. This is crucial for social movements, which require not only well-articulated demands but also experiential spaces and practical forms.

In 2018, no one in Berlin thought that the expropriation of housing corporations would have the faintest chance of generating a public majority but today socialisation is a very real possibility and an unavoidable proposal in political discussions around the housing crisis. Social change can sometimes progress more rapidly than anticipated. If a similar dynamic can be generated in the energy sector, there might still be hope.

AUTHORS

communia is a young think tank committed to developing and implementing strategies for a democratic economy. Our work centres on supporting social movements that advocate for socialisation and exploring alternative models of public and democratic ownership. We strive to advance progressive economic thinking and action through policy shaping, rigorous research, and the development of compelling narratives that call for an economy that serves the many. This essay was written by Lemon Banhierl, Justus Henze and Max Wilken, communia's team working on energy socialisation.

Dual Power

Building a movement for the abolition of fossil capital and the construction of public renewables

Ashley Dawson

Members of the Public Power campaign got the news the day after May Day: the New York State legislature had passed the Build Public Renewables Act (BPRA). Across the sprawling state of New York, members of our movement gathered to celebrate our hard-fought victory. We knew that this win had implications extending far beyond New York. After a four-year-long fight, in May 2023 the Public Power NY campaign won passage of a major Green New Deal policy. The BPRA empowers and directs the state's public power provider – the New York Power Authority (NYPA) – to plan, build, and operate renewable energy projects across the state. Unlike efforts in other states, the BPRA breaks with decades of neoliberal orthodoxy by putting a publicly owned authority in charge of the energy transition. Our campaign was, in other words, able to seize the power of the state to fight fossil capital.

The Public Power NY (PPNY) campaign offers some useful lessons for energy democracy movements in other parts of the US and beyond. By organising around a rapid, democratically controlled, and just establishment of clean power, our campaign avoids some of the pitfalls of the current 'transition' to renewable energy. As the Transnational Institute's *Energy Transition Mythbusters* report shows, the common refrain in the mainstream media that private investors and liberalised markets have catalysed a clean energy revolution is simply incorrect: fossil fuels still account for 82% of total primary energy consumption worldwide.[149] Worse still, the global consumption of coal, gas, and oil continues to increase. What we are seeing, in other words, is *energy expansion* rather than energy transition.[150] Indeed, despite the Biden administration's Inflation Reduction Act, which gives a USD 400 billion boost to renewables, domestic oil production in the US will hit an all-time high in 2023. Crude oil exports have gone up almost 850% since an export ban was lifted in 2015.

This situation means that the movement to abolish fossil capital must have two complementary and connected dimensions. One is increasingly focused on shutting down fossil infrastructure. The other must be dedicated to the rapid establishment of renewables. As the climate movement fights for ending the reliance on fossil fuels and turns towards diverse tactics to achieve this goal, it is imperative for the movement to understand that these dimensions are interdependent and cannot be achieved in isolation. Building renewables without shutting down fossil fuels is planetary suicide, but elected leaders will refuse to end the reliance on fossil fuels until and unless there are significant low-carbon energy sources. Consequently, the movement for abolishing the use of fossil fuels should be seen as a campaign for what I term dual power. I use this term in a manner slightly different from its traditional connotation in radical circles, where it tends to refer to the formation of a series of counter-institutions such as workers' councils that, once consolidated, challenge and ultimately overthrow the bourgeois state. As I explain in detail below, dual power here refers to a strategy that links efforts to build publicly controlled renewables with a fight to abolish fossil capital.

Towards the Abolition of Fossil Capital

There has been a pronounced shift in the climate movement since the waning of the COVID-19 pandemic. Increasingly, the movement is focused on the abolition of fossil capital. When 75,000 people marched in New York City before the United Nations' Climate Ambition Summit in September 2023, a banner reading 'Biden: End Fossil Fuels' hung on the speakers' podium at the culmination of the march. The runaway success of Andreas Malm's book *How to Blow Up a Pipeline* – which was adapted into a feature film in 2022 – exemplifies and has helped intensify this turn in the climate movement towards a more radical and even insurrectionary confrontation with fossil capital.[151]

With this strategic shift has come increasing critical scrutiny of mass non-violent protests like those orchestrated by Extinction Rebellion (XR). XR's animating conviction that the movement just needs to get 3.5% of society out onto the streets to produce serious political change has not curtailed the political power of fossil capital and the abundant capacity of liberal democratic capitalist societies to defuse and resist popular protest. In place of such efforts to intervene in society by drawing media attention through mass demonstrations and arrests in front of big banks, oil company headquarters, and newspaper offices, there has been an upsurge of interest in militant strategies to shut down pipelines, refineries, and other forms of fossil fuel infrastructure.

But the strategy of fossil sabotage faces daunting obstacles. First, there's the problem of repression. Protest has become very difficult in the world's leading petrostates. For instance, in the US, the state has heavily persecuted direction action-based environmental movements (as well as other movements like Black Lives Matter (BLM)) over the last 30 years. The labelling of the Earth Liberation Front as an eco-terrorist group and their hunting down by the FBI in the 1990s and early 2000s exemplifies a history of criminalisation that is a serious dampener to acts of fossil sabotage. The resulting huge imbalance of power between small bands of fossil saboteurs and the vast US coercive apparatus made effective action virtually impossible. And it's not just this history of repression that may dissuade acts of sabotage today. More than a dozen states across the US have passed laws criminalizing fossil fuel protests, and the federal government has ramped up its own tactics of surveilling and penalising protesters.[152] The racketeering charges filed by the state of Georgia against protesters in the Defend the Atlanta Forest movement are an indication of the extreme measures authorities are willing to take against anyone who questions or interrupts fossil capital in the US.[153]

In addition, even if one pipeline is blown up, oil companies can always build another or just put the oil on trains. After all, one of the chief characteristics of oil is its fluidity, which makes it easy to move around to avoid efforts to establish choke points in supplies and strike fossil capital.[154] The oiliness of petroleum was, in fact, an important reason for its historic rise to energetic pre-eminence. Fossil saboteurs would have to be numerous and geographically dispersed to be able to shut down the many different routes through which oil can flow to market in a country like the US. There have certainly been some heroic acts by so-called valve turners such as the 'Four Necessity Valve Turners', who were arrested in 2019 while attempting to shut down the Enbridge Line 4 pipeline in Minnesota. But the ranks of valve turners are nowhere near enough to seriously diminish the flow of fossil fuels. Fear of extended jail sentences no doubt has a lot to do with this.

The 'necessity' defence mobilised by the Minnesota valve turners suggests a possible strategy to develop and, equally importantly, also popularised fossil sabotage. At their trial, the group argued that their actions were necessary and legally justified in response to the threat of catastrophic climate change. This hinged on convincing the presiding judge 'to allow the jury to consider the "necessity"' defence. He might not have done so. Indeed, given the overwhelming number of conservative judges appointed in recent years by the fossil-aligned Right, it seems foolhardy to count on widespread judicial acceptance of this defence.

Like the divestment movement and other efforts to mobilise increasing numbers of people against fossil capital, this strategy must confront a basic problem: fossil fuels remain quite popular. I'm not just talking about Harley Davidson riders, NASCAR racing enthusiasts, and pipeline workers. Fossil fuels are critical to the economic wellbeing of many – even most – people in the main capitalist nations. As Andreas Malm has argued, fossil capital reorganised working-class lives, concentrating energy and labour in cities and thereby maximising its control over them.[155] Nowhere is the 'mute compulsion' that capital exercises over workers more evident than in the almost universal dependence on fossil fuels, which are currently the source not just of jobs but also of most light, heat, food and clothing.[156]

The resulting political impasse is manifest in the direct correlation between the cost of fossil fuels and the price of other commodities. In the US's recent bout of inflation, for example, 40% of price increases across the economy were a result of higher oil and gas prices.[157] This is not an aberration: according to economist Mark Zandi, every recession since World War II has been preceded by a jump in oil prices. This of course suggests that it would be a great idea to transition away from fossil capitalism, not simply because of the damage fossil fuels cause to frontline communities in places like Louisiana's 'Cancer Alley' – the 85-mile stretch of land along the Mississippi River that is home to haver 200 petrochemical plants and refineries. Abolishing fossil fuels will also ultimately end the scourge of 'fossilflation'. But that's in the long term. In the short term, if supplies of fossil fuels decrease, inflation goes up and petrol and food become more expensive. When this happens, ordinary people suffer – and often vote out the politicians they regard as responsible for their suffering.

The refusal of political elites to challenge fossil capital head-on is not, in other words, simply a result of political corruption – although that is undoubtedly a factor. Few politicians are willing to take the chance of provoking inflation and populist backlash by curbing the supply of fossil fuels. The Yellow Vest protests in France are an example of this dynamic. And, in the US at least, the idea of imposing higher taxes on oil firms and the wealthy to cross-subsidise everyone else is a political non-starter. This explains Biden's rather desperate exhortations to oil refineries to ramp up supply when inflation surged in 2022.[158] It also helps explain why both he and former president Obama pursued an 'all of the above' energy strategy. Obama's Recovery Act of 2009 set aside of $90 billion in federal tax credits was intended to help boost renewable energy projects.[159] This arrangement, known as 'tax equity', has rightly been criticised since it allows a handful of big banks, which provide cash to private renewable energy developers in exchange for tax credits, to decide which projects get built and, in many cases, to stall renewables development altogether.[160] Biden's IRA continues this corrupt arrangement, although it also allows finance to flow to public authorities like NYPA – a fact that was key in the campaign to pass the BPRA in New York. Yet in tandem with such policies supporting renewables, the

Obama administration nearly doubled subsidies for oil and gas exploration, despite a 2009 promise to phase these out.[161] Biden's support for the expansion of both renewables and fossil fuels is of a piece with these earlier seemingly contradictory policies. As a result, the US is on track to be the world's single largest expander of oil and gas extraction between now and 2050, single-handedly representing more than a third of planned global expansion.[162]

The only way out of this political impasse, which is locking the planet ever-deeper into climate chaos, is to intensify and diversify efforts to dismantle fossil infrastructure, coupled with a massively accelerated expansion of renewable energy. In terms of the former, we need to proliferate not simply the divestment movement but also acts of creative dissidence that target the mega-donor class and their efforts to use cultural institutions to greenwash their reputations. Particularly exemplary of such tactics is the Strike MoMA campaign, which targeted the oil-soaked elites on the board of directors of the Museum of Modern Art (MoMA) through a series of weekly protest and educational events.[163] In tandem with critiquing – and eventually dismantling – the oiligarchy and their cultural hegemony, we need to expand the movement for public power. Contrary to myths about swift energy transition coming through the private sector, free markets, and the inexorably cheaper price of renewables, the only way to win a swift and just energy is through public power. Democratic control of the energy system is consequently essential to the liquidation of fossil capital.

How We Won Public Power in New York

A few years ago, there was much talk of fossil fuel companies investing big in renewable energy. BP's new chief executive announced in 2020, for instance, that the company would cut future fossil fuel production by 40%, and boost its capacity to generate electricity from renewable sources to 50 gigawatts (GW), a 20-fold increase.[164] There is cause for deep scepticism about the durability of these investments, particularly since BP famously rebranded itself Beyond Petroleum in 2001 but then killed its research programs on green energy and locked away the research in a private corporate archive.[165] Its 2020 conversion to renewables was not to last: when BP abandoned its plans to reduce oil and gas output early in 2023, its share prices surged. It's not alone. Overall, oil and gas companies spent less than 5 percent of their production and exploration investments on low-emission energy sources in recent years, according to the International Energy Agency.[166]

But fickleness is not the only reason why the energy transition should not be left in the hands of fossil capital. As Andreas Malm has shown, through combustion of fossil fuels, fossil capital was able to delink energy production from natural sources such as the sun and wind, and consequently to concentrate the working class in urban factories, where they could be squeezed for maximum profit.[167] This strategy and the enormous energy generated by fossil fuels produced unmatched capital accumulation – but it also created unprecedented and catastrophic environmental destruction, including carbon emissions. These oppressive characteristics will not simply dissolve if fossil capital shifts investments to renewable energy. As Tatjana Söding argues, fossil capital is intrinsically committed to exploitation and environmental destruction: 'Since fossil capital, in the dynamics of its original accumulation, firstly created abstract space and time, secondly maximized its control over global labor power in order to enable a high(er) degree of capital accumulation, and thirdly created natural destruction as a

necessary by-product, its switch to renewable energy must not be understood as a relief from these intentional by-products'.[168] Söding suggests that we should not leave energy transition up to fossil fuel companies like BP, given they are grounded in deeply destructive exploitation of workers and the environment, as well as their megalomaniacal orientation created by access to virtually unlimited reserves of fossil energy.

In the early months of our organising, the Public Power campaign discovered that the destructive dynamics that characterise Big Oil are also central to for-profit electricity utilities. PPNY began in late 2019 with a campaign organised by the New York City branch of the Democratic Socialists of America (DSA) against a proposed hike in electricity rates by for-profit utility ConEd. As in other states across the US, the charges consumers pay to utilities for electricity in New York are regulated by the politically appointed bodies called the Public Service Commission (PSC). But although the PSC is supposed to keep rates affordable, researchers with the campaign found that ConEd was already charging the second-highest residential rates in the country. In addition, despite raking in mega-profits, ConEd and gas utilities like National Grid routinely threatened to cut off power to low-income customers.

And it wasn't just that the utility behaved in a patently unjust manner. Public Power researchers discovered that National Grid and other for-profit utilities have a structural incentive to build as much infrastructure as possible to justify their requests for rate hikes. This is because gas utilities receive so-called 'line extension subsidies', money collected from energy consumers to pay for additional gas pipelines. This arrangement essentially means that for-profit utilities force ordinary people to pay them to lock in fossil infrastructure.

The exploitative and environmentally destructive character of this aspect of fossil capital became even clearer when our campaign discovered that ConEd pays USD 1.4 million in annual dues to trade associations like the Edison Electric Institute and the American Gas Association, which lobby to undermine renewable energy, to deregulate the energy market, and to consolidate power for private utilities. This information and our analysis of the structural incentives that lead for-profit utilities to build fossil infrastructure made it plain to the Public Power campaign that a rapid and just energy transition could be won by only a democratically controlled public authority.

The racist character of fossil capital was made clear when New York City was struck with a heat wave during the summer after the campaign against rate hikes kicked off. In the middle of this heat wave, ConEd cut power to working-class communities of colour in the city's outer boroughs in order to protect the power supplies to wealthier communities across the city.[169] Communities in places like East New York tend not only to be poorer but also to have less access to cool green spaces and air conditioning, which contributes to higher heat-related mortality rates. Cutting off their power was a chilling instance of the creation of 'sacrifice zones' in racialised communities. After these incidents, the Public Power campaign canvassed areas that had been hit by power cut-offs and held town hall-style meetings across the city, explaining that the struggle for democratically controlled power was the solution to unaffordable electricity rates and the injustice of cutting off power.

A huge question the Public Power campaign faced was how to build an alternative to the for-profit utilities. After all, corporations like ConEd, which has been around in one form or another since the construction of the modern grid, wield immense economic and political power. Fortunately, in New York State there is an alternative source of power: the New York Power Authority (NYPA). Established during the Depression, NYPA was conceived by then-governor Franklin Delano Roosevelt as a public alternative to the price-gouging private utilities of that era. Although NYPA generates roughly 20% of the state's clean power through its hydropower plants on the Great Lakes, its capacity to build new renewable energy was limited by law prior to the passage of the BPRA. Our research into NYPA convinced us that it could build renewable energy projects cheaper, faster, and more efficiently than the for-profit sector. Unlike for-profit energy firms, for example, NYPA is not bound to generate astronomical returns for investors. In addition, because of its high bond rating, NYPA can borrow money at very low interest to fund projects. This means that it does not have to raise utility rates to build infrastructure, as investor-owned utilities do. Renewable energy development led by NYPA could avoid intensifying the energy poverty that our campaign was initially launched to address.

Organisers with experience of fighting for energy democracy in New York realised that the Public Power campaign needed to work on a state-wide scale to win the legislation we needed to empower NYPA with a mandate to build new renewables. The campaign decided to organise a broad popular movement for Public Power, and also to work with socialists and other allies within the state legislature to push forward the BPRA. We formed the state-wide public power coalition in late 2019, pulling together energy democracy activists, environmental justice groups, and climate organisations like the Sunrise Movement. Early in 2020, we began the collaborative process of investigating how public power legislation could meet diverse needs across the state, and we also started a state-wide series of Energy 101 public events to educate people about the injustice and dismal performance of the for-profit utility system. During the pandemic, our victories showed that Public Power was a force to be reckoned with: we organised successfully for a moratorium on electricity shut-off and for cancellation of utility debt for communities hard-hit by COVID-19.

We fought hard for the BPRA, but saw it languish in legislative committees for two consecutive years. This showed us that we had to keep building public pressure. We organised public protests, including a rally in which we called out legislators taking money from corporate utilities and – not coincidentally – opposing the BPRA. Our electoral campaign organised key legislators, who then helped organise less politically progressive people in the legislature to back the BPRA. We also undertook direct action protest, in which people demanding public power locked down in a human chain across Broadway in downtown Manhattan, just near the offices of key state legislators.

Key to amassing the political power necessary to pass the BPRA was winning over organised labour. While the working class in general stands to benefit from democratic control of the means of energy production, workers are not a homogeneous group in relation to energy transition. Indeed, contrary to Matt Huber's arguments about unified class struggle against the capitalist drivers of the climate crisis, we found that some labour unions initially rejected our appeals to join in the campaign for public power – while others signed on enthusiastically.[170] Early endorsement from my own union, the Professional Staff Congress of the City University

of New York, led to subsequent support from the New York State Teachers Union (NYSUT) and other unions in the service sector such as 1199SEIU. Winning over the unions took additional work, given the scepticism of workers in these sectors about the (largely private) renewable energy industry in the US, which is notoriously anti-union. To address these concerns, we worked with the AFL-CIO to incorporate gold-standard labour language into the BPRA that includes prevailing wage and project labour agreement provisions, a labour transition memorandum of understanding (MoU), and USD 25 million in annual funding for an Office of Just Transition to oversee retraining of workers in the renewable energy field.

The final version of the BPRA that passed in May 2023 included most of the key provisions for which we had long fought. NYPA was, at long last, mandated to build, own, and operate renewable energy projects. Each year, NYPA must conduct a review to determine whether the state is on track to reach 70% renewable power by 2030 and 100% by 2040, according to state mandates. If not, NYPA must step in to build enough energy to make up the difference. The BPRA also requires NYPA to phase it out its fossil fuel power plants – including dirty peaker plants (backup power plants turned on when electricity peaks) located predominantly in communities of colour – by 2030, and to provide and deliver only renewable energy to customers. These peaker plants lie idle most of the time, only coming into service at moments of peak demand – and therefore are grandfathered out of most environmental regulations. Shutting down these polluting peaker plants is a major victory of our campaign. BPRA law also requires NYPA to establish a programme allowing low- and moderate-income electricity customers to receive credits on their monthly utility bills for any renewable energy produced by NYPA. Finally, the BPRA includes all the pro-labour language that the Public Power campaign crafted in collaboration with union allies.

Now that we've won this mandate, we must keep fighting for adequate implementation of he BPRA. The situation is challenging. As a legacy of fossil capital's long history of fighting against energy transition, New York State will have to add 2.5 GW per year for the next eight years to meet climate goals of 70% renewable energy by 2030.[171] To put that in perspective, the state has only added 12.9 GW of energy in general (both fossil and renewable) over the last 20 years, or roughly 0.645 GW per year. This steep increase is just to decarbonise the energy grid. To generate enough energy to power a fleet of electric vehicles and to decarbonise the heating and cooling of buildings and manufacturing, we must roughly triple the current amount of power generation.

Campaigners with Public Power NY were of course highly aware of the need to promote energy efficiency. Expanding energy production – even if it's renewable – is already having many damaging downstream environmental impacts, including, for example, mining in low-income countries such as Bolivia. While the campaign was aware of the consequent need to promote energy efficiency, we did not include such measures in the BPRA both because of the need to keep the legislation focused, and because the state already had trend-setting energy efficiency legislation on the books. New York City's Local Law 97, which passed in 2019, mandates emissions cuts of 40% from the city's largest buildings by 2030, and up to 80% by 2040.[172]

Conducting the rapid, large-scale development of renewable power mandated by the Climate Act of 2019 in a democratic and just fashion will be a massive challenge. Fortunately, the BPRA established a strategic planning process through which NYPA is directed to determine where, when, and how it builds renewable power. Although we did not win all our demands for democratisation of NYPA, this strategic planning process is a site for substantial community input since the authority is required to consult with climate and resiliency experts, labour organisations, residential and small business ratepayer advocates, and environmental justice communities, among others, as it draws up its strategic plans. To ensure that NYPA faithfully carries out this mandate of community engagement, I am currently organising a Public Power Observatory that will monitor the authority's work, document its history, and engage in various forms of creative public outreach concerning the energy transition.

Building a Global Movement for Public Power

The victory of our campaign for Public Power will ultimately mean little if it does not help inspire successful campaigns for energy democracy beyond New York. Only one in ten people in the US get their power from a public authority, and many of these utilities, remnants of the New Deal-era push for universal electrification, are being held hostage by conservative forces with deep investments in fossil fuels.[173] In 2022, renewable energy accounted for only about 13 percent of total primary energy consumption and 21.5 percent of total utility-scale electricity generation in the US.[174] One state's efforts to transition away from fossil fuels, no matter how heroic, will not significantly shift these overall averages. Put another way, you cannot build eco-socialism in one state. The electric grid is spread across the country in three large segments, and the technical requirements of renewable energy dictate further grid integration rather than more local autonomy. And, of course, fossil fuel-caused climate disasters do not stop at state or national boundaries. Only by spreading public power beyond New York State will we win the rapid energy transition necessary to avert climate catastrophe.

Fortunately, the Public Power NY victory is inspiring other movements around the country. Although the Nationalize Grid campaign in Rhode Island, which helped inspire our work in New York, has lost steam, the idea of public power is spreading to other states. In November 2023, Maine held a public referendum on the establishment of a public utility, Pine Tree Power. Maine residents currently get their electricity from Central Maine Power, a for-profit utility owned by the Spanish energy giant Iberdrola, whose primary stockholders include fossil capitalist powers like Qatar and Norway, as well as Blackrock, the massive investment company which has refused to divest the endowments and pension funds it controls from fossil fuels.[175]

The struggle for public power in Maine is not just about its local control, but also hinges on fighting energy poverty, fixing the ailing grid in a state with the most power outages in the nation, and building workers' rights, pay, and benefits. The battle around the Pine Tree Power referendum became a popular plebiscite on the failing system of corporate-controlled, for-profit utilities – a model as old as the modern electrical grid. The corporations that amass outrageous profits off the backs of ratepayers added tremendous political muscle into the fight: front-groups for Central Maine Power like 'Maine Affordable Energy' poured $40 million into the election to hoodwink Maine ratepayers into believing that corporate control of the grid is good for them – despite the fact that existing consumer-owned utilities in the state already have rates over 50 percent lower than those charged by the for-profit utilities.[176] Ultimately this corporate money was successful and the referendum to establish Pine Tree Power was voted down.

What is the future for public power campaigns in Maine and in other parts of the US? Public Power campaigners cannot allow the defeat of the referendum to shut down our work. The campaign brought Public Power campaigners from across the country together to build solidarity and learn from one another's work. This campaign secured an important victory with passage of another referendum item banning foreign government-owned organisations (like Iberdrola and Versant) from spending money on future state referendum elections.[177] This means that when another referendum is held in Maine, the odds will consequently no longer be stacked so high against Public Power.

Other apparent defeats have also nonetheless advanced the fight for public power. In 2011, for instance, the city of Boulder in Colorado initiated a public takeover of its for-profit electric utility, Xcel Energy. After a decade of fierce opposition from Xcel, voters in the city decided to end the process.[178] Yet despite this defeat, the campaign helped the city secure important concessions from Xcel, including commitments to substantial reductions in greenhouse gas emissions (GHGs).

It is also worth remembering that the New York Power Authority was only established after decades of struggle for public power in the US and around the world. Its creation happened alongside other victories, such as the creation of the Tennessee Valley Authority (TVA) in 1933. Current campaigns can draw inspiration from the powerful mass movements that helped win legislators' support for creation of authorities such as NYPA and the TVA.

As we fight for public power across the US, we should remember that this campaign cannot stop at national borders. We need to build a global movement for public power. This means that our work to transform NYPA should not end simply with ensuring the authority generates adequate amounts of renewable energy. We also need to work to establish Public–Public partnerships (PPPs), where a public utility like NYPA can support public power campaigns and authorities in other countries. Developing such PPPs must be one of the future priorities of our campaign.

Fossil capital creates global inequalities by extracting resources from sacrifice zones to benefit elites located far away from the carnage. Winning working-class control of the transition to renewable power in core capitalist nations alone would leave intact a global system of energy imperialism. For instance, as the recent Reclaim and Restore position paper from Trade Unions for Energy Democracy documented, the model of privatising utilities foisted by US- and EU-dominated organisations like the World Bank on less developed regions of the world such as countries across sub-Saharan Africa is an abject failure: after 30 years of pro-market reforms, a growing number of people lack access to electricity in many African countries.[179] In place of the failed model of showering public money on for-profit energy companies, countries across Africa and the rest of the world need what we have fought for in New York: genuinely democratic public power utilities, public financing, and full public ownership of low-carbon energy.

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Facilitating energy flows, containing humans

Authoritarian energy transitions in the Middle East and North Africa (MENA) region

Benjamin Schuetze, Elia El-Khazen, Charlotte Mueller, Philipp Wagner

Contemporary relations between the European Union (EU) and the Middle East and North Africa (MENA) region represent an uneasy coexistence of facilitating flows of energy to Europe while also containing the flow of humans. The impressive size of shiny futuristic-looking solar fields portrayed in the brochures for the latest EU-MENA mega-energy projects obscures how they are part and parcel of the same project of deepening existing inequalities and furthering specific connectivities through authoritarian practices.

Attempts to achieve an energy transition present a rare opportunity to establish a more democratic, inclusive and sovereign (energy) politics, with renewable energy projects portrayed as being about open flows and connections. Yet the reality both in the MENA region and beyond is characterised by an authoritarian configuration. Efforts to transform the distributed character of renewable energies (unlike coal or oil, the sun shines and the wind blows everywhere, albeit with different intensities) into megaprojects that further consolidate power, and efforts to facilitate selective connectivities between Europe and the MENA region dominate the landscape. Similarly, although the flow of energy and high-skilled labour is strongly encouraged, other forms of South-North migration are firmly repressed.

This essay looks at what these authoritarian practices look like in practice, and how different actors from both within and beyond the MENA region are entangled in them.

Our focus on authoritarian practices rather than authoritarian regimes allows us to overcome the tiresome division of countries into democracies vs. autocracies. This division is unfortunately still far too commonly used, and conceals more than it explains, as actors based in formally democratic settings, including western private companies and multilateral development banks (MDBs), are often the key drivers behind authoritarian practices that directly reinforce socio-economic inequalities. Authoritarian power, as we understand it, is not exclusively wielded by authoritarian regimes, nor is it only about overtly violent repression. Rather, we argue that seemingly non-violent technocratic practices also play a central role in its entrenchment.[180] Besides violent coercion, authoritarian practices also include strategies that pre-empt possible dissent and public participation, along with technocratic strategies that depoliticise authoritarian power in the name of 'development' or 'energy transition'.

While the gradual establishment of a Euro-Mediterranean supergrid[181] and the construction of an increasing number of renewable energy megaprojects that connect to it will facilitate a transition away from fossil fuels, they also represent a form of highly concentrated energy politics that leaves little opportunity for broader public participation. As long as renewables remain embedded in processes of capital accumulation, the replacement of energy sources is bound to reproduce the same inequities enabled by carbon regimes. In addition, the privatisation of electricity infrastructure and production plants facilitates the global management of energy and boosts the role of transnational corporations (TNCs) rather than that of local populations.

Focusing mainly on developments in Morocco, Tunisia and Jordan, this essay reveals the authoritarian and transnationally connected nature of energy transition projects in the MENA region.

Concentrating power in the hands of a few

Private companies and multilateral development agencies frequently describe the energy transition as a purely technical process that requires highly specialised expertise in its planning and implementation. The fact that these interventions often lead to unintended socio-economic consequences is mostly ignored. We argue that technocratic practices play a central role in sustaining authoritarian power, as they depoliticise it in the name of 'development', and render violent practices of containment and coercion less visible. In addition, transregionally connected elites, transnational corporations (TNCs), multilateral development banks (MDBs) and international consulting firms directly benefit from and assist in the exclusion of public participation also beyond the field of energy politics.[182]

In Tunisia, renewables currently account for only 3% of total energy production. To enhance the shift towards renewables and to strengthen the state's energy security, the country's energy sector has increasingly been opened up to private investment, and framed as a technocratic and apolitical endeavour that would not require democratic and broader public decision-making. International companies invited to invest in Tunisia promote energy futures that principally revolve around new opportunities for capital accumulation, thereby excluding alternative visions and local ownership of energy production and distribution.

Neoliberal logics were introduced in the Tunisian energy market via the country's debt crisis and reinforced privatisations that have been largely pushed by international financial institutions (IFIs) such as the World Bank. In particular, Law number 2015-12, adopted in 2015, specifies the legal framework for opening the Tunisian electricity market to (international) private investment and electricity exports to counterbalance the public energy company STEG's large public debt. Law number 2019-47, implemented in 2019, introduced power purchase agreements (PPAs) with private companies.

The Tunisian National Agency for Energy Management (ANME) regularly launches calls for tender that attract mainly international investors. For the period from 2023 to 2025, renewable energy projects with a capacity of about 1.7 gigawatts (GW) are planned through private-sector investments. As a result, most renewable energy projects in Tunisia are now owned and largely implemented through transnational European companies, such as Engie SA (France), ABO Wind (Germany), or Scatec ASA (Norway). Most of these companies also invest in renewable energies in other countries in the MENA region such as Morocco or Egypt. The increasing dominance of TNCs impedes initiatives that aim to develop decentralised and community-owned renewable energy projects – such as the Working Group for Energy Democracy – Tunisia[183] – as these are guided by the principle of sufficiency rather than profit, and are therefore not attractive to foreign investment.

New transregional connections in lieu of local ownership

Several attempts to link Tunisia's electricity grid with European countries are currently in development, which will further concentrate the power in the hands of a few powerful elite players. Two projects in particular reveal how transregional elite entanglements underpin these planned megaprojects.

In the first case, the European Bank for Reconstruction and Development (EBRD), the Italian electricity transmission operator TERNA, and the Tunisian public energy company STEG have announced plans to establish the Elmed interconnector between El Haouaria in Tunisia and Partanna in Sicily. The European Commission has defined this 200km electricity transmission line as a 'project of common interest' (PCI), lending it greater attention, political weight and funding possibilities. Feasibility studies have been funded by a large consortium including the World Bank and the European Investment Bank (EIB). This highlights the project's financial significance for these actors and hints at the opportunities for capital accumulation for private companies.

As an additional project for energy interconnectivity, the private-sector-funded project TuNur seeks to establish concentrated solar power technologies (CSP) in the south of Tunisia, using mirrors to concentrate sunlight towards a focal point where turbines produce steam through which electricity is generated. According to one company's video, the ambition is that 'Tunisian sun will light European homes'[184] – alluding to the project's export-oriented character. Indeed, TuNur will not even be connected to the country's electricity grid, but use interconnectors between Tunisia's northern coast and central Italy to establish a one-way flow of electricity to Europe. The company's structure is opaque, as a joint venture between companies based in Malta (Zammit Group), the United Kingdom (Nur Energy), and Tunisia.[185]

The Tunisian authorities have recently updated their own national energy targets to increase the share of renewable energies in the national energy mix from around 3% today to 35% by 2030. Given their export-oriented nature, projects such as TuNur undermine these plans. It is not only European economies that will benefit from the Green[186] electricity produced, but also the (mainly) European banks and companies that reap the profits from constructing and running such megaprojects.

The dynamics in Morocco are very similar. In the second example, the Xlinks Morocco-UK Power Project – if it is ever implemented – will transport 10.5 GW of renewable energy from Morocco to the UK through a 3,800 km undersea power cable, eventually supplying 7.5% of the UK's electricity consumption. The planned solar and wind farms, which will require 1,700 km^2 of land (more than the entire area of London), would meet only the electricity needs of residents in the UK. It is questionable how far the Moroccan population would ever benefit from this project. The alleged creation of 10,000 new jobs[187] has in previous projects proven to be nothing but a pipe dream.[188]

Portraying the TuNur and XLinks projects as 'capturing and connecting the power of nature'[189] and 'opening new green energy corridors between Africa and Europe'[190] obscures the fact that the benefits from the purported 'connection' or 'corridor' go in only one direction. This is evident in the neo-colonial conception of the desert as an empty land, which is being made valuable by becoming an Eldorado of renewable energy[191] for Europe.

The idea of the Saharan desert as a central hub for electricity production has been circulating for some time. According to the former Desertec initiative's 2005 estimate, it would be necessary to equip a surface of 130,000 square kilometres in the Sahara with solar collectors[192] to produce enough energy to meet global demand. While the Desertec project itself failed, TuNur and XLinks can be seen as its successors – albeit under new names.

Trade unions such as Tunisia's General Federation for Electricity and Gas (FGEG) and initiatives like the Tunisian Platform for Alternatives are advocating for a different approach based on local ownership, but their position is undermined by TNCs' opaque and seemingly technocratic projects. This directly affects decision-making processes, in which the views of citizens and social movements are largely excluded. Civil society organisations (CSOs) have denounced their exclusion from the development of Tunisia's Green hydrogen strategy,[193] which is currently drafted by the Ministry of Industry, Mines and Energy, and, according to some estimates, foresees exports of up to 5.5 million tons of Green hydrogen to Europe by 2050.[194] Given the large-scale infrastructure needed to produce and transport Green hydrogen and in view of the outcomes of previous megaprojects in the region, there is a strong likelihood of further infrastructural harm to local populations as well as land conflicts.

Connecting energy grids, containing humans

While renewable energy is expected to flow beneath the Mediterranean, migration between the southern and northern coastlines is increasingly restricted. Indeed, Europe's increasingly violent containment of migrants cannot be separated from the expansion of green energy and the envisaged exports to Europe. The EU–Tunisia migration deal signed in July 2023, for example, openly promotes the Elmed interconnector and growing energy interconnectivity as strengthening both Europe's and Tunisia's 'energy security'.[195] The cooperation between European countries and Tunisian authorities on migration is likely to further boost authoritarian structures in the Tunisian state.[196]

The intersection between energy connectivity and human containment is also illustrated by Italy's positioning. The country's current far-right government is at the forefront of supporting the Tunisian government in preventing migrants from crossing the Mediterranean to reach an EU member state. At the same time, Italy aims to become a 'European energy hub',[197] for instance via strong energy ties with Tunisia. The envisaged energy exchanges between Tunisia and Italy also see the increasing convergence of the ethno-nationalist and populist rhetoric of President Saied, aimed mainly at migrants from sub-Saharan countries, and Giorgia Meloni's neo-fascist politics.

While (visions of) transregional energy flows enable new forms of capital investment and accumulation, human migration is violently repressed. At a geopolitical and geo-economic level, Tunisia's potential turn from being a gas importer to a Green energy exporter could reinforce transregional elite alliances that perpetuate the exclusion of Tunisian (and Italian) citizens and social movements from decision-making. The envisaged connectivity between Tunisia and Europe therefore privileges the economic interests of privatisation and capital flows over migration and demonstrates the links between subaltern movements of both continents.

Concentrating power through privatisation and indebtedness

Current efforts to achieve the energy transition in the MENA region are supported mainly by international donors and development banks. The $9 billion Moroccan Solar Plan (MSP), for example, is mainly financed by MDBs such as the World Bank, the African Development Bank, the European Investment Bank (EIB), the French Development Agency (AFD) and the

German Development Bank KfW. Unsurprisingly, foreign investment in the MSP is in the form of loans. Constant loans feed into Morocco's long-standing debt crisis, which has been used to present neoliberal policies as the logical necessity to counterbalance debt. These policies, which are supposed to lower the debt-to-GDP ratio and to achieve macroeconomic stability[198] include fiscal austerity, privatisation, elimination of subsidies and the liberalisation of the financial market. However, rather than opening these policies up for debate, presenting them as technical and necessary solutions to the ongoing debt crisis often bypasses political participation and thus reinforces authoritarian practices.

Following the 2008 Green Morocco Plan, which has pushed the country's agricultural sector towards the expansion of export-oriented crops and private investment, and the National Initiative for Human Development launched in 2005, which has been criticised for deepening the privatisation of public services, the MSP is only the latest national plan that depends on financing via foreign loans.[199] As a direct consequence, Morocco has recently spent over 10% of its revenues on debt servicing and has even embedded fiscal austerity as a guiding principle in its constitution, leading to reduced government spending on wages and subsidies. This shows that these programmes, despite their aim of boosting economic and 'human' development, as well as expanding Green energy, are inherently linked to the deterioration of social welfare.

This debt-financing has also laid the ground to accumulate further debts since the implementation of the MSP is built on public–private partnerships (PPPs). The Nour solar complex in Ouarzazate was, for instance, planned by the Moroccan Agency for Solar Energy (MASEN), a private company that has operated since its launch in 2016 with an annual deficit of around 80€ million,[200] which is covered by public money. MASEN's mission of 'endless power for progress'[201] thus clearly describes only a certain type of 'progress', namely the ongoing intensification of capital accumulation behind a façade of 'clean' energy production and sustainability. This is also the case in Tunisia, where international financial institutions (IFIs) such as the International Monetary Fund (IMF) have put increasing pressure on the Tunisian government to reduce energy subsidies and to further privatise STEG because of its high level of debt.[202] While the citizens of Morocco and Tunisia bear the brunt of the costs, a few TNCs reap the profits.

The debt-financing of climate-mitigation strategies in the global South reveals that highly industrialised countries still fail to fully acknowledge their role in causing the climate crisis. Rather than paying for the consequences that the carbon-producing industries in the global North have caused to the entire planet and supporting countries in the global South to mitigate and adapt, the current donor system merely deepens pre-existing dependencies, while outsourcing many of the solutions to climate change to the global South.

Although different from a debt-financing scheme, the latest climax of this dynamic has been reached when it was leaked that – in a crass amplification of the neo-colonial dynamics at play in Xlinks or TuNur – Liberia plans to concede 10 percent of its territory to a private Emirati company in form of a carbon offset deal.[203] The acquired pollution rights would enable the United Arab Emirates (UAE) to further delay its domestic energy transition. This highly dubious deal, framed under the guise of 'protecting' the Liberian forest, shows not only how supposedly 'sustainable development' projects and the impacts of carbon markets and more generally market mechanisms in the current energy transition framework are used to justify land-grabbing, but also how an international network of authoritarian elites is forming.

Techno-Optimism as climate solution?

The choice of technology reveals further the uneven power relations and top-down decision-making processes in much of MENA's energy transition. Morocco's renewable energy flagship project, the Nour solar complex in Ouarzazate, mainly relies on Concentrated Solar Power (CSP). While CSP promises greater electricity production than solar panels when they are installed in areas with intense direct sunlight, such as the desert, CSP plants require large amounts of water both for cooling the turbines and for cleaning the mirrors. The dependence of CSP technology on water supplies poses severe threats to the local population living in these arid desert areas, where water scarcity is already a major challenge. Oumaima Jmad, a young feminist researcher, shows how women are disproportionately affected by the paucity of water.[204] Rabha, a woman living close to the solar complex, complains that the power plant never lacks water to convert to steam and then to electricity. Nor is there ever a shortage of water to make the power plant's mirrors and the employees' offices shine with cleanliness. But we do lack water.[205]

The fact that the solar complex in Ouarzazate requires huge amounts of water and is built on previously communal land, which was expropriated, is not mentioned on the KfW German Development Bank website, which explains in very positive terms the technical innovation of the solar complex. In a familiar pattern, the local population has been excluded from both decision-making processes in building the solar complex and the profits it will generate.

Similarly, the visit to Morocco by Germany's Minister of the Interior Nancy Faeser in October 2023 shows how intensified energy cooperation also consolidates migration 'cooperation': apart from facilitating the migration of high-skilled Moroccans to Germany, the discussion on this cooperation centres mainly around areas of security, combating organised crime, human trafficking, and terrorism,[206] which translates into containing people in Morocco, while (renewable) energy flows.

Furthermore, the choice of technology and its provision illustrate global trade dependencies, as European companies are providing most of the construction material for the Ouarzazate solar megaproject. While the German KfW states that 'German companies that were successful in the international competition are helping to realise the country's objectives',[207] it is the patent system that enabled German companies to generate significant profits from the construction of the Ouarzazate solar complex. Since the German companies Siemens and Schott Solar own the main intellectual property for the glass tube receivers[208] Siemens provided those as well as the turbines, and the German company Flabeg the 2 million mirrors for the 3,000-hectare solar field. Hence, most of the value chain behind the production of solar panels is outside Morocco and the profits accordingly flow to these external actors rather than to local companies or the Moroccan public.

Concentrating power through Power Purchase Agreements (PPAs) and the Energy Charter Treaty

Still a carbonised affair: Israeli gas and normalization

Although Jordan is hailed as 'one of the leading countries in the Middle East and North Africa (MENA) region in renewable energy (RE) adoption and clean energy growth',[209] most of its grid is still a carbonised affair. Solar and wind energy only account for 20% of Jordan's capacity, with a target to reach 31% by 2030. 80% of its total electricity production still relies on fossil fuels, which makes the process of decarbonising the Jordanian energy sector somewhat far-fetched. Nevertheless, Jordan's efforts to achieve energy transition have encouraged EU countries such as France, Germany, Portugal and Spain to draft various agreements with the country. These initiatives have struggled to lift off because of the IFIs' lack of interest.

The Jordan National Energy 2020-2030 Strategy[210] focuses on promoting 'energy security' by improving energy efficiency, energy diversification, and increasing the share of renewable energy in the whole energy mix, in order to reduce carbon emissions, and drive down energy costs. But as many energy experts have noted,[211] 'exceeding this percentage [20% of renewable energy] will be challenging for Jordan unless storage solutions are implemented'.

Another challenge to the expansion of renewable energy in Jordan is its gas deal with Israel. Many have cited why the deal is a clear 'violation of Jordan's constitution', and is incompatible 'with climate concerns and Jordanian sovereignty', while 'providing funding for Israel's abuses of Palestinian human rights'.[212] Others have mentioned the consortium of US-based Noble Energy (part of Chevron) and the Delek Group (a conglomerate of Israeli gas and oil companies) that received the main drilling contracts, but there has been less focus on the effects of newly forged PPPs on energy deals and on how efforts to achieve the renewable energy transition are characterised by contractual arrangements like PPAs that mimic its hydrocarbon predecessor.

The Power Purchase Agreement (PPA) model

Located east of Amman, Baynouna is the largest[213] single solar energy project in Jordan. It began operating commercially in 2020 and supplies the annual power needs of approximately 160,000 homes. Developed as a PPA between Masdar and National Electric Power Company (NEPCO), Jordan's state electricity company, this $260 million project generates 563.3 gigawatt-hours (GWh) of electricity each year, equivalent to 4% of Jordan's annual energy consumption. The 200 MW solar power plant and Masdar's 117 MW Tafila wind farm are the bedrock of Jordan's renewable energy megaprojects.

What is a Power Purchase Agreement (PPA)?[214] A PPA or electricity power agreement is a long-term binding contract between an electricity generator (the UAE-based Masdar in this case) and a client, usually a utility, government or company (the Jordanian state, in the form of NEPCO). PPAs usually last anywhere between five and 20 years, during which time the purchaser buys energy at a pre-negotiated price. Financial institutions backing the Baynouna project include the International Finance Corporation, the OPEC Fund for International Development, the KfW, and the Japan International Cooperation Agency (JICA).

PPAs are no exception in efforts to move towards renewable energy and are increasingly becoming the norm.[215] PPAs allow for the company that builds and operates a power station to effectively shift all financial risks associated with the electricity produced to the utility. PPAs are the template for PPPs and thus play a key role in the privatisation of energy. While they offer certainty against price fluctuations, they also lock countries into fossil fuels, prevent a rapid transition to renewables and transfer payment risk from the off-taker to the state (in this case from state-owned, but privately operated, Emirati Masdar to Jordan's NEPCO).

The ever-expanding Energy Charter Treaty

PPAs have already proven to be a nuisance for the public sector and, together with the Energy Charter Treaty, the private sector is using them to extract more from taxpayers in the Global South. In 2014, Al Jazeera released the documentary 'Egypt's lost power'[216] that revealed how an Egyptian–Israeli gas deal enabled Egypt (then under Mubarak) to export its gas to Israel at below-market prices through the East Mediterranean Gas Company (EMG), which eventually pocketed huge profits. Increased insecurity regarding pipeline safety due to a growing number of attacks eventually led to the cessation of supply, with an international arbitration committee ordering[217] the Egyptian national gas company to pay the Israeli Electric Corporation more than $1.76bn in damages, as EMG also sought compensation from the Egyptian government. This is one of many ensuing cases and was further institutionalised by the Energy Charter Treaty (ECT).

The Transnational Institute's The Energy Charter Treaty's Dirty Secrets[218] shows that 'in recent years the number of ECT investor lawsuits has exploded'. 'While just 19 cases were registered during the first 10 years of the agreement (1998-2008), 75 investor lawsuits were filed in the 2013-2017' period. As Jordan becomes[219] the acting Chair of the Energy Charter Conference for 2023 and 2024, and following the case of Egypt's 'lost power' example, it is only a matter of time before Jordan's taxpayers will face costs from its renewable energy transition PPA agreement with Masdar.

As financial risks and defaults are gradually but surely displaced onto taxpayers and the wider population, authoritarian practices, similar to those[220] used to quash the anti-normalisation protests in 2016, are bound to become commonplace. These will be mediated by more rigid private–public agreements and their international financial backers, who will be determined to recoup their initial investments with interest. Just as efforts to achieve energy transition in Tunisia or Morocco enable the flows of energy and high-skilled labour, while repressing irregular South–North migration, energy politics in Jordan is diametrically opposed to popular demands and marked by growing authoritarian reinforcement.

Where and how to resist?

Contemporary authoritarian practices – both in general and in the context of the energy transition in the MENA – are characterised by transnational linkages and technocratic definitions. In order to successfully democratise the energy transition and collectively build socio-economic and environmental justice, acts of resistance must respond to this transnational and technocratic reality of contemporary authoritarian power. It would be presumptuous to draw up a generic

manual on how to resist authoritarian energy politics in and beyond the MENA region. What is possible, however, is to draw on the multiple experiences of existing transnational solidarity movements, to highlight some of the principles that inform their resistance, and to identify the various connections between their struggles. The fights against TNCs' pervasive tax evasion, against fossil fuels, for debt cancellation and climate reparations for countries in the global South, and against the privatisation of public goods, are mutually reinforcing. In order to resist the authoritarian nature of ongoing efforts at energy transition more effectively, it is essential to help better connect these struggles.

A key event in this context was the global counter-summit[221] of social movements, which took place in October 2023 in Marrakech, coinciding with the annual IMF and World Bank meetings. During the summit, over 300 activists from around the world gathered for four days and set out a list of demands[222] highlighting the interconnectivity of the struggles described in this essay and of topics such as debt, climate justice and migration, and the urgency to tackle them collectively. Finally, in the context of the Israeli onslaught on Gaza, of widespread protests against the normalisation of Arab–Israeli relations, and the COP28 climate summit in Dubai – where the space for resistance was heavily constrained – the power of bottom-up mobilisation and street pressure was obvious once again. In mid-November, the Jordanian regime thus effectively submitted to popular demands and announced its cancellation of the Israeli–Emirati–Jordanian water-energy deal, under which Jordan would have supplied solar energy to Israel in return for importing desalinated water.

Networks and moments of successful resistance such as these offer a glimmer of hope that the fight for energy democracy in the MENA region has not yet been lost.

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Reclaiming Power?

Shifting geographies of extractivism in South Africa and visions for a just transition from below

Lisa Pier and Matthews Hlabane

Green energy poses new challenges in terms of the environmental and social damage committed in its generation and distribution. Is the green transition simply replicating strategies of dispossession, marginalisation and exploitation of people and resources? How do activists and civil society contest, rethink and reject these patterns, and what are entry points for reclaiming a truly just transition that is democratic, equitable and environmentally sound? South Africa currently faces an enormous energy challenge: scheduled power cuts mean that loadshedding continues to interrupt public, social and economic activity. Why does a country with such plentiful resources have such problems with the availability of energy?

Energy has long been a contentious issue in South Africa and the sustained mismanagement of the public energy provider, Eskom, has left the country unable to meet growing energy demands. Despite loadshedding, the price of electricity rose by 20% in April 2023.[223] While 89% of South Africans have access to electricity, the divide between urban and rural electrification is much higher than the regional average.[224] [225] Conservative estimates show that 50% of energy in South Africa is consumed by industry, including high consumption industries such as mining and steel production, and only 23% is designated for residential use.[226] The South African Green Revolutionary Council (SAGRC) estimates that it is more likely that industry consumes 70% of electricity. Moreover, 28% of South Africa's coal is designated for export, including to the European Union (EU).[227]

Regardless of having some of the world's best solar and wind resources, South Africa produces less than 20% of its energy mix from renewables.[228] Yet, a switch to renewable energies without systemic change in the way we produce, consume and relate both to nature and to each other will lead to a dramatic increase in mining globally, at the expense of marginalised groups and the environment.[229] The transition to green energies currently poses a threat to livelihoods and ecosystems, with the growing urgency and political interest in a green energy transition underpinning harsh practices of dispossession and exclusion – green extractivism.

The Right to Say No (R2SN), a social movement, campaign and activist network consisting of more than twenty organisations, connects different struggles against extractivism across Southern Africa, aiming to put a full stop to a development model that operates in favour of profit and at the expense of people and the planet. In its critique of the extractivist model, the Right to Say No questions the access to and distribution of energy, and also envisages a just energy transition that favours the rights and lives of the people. The campaign does so by facilitating exchange and mobilisation among those who are affected by mining and extractivism and promoting the principle of Free Prior and Informed Consent (FPIC). Though space for re-imagining development may be limited in social movements, envisaging alternative pathways helps to foster a utopian imagination and negotiate collective visions for just and sustainable energy futures. Grassroots alternatives are already taking shape, but do not attract sufficient attention. Shedding light on alternative practices and visions during this critical juncture contests capitalism's systematic obliteration of alternatives.

Weaving a Just transition from Below: threads, visions and alternatives

Activists in the Right to Say No will not let this moment pass without contestation and getting a foot in the door in discussing what would be a truly just transition for South Africa. Extractivist realities may seem like unlikely settings for developing utopian imaginaries. However, it might be precisely these spaces that hold the greatest potential for imagining alternatives, painfully informed by the evils of the extractivist model.

Having mobilised support within and beyond South Africa, the Right to Say No is taking on extractivism and corporate impunity at various levels. Amplifying and supporting community activism lies at the heart of the campaign, rallying communities across the country to form strong alliances and exchange knowledge about and experiences of extractivism. This includes national workshops such as the AIDC School of Extractivism, or practical support such as assisting communities with water testing for Acid Mine Drainage (AMD). The Right to Say No demands the rethinking of mining policy at national level, moving away from the short-sighted and assumed benefits to the national economy (or, in reality, transnational corporations (TNCs) and domestic elites) towards a diversified economy that is environmentally and socially sound.[230] The campaign has links across the region, including in Mozambique, Democratic Republic of the Congo (DRC), Zambia and Zimbabwe through activities like the annual Permanent People's Tribunal on Extractivism. The Right to Say No is also a member of the 'Global Campaign to Reclaim People's Sovereignty, Dismantle Corporate Power and Stop Impunity', actively participating in the negotiations for a United Nations Binding Treaty on Business and Human Rights at the United Nations Human Rights Council.

While the Right to Say No aims to strengthen community resistance, it also generates tools for securing the legal grounds for a 'right to say no' to mining and extractivism. This includes the formulation of a model law, a proposed draft law that guarantees communities the right to oppose business activities that negatively impact their lives and environment. The model law will be suggested for adaption and adoption in multiple independent legislatures across Southern Africa. Additionally, the campaign aims to strengthen advocacy in the South African Development Community (SADC) region for the Binding Treaty, where African delegations have been particularly active in the promotion of the Treaty process in 2023.

Legal tools have proven successful in defence of people's lands and livelihoods. The Amadiba Crisis Committee (ACC), founded in 2007 by community activists in Pondoland, is a prime example. The ACC most famously sued the Australian mining company Transworld Energy and Minerals and the multinational oil and gas giant Shell in 2018 and 2022 over neglecting FPIC and customary land rights and causing environmental damage – and won. In both cases, corporate plans had to be put on hold, constituting a massive victory against corporate power and proving that law and activism can indeed alter power relations.

Apart from opposing corporate power, however, the Right to Say No campaign recognises the strategic importance of putting forward development alternatives, such as feminist eco-socialism, to work towards. In March 2023, at the national Right to Say No rally and commemoration of the assassinated leader, Bazooka Rhadebe, the campaign adopted the People's Declaration on

building a just transition from below through advancing the Right to Say No as a programme for action. Giving 'expression to our desire for a just transition from below, which to us is much more than an "energy transition". For us, it is a transition from unemployment, landlessness, violence, abject poverty in all corners of the society and the glaring inequality of lives lived in South Africa. It entails the creation of millions of decent jobs and livelihoods. For example, in rehabilitating the land damaged by mining and other forms of extractivism, thousands of jobs can be found and lay the basis for food sovereignty'.[231]

In an interview in April 2022, co-author Matthews Hlabane explained that for a truly just energy transition, communities and the working class must be 'in control of the process', referring both to decision-making about future energy trajectories, and the production and installation of necessary technology, as otherwise 'we are marketing for the capitalist'.[232] The lack of support for developing community-centred energy projects and alternatives illustrates the state's lack of interest in forming a just transition for all. For the SAGRC, communities getting organised is central to building effective counterpower. Generating materials and opportunities for conducting popular education on the principles of building solidarity economies and supporting community-based initiatives can go a long way in restoring cohesion and unity to fight for better futures. Socially owned renewable energy as well as alternative livelihood strategies such as agroecological farming are among the first ideas communities mention for turning around the energy and power imbalance.

Hlabane stresses that establishing communities as 'liberated zones' for solidarity economies could solve issues of food insecurity, poverty, unemployment and violence through the circular provision of basic resources, including energy at a local level. It is anticipated that as such zones liberated from neoliberal capitalism gain importance, their solidarity economies could help avoid competition, duplication and waste of resources. In eMalahleni, the SAGRC and Matthews Hlabane have made possible the (almost) impossible. On a piece of land won back through a land claim in 2021, activists established an agroecological farm using their own generated solar and wind power.

Their farm proves that community-based alternatives can become a reality and create spaces for experimentation and collective benefit. Even so, decentralisation alone will not be able to address the challenges of the South African energy economy.

For most working-class communities, access to renewable energy depends on access to capital. As described in TNI's report on 'Energy Transition Mythbusters', decentralised energy solutions such as individual solar or wind installations require private resources and hence are exclusive to those who can afford them. The free-market approach in South Africa largely failed to 'unlock' private investment in the renewable energy sector, contributing to the current energy crisis. Currently, the public sector leads on the energy transition, involving Eskom.[233] AIDC, TNI and others have argued that reversing the privatisation of Eskom, campaigning against international trade law (including its restrictions on intellectual property), halting the 'Renewable Energy Independent Power Producers Procurement Programme' (REI4P), reconsidering various options for a successful energy transition, as well as proposing new ways to fund the transition is key to transforming Eskom and achieving a just energy transition for South Africa.[234] [235] Community activists would add that integrating the FPIC principles to

any new energy proposals, as well as ensuring community participation, are vital to a non-extractivist transition.

The Right to Say No is also about 'saying "yes"' to people's own solutions. The concept of prefigurative politics, describing processes of the collective cultivation of radical practices that realise fragments of a desired future in the present, can serve as a useful methodology to promote community-level initiatives.[236] Although there is a major (academic) debate about the impact that prefigurative projects can achieve in the broader picture of structurally and politically cemented injustice and inequality, they offer spaces for experimentation and conversation on inclusive and just futures. Especially in South Africa where Black communities have not been allowed to envision freely the development they want; it is important to create spaces for discussing alternatives and forming utopian imaginaries.[237]

On the question of employment, the 'One Million Climate Jobs' campaign, promoted by the SAGRC, the Alternative Information and Development Centre (AIDC) and some South African trade unions aims to offer a comprehensive strategy.[238] The campaign claims that a just transition could create 'at least one million jobs' and aims to mobilise 'thousands of South Africans around real solutions to slow down climate change and promote the enhancement of human life and the natural environment'.[239] Areas of action include the production of green energy, public transport, retrofitted buildings, sustainable food production, the protection of natural resources and the satisfaction of basic needs. In this way, the campaign offers a practical and just alternative to hegemonic discourses of extractivist development.[240]

This includes renewed attention to appropriate and locally sourced resources that reduce total energy use rather than driving ever greater demand, for instance through redesigning and retrofitting houses using thatched roofs, which contribute to natural air conditioning and can be built from regenerative and locally grown materials.

Activists stress that a just transition must not only respond to the needs of labour, but also change social relations more broadly to respond to the crisis of social reproduction and climate change. Although it has been more than six years since the One Million Climate Jobs campaign took shape, it retains traction since its objective remains unfulfilled. Particularly among miners and other mine workers and those living right next to coal mines, the idea of clean and safe jobs will not lose its appeal, making the fight for the campaign an ongoing struggle. Many activists previously worked in mining and show solidarity with mine workers in precarious employment, variously affected by the exploitative character of extractivism. While the Right to Say No focuses on community activism and international alliance-building, the campaign also fosters relationships with the Association of Mineworkers and Construction Union (AMCU) and South African Federation of Trade Unions (SAFTU) to collaborate on labour rights and corporate accountability, as well as with the National Union of Mineworkers (NUM) on the 'One Million Climate Jobs Campaign'. Although the trade union sector in South Africa has a complex mixture of interests on issues such as energy, collaboration between AIDC and trade unions has shown that the distinction often made between labour and activists is false. In fact, issues of employment and production need to be tied more closely to matters of reproduction and unemployment.

Nonetheless, 'moving beyond the "no"' to extractivism poses a challenge to the campaign, not only because of limited resources to engage in creating utopian visions, but also because activists feel they 'have not been allowed to do so' throughout centuries of colonial and apartheid oppression.[241] Breaking down the psychological and material barriers for reviving South African utopian imagination beyond demands for services is a major task for the campaign. In an interview in one of eMalahleni's townships in 2022, an activist reported that the lack of financial resources or even external funding impedes aspirations to start community initiatives and build a better life for themselves.

Moreover, resistance is met with systematic intimidation, persecution, and, in some cases, the assassination of activists and community leaders. As University of Johannesburg Professor Patrick Bond notes, one interesting route of contestation may be to classify extractivist activities as economic crimes. In Goa in India and Nauru in the southwestern Pacific, for instance, this is how prohibitions on mining or the payment of compensation have been achieved. This approach might also have potential in South Africa, where resources continue to be rapidly exploited and mining activities are estimated to have caused economy-wide capital flight of $330 billion between 1995 and 2018.[242]

What are we talking about? Histories of energy injustice and extractivism in South Africa

Coal sits at the core of the current South African energy model, constituting 70% of national power generation capacity.[243] The destructive social and environmental impacts of coal mining are largely borne by marginalised communities, nature, women and future generations, contributing to what Samantha Hargreaves calls an 'acute, multifaceted social, economic and environmental crisis'.[244] The negative environmental effects of mining activities include acid mine drainage, dust and soil dumps that increase concentrations of heavy metals and radiation, coal fires, fly ash and smoke loaded with toxic chemicals.[245] Water abstraction and water pollution are acute problems around some coal mines, including the fought-over site Somkhele in KwaZulu-Natal province, where the community leader Fikile Ntshangase was assassinated in 2020.[246] The depletion of natural resources without reinvestment has been debilitating.

Environmental authorities appear to be under the command of politicians with close ties to the mining industry, which has led to the flouting of regulations in favour of capital. For example in 2012, when current president but then coal-mining tycoon Cyril Ramaphosa, as Lonmin's main local investor emailed in a request for 'concomitant action' against 'dastardly criminal' wildcat striking platinum mineworkers, that led to the 2012 Marikana Massacre.[247] As the limits to South African resource abundance, especially of gold and coal, are increasingly apparent, extractive frontiers are being extended with capital penetrating more remote and inaccessible sites.

Women tend to stand at the frontlines of extractivist projects. African feminist network WoMin explains how women face further and specific marginalisation in mining and extractivism. Not only are female mine workers paid less than men, but they also tend to take on more dangerous and precarious tasks. This is not to mention women's unpaid care work and the responsibility

to feed their families – a task that can be extremely difficult in the absence of fertile land and/or income for those who do not obtain employment in the mines as there may be very few low-skilled jobs available. There is also an increased risk of sexualised and gender-based violence in and around extraction sites, which are often male-dominated spaces.[248] [249]

The combined cities of Witbank and eMalahleni illustrate the multifaceted violence of extractivism. The area has one of the world's poorest air quality rankings due to the mining and processing of coal, leading residents to describe the city as 'hell on earth'.[250] It is one of the places where extractivism in all its brutality is visual and real. While coal mines are lit up all day and night, producing energy for the urban centres, elites and industry; neighbouring townships are left in the dark. The lack of access to electricity contributes to unsafe situations, especially for women, and makes it extremely difficult for people to build a better life. Often, open-pit mines are placed only a few metres away from peoples' homes, causing serious structural damage as well as affecting residents' health and safety.

Mining companies collude with the state and police to oppress protests and mobilisations. In fact, mining companies and municipalities are suspected of channelling resources towards violent vigilante groups to oppose protest and intimate activists. In Phola, a protest against the neighbouring Beryl coal mine in 2022 was opposed by a group of pro-mining vigilantes who started to attack anti-mining protesters. When the police arrived, protesters were surprised to see the police protecting the aggressors rather than ensuring their safety.[251]

As attention shifts to markets for renewable energies, and new sites of extractivism, places like eMalahleni are likely to be dropped like hot potatoes once coal reserves are depleted, leaving land sterilised by life-threatening sinkholes and AMD uncontrollably seeping into rivers. In a place so inextricably tied to and dependent on the coal industry, the imperative of a green transition has raised doubts and fear among communities dependent on employment in the mining sector. Mining corporations in the area have started to sell their assets to emerging companies formed under the Black Economic Empowerment (BEE) Act. In so doing, they shed jobs and transfer social and environmental liabilities to the government or BEE enterprises, which have proven incapable and unwilling to deal with these issues.

The New Wave of Extractivism: Green hydrogen in the Northern Cape

Under the banner of climate action, TNCs and other corporations are already expanding their activities to ever more remote and inaccessible extraction sites with no concern for environmental and social standards. The political support for the rush for 'green' hydrogen is a prime example of green extractivism. South Africa has become a central site of the global rush for the new resource, resulting in a series of protests and contestation.

Hydrogen gas is generated from water through a process of electrolysis, requiring enormous amounts of energy. For hydrogen to be labelled 'green', that energy must come from renewable sources such as wind and solar energy. While hydrogen can function as a fuel for heating or combustion engines, it is particularly valued for its ability to store electricity. Green hydrogen can hence serve as an electricity storage for surplus wind and solar energy to be used when the weather does not allow for direct use. Another property of green hydrogen is that it functions independently from direct grid connection and hence is easy to trade internationally.

This is where South Africa comes in: thanks to its capacity to produce large volumes of wind and solar energy, the country has become a welcome ally to countries in the global North keen to 'green' their energy systems without making significant structural changes. It is estimated that Southern Africa will turn into the largest producer of green hydrogen globally by 2050.[252] This forecast led the current ANC government, in line with its neoliberal agenda, to focus on the export of green hydrogen and ammonia, securing partnerships with business and winning tax revenues as part of the national green hydrogen strategy. Unveiled at COP26 in 2021, the Just transition Energy Partnership (JETP) between South Africa and countries in the G7, including France, Germany, the United Kingdom and the United States, strongly emphasised the development of a green hydrogen export economy in South Africa. Germany has become one of South Africa's leading partners and is a central player in green hydrogen projects in the Northern Cape province. Negotiated behind closed doors, about 97% of the USD 12.5 billion (as of November 2023) in funding for the JETP comes in hard currency loans, increasing South Africa's debt burden and financial dependency.[253] [254]

Table 1. Main companies in South Africa's renewable energy sector

The renewable energy sector in South Africa is fairly consolidated and dominated by five major players:

Company	Headquartered in
Mainstream Renewable Power	Ireland
SegenSolar	Germany
Juwi Renewable Energy	Germany
EDF Renewables	France
Acciona Energía SA	Spain

As Table 1 shows, none of the five major companies in the South African renewables sector has its headquarters in South Africa; these are renewable energy TNCs with global operations. One important player in the green energy landscape, however, is the South African energy and petrochemical giant SASOL, the world's biggest producer of fuels and chemicals from coal and gas, which is buying up renewable energy capacities in the country. In 2023, SASOL announced a partnership with the French gas company Air Liquide to procure 1,200 megawatts (MW) of renewable energy to power their respective operations. The two companies also entered a 260-MW wind and solar purchase agreement with TotalEnergies and the South African renewable energy firm Mulilo.[255] SASOL is also involved in the production of green hydrogen, for instance in Sasolburg in the Free State, and has signed several agreements to secure supplies.[256]

At the Green Hydrogen Summit held in Cape Town in June 2023, President Cyril Ramaphosa presented South Africa as a future 'global exporter of energy'. Currently, there are around 20 green hydrogen projects in the pipeline in South Africa. Nine of these have been declared Strategic Infrastructure Projects in 2022, meaning they will be fast-tracked and approval processes eased. Although Public Works and Infrastructure Minister Patricia De Lille claims that the projects have undergone 'extensive quality assessment', it is unlikely that environmental and social impact assessments will be given sufficient consideration and resources, given the investor-friendly focus of the green hydrogen strategy.[257] Four of these projects – the

Boegoebaai Green Hydrogen Development Programme, Prieska Power Reserve, Ubuntu Green Energy Hydrogen Project and Upilanga Solar and Green Hydrogen Park – are located in the Northern Cape.[258]

The Boegoebaai Green Hydrogen Development Progamme, which will be established in the Richtersveld municipality is a flagship project for the South African green hydrogen strategy. The South African government together with SASOL and ArcelorMittal are planning the Freeport Saldanha Industrial Development Zone, aiming to generate 80GW by 2050. This is likely to make Boegoebaai one of the world's largest green hydrogen projects. Among activists, SASOL and ArcelorMittal are known for neglecting any form of corporate accountability and indeed covering up environmental and social harm.

In response to such developments, backed by the government and global capital, activists formed the group for Vrywillige, Vooraf en Voortdurende ingeligte Toestemming (VVVT) Namakwaland, to contest land and water grabs.[259] In Boegoebaai, roughly 450,000 hectares of community-owned land are earmarked for the Boegoebaai Green Hydrogen Development Programme, without consultation nor consent of the affected communities. These communities had only recently reclaimed parts of this land, and are now at risk of losing it again. The land question in South Africa clearly cannot be addressed only by an increased focus on FPIC. Yet, for those communities owning land, FPIC remains one of the last resorts for defending land rights, which are often customary rather than owned via legal title.

Fishing is critical to the livelihoods of coastal communities and central to local identity and culture. Local residents argue that the jobs promised as part of the development project are unattainable for community members as they require specific and high qualifications.[260] VVVT Namakwaland has demonstrated and protested against the planned project in the Northern Cape, including through creative forms of resistance. Theatrical performances by Nama Khoi Productions stress the need to consult the Nama Khoi Indigenous Peoples before developing new mega-projects on their lands.[261] In one of their recent plays during International Khoikhoi Languages Week, the group left the audience with the question 'If we sell our LAND, then WHAT?',[262] leaving no doubt about the inextricable link between land and identity for Khoi Peoples.

Against this background, it is a sinister comedy for the German Green Robert Habeck, Federal Minister for Economic Affairs Climate Action to promote green hydrogen as the energy of the future, ignoring its social and environmental costs.[263] In fact, Germany is cashing in twice from promoting green hydrogen in South Africa: first by selling the technology and expertise needed for its production and second by importing it at low prices. There are currently no comprehensive or binding environmental and social standards for green hydrogen projects in South Africa, and decisions on the national hydrogen strategy were conducted without inputs from civil society, trade unions and the affected communities.

The development of the green hydrogen economy in South Africa hence begs the question of a green energy transition for whom? It ought to be hard to justify exporting energy during an energy crisis, especially when the wind and solar capacities planned for the Boegoebaai project are significantly larger than all renewable energies currently installed in South Africa taken together.[264]

It is difficult to imagine how the production of green hydrogen for export does not compete with or downgrade local and national energy needs and demands.

Rather than selling green hydrogen to wealthy G7 countries, the energy could be used to light streets and homes, or build up a national manufacturing sector. At present, manufacturing in South Africa is minimal and the entire production of the hardware for renewables takes place elsewhere. All the solar panels and wind turbines installed in South Africa are imported, mainly from China, France or Germany. While the Department of Science and Innovation claims to be reorganising the mining sector, the focus is on exports. The national Just Energy Transition plan allocates only 0.1% of the planned budgets reserved for localisation efforts to invest in domestic manufacturing industries to produce the hardware required for renewable energy.[265] Communities also report that there is minimal transfer of expertise, leaving the monopoly of knowledge of installation and maintenance of renewables in foreign hands. In other words, local communities are expected to remain only as consumers and to uphold a system of exploitation to their own disadvantage.

Clearly, there will be no decarbonisation without further mining and the extraction of resources. A right to 'say no' to all kinds of mining would be difficult if not impossible to achieve. While the Right to Say No is aware of this tension, this does not weaken the demands. Members of the Right to Say No, especially those living in urban or peri-urban context in direct proximity to mining activities, stress that saying no to extractivism does not necessarily mean saying no to all kinds of resource extraction. Rather, by ensuring environmental standards, appropriate community consultation and participation through safe and fair employment opportunities, as well as the provision of basic services such as clean water, electricity and waste management, it would make an enormous difference in moving towards fairer energy systems. Being able to decide about questions of development, including in the energy sector, is vital for fulfilling the right to self-determination. When benefits and burdens, as well as power over decision-making processes, are spread equitably, we can start talking about a non-extractivist just energy system.

Conclusions

Anti-extractivist activists in South Africa are up against gigantic political interests in a corporate-led energy transition. Their activism tells stories of – successful – community struggles against capital. The rush for green energy is a difficult enemy to take on given the complex nature of the global energy challenge, and web of power relations steering the global transition in the interest of capital and countries in the global North. The collusion of the South African government and TNCs has consolidated an architecture of impunity where both power and energy are distributed extremely unequally between communities and capital.

In addition to renewable energy giants, companies such as SASOL are also seizing their share of the green energy market in South Africa. It is clear that there will be costs to this transition. But at this point, there is almost no improvement in how these costs are distributed between the global North and the global South. Land- and water grabs in Boegoebaai show what happens when patterns of extractivist energy generation are replicated from coal to green hydrogen. The expulsion of people from their land remains key to the extractivist model and creates

dependency through reduced access to food, employment and essential resources. Places like eMalahleni serve as a reminder of what the future of places with high energy potential look like after a century of extractivist violence.

Right to Say No activists continue to hold TNCs and government to account, successfully using principles of FPIC and customary rights to their advantage. Although alternative visions for development from the R2SN may be in their initial stages, formulating alternatives and utopian imaginations can serve as strategic tools to move forward. The 'One Million Climate Jobs Campaign', and proposals for the decentralisation and democratisation of energy under the public lead of transformed state utility Eskom, remain key to the campaign's demands for just energy futures. Developing tools such as a model law that inscribes FPIC in domestic legislation, as well as the negotiation of a strong UN Binding Treaty on Business and Human Rights, will be critical to holding corporations accountable for environmental damage and human rights abuses, as well as ensuring community participation in and benefits from green energy projects.

AUTHORS

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Waste to energy

A privatised false solution

Vera Weghmann

The world is not only facing an energy crisis but it is also increasingly littered: the World Bank predicted that global waste would grow by 70% by 2050.[266] Waste which is buried, dumped at sea or turned into ash pollutes the environment. These two trends have been used to boost a new and thriving private business: the Waste to Energy (WtE) industry, which has expanded worldwide based on contracts that last for decades, and often for 50 years.

This essay explores the power relations of waste to energy, exploring its rapid expansion, the industry that drives it, the social and environmental impacts, resistance – and alternatives. This is explored in several case studies. In India and Lebanon, for example residents, activists and (informal) workers are actively resisting WtE, yet face considerable institutional power that is promoting its expansion of and especially its privatisation. In contrast, there are the possibilities, as explored through the case studies on Denmark and Slovenia, for WtE to offer a sustainable contribution to waste management, when it is publicly owned and controlled. The essay concludes with recommendations on how policy-makers and activists can best address the phenomenal rise of WtE.

The rise of waste to energy

Waste to Energy (WtE) is rising fast. While in 2022 its market size was estimated to be of over US$42 billion this is expected to double by 2032.[267] Currently around 15% of the of global waste collected is burned in WtE plants,[268] most of which are located in the global North, especially Japan, the US and Europe.[269] In Europe, six countries – Germany, the UK (before Brexit), France, Italy, the Netherlands, Sweden and Italy account for 75% of the EU's incineration capacity.[270]

The rise of WtE is a global phenomenon. In Asia there are ever more WtE plants being built. China alone is operating 927 plants.[271] India has 106, Thailand plans to build 79 WtE in the next few years and Indonesia has 17 planned. In Africa and Latin America and the Caribbean, WtE is new but also on the rise as several countries have started to experiment with WtE, such as Ethiopia, Ghana and South Africa in Africa and Brazil and Mexico in Latin America.[272]

Several big players have entered the WtE market, among them multinational companies that have a long history in waste management. For example, Veolia runs more than 90 WtE plants worldwide and was recently awarded a contract to build the biggest WtE plant in Europe, which has a capacity for 1.1 million tonnes of waste annually.[273] Other major players are China Everbright and the US companies Waste Management Inc. and Covantana. Engineering companies such as the Hitachi Zosen and the Mitsubishi group are also increasingly entering the WtE market.[274]

The WtE business model relies on an increasing volume of waste and has already created a scramble for waste as many of the leading WtE countries need to import waste to fill their incinerators. Sweden, for example, imports almost 800,000 tons of waste annually from the UK, Norway, Italy and Ireland to be able to operate its WtE incinerators. But Italy and the UK, for instance, are rapidly expanding their own WtE industry. Simultaneously, most European

countries are developing waste avoidance and recycling strategies supported by EU legislations. This means that Europe could soon run out of enough waste to operate all the existing WtE plants. This has already happened in China since owing to its effective municipal recycling and sorting strategy the country no longer has not enough waste to burn. Hence, in recent years China's WtE plants have frequently stood idle due to waste shortages.[275]

Waste to Energy: An environmental solution?

Converting waste into energy may sound like a good idea for addressing two environmental problems at the same time: too little clean energy and too much waste. Yet, in reality WtE offers a solution for neither. On the contrary, it facilitates the problem of increasing waste, and it produces little and not very clean energy. In Europe, where WtE is most advanced, it only provided for 5,134 MW in 2022–2023, less than 3% of the continent's energy.[276] Due to its low energy productivity even the Confederation of European Waste-to-Energy Plants (CEWEP) – the lobby group behind WtE – admitted that WtE makes no sense as an energy source alone.[277]

Research undertaken by the United Nations Environment Programme (UNEP) showed that WtE produces 1.2 tonnes of CO2 for every tonne of waste it burns. Confirming this, a recent study concluded that the 'CO2 emissions from plastic waste-to-energy systems are higher than those from current fossil fuel-based power systems per unit of power generated, even after considering the contribution of carbon capture and storage'.[278] The health of residents living nearby is negatively affected. In China, one study found that hazard-index and cancer-risk figures were above safety levels a kilometre downwind from the incineration plants.[279] A Greenpeace study on WtE in the UK found that WtE plants are more likely to be located in the poorest and most racially mixed areas than in the wealthiest, homogeneous white residential areas.[280] In other words, WtE incinerators deepen health inequalities. Consequently, many people living near to these plants are mobilising and resisting the building and expansion of WtE.

Moreover, WtE is at odds with the circular economy. This is firstly because WtE plants burn mostly recyclable or compostable waste, almost all of which comes from municipal waste.[281] Secondly, WtE plants require a minimum volume of waste in order to be able to operate. Large-scale incinerators need about 100,000 tonnes of municipal solid waste a year. As such, WtE creates a dependency on waste, which runs counter to the principles of waste avoidance. UNEP has warned about this 'lock in effect' through which the need to fill WtE incinerators 'hamper[s] efforts to reduce, reuse and recycle'.[282] This risk is heightened when WtE is privatised. Incinerators are expensive to build, so for the companies to recover the investment costs and to make profits they usually demand very long-term contracts with municipalities stretching over decades – between 20 and 50 years. These contracts usually bind municipalities to deliver a minimum volume of waste or to pay compensation if they fail to do so (see more on the issue of privatisation below).

Thus, WtE stands in direct contrast to recycling initiatives – formal and informal. The work of informal recycling workers is often forgotten or disregarded. Yet, according to research produced by the International Labour Organization (ILO) there are around 15 and 20 million informal waste workers worldwide who collect, sort and sell and re-use household or commercial/industrial waste on the street, co-operative recycling facilities or in open dumps.[283] While informal waste

work is not only both a highly unpleasant and hazardous occupation it provides a means of survival for people and households who often lack other alternatives. In many countries around the world the informal waste workers provide the only form of recycling and often also the only waste collection – and that at no cost to the municipalities. WtE plants that burn recyclable waste are thus taking away their livelihoods. These informal waste workers should be involved in the process of implementing WtE and any other questions regarding solid waste management (SWM) systems. Unfortunately, this is seldom the case. Together with citizens, informal waste workers across the world have therefore organised against WtE.[284]

Delhi, India – hazardous emissions and the destruction of the informal circular economy

India has a long history of failed WtE projects. The first attempt was in 1987 in Dehli when a plant was built for US$ 4.4 million by the Danish company Volund Miljotecknik Ltd. The plant was supposed to incinerate 300 tons of municipal solid waste per day to generate 3.75 MW of electricity. In fact, the plant only ran for three weeks. Then it had to shut down as the incoming waste was of inadequate quality (usually calculated in terms of calorific value) for the plant to run. It attempted to supplement this by adding diesel fuel, but even that failed.[285]

Following the global WtE trend, this experience has not stopped India in persisting with WtE. To date, Delhi alone has three WtE plants. The biggest is the Timarpur-Okhla plant, which was planned for over a decade and started to operate in 2012 and is another Public–Private Partnership (PPP). The plant claims to have the capacity to burn 25% of Delhi's mixed waste but has been the subject of much controversy. Residents and activists have raised their concerns for years due to the emissions and health hazards. Indeed, a report by India's Central Pollution Control Board (CPCB) submitted to the National Green Tribunal and the Supreme Court in September 2020 proved that all three of the WtE plants in Delhi release toxins beyond what is legally permitted.[286] The WtE plants also destroy India's informal recycling system and threated the employment of about half a million informal waste workers who are making a significant contribution Delhi's circular economy system.[287] Despite the negative consequences of WtE and the resistance of residents and informal workers India continues to build mostly privatised WtE facilities all over the country. By the end of 2023 India had 109 WtE plants in operation according to Statista.[288]

Beirut, Lebanon – Resistance to WtE

Lebanon has been facing a waste crisis since August 2015. In fact, since the end of the civil war (1975–1990) there has never been a functional waste management system. The government contracted out waste management services without even a call for tender, landfills are overflowing, and much waste has been openly burned and/or just accumulated on the street. Serious environmental damage and air pollution is the consequence and waste spilling over into the Mediterranean is creating global pollution concerns.

The solution to this crisis was thought to be WtE, ignoring citizens who had protested against waste incineration since 1997. A new WtE incinerator was planned to be built in Karantina, an area of Beirut which already suffered from air pollution due to two open-air waste incinerators

and the residents suspected that a further WtE incinerator will only worsen and not enhance the situation.[289] The WtE plans went directly against the initiatives to sort the waste and enable recycling. It also ignored the existing informal recycling undertaken mainly by refugees (mostly from Syria) who make a living through such activities. A group of informal recyclers and citizens therefore formed the 'Waste Management Coalition (WMC)' to advocate for recycling and sustainable waste disposal in Lebanon.[290]

Lebanon's problematic economic and political situation means it is very reliant on international funding to cover the cost of waste management. The European Union (EU) and the World Bank provided finance for Lebanon to improve its solid waste management (SWM) that mostly involved WtE as well as landfilling.[291] However, a recent study found the 16 SWM facilities that were established through these international grants of €89 million between 2004 and 2017 not only failed to provide local people with improved environmentally friendly waste management but also created the risk of environmental and health hazards – as well as wasting money and incentivising corruption.[292] In June 2023 the EU again allocated €3.7 million to fund a circular economy project implemented by the United Nations Industrial Development Organization (UNIDO).[293]

Solutions are desperately needed. Citizens have taken matters into their own hands. To date the protests have stopped the building of the WtE plant in Karantina and a few innovative recycling projects have been established. For example, the 'Drive Throw' project has now two recycling stations in Beirut where people can dump their recyclables, for which they are paid in cash. While these stations have managed to collect and sort 450 tons of recyclables, they rely on people having private transport, so it is only a small, wealthy and environmentally conscious element of the population that uses the stations.[294] There have also been projects that recycle glass into traditional Lebanese slim-necked water jugs.[295] Yet, these initiatives are not sufficient to establish a functioning and universal waste management system that Lebanon so desperately needs.

The institutional power behind WtE

The WtE industry is well organised. In Europe, the Confederation of European Waste-to-Energy Plants (CEWEP), the umbrella association of the operators of WtE incinerators, is its most outspoken lobby group. CEWEP represents about 410 plants from 23 European countries and, in its own words, contributes to 'European environmental and energy legislation' through the following:

- 'Close and permanent contact with the European Institutions
- Careful analysis and proactive contributions to EU environment and energy policy
- Participation in on-going studies (UNEP, OECD and EU)
- Undertaking our own studies, e.g. based on Life Cycle Thinking, composition and recycling of bottom ash etc.'

CEWEP also states that it is 'often in the European Parliament, in order to inform decision makers and the public about Waste-to-Energy'.[296]

In the US, Friends of the Earth revealed that Covanta, one of the biggest WtE companies in North America, lobbied to get billions of dollars in climate funding under the Renewable Fuel Standard.[297] Covanta has for decades advocated for WtE, boasting that it has thereby 'sustainably diverted over half a billion tons of waste from landfills'.[298]

Not only lobby groups but also the international and regional financial institutions have played a considerable role in the promotion of WtE by financing PPPs with multinational corporations to build and operate WtE plants. As shown in the example of Serbia, the World Bank has not only financed but also advised countries to develop their WtE industry. The European Investment Bank (EIB) also finances several WtE plants, for example the construction of one in Olstyn, Poland in 2021 for €47million.[299] The Asian Development Bank (ADB) has helped to facilitate and finance WtE plants in China, Bangladesh, India, and the Philippines.[300] And 2018, a US$100 million ADB loan financed the PPP between Vietnam and China Everbright to also build a series of WtE plants in Vietnam.[301]

Burning of waste – a largely privatised model

Most of the WtE plants worldwide have been constructed through PPPs. Research has shown that in China that around 80% of the WtE plants have been built and operated through PPPs, with three players holding nearly 50% of the market in 2019 – China Everbright (19.7%) International, Henan City Environment (13.2%) and Shanghai SUS Environment 10.5%).[302] In Germany, Europe's leading WtE country, most of the plants are completely privatised; 95% are run via PPPs and only 5% are in public ownership.[303] Also, in Sweden and Italy WtE is mostly fully privatised or operated via PPPs, as it is in the UK[304] and the US.

Only very few countries have public ownership of WtE, for example Austria and Denmark. A recent academic study compared private and public ownership of WtE and concluded that 'private ownership generally leads to inefficiencies'.[305] This can be seen from the experience of two cities – Belgrade and Ljubljana – which illustrates that public ownership and control is essential for a holistic waste management system that allows the prioritisation of environmental concerns over profit.

Furthermore, the example of Denmark, showed that when it is in public ownership WtE can be adjusted according to the country's needs. Developing waste prevention and recycling schemes alongside WtE treatment meant that by 2018 Denmark had to import nearly a million tons of waste.[306] Consequently, it decided to reduce its incineration capacity by 30% by 2030, with the closure of seven incinerators in order to expand recycling. These decisions were enabled by the fact that Denmark's incinerators are in public ownership and hence the country is not facing legal lawsuits for compensation due to the decision to close the plants.

Belgrade, Serbia – privatised WtE hampers recycling

In Serbia the introduction of WtE has become a barrier for developing the country's recycling capacity. The privatised WtE came into being through a PPP contract signed with the Suez-Itochu consortium in 2017 for a duration of 25 years for the provision of municipal waste treatment and disposal services, with WtE at the core of the contract. It was then the largest PPP contract in Serbia and had an estimated value of €957 million over the course of the contract. The PPP

was financed through loans from the World Bank's International Finance Corporation (IFC). The World Bank not only financed WtE but it also advised the city authorities on the legal, regulatory, technical and financial aspects of the project as well as on the public procurement procedures and the selection of the bidder. In other words, the World Bank enabled and shaped the conditions of the privatised WtE in Serbia. According to the contract Belgrade is obliged to deliver around 66% of the city's municipal waste. The contract also stated that the WtE plant would incinerate municipal waste without prior sorting, thus ruling out the development of a recycling system. This even meant that the EIB, which had first offered support for the PPP, withdrew from the project as it recognised that it would prevent Serbia from achieving the EU's recycling and circular economy objectives.[307] Yet the deal went ahead anyway without the EU's financial support. The introduction of WtE is not only a barrier to effective recycling but it is also jeopardising Serbia's prospects of entering the EU, as EU member states have a binding obligation to recycle at least 60% of municipal waste. Currently, there is no functioning formal recycling system in Serbia (official recycling rates were as low as 0.4 % in 2019.[308] Most recycling is carried out by the informal sector (European Environment Agency, November 2021). Hence, the current WtE project in Serbia also means that, as in other countries (see the example of India and Lebanon below) there is a risk that WtE will also destroy the existing informal recycling system.

Ljubljana, Slovenia – WtE can work when in public ownership

In contrast, Ljubljana in Slovenia demonstrates that WtE can indeed make a valuable contribution to waste management, when not competing with waste prevention and recycling, but when there is a holistic approach to waste management. Slovenia was for a long time quite the opposite of a good practice case in relation to waste management. Yet, this changed. Between 2006 and 2017, Slovenia managed to achieve the most significant reduction in landfilled municipal waste in the EU, cutting it by almost 70%.

Now Ljubljana is also branded as Europe's zero waste capital, with Slovenia pioneering in waste prevention and recycling. For example, the city operates packaging-free vending machines for basic household items, and it is a nationwide obligation for all municipal institutions to use toilet roll that is produced from re-cycled milk and juice packaging.[309]

When Slovenia introduced WtE this went in line with these circular economy practices rather than destroying or competing with them. The country constructed a modern waste management treatment plant that served 37 municipalities in central Slovenia and processes over 170,000 tonnes of waste annually. The plant, the Regional Centre for Waste Management (RCERO), which started to operate in 2015, strictly follows the waste hierarchy – waste avoidance, recycling and composting, waste to energy and then landfill. So, the waste is recycled through mechanical treatment and is used to produce solid fuel and organic waste is composted. Some unrecyclable materials are processed into fuel, which has a similar calorific value to brown coal. WtE is used for the rest of the waste that cannot be otherwise re-purposed and the waste that is not suitable for WtE is used for landfill.

Such a holistic waste management system needs to be motivated by more than a profit. Recycling and composting are more labour-intensive and less profitable than WtE. The RCERO

plant was facilitated through public funding with 66% (€77.6 million) coming from the EU Cohesion Fund and the remainder from the national and local government, the construction of the treatment plant was completed in October 2015.

The example of Ljubljana shows that when waste management is publicly owned and operated it facilitates an integrated system where waste prevention can go hand in hand with recycling as well as WtE, rather than having these three aspects of waste management competing with each other for profit.[310]

Conclusion

Industrial lobby groups, multinational companies and financial institutions, like the World Bank and the ADB, have promoted WtE as a sustainable alternative to landfill and as a solution for the overwhelming need for waste management in many parts of the world. However, as this essay demonstrates WtE is, in fact, not so environmentally friendly. The first aspect that policy-makers and activists need to be aware of is that WtE, contrary to what the name suggests, does not produce much energy (and the energy it produces is heating rather than electricity so it is a less useful energy source for hot countries). Due to the high emissions of WtE incineration – higher than from other fossil fuelled energy production – it is certainly not a source of green or renewable energy.

The second aspect of which activists and policy-makers need to be aware is that it creates the need for increasing volumes of waste, because WtE plants need a certain volume of waste in order to operate. Many of the countries with an established WtE industry are already heavily dependent on importing waste, leading for a scramble for waste. This is especially severe as it is often recyclable waste that gets burned in WtE energy plants (the plants need a certain calorific value in order to operate and plastic and paper, for example, are high in calorific value). Hence, even the UN and the EU have advised countries to reduce their WtE capacity.

Thirdly, WtE plants create environmental and health risks. They release not only emissions but also toxins that cause health risks for the people living nearby.

Fourthly, policy-makers need to recognise that many places where WtE was introduced it deprived many informal recycling workers of their livelihood. While informal recycling work should not be glorified as it is both unpleasant and hazardous, it is securing the livelihood of millions of people. These informal workers are making a tremendous contribution to recycling in many countries.

Currently, most WtE plants across the world are privatised (either fully or via a PPP contract). This means that the municipalities have contractual obligations with the private providers to deliver a certain volume of waste or pay compensation. This directly goes against any waste-reduction efforts. Denmark, on the other hand, where WtE is mostly in public ownership, was able to shut down some of its WtE plants in order to incentivise waste prevention and recycling while reducing its dependence on imported waste.

The case of Slovenia provides an example of a holistic waste management system that strictly follows the waste hierarchy (waste prevention, recycling and composting, waste to energy, landfilling) when waste management is in public ownership and control.

This essay thus suggests that WtE needs to be in public ownership so that it can be part of a comprehensive approach to waste management that addresses the need of the environment and citizens: local residents, the public that needs a functioning waste management system and the workers (formal and informal) who deal with the waste.

AUTHOR

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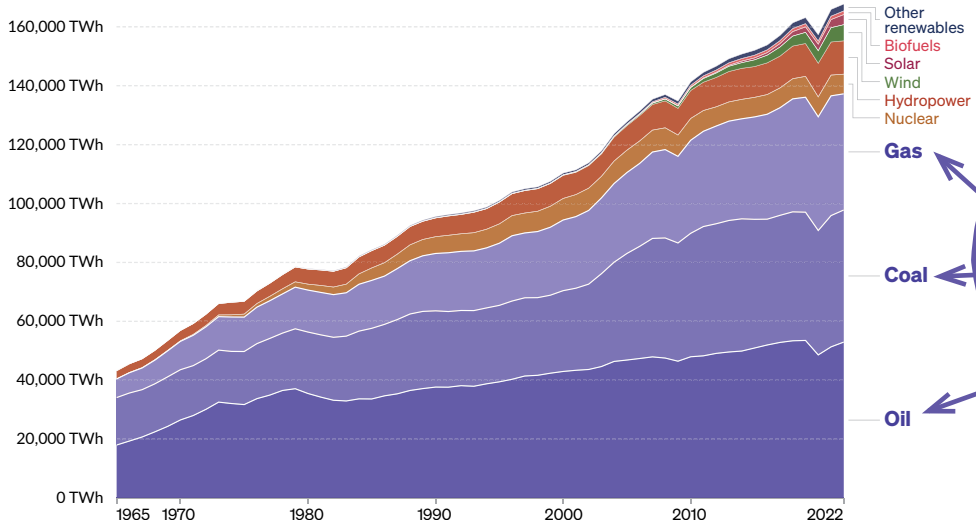
Who controls the energy transition?

What energy sources do we use?

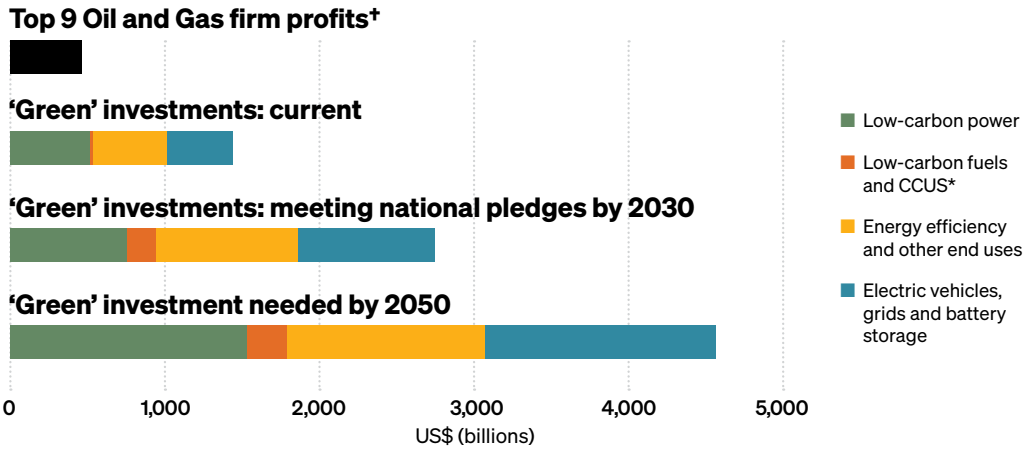
World energy consumption by source



Fossil fuel production in 2019 is still rising and makes up 66% of energy consumption. We have an energy expansion, not yet an energy transition.

Measured in terms of primary energy using the substitution method. Source: Energy Institute – Statistical Review of World Energy (2023).
Cited in ourworldindata.org/energy

Big Oil profits versus 'Green' investments



The profits of the top nine Oil and Gas firms would provide one-sixth of pledged green investment

*Many 'green' investments are not sustainable or just and include problematic technologies such as CCUS (carbon capture, utilization and storage).
†Profits from nine major oil companies: Saudi Aramco, Equinor, ExxonMobil, Shell, BP, Chevron, PetroChina, TotalEnergies, ConocoPhillips.
Source: Nature (May 2023)

Ten Biggest 'Renewable' Energy Companies in the World

Based on revenue in billions US$

1. GENERAL ELECTRIC CO.
Renewable energy plus multiple industries
$75.07 billion

2. IBERDROLA SA
Electric utility, generation/distribution/trading
$53 billion

3. CONSTELLATION ENERGY CORP
Electricity producer (including nuclear and gas)
$22.64 billion

4. NEXTERA ENERGY
Major wind and solar generator (also nuclear and gas)
$19.84 billion

5. VESTAS WIND SYSTEMS A/S
Wind energy
$15.46 billion

6. JINKO SOLAR HOLDING CO. LTD
Solar power company
$10.58 billion

7. CANADIAN SOLAR INC.
Solar
$7.03 billion

8. BROOKFIELD RENEWABLE CORP.
Renewable power generation (especially hydroelectric)
$4.76 billion

9. DAQO NEW ENERGY CORP.
Solar industry
$4.14 billion

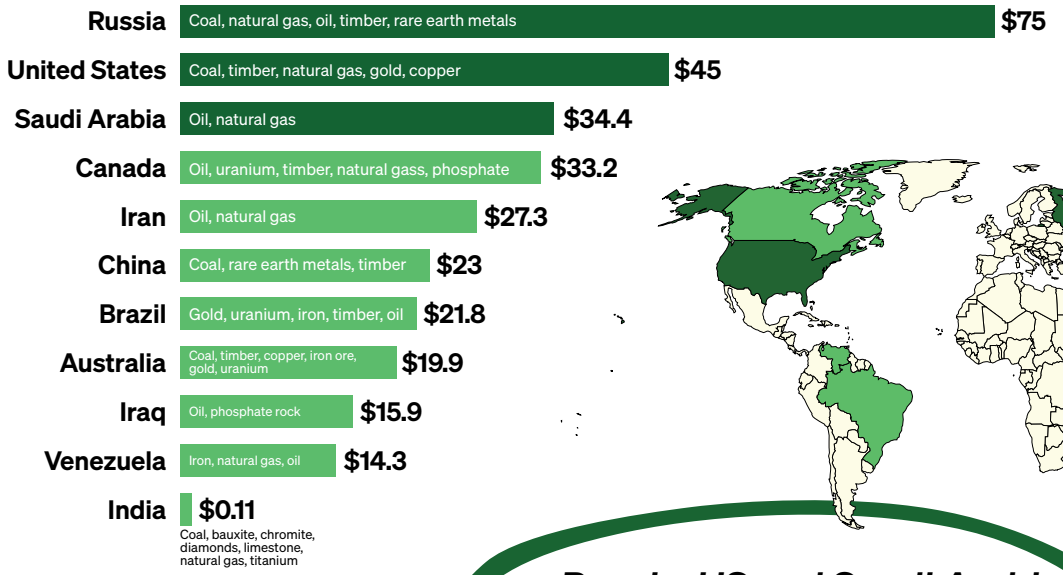
10. ALGONQUIN POWER & UTILITIES CORP.
Utility and energy services including renewable
$3.35 billion

Source: 10 Biggest Renewable Energy Companies in the World – Investopedia.
Criteria is having a significant renewable energy portfolio but many are also major fossil-fuel users.

Who controls critical energy Sources?

Leading countries worldwide based on natural resource value as of 2021

(in trillion US dollars)

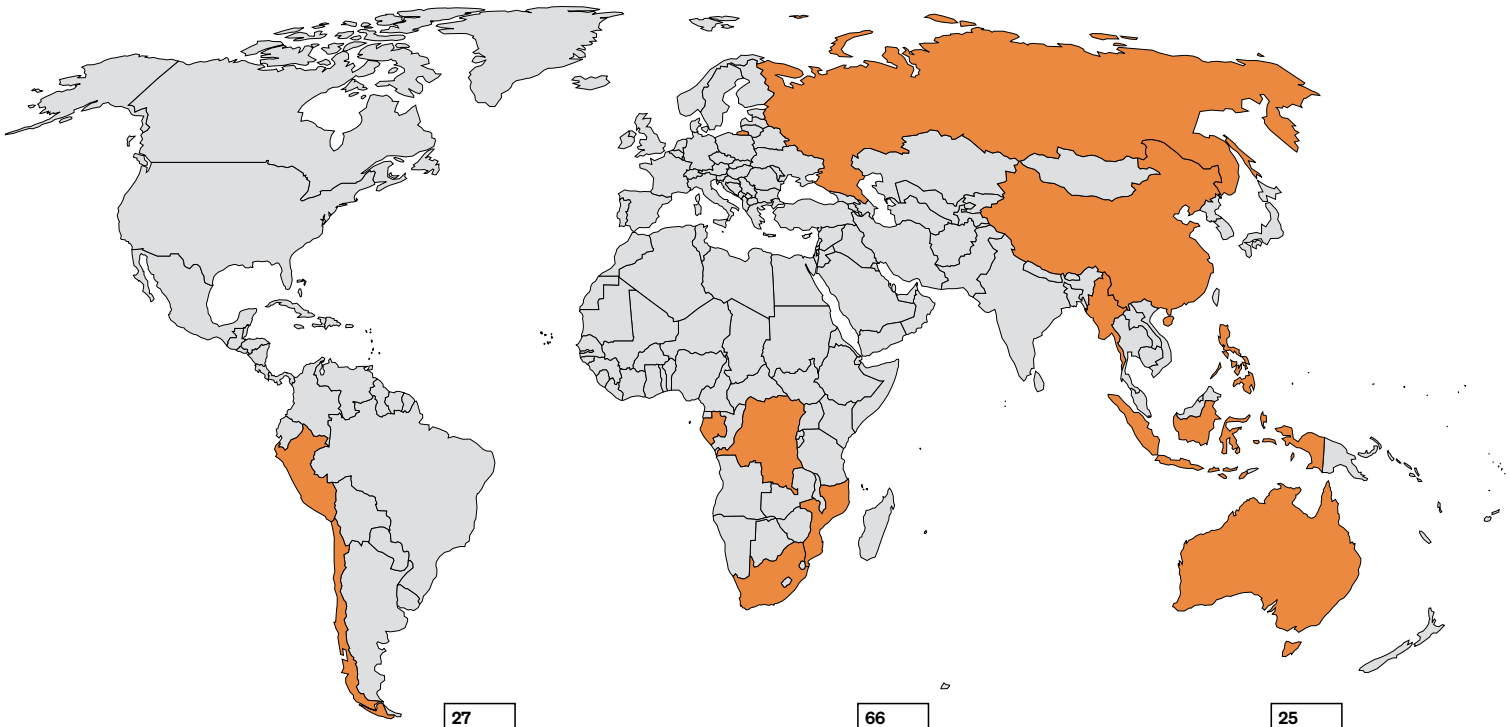


Russia, US and Saudi Arabia head the list of countries with vast mineral and natural resource deposits

Source: Investopedia/World Atlas/Statista, 2021

Countries that produce key transition minerals

% shows share of total production



Cobalt (27 Co)	
Democratic Republic of the Congo	70.0%
Others	30.0%

Dysprosium (66 Dy)	
China	48.7%
Myanmar	23.1%
Others	28.2%

Manganese (25 Mn)	
South Africa	35.8%
Gabon	22.9%
Australia	16.4%
Others	24.9%

Nickel (28 Ni)	
Indonesia	48.8%
Philippines	10.1%
Others	41.1%

Copper (29 Cu)	
Chile	23.6%
Peru	10.0%
Democratic Republic of the Congo	10.0%
Others	41.1%

Graphite (6 C)	
Democratic Republic of the Congo	64.6%
Mozambique	12.9%
Others	22.5%

Iridium (77 Ir)	
South Africa	88.9%
Others	11.1%

Neodymium (60 Nd)	
China	45.8%
Australia	23.1%
Others	31.1%

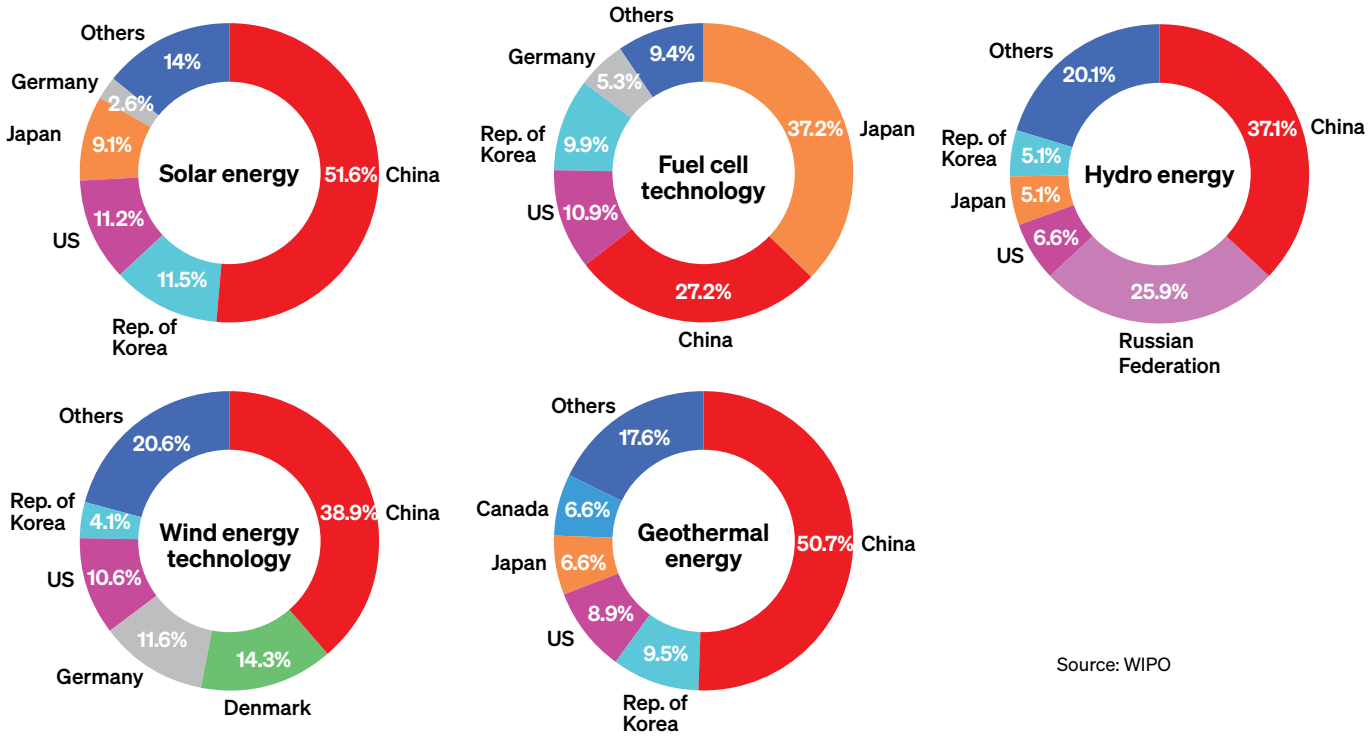
Platinum (78 Pt)	
South Africa	73.6%
Russian Federation	10.5%
Others	15.9%

Lithium (5 Li)	
Australia	46.9%
Chile	30.0%
China	14.6%
Others	8.5%

Source: IEA, reproduced in mining-technology.com.
Excludes operational mineral requirements for nuclear, coal and natural gas.

Who controls Intellectual Property (IP) for renewable technologies?

Share of patent applications for key energy transition technologies, 2019–2021



Source: WIPO

China has the largest share of IP in four of five renewable energy technologies

Endnotes

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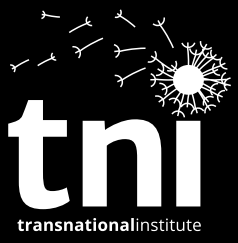

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