

POLICY REPORT

ENERGY TRANSITION MYTHBUSTERS

**Unpacking the 6 policy myths
that threaten decarbonisation**



In the face of the ever-worsening climate crisis, this report aims to challenge the six harmful but influential energy transition myths. Together, these myths aim to persuade us that the private sector, free markets, cheaper prices and decentralisation can decarbonise the energy system — and that intellectual property rights and trade and investment protection agreements are necessary to facilitate this. These myths keep policy-makers, social movements and communities from defending, building and advocating for real solutions: public power systems that can democratically decarbonise society.

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TABLE OF CONTENTS

COMMON FINDINGS – From private profiteering to public energy transitioning	2
Myth #1 – The private sector is driving a rapid renewable energy transition	7
Myth #2 – Free markets are the best route towards a low-carbon energy system	14
Myth #3 – The falling price of renewable energy makes decarbonisation inevitable	21
Myth #4 – Decentralised energy will decarbonise and democratise the energy system	26
Myth #5 – Intellectual property rights help facilitate the energy transition	32
Myth #6 – Investment protection is necessary to encourage energy transition investment	37
CONCLUSION	44
Endnotes	46

COMMON FINDINGS – From private profiteering to public energy transitioning



Listen to the bombastic forecasts and glittering commentary coming from dominant energy industry actors and you might find yourself breathing a sigh of relief. ‘The outlook for low-carbon transition continues to look extremely bright,’ according to Bloomberg New Energy Finance, who reported that global investment in low-carbon energy technologies bypassed \$1 trillion last year.¹

Private investors and liberalised markets, we are told, are paving the way to a clean energy future. Industry commentators point to falling renewables costs as evidence that fossil fuels will soon become a thing of the past. So long as investors are protected through intellectual property rights and trade and investment agreements, capital will flow seamlessly into the energy transition. Governments, apparently, can sit back as power is decentralised through small-scale renewable projects and the rise of the ‘prosumer’, with individuals becoming energy producers as well as consumers.

Unfortunately, these optimistic claims cannot be taken at face value. In fact, what is at play here is a series of dangerous myths — myths that threaten to further consolidate inaction and injustice. **It’s difficult to see how anyone can describe the state of the energy transition as anything approximating ‘bright’ when coal, oil and gas consumption continues to increase.** Fossil fuels still account for 82 per cent of total primary energy consumption worldwide.² Global coal use in late 2022 was at a record high.³ A 2021 International Energy Agency (IEA) study suggested that global oil consumption for 2022 would be an average of 2.1 million barrels per day higher than 2021. This figure is projected to rise by a further 2.1 million barrels per day in 2023.⁴

Yes, investment in renewables is growing — but nowhere near fast enough. The rate of growth for new renewable energy deployment halved between 2016–2021.⁵ **Global renewable energy investment reached a record high of \$0.5 trillion in 2022 — less than one third of the average annual investment needed between 2023 and 2030, if we are to meet the globally agreed target to limit warming to 1.5°C above pre-industrial levels.**⁶ In mid-2023, the IEA’s assessment was that only three of the fifty components of the energy transition are fully on track.⁷

In sum, the energy transition is in serious trouble. Further, where progress is being made, the dominant pro-private and pro-market narrative gets things drastically wrong once again. **Public funding rather than private investment has been the key driver of transition so far: 60 per cent of total climate finance globally was accounted for by public funds (including households) in 2019/2020.**⁸ Contrary to neoliberal ideology — according to which the public sector is ‘risk averse’ and the private sector is ‘innovative’ — public institutions are more likely to fund higher-risk transition sectors, with the public sector leading on technologies further away from commercialisation such as tidal and wave energy or thermal storage.⁹

Indeed, the vast majority of private investment in the energy transition is highly dependent upon public subsidies. When governments leading on the energy transition such as Germany and China dropped their ‘Feed-in Tariff’

renewables subsidies, the consequences were dramatic. In Germany, investments in renewables dropped by 46 per cent in 2015. And between 2017 and 2018, investments in clean energy in China reduced by 38 per cent (with investments in solar falling by 53 per cent).¹⁰

Might falling renewables costs change all this? Many argue that the cost of renewable energy is declining to such an extent that we will soon reach a ‘tipping point’ where renewable energy becomes cheaper than fossil fuels, after which investment patterns will shift substantially. While the unit cost of renewable energy is, indeed, declining, **renewables price data tends to obscure the hidden costs of the infrastructural upgrades and changes required to integrate renewables into the grid.** These hidden costs will add an estimated 10–15 per cent to the price of a unit of energy, once renewables account for 25 per cent of total energy production¹¹ — and will only increase as decarbonisation proceeds. What’s more, price is not the decisive factor shaping energy transition. The evidence — both historically and present day — shows that falling energy prices often undermine energy industry profits. In turn, falling renewable prices run the risk of detaching investors.¹² Perhaps more importantly, they are premised upon continued labour exploitation within renewables supply chains, which are increasingly linked to forced labour and modern slavery.¹³

The profit-based model of energy transition, then, is plagued by contradictions and is failing on its own terms. It is also driving escalating inequality and injustice. One third of the world’s population currently lack access to reliable power. **In 2021, an estimated 860 million people across the global South had no access to electricity, with an additional 1.1 billion having only intermittent electricity access.**¹⁴ The situation in Europe is not all that different. Indeed, energy poverty doubled over a 10-year period across Europe during the period of energy liberalisation.^{15,16} Indeed, as noted by the IEA: ‘For the first time in decades, the number of people without access to electricity is set to increase in 2022.’¹⁷

How did we get here? **The history of the market model boils down to a combination of ‘liberalise and subsidise’, since the growth in renewables has really taken place despite rather than through liberalisation.**¹⁸ In fact, there has never really been a free market in renewable power, nor is there ever likely to be. Instead, the renewables sector has been propped up by public subsidies. These subsidies coexist with liberalisation policies, which have concentrated power in the hands of a few oligopolistic firms.

These firms are now facing a ‘death spiral’ as their costs grow and income falls. State-owned firms were discouraged or (like South Africa’s power utility Eskom) outright banned from investing in renewable generation. Instead, they had to prop up private investments, cover increasing grid costs and focus on recovering production and service costs at the expense of increasing people’s access to energy. With utilities increasingly under strain, some governments have started issuing ‘capacity payments’ to fossil fuel producers for providing supply of ‘baseload’ generation at all times in order to ensure security of

supply.¹⁹ Here we see the liberalise and subsidise model in full swing. Governments are compensating for their lack of control over the energy sector by providing subsidies for all, green and filthy alike.

At the same time, this disastrous market model continues to be being propped up by a set of legal frameworks that compound the problem. Take Intellectual property (IP) laws, which assign firms exclusive rights to use, license, and profit from new innovations. Advocates claim that IP stimulates investment by protecting firms' market share. The result, though, is a highly exclusionary system, which has limited the production of clean energy technologies to a handful of companies, largely in high-income countries.²⁰ **Of the top 10 wind turbine manufacturers globally, every single firm is located in Europe, the United States, or China.**²¹ This global oligopoly of renewable production is one of the reasons why the whole African continent produces just 1.5 per cent of the world's solar energy, despite having the greatest possible productive capacity.^{22,23}

Or consider Investor State Dispute Settlement (ISDS) mechanisms, which allow corporations to sue governments for policies that affect their profits. Investors argue that they need protection through ISDS to provide legal certainty and stability. In practice, this 'protection' amounts to a powerful weapon for the fossil fuel industry, who repeatedly sue governments for measures that seek to curb fossil fuel consumption. The Netherlands, for example, was sued twice for its plans to stop coal power production by 2030, with lawsuits pursuing a total of 2.4 billion euros in compensation.²⁴

Investment protection also extends to renewable technology. For example, many ISDS lawsuits were initiated against Spain by so-called renewable investors but in reality the vast majority of the claimant were financial entities, not energy producers. Almost half of them also had investments in fossil fuels and nuclear energy, and many simply bought up existing installations because of above-market returns instead of expanding renewable production.²⁵

Thus, the pro-private and pro-market solutions we are promised turn out to threaten deep losses for people and the climate. We need alternatives. For some, the answer is decentralisation of energy provision through the promotion of small-scale renewable initiatives. However, here lies another myth. **Rooftop solar PV has the potential to meet an estimated 18 per cent of the EU's electricity needs, yet only if every single rooftop in the region that is solar compatible has a PV system installed.** Decentralised renewables are essential and have to be maximised but simply cannot cut it on their own.

Community energy schemes face substantive challenges when they are forced to compete in a for-profit market. In fact, serious questions can be raised about the democratic credentials of decentralised energy initiatives due to the risk of exclusivity. That's why **the focus should not be decentralisation but democratisation.** As illustrated by Costa Rica's integrated public power model which combines state, municipal and cooperative firms, we

must increase accountability and effectively connect decentralised initiatives with larger-scale energy production — and vice versa — in order to achieve clean energy for all.

Ultimately, the energy transition requires planning and coordination across scales. This calls for reclaiming energy from the market and collaboration between public utilities, communities and governments at every level. A revitalised and democratised public sector can lead the way. This means public ownership of the energy sector with accountability and participation from energy sector workers and energy users.²⁶ It means direct public investment in the energy transition, with a level of ambition and urgency proportionate to the scale of the crisis we face. And it means recognising energy's role as a basic social need through a 'Global Public Goods' approach, which prioritises equity, justice and energy access over private profit.

MYTH #1 – The private sector is driving a rapid renewable energy transition

THE MYTH

According to incumbent energy industry actors, a rapid energy transition is well underway. 'The outlook for low-carbon transition continues to look extremely bright' according to Bloomberg New Energy Finance, who reported that global investment in low-carbon energy technologies bypassed \$1 trillion last year.²⁷

The dominant narrative claims that it is private investors that are driving change. Addressing the American Clean Power Association in 2021, John Kerry, US special presidential envoy for climate said: 'I personally believe it is the private sector that is going to make the greatest difference here because no government has the amount of money necessary to accelerate this transition at scale'.²⁸

According to this view, if governments themselves have a role it is to 'unlock private investment' towards innovations in renewables.²⁹ In the words of one European Commission report: 'this unprecedented transition will require trillions of euros in investments, most of which will be sourced from the private sector'.³⁰

THE REALITY

In reality, the rapid transformation of the energy system we need is by no means underway.³¹ Where progress is being made, this is highly uneven: **the speed of transition in the global North remains far too slow, while many countries within the global South are being left behind.** And where the energy transition is proceeding it tends to be led by public institutions.³² Meanwhile, when public support is withdrawn, private investment disappears. Much of the public funding and subsidies available are hijacked to prioritise private profits over the common good.

NO RAPID ENERGY TRANSITION IS UNDERWAY

The global energy system is still heavily dependent upon fossil fuels:

- Coal, oil and gas still account for 82 per cent of total primary energy consumption worldwide.³³ Global coal use in late 2022 was at a record high.³⁴
- Coal use has doubled over the past 20 years due to rising coal consumption in China, India, Vietnam, Indonesia, Turkey and elsewhere.^{35,36}
- Global demand for gas has roughly doubled since 1990 and continues to rise. If current trends continued, global demand for gas is expected to rise by 14 per cent above 2019 levels by 2030.³⁷
- Global oil consumption is increasing. A 2021 IEA study suggested that global oil consumption for 2022 would be an average of 2.1 million barrels per day higher than 2021. This figure is projected to rise by a further 2.1 million barrels per day in 2023.³⁸

Global renewable energy investment reached a record high of \$0.5 trillion in 2022. However, this figure is less than one third of the average annual investment needed between 2023 and 2030, if we are to meet the globally agreed target to limit warming to 1.5°C above pre-industrial levels (the 1.5°C

target).³⁹ **The rate of growth for new renewable energy deployment halved between 2016–2021.**⁴⁰ And renewables currently account for just 28 per cent of global electricity production and just 11.5 per cent of global energy consumption.^{41,42} As such, it is no surprise that global energy-related CO₂ emissions are still rising, reaching a new record in 2022.⁴³ According to new IEA data, just three of the fifty components of the energy transition are fully on track.⁴⁴

Meanwhile, the private sector continues to stand in the way of the renewable transition. For example, BP recently spent \$12 million to crush an initiative in Washington state to introduce a small pollution fee.⁴⁵ And much of the clean energy investment that the energy industry trumpets amounts to nothing but greenwash. The amount that Shell, for example, invested in its ‘Renewable and Energy Solutions’ division in the final quarter of 2022 was half that invested in marketing. **In 2022, its ‘Renewable and Energy Solutions’ investment amounted to 7.5 times less than the figure returned to shareholders.**⁴⁶

While no one realistically expects the likes of Shell and BP to lead the way on renewable energy investment, these fossil fuel giants remain the dominant actors within the energy sector.

THE PRIVATE SECTOR IS LEAVING AREAS OF THE GLOBAL SOUTH BEHIND

While global renewables investment may be rising in some places, there is a huge deficit of clean energy investment in southern countries. According to the International Energy Agency, while developing and emerging economies are home to two thirds of the world’s population, just one fifth of global clean energy investments are directed to these contexts. Unfortunately, this situation is only getting worse: annual investment across all aspects of the energy sector in developing and emerging economies has declined by 20 per cent since 2016.⁴⁷ A seven-fold surge in clean energy investment is required in these countries by 2035 to meet the Paris Agreement and sustainable development goals.⁴⁸ **Just 2.1 Gigawatts (GW) of new wind and solar generation were installed in the entire continent of Africa in 2021.**⁴⁹

The situation in sub-Saharan Africa is particularly acute. Just 7.4 GW of solar energy and 5.7 GW of wind were installed by the end of 2019, compared to Asia’s 258 GW of wind and Europe’s 195 GW of wind. Indeed, all 48 countries across sub-Saharan Africa have less combined installed wind and solar capacity than Spain.

While ‘free-market’ proponents argue that the answer is policy frameworks that unlock private investment, the case of South Africa shows the opposite. Between 1994 and 2000, South Africa’s state-owned utility Eskom made substantial investments in the energy sector, more than doubling electrification from 31 per cent to 66 per cent.⁵⁰ However, in 2001, with the ruling African National Congress party moving towards a neoliberal agenda, the government mandated that Eskom ‘not [be] allowed to invest in new generation in the domestic market... to ensure meaningful participation of the private sector in

electricity in the medium term.⁵¹ However, no meaningful private investment was forthcoming, and the result was years of power cuts, increased energy poverty and stalled grid extensions. The government eventually U-turned on its decision to prevent Eskom from investing in new capacity.

THE PUBLIC LEADS ON ENERGY TRANSITION FINANCING

As the case of Eskom suggests, in practice it is the public sector rather than the private sector that leads on energy transition. One recent study of utility firm investments between 2005 and 2016 found that under the same policy environments, public utilities devoted higher proportions of their total investments to non-hydropower renewables (i.e. solar, wind, biomass and geothermal) than private utilities did.⁵² Between 2019–2020, public funds⁵³ and households invested \$376 billion into climate finance, including in renewable energy, climate mitigation, and adaptation to climate change. **Public funds and households made up 60 per cent of all climate finance, exceeding total private investment.**⁵⁴

This dynamic has played out clearly in relation to the climate finance target established at the 2009 UN Climate Change Conference in Copenhagen (COP15), where it was agreed that by 2020, rich countries would raise \$100 billion annually as climate finance for the global South. This target has yet to be reached. **Of the \$80 billion raised in 2019, \$63 billion came from public sources.**⁵⁵

In Belgium, between 2005 and 2016 publicly owned utilities diverted 72 per cent of their total energy generation investment to non-hydropower renewables, compared to 51 per cent from Belgian private funds. In the Czech Republic, across the same period, while public utilities devoted 92 per cent of energy generation investments to non-hydropower renewables, no private firm invested in renewable capacity additions above 1 Megawatt (MW).⁵⁶

Moreover, contrary to neoliberal ideology — according to which the public sector is ‘risk averse’ and the private sector is ‘innovative’ — research shows that public institutions are more likely to fund higher-risk transition sectors. For example, private sector research and development funding has tended to stick to established technologies such as wind and solar, whereas the public sector has led on technologies further away from commercialisation such as tidal and wave energy.⁵⁷

A 2022 International Renewable Energy Agency (IRENA) study showed that state involvement in the electricity sector in the global South is currently increasing. IRENA write: ‘The drivers that in the past led to the predominance of regulated systems — such as intense grid expansion needs and a post-World War II reconstruction context — are gaining traction today as the transition progresses and socio-economic challenges are high on the agenda.’⁵⁸

Indeed, some of the most impressive examples of energy transition taking place at the moment see state-owned utilities leading the way. In Uruguay, for example, a state-owned utility firm called UTE has been the key actor driving one of the most advanced energy transitions in the world,

with the country running on 98 per cent renewable energy. UTE was awarded the highest investment grade AAA by international credit agencies. What's more, it is one of the principal sources of funding for the Uruguayan state, with a significant proportion of its revenues being diverted to fund other public services.⁵⁹

PUBLIC FUNDS SERVICE PRIVATE SECTOR PROFITS

Public energy transition funding has often been channelled into handsome profits for large energy companies, wealthy individuals, and businesses producing and selling renewable energy.⁶⁰

For example, Feed-in-Tariffs (FiT) are publicly funded purchasing agreements for renewable electricity at above-market rates. After Germany started to use FiTs in 2000, they were soon adopted by many other countries across the world, the aim being to make renewable energy attractive to private investors, from big corporations to households. The initial result was a rapid growth in renewable energy production.

However, to pay for these above-market rates, Germany charged consumers an extra surcharge on energy bills. In 2016, Germany spent €25 billion on renewable energy, €23 billion of which came directly from these consumers' charges.⁶¹ It was estimated that the additional costs of FiTs in Germany amounted to nearly 25 per cent of electricity bills in 2014. **While the majority of the benefits were enjoyed by investors, private renewable companies, and wealthier households, the burden of these costs affected poorer households the hardest.**⁶²

WITHOUT PUBLIC SUBSIDIES, PRIVATE INVESTMENT DISAPPEARS

Ultimately, FiT costs grew uncontrollably and governments such as Germany and China replaced these with competitive auctions where energy companies compete to provide the cheapest energy.⁶³ The results of this change were dramatic: between 2017 and 2018, investments in clean energy in China reduced by 38 per cent (with solar falling by 53 per cent); in Germany, renewable investments dropped 46 per cent in 2015.⁶⁴ These auctions benefitted the biggest and most resourced energy producers while bringing the income of smaller decentralised producers to collapse: **estimates show that non-hydro renewable energy installations are set to be one third less this decade than between 2010–2019.**⁶⁵

The enormous fall in new installations shows how dependent private sector investments are on public funds. Within this model, where the public subsidises shareholder returns, profitability continues to take priority over a rapid and just transition. In the US, for example, **President Biden's 2022 Inflation Reduction Act sees a huge public subsidy of \$369 billion to private investors in low-carbon technologies** to make profitable energy transition projects that would otherwise not get off the ground.⁶⁶

The case of so-called 'blended finance' initiatives raises further questions about the role of the public sector in propping up the private sector. Blended finance

is a World Bank backed approach that seeks to use public funding to mobilise private sector investment to aid progress towards the Sustainable Development Goals. Blended finance is heavily promoted as a ‘catalyst’ of energy investments in low-income countries.⁶⁷ However, London based think-tank the Overseas Development Institute (ODI) estimates that a dollar of public investment might be expected to mobilise just \$0.37 in private finance in low-income countries, and marginally more in lower-middle-income countries and upper-middle-income countries, respectively, \$1.06 and \$0.65.⁶⁸ ODI’s core conclusion is that ‘the public sector picks up much of the cost, and... often **blended finance does not mitigate risk but merely transfers it from the private to the public sector.**’⁶⁹

FOSSIL FUEL INDUSTRY PROFITS ARE STILL SOARING

As mentioned above, renewable energy sources are increasing far slower than is necessary to prevent further climate catastrophe. This is the consequence of a policy paradigm where the renewable transition is based on the imperatives of private profit rather than public planning for the common good.⁷⁰

Even as the Intergovernmental Panel on Climate Change (IPCC) warns that time to act to prevent the most disastrous effects of climate change is running out, investments in fossil fuels continue to be greater than in renewables.⁷¹ The COVID-19 pandemic did not slow fossil fuel profits — the fossil fuel industry took billions in US pandemic relief funds while laying off tens of thousands of workers.⁷² Nor has the war in Ukraine seen this trend shift — fossil fuel companies have made record profits since the beginning of the war — in excess of €3 billion in the EU alone — by driving up prices and pumping up oil production.⁷³

All things considered, the fossil fuel industry has done remarkably well in recent years, with the largest 25 oil companies making \$205 billion in profits throughout 2021 alone.⁷⁴ The IEA projected that despite the global energy crisis in 2022, **by the end of that year the global net income for oil and gas producers would have doubled the 2019 figures, reaching an unprecedented \$4 trillion.**⁷⁵ Here, again, we see private profits being prioritised over a rapid and just renewable transition.

WE NEED PUBLIC OWNERSHIP AND PUBLIC INVESTMENT

The private sector is not leading a rapid and global energy transition. The rise in renewables that has taken place has largely been through public policies and public funds that the private sector has profited from. Leaving the renewable transition in the hands of the private sector makes us vulnerable to the whims of ever more volatile energy markets and the pursuit of profit above all else. Instead, **we need public ownership of the energy sector with democratic accountability and participation from energy sector workers and energy users.**⁷⁶ And we need direct public investment in the energy transition, with a level of ambition and urgency proportionate to the scale of the crisis we face.

SUMMARY

- **The private sector is NOT driving a rapid renewable energy transition.**
- **The rapid energy transition we need is not underway. Global renewable energy investment reached a record high of \$0.5 trillion in 2022. However, this figure is less than one third of the average annual investment needed between 2023 and 2030, if we are to meet the globally agreed 1.5°C climate target.**
- **Public funding rather than private investment has been the key driver of transition so far: 60% of total climate finance globally was accounted for by public funds (including households) in 2019/2020.⁷⁷**
- **Private investment in renewables is dependent on public funds.⁷⁸ When public subsidies are withdrawn, private investment disappears: reshaping and reducing subsidies cut new renewable installations by nearly half in Germany and China.⁷⁹**
- **While the private sector fails to deliver on investment in renewables, the fossil fuel industry continues to rake in bumper profits, often with the help of generous public subsidies. The largest 25 oil companies made \$205 billion in profits throughout 2021 alone.⁸⁰**

MYTH #2 – Free markets are the best route towards a low-carbon energy system

THE MYTH

Conventional economic wisdom dictates that when buyers and sellers freely compete with each other, supply and demand balances itself out in the most efficient way possible. For pro-market politicians, commentators and think-tanks, this logic applies seamlessly to the energy sector.

From the 1980s onwards, liberalised markets have been established and enforced within energy sectors across the world, with the promise of increased efficiency and decreased costs. Proponents of this neoliberal paradigm vociferously oppose public ownership and planning. They argue that the 'invisible hand' of the market is a necessary corrective to the 'bureaucracy' and 'coercion' of the state, delivering instead competition, choice and the decentralisation of power.

In the face of climate change and the urgent need to decarbonise the energy system, pro-market advocates argue that as soon as more people start buying renewable instead of fossil-fuel-based electricity, energy companies will switch to renewable energy to meet this demand and the transition will speed ahead.

THE REALITY

This influential narrative places the responsibility on consumers while conveniently ignoring the vested interests of large energy companies who benefit from this free market logic. In fact the growth in renewables has taken place despite liberalisation, rather than through it.⁸¹

Although many consider the rapid rise of renewables in Europe as a success story of liberalised, free energy markets, it is actually a story of public finance securing private profits, rising costs for consumers, and additional public subsidies to keep fossil energy production capacity alive. The International Renewable Energy Agency (IRENA), an institution that tends to align itself with dominant market thinking, recently offered a critical take on the impact of liberalisation on the renewables transition. In the words of IRENA, liberalisation means '[h]igher inclination and room to externalise social and environmental impacts' alongside 'economic inertias linked to investment recovery slowing down transformation rates'.⁸²

There has never really been a free market in renewable power. Instead, the renewables sector has been propped up by public subsidies. These subsidies coexist with liberalisation policies, which have concentrated power in the hands of a few oligopolistic firms. These firms now face existential crisis at the hands of a 'utility death spiral' that spells disaster for the renewables transition.

Meanwhile, **competitive renewable energy auctions have impeded private investment in renewables while liberalisation has overseen unnecessarily volatile energy prices.**⁸³ And 'carbon pricing' schemes, at the heart of the pro-market energy paradigm, have failed spectacularly.⁸⁴

FREE MARKETS HAVE CONCENTRATED POWER

Free-market myth advocates argue that once energy markets are liberalised and public energy companies privatised,⁸⁵ new investors will enter the market, ushering in increased competition and choice.

The European energy system serves as a telling example of just how inaccurate this story really is. In 1998 and 2000, the EU passed directives which mandated liberalised markets for electricity and gas.⁸⁶ Since then, a series of mergers and acquisitions has consolidated power into the hands of five enormous energy companies. Meanwhile, smaller producers and suppliers have been disadvantaged since the model of competitive auctions (described below) requires resources and expertise that smaller players lack.⁸⁷

FREE MARKETS HAVE WORSENERD ENERGY POVERTY

One third of the world's population currently lack access to reliable power. **In 2021, an estimated 860 million people across the global South have no access to electricity**, with an additional 1.1 billion having only intermittent electricity access.⁸⁸ An estimated 2.6 billion people in the South heat their homes using traditional stoves fuelled by charcoal, coal, crop waste, dung, kerosene, and wood.⁸⁹ Indeed, as noted by the IEA: 'For the first time in decades, the number of people without access to electricity is set to increase in 2022.'⁹⁰

The issue is particularly pronounced in sub-Saharan Africa: 70 per cent of the world's population without electricity access are to be found in this region; over half of the population lack electricity access according to 2017 figures.⁹¹ The situation appears to be worsening: according to the UN-partnered international energy access organisation Sustainable Energy for All, 'Without more progressive policy and investment... many African countries will see an increase in their unelectrified populations by 2030.'⁹² **Indeed, the IEA's 'Stated Policies Scenario' estimates that without adequate measures, 660 million people will still lack access in 2030.**⁹³

Advocates of the free-market myth argue that the problem here is a lack of liberalisation. Since the 1990s, global institutions like the World Bank and International Monetary Fund (IMF) have been attempting to enforce free-market policies on countries across the global South, promising reduced energy poverty in the process. Yet this promise has yet to materialise. In the Philippines, for example, legislation was introduced in 2001 to deregulate generation, establish a wholesale market and open up the grid to private companies. The result was skyrocketing prices, which increased by 55 per cent between 2003 and 2010.

The situation in Europe is not all that different. Indeed, energy poverty doubled over a 10-year period across Europe during the period of energy liberalisation.⁹⁴ Prior to the energy crisis, one in 10 Europeans were unable to warm their homes sufficiently in the winter, one in five were unable to cool their home sufficiently in summer and up to 100,000 died each year due to cold homes. The enormous price hikes beginning before Russia's invasion of Ukraine are now worsening this situation considerably.⁹⁵

It is notable that across Europe, departures from free-market logic have been necessary in order to bring energy prices under control amidst the energy crisis fuelled by the war in Ukraine. Pro-market governments have been forced to introduce price caps in order to ameliorate rapidly escalating

energy poverty.⁹⁶ A price cap can still mean transferring public money to energy companies. In the Netherlands, a price cap is costing taxpayers billions of euros to enable a subsidy to energy companies that keeps prices artificially low and profits high.⁹⁷

FREE MARKETS UNDERMINE RENEWABLES INVESTMENT

In reality, there has never been a free market in renewable energy provision and nor is there ever likely to be. As discussed in Myth #1, governments have had to step in to facilitate energy transition through subsidies such as Feed-in-Tariffs (FiTs). Without these subsidies, renewable energy is simply not profitable enough for investors to act.

Investment in new generating capacity is profitable only when the unit cost of electricity on the wholesale market exceeds the costs invested in generating this electricity. Historically, the high costs of renewable generation have outstripped wholesale electricity prices, rendering renewables investments unprofitable. Now, as renewable generating costs come down, wholesale electricity prices fall, cancelling out the declining costs of investment and, once again, undermining opportunities for profit. As such, without public subsidies, investors simply steer clear of renewable energy.⁹⁸ This dynamic is illustrated in the move away from Feed-in-Tariff subsidies towards competitive auctions discussed in Myth #1.⁹⁹

Auctions have driven down renewable power prices as energy producers lowered their rates to compete for contracts.¹⁰⁰ This has had a number of consequences. First, well resourced and large incumbent energy producers won contracts based on a very low energy price, outcompeting smaller community-based renewable energy producers that did not have the means to participate, let alone offer such unrealistic rates.¹⁰¹ In fact, prices were set so low that big producers sometimes were not able to follow through on project development because of insufficient returns.¹⁰²

Second, because these auctions drove down energy prices and, in turn, profit margins, private investors lost interest. This resulted in a dramatic decline in private investment in new renewable energy projects.¹⁰³ **EU investments in renewables dropped precipitously when FiTs were replaced with auctions: across the EU, investment fell from \$132 billion in 2011 to \$59 billion in 2015.** Annual solar capacity installations fell from 22 GW per year to just over 8 GW.¹⁰⁴

Finally, falling electricity prices due to competitive auctions have been one of multiple factors contributing to a crisis for incumbent utility business models and what has been termed the 'utility death spiral'. In 2018, the incomes of the three largest European utility companies (EDF, E.ON, and RWE) fell by 65 per cent, 22 per cent, and 85 per cent respectively.¹⁰⁵ Alongside falling renewables prices, the issues here include declining market share due to the entrance of new actors within energy markets, alongside the escalating costs of integrating 'variable' renewable energy generation due to necessary grid upgrades and investments (see Myth #3).¹⁰⁶

Since incumbent utilities are struggling, some governments have started issuing 'capacity payments' to fossil fuel producers for providing a backup supply of 'baseload' generation, in order to ensure security of supply.¹⁰⁷ This is where we see the 'liberalise and subsidise' model in full swing. **Governments are compensating for their lack of control over the energy sector by providing subsidies for all.**

The utility death spiral we are witnessing mirrors similar dynamics that played out when liberalised markets were first introduced in the energy sector. One common consequence of early energy liberalisations was falling investment. State-owned utilities — where they were not privatised — lost market share and associated revenues, meaning that their capacity to invest in the sector was reduced. Simultaneously, the private investment in the sector that was promised often failed to materialise.

In the case of the Philippines mentioned above, for example, only 2.22 GW of generating capacity was added in the first 12 years of power sector reform, and this was mostly committed before the reforms took effect. A 2014 government report noted: 'The government may need to involve itself once again in power generation to avoid power shortages in the future and keep hold of the current momentum being enjoyed as an investment attractive economy.'¹⁰⁸

A similar experience has played out in India, where liberalisation reforms have seen private companies take on an increasingly bigger share of energy generation since the turn of the century. In India, the energy sector faces mounting debt. This is because poor people are unable to afford energy and are, therefore, forced to 'steal' energy through irregular power connections. In this context, the state has stepped in to guarantee the profits of private generator firms, with publicly owned transmission and distribution companies left to take on the debt.¹⁰⁹ Consequently, India's rural electrification programme has been substantially scaled back due to a lack of funds.¹¹⁰ And private investment in the sector has been sparse because of the risky market environment.

Experiences in India are indicative of a broader trend. Energy liberalisation reforms enforced by global institutions such as the World Bank and IMF have placed the imperative of 'full cost recovery' at their core. Full cost recovery subjects utility firms to market logics, obliging utilities to ensure that the full costs of service delivery are recouped from consumers. The issue with doing so is that, as with the India case, poor consumers often simply cannot afford to pay for electricity. **Time after time, full cost recovery policies have stood in the way of electrification programmes designed to increase energy access.**

In short, market logic such as full cost recovery prevent utilities from prioritising social or environmental goals over the financial bottom line. As a result, across the global South, the marketisation of utilities has come into tension with much-needed infrastructural investments that are pivotal to decarbonising the grid.¹¹¹

FREE MARKETS MAKE ENERGY PRICES MORE VOLATILE

The utility death spiral demonstrates the volatility of energy prices under a liberalised model. Indeed, higher and more volatile prices are endemic to the free-market paradigm.

Prior to liberalisation, gas prices were indexed to oil prices, meaning that they were set according to the average price for oil in the preceding months.¹¹² However, producers are now free to profit from energy price swings. Gas companies can respond directly to external factors such as the war in Ukraine by raising their prices and cashing in on increased demand. **Liberalising gas prices means that EU countries have paid an estimated \$30 billion more for natural gas in 2021** than they would have if they had maintained oil price indexation.¹¹³

Finally, as a consequence of competitive auctions and falling production costs, prices for renewables can fall so low that producers actually stop manufacturing and selling new renewables installations because of their inability to cover production costs.¹¹⁴ For instance, **global prices for new installations fell so steeply that China's wind turbine suppliers declined from 63 in 2013 to 33 in 2019, largely from bankruptcies and mergers.**¹¹⁵

CARBON TRADING HAS FAILED

Carbon trading schemes see governments capping total emissions at a certain level and then allocating firms emissions quotas in line with the total cap. Firms that emit less than their quota can sell their excess 'carbon credits' via open markets to firms wishing to emit more than their quota permits. Thus, in theory, markets help allocate emissions within the constraints dictated by governments.

Pro-market proponents have long argued that once carbon is properly priced, markets will deliver rapid decarbonisation. Yet the EU's flagship Emissions Trading System (ETS) has been besieged by problems including weak pricing and windfall profits. This is little surprise, given that permits were allocated according to benchmarks designed by the companies they were supposed to be regulating.

18 years have passed since the 2005 launch of the EU ETS, yet 84 per cent of global emissions remain unpriced and **the share of emissions priced high enough to be effective remains well below 1 per cent.**

WE NEED TO RECLAIM ENERGY FROM THE MARKET

The free-market approach to the energy sector has ushered in new formations of monopoly power, worsening energy poverty, rendering prices increasingly volatile and causing stagnating investment. Energy is a basic need and should be delivered as a public good rather than a commodity. Treating energy as such means reclaiming it from the market and removing market logics from public utilities, allowing these companies to prioritise social and environmental values over profitability.

SUMMARY

- **Free markets are NOT the best route towards a low-carbon energy system.**
- **Rather than increasing competition and choice, liberalised markets concentrate power in the hands of giant companies. In Europe, five firms maintain an oligopolistic grip over the energy system.**
- **Liberalisation has seen energy poverty increase significantly: energy poverty doubled over a 10-year period across Europe during the period of energy liberalisation.**
- **Liberalised markets often undermine energy sector investment. In India and the Philippines, energy investments stagnated in the aftermath of liberalisation. In contexts where competitive auctions have been used to facilitate energy transition, renewable prices have declined, leaving utilities struggling to survive and without the capacity to invest.**
- **At the same time, free markets have allowed some energy companies to profit from increased price volatility: liberalising gas prices resulted in EU countries paying an estimated \$30 billion more for natural gas in 2021 than they would have if they had maintained oil price indexation.**
- **Carbon trading schemes have proved disastrous. While 18 years have passed since the 2005 launch of the EU ETS, 84% per cent of global emissions remain unpriced and the share of emissions priced high enough to be effective remains well below 1 per cent.**
- **In reality, there has never been a free market in renewable power and nor is there ever likely to be: the renewables sector is propped up by public subsidies.**

MYTH #3 — The falling price of renewable energy makes decarbonisation inevitable

THE MYTH

It is often assumed that the key factor determining the shape and pace of energy transition is the price of renewable energy. Many argue that as technology progresses and renewables become more affordable, we will eventually reach a ‘tipping point’ where renewable energy becomes cheaper than fossil fuels. Once this tipping point is reached, it is argued, the renewable transition will inevitably ramp up, bringing climate goals in sight. According to this narrative, the role of governments is to subsidise renewable technologies and invest in new research and development until this tipping point is hit.

Advocates of this position are quick to point to data showing that the price parity tipping point is almost upon us. A recent report by the International Renewable Energy Agency (IRENA) suggested that almost two thirds of renewable power added in G20 countries in 2021 cost less than the cheapest coal-fired options. According to this report, in 2021 onshore wind costs fell by 15 per cent, offshore wind by 13 per cent and solar PV by 13 per cent compared to 2020 prices.¹¹⁶

If we take these figures at face value — and if we accept the assumption that prices are the decisive factor in the progress towards net zero — then there seems to be much cause for optimism.

THE REALITY

Data around falling renewables costs should be treated with caution. In the EU, falling renewables costs do not necessarily translate to cheaper wholesale electricity prices, which are still set by fossil fuels. Additionally, **the integration of more renewables into energy systems will require expensive infrastructure investments that are typically not included in cost estimates**, meaning that the costs of transition are much higher than renewables price data alone suggests.

Moreover, the relationship between energy prices and energy transition is far more complicated than the myth suggests: falling prices do not necessarily advance decarbonisation. Evidence suggests that price can be trumped by other factors, in particular, profit maximisation. A myopic focus on price obscures the importance of lowering demand and increasing efficiency in endeavours towards decarbonisation. And the focus on costs tends to ignore the horrific labour exploitation that is common when mining for so-called ‘transition minerals’ and when manufacturing renewable technologies.

FALLING RENEWABLES PRICES MASK HIDDEN COSTS

The data on declining renewable generating costs obscures additional costs. Firstly, in the EU context, the price paid for electricity on the wholesale market is not a straightforward reflection of the costs of generation. Prices on the European wholesale market — where electricity is bought and sold by generators and suppliers — are determined by a system called ‘marginal pricing’. Under this system, all generators receive the same price for the electricity they are selling at any given time. And this price is set by the most expensive generating source. Therefore, **falling renewable costs do not have a direct impact on wholesale prices, which continue to be set by the cost of fossil fuels.**¹¹⁷

Additionally, there are expenses that are unique to an electricity sector powered by renewables which renewable price data does not account for.¹¹⁸ Unlike fossil and nuclear power plants which can be controlled and coordinated in line with the imperatives of shifting demand, wind and solar are 'variable' energy resources. This means that our capacity to generate electricity from wind and solar is dependent upon a number of variables such as the weather, climate, season and time of day. This brings a host of extra challenges in ensuring that energy supply is capable of meeting demand. What happens, for example, at points when consumer demand is surging yet the wind is not blowing and the sun is not shining?

One partial solution for this technical issue is scaling up investment in storage capacity. However, storage investments are not growing at all on pace with increases in renewable production.¹¹⁹

Accordingly, incumbent companies face a further financial burden of adapting, updating and expanding electricity networks so that they can absorb and transport the increasing amounts of variable renewable energy. The International Energy Agency (IEA) estimates that once solar and wind provide up to 25 per cent of total energy production, the additional costs of their variability will increase the unit costs of installed wind and solar capacity by an additional 10–15 per cent.¹²⁰ As renewables increase their share of total production beyond 25 per cent, these additional costs will only increase.

Others estimate the system costs of renewables to be even higher. According to research that calculates the broader system costs to keep renewable energy reliable in Texas, US, from integrating backup power plants to building storage facilities, the wind and solar price per MWh increases seven- to elevenfold.¹²¹

This means that data on falling renewables prices is in some ways deceptive. The pursuit of price parity tipping points, where renewables become more competitive than fossil fuel energy, is proving less straightforward than advocates of this myth suggest.

A focus on prices also masks the fact that renewable power would not be so cheap without the labour exploitation that tends to underpin the supply chain. From the mining of metals and minerals to the manufacturing of PV panels and wind turbines, there's growing evidence linking renewable energy supply chains to forced labour and modern slavery.¹²²

FALLING PRICES DO NOT NECESSARILY SHIFT INVESTMENT

Even if renewables were to become cheaper than fossil energy, this by no means guarantees that investors will automatically favour the lower-carbon and lower-priced option. The relationship between price and energy transition is far more complicated than proponents of this myth claim.

When we consider the history of energy transition, this becomes clear. Energy historian Andreas Malm's study of the shift from water-based power to coal-based steam power in nineteenth century Britain is highly illuminating.¹²³ Malm shows that even though water power was cheaper than coal, industry

bosses opted to transition from the former to the latter. The move towards a solid fuel that could be easily packaged and distributed across the world — in a way that water could not — allowed industry to relocate production to areas where labour was cheaper and less likely to offer organised resistance. **Ultimately, even though coal was more expensive, it was seen as preferable because it was a fuel that could more easily be profited from.**

Malm argues that history is repeating itself today. In the early 2000s, the likes of BP and Shell were beginning to divert serious attention to renewable energy, becoming the second and fourth largest manufacturers of solar panels in the world respectively. However, their renewable business operations were soon suspended and shut down because they were proving unprofitable. The reason: declining renewables costs. A former executive of Shell's solar division explained the problem: 'In the oil market, the prices are going up and down in cycles. The solar price is just going one way — it's going down.'¹²⁴

Indeed, as discussed in Myth #1, falling renewables costs at the hands of competitive auctions have ushered in a destructive utility death spiral, which sees energy firms struggling to survive. **In sum, falling prices can present an obstacle to profit.** In an economic system that values the bottom line above all else, this is no recipe for the shifts in investment required for decarbonisation.

FOCUSING ON FALLING PRICES OBSCURES RISING DEMAND

The focus on cheaper renewables tends to neglect the fact that for the energy transition to succeed, countries and industries, especially in the global North, urgently need to reduce their energy consumption.

A recent report authored by TNI and TUED argued that **changes in the energy system currently underway are better described as an 'energy expansion' than an energy transition.** According to this report, the global electricity system has been expanding at a rate of 300 GW per year in recent years. The report suggests that this outstrips annual growth in global renewable capacity, with renewable capacity growing by just 198 GW in 2020, for instance.¹²⁵

New IEA data released after this report was written suggests that the rate of renewables expansion will accelerate over coming years, projecting a growth in renewable capacity of between 350 and 400 GW per year between 2022 and 2027.¹²⁶ Yet even if this more optimistic forecast comes to fruition, the lion's share of renewables growth will be cancelled out by rising electricity demand. In the words of IRENA: 'An energy transition requires that the use of renewables expands by more than the growth in energy demand, so that less non-renewable energy needs to be used. Many countries still have not reached this point, despite dramatic increases in their use of renewables for generating electricity.'¹²⁷

The IPCC, the IEA, and others have calculated that energy efficiency and conservation adjustments can contribute up to 40 per cent of reductions in energy emissions by 2050.¹²⁸ A different estimate indicates that already existing technologies, under a low-energy demand future, could bring this figure to 53 per cent under full operationalisation.¹²⁹

WE NEED TO REDUCE ENERGY DEMAND

However, reducing energy consumption is not profitable — indeed, the more energy we consume, the more money there is to be made. Therefore, **the current for-profit energy market model fails to adequately invest in demand-reducing technologies.** And the myth that falling prices present a panacea for the energy transition helps to keep the question of demand reduction off the table.

Rather than obsessing about falling renewables costs, attention would be better placed on the more pressing question of how to reduce global energy demand. Currently, wealthy consumers use far more energy than they need while others do without, struggling with energy poverty and lacking access to reliable power connections. We need to de-commodify energy (through public ownership) in order to tackle this injustice, substantially reducing global energy consumption in ways that ensure equity in the process.



SUMMARY

- **The falling price of renewable energy does NOT make decarbonisation inevitable.**
- **The unit cost of renewable energy is falling. However, data on falling prices tends to obscure the hidden costs of decarbonisation associated with the infrastructural upgrades and changes required. These hidden costs will add an estimated 10–15% per cent to the price of a unit of energy, once renewables account for 25 per cent of total energy production.**
- **In the EU context, declining renewables prices are not reflected in the wholesale cost of energy, which is set by the prices of fossil fuels because of the EU's marginal pricing system.**
- **Much new investment in new renewable capacity is cancelled out by expanding electricity demand.**
- **Price is not the decisive factor shaping energy transition. The evidence — both historical and present day — shows that falling energy prices often undermine energy industry profits. In turn, falling renewable prices run the risk of detaching investors.**
- **Reducing energy demand could reduce energy-related carbon emissions by between 40 per cent and 53 per cent by 2050. Focusing on falling prices obscures the importance of demand reduction. Because demand reduction measures are not profitable, they remain side-lined.**

MYTH #4 – Decentralised energy will decarbonise & democratise the energy system

THE MYTH

The idea that ‘small is beautiful’, originating from economist E.F. Schumacher, is highly influential within the environment movement, which often advocates for more localised and decentralised ways of organising society.¹³⁰ This line of thinking has become prevalent within energy transition debates. Herman Scheer, the architect of the German ‘Energiewende’, argued that the transition to renewable energy implies a more distributed and localised way of life, with households and communities able to power themselves through small-scale solar generation. This, for Scheer, was to be celebrated: by decentralising energy, he believed that we could decentralise political power and create more community-oriented and democratic political forms.

Scheer’s ideology of energy localism has filtered into the way that most actors — from environmental activists to government and industry — have come to think about energy transition. Generating energy from the sun, wind and water opens up new possibilities for energy production to take place at much smaller scales than large fossil fuel infrastructure allows for: every household can have a solar panel on its roof, every neighbourhood can operate its own wind turbine.

Myriad different forms of localised energy initiative are proposed. Local energy communities owned and managed as cooperatives by their members are often seen as key. Energy communities see people banding together – usually within a specific locality — to invest in and run energy technologies and infrastructures collectively.

Alongside local energy communities, municipal energy initiatives are also positioned as key players. Municipal energy schemes see municipal government playing a more active role in any system, either as grid owners or through municipal-owned companies that invest in renewable generation and/or provide energy to households and businesses. Moreover, individual households are often positioned as ‘prosumers’: producers of electricity through small-scale renewable generating assets, as well as consumers.

For some, the decentralisation of the energy system heralds the end of the centralised grid. As such, large incumbent utility firms tend to be portrayed as conservative industry dinosaurs standing in the way of the transition. Indeed, many argue that a more decentralised energy system would be inherently democratising, taking control away from industry giants and putting power in the hands of people directly through forms of localised community and collective control and ownership.

THE REALITY

Decentralised energy has an important role to play in the transition towards more democratic and low-carbon energy systems. However, **community energy schemes face substantive challenges when they are forced to compete in a for-profit energy market.** In fact, serious questions can be raised about the democratic credentials of many decentralised energy initiatives due to the risk of exclusivity.¹³¹ What’s more, we need to be realistic about the limits of distributed generation in meeting climate targets: **the transition needs to take place across a range of scales and large-scale forms of organisation and planning are more crucial than ever.**

THE MARKET UNDERMINES DECENTRALISED ENERGY

In the context of a liberalised energy market, smaller-scale energy projects have been forced to compete with ever bigger for-profit energy companies. This has seen these projects struggling when energy prices shift and subsidies are removed.

For example, take Robin Hood Energy, a municipal energy supply company owned by Nottingham City Council in the UK. Robin Hood Energy aimed to provide energy that was as affordable and as sustainable as possible.¹³² Unfortunately, this publicly owned energy company was sold off to private firm British Gas in 2020. This was due to its failures to compete in a cutthroat and volatile market — an experience shared by several other new municipal energy companies established in the UK in recent years. An energy market that pressures companies to scale up and expand customer bases as rapidly as possible puts smaller companies like Robin Hood Energy at a severe disadvantage. When challenges such as Brexit and government policy changes came about, only large established utility firms had the capacity and resources to weather the storm.¹³³

The case of Feed-in Tariff (FiT) cuts discussed previously offers a similar story. Once these subsidies were cancelled and replaced with competitive auctions, new decentralised energy projects were quickly outcompeted by large and wealthy energy producers.¹³⁴ As a result, the community energy sector across Europe has taken a significant hit and new local energy projects now struggle to be commercially viable. In the UK, for instance, FiT cuts saw the number of new community energy organisations fall from 30 in 2014–15 to just one in 2017.¹³⁵

DECENTRALISED ENERGY IS NOT NECESSARILY DEMOCRATIC

Proponents of this myth tend to assume that localisation guarantees democratisation. In practice, matters are far more complicated. **Decentralised energy in no way ensures more just or democratic outcomes within energy transitions.** In many cases subsidy schemes geared towards supporting decentralised energy schemes such as FiTs have mostly benefitted wealthier populations able to afford large upfront investments such as rooftop solar panels. Meanwhile, lower income consumers have footed the bill for these subsidies through levies on their bills and taxation.¹³⁶

The form of participation emphasised within community energy schemes is often financial, with people encouraged to invest capital to finance new community-owned generating assets. While financial participation has a role to play in democratising the energy sector, democratisation should not be reduced to this. Firstly, financial participation says nothing about decision-making power and control. In addition, it tends to be inaccessible to those on lower incomes — often community energy schemes stipulate a minimum level of investment out of reach to those on low-incomes. **Ultimately, democratising the energy sector means ensuring that all can participate on an equal footing, irrespective of ability to pay.** If financial exclusion is one risk of community energy, another is that participation in

community energy schemes tends to require time and energy that tend to be in short supply for those living more precarious lives, as well as people with caring responsibilities.¹³⁷

DECENTRALISED ENERGY ALONE WILL NEVER BE SUFFICIENT FOR DECARBONISATION

Decentralised energy can certainly play a significant role in low-carbon transitions. However, this role will likely remain relatively modest.

For example, Amsterdam and Barcelona have both created roadmaps to boost their own energy production, which face very real challenges.¹³⁸ It was estimated that if all usable surfaces within Amsterdam were to have solar panels installed, the city would be able to produce around 1.1 GW through solar. While this is an impressive amount, it is still only around 30 per cent of the city's estimated electricity needs by 2030.¹³⁹

Barcelona has also made considerable steps towards a renewable transition, and in 2019 established a municipal energy company to help achieve maximum local energy generation.¹⁴⁰ However, even if full capacity for city-wide solar installations was reached, Barcelona's rooftops could only produce an estimated 1,191 GWh per year, accounting for only around 8 per cent of the city's current total energy needs.¹⁴¹

The case of Bangladesh also illustrates the shortcomings of distributed renewables. Here, household solar systems grew widely between 2003 and 2018, electrifying 16 per cent of rural households.¹⁴² Yet by 2021, the rate of new solar installations had fallen to almost zero. This was because the government stepped in to provide more reliable electricity connections at lower prices.¹⁴³

These cases indicate that decentralised renewable generation is unlikely to be remotely sufficient for meeting current energy needs, even under full-capacity deployment. Indeed, a recent paper by TUED estimated that **rooftop solar PV has the potential to meet just 18 per cent of the EU's electricity needs**, and only if every single rooftop in the region that is solar compatible has a PV system installed. Given that this level of ambition across the EU seems implausible, the figure is likely to be a lot lower, highlighting that relying on distributed generation alone is unfeasible.¹⁴⁴

DECARBONISATION REQUIRES PLANNING AND COORDINATION ACROSS SCALES

It is clear, then, that small-scale distributed renewable energy cannot deliver on energy transition alone. A rapid and effective transition will require thought and practice across a range of scales, with a pivotal role remaining for large-scale centralised infrastructure.

For one thing, **the transition that is needed calls for a rate and depth of infrastructural change that can only be achieved through centralised planning**. In addition, the technical challenge of the variability of renewable

energy requires the capacity to coordinate diverse forms of generation across multiple locations. Accountable centralised grid infrastructure is more important than ever.

This does not mean we must return to the top-down state industries of yesteryear. Nor does it mean conceding power over the transition to private utility firms. **The vision of Trade Unions for Energy Democracy and TNI has comprehensively reclaiming public utilities at its heart.** Our agenda includes municipalities forging cooperative partnerships with utility firms that are under democratic public ownership and that adopt a public goods rather than profit-based approach. In Denmark, public-public partnerships of this kind between public utility firms, municipalities and co-operatives have driven one of the most advanced energy transitions in the world. In Costa Rica (see below), a publicly planned, owned and organised electricity system has enabled the country to fully decarbonise its power provision.¹⁴⁵

WE NEED PUBLIC-COMMUNITY COLLABORATIONS ACROSS SCALES

The question is not whether decentralisation or centralisation will deliver the energy transition, but rather how public and community actors can collaborate across scales in ways that prioritise the public good over private gain.

The neoliberal energy model imposes unnecessary challenges to the renewable transition. Instead of an environment where electricity utilities and decentralised energy producers are encouraged to work together to solve the challenges, they are instead stuck in an environment of profit-seeking and competition. Rather than being forced to choose between decentralisation and centralisation, fixing the failure of energy liberalisation and privatisation requires nothing less than reclaiming energy systems from the market to build an overarching publicly owned energy sector that is accountable and democratic, with ample room for community initiatives. But if countries continue to rely on free markets, decentralisation may actually strengthen, rather than challenge, the for-profit energy system.

In order to truly ensure universal access to clean energy, the focus should be more on democratisation than on decentralisation. Take the community constructed, owned, managed and operated micro hydro power plants in El Cua, Nicaragua. Here, energy is regarded as a right that should be affordable for everyone. Members' financial contributions are based on their income, rather than a price per kWh, as this would limit access for poorer households.¹⁴⁶

By prioritising democratisation, the right to energy can be achieved on a larger scale. Costa Rica is home to four large rural electricity cooperatives, owned and run by their users. These not-for-profit cooperatives take part in setting, developing and enforcing public policies in rural communities.¹⁴⁷ Altogether, these cooperatives cover a fifth of the national territory and supply power to over 390,000 users.¹⁴⁸ Electricity coverage in Costa Rica is 99.9 per cent because cooperatives do not have to compete with but operate alongside the state-owned electricity utility ICE, alongside several sub-national public companies.¹⁴⁹

Democratisation can increase accountability and is key to effectively interlink decentralised initiatives with larger-scale energy production and vice versa in order to achieve clean energy for all.

SUMMARY

- **Decentralised energy will NOT decarbonise and democratise the energy system.**
- **Decentralised energy initiatives such as community energy projects and municipal energy companies are undermined by the liberalised market environment. In the UK, when FiT subsidies gave way to competitive auctions, the number of new community energy organisations fall from 30 in 2014–15 to just one in 2017.¹⁵⁰**
- **Decentralised energy initiatives are not necessarily democratic. Community energy projects often exclude those without the money or time required for participation.**
- **Decentralised energy alone will not deliver the energy transition. Rooftop solar PV has the potential to meet an estimated 18 per cent of the EU's electricity needs, yet only if every single rooftop in the region that is solar compatible has a PV system installed. In Bangladesh, household solar generation became redundant as the government was able to provide more reliable electricity at lower prices.**
- **The energy transition requires planning and coordination across scales. This calls for collaboration between public utilities, communities and governments on every level, alongside the wholesale democratisation of the sector.**

MYTH #5 – Intellectual property rights help facilitate the energy transition

THE MYTH Intellectual property (IP) laws aim to protect investors by monopolising IP holders' rights to use, license, and profit from new innovations. Within liberalised energy markets, IP rights are seen as central to speeding up innovation and encouraging investment.

According to advocates of this myth, without IP, private firms would lack the incentives necessary to push forward the energy transition. This is because IP facilitates private firms' capacity to profit from new low-carbon energy technologies, ensuring that these technologies cannot be developed by rival actors and, in turn, that firms' market shares are protected.

The International Renewable Energy Agency (IRENA) describes patents and intellectual property as an 'engine of technological innovation' and sees supporting and strengthening intellectual property regimes as a means to accelerate the renewable transition.¹⁵¹

THE REALITY The COVID-19 pandemic has brought into focus the fact that IP regimes serve to inhibit equitable access to technologies, especially in low-income countries. IP constraints meant that the rights and knowledge required to produce vaccines and medicines were left to a handful of companies, blocking low-income countries from producing vaccines while securing profits for firms in the wealthiest countries.¹⁵²

The situation with IP and the energy transition is very similar. Recognizing the artificial barrier that IP regimes pose to renewables, **António Guterres, the UN Secretary-General remarked: 'renewable energy technologies, such as battery storage, must be treated as essential and freely-available global public goods.** Removing obstacles to knowledge sharing and technological transfer — including intellectual property constraints — is crucial for a rapid and fair renewable energy transition.'¹⁵³

Indeed, contrary to claims made by IP proponents, IP is slowing down clean energy investments while simultaneously exacerbating global inequality. In fact, rather than IP regimes, it is state-led research and development programmes that are vital for renewable technology innovation. An alternative **Global Public Goods (GPG) approach, which centres equity, justice, and a swift transition, requires the loosening of IP constraints and demands a system that supports the sharing of key technologies,** rather than one that constrains technology distribution.

IP RIGHTS EXACERBATE GLOBAL INEQUALITY

The Agreement on Trade Related aspects of Intellectual Property (TRIPS) is the institutional background for IP enforcement for World Trade Organization member states. Although TRIPS contains methods for technology transfer to low-income countries, these have not remedied the global inequality of access to renewables.¹⁵⁴ Instead, **IP restrictions have established a renewable energy oligopoly whereby the production of clean energy technologies is limited to a handful of companies, largely in wealthy countries.**¹⁵⁵ In turn, IP regimes are contributing to the global inequality between the global rich and poor.

Research has indicated that there is a monopoly of climate mitigation technologies and patents in high-income countries, and that lower-income countries are rarely given licences to use patented technologies.¹⁵⁶ A broad swathe of policy-makers, activists, and governments have called for the loosening of IP regimes pertaining to low-carbon energy technologies for low- and middle-income countries.¹⁵⁷

Four manufacturers (Denmark's Vestas, Spain's Siemens Gamesa, China's Goldwind, and General Electric of the US) accounted for 55 per cent of all wind turbine production in 2019 and 73 per cent of solar photovoltaic (PV) production took place in China in 2017.¹⁵⁸ Furthermore, of the top 10 wind turbine manufacturers globally, every single firm was in Europe, the United States, or China.¹⁵⁹ This global oligopoly of renewable production is one of the reasons why the entire continent of Africa produces just 1.5 per cent of the world's solar energy, despite having the greatest potential productive capacity.^{160,161} Indeed research indicates that weaker intellectual property reinforcement would likely help local initiatives develop more rapidly within Africa.¹⁶²

Moreover, **IP regimes are contributing to neocolonial extraction in the energy sector.** Most renewables are dependent on minerals such as cobalt and copper obtained from the global South,¹⁶³ and yet only countries in the global North have the IP rights to produce new renewables. Hence, the global South is forced to relinquish its resources for the profits (and energy consumption) of the global North.¹⁶⁴

IP RIGHTS SLOW DOWN CLEAN ENERGY INVESTMENT

As explained above, IP rights prevent areas of the world rich in abundant renewable energy potential from utilising this. As well as raising issues of global justice and equality, a further consequence is that the energy transition is slowed down. By limiting the right to produce new renewable technologies to those who hold IP rights, companies, municipalities, and other actors around the world are prevented from adopting these technologies, even when there is a genuine desire to do so.

London-based think-tank Chatham House estimates that **because of patents, new inventions in the energy sector take between two and three decades to reach the mass market,** with an average of 24 years for most renewable energy innovations.¹⁶⁵ By the time these technologies are widely available, the world economy should already be close to net-zero emissions.

FOCUSING ON IP RIGHTS OBSCURES THE ROLE OF THE STATE IN LOW-CARBON INNOVATION

By positioning IP protections as the engine of renewables innovation, proponents of this myth hide the fact that state-driven research and development (R&D) is at the centre of new renewable technology. We have already seen in Myth #1 that the public sector provides the majority of funds for the renewable transition. One important dimension of this, as research by the renowned economist Mariana Mazzucato and her team point out, is that **it has actually**

been state-sponsored research programmes that have created the knowledge and technology necessary to produce renewable energy.¹⁶⁶

For example, Vestas and General Electric, two of the largest manufacturers of utility-scale wind turbines, both drew heavily on research that was funded by the US and Danish governments.¹⁶⁷ In fact, Vestas and Bonus (Danish producers of wind turbines) purchased patents from Danish government-sponsored research programmes and used this knowledge to develop their wind turbine technologies.¹⁶⁸

Calculations on the percentage of global R&D funds that come from public sources vary, but in 2011, **the European Commission estimated that around 45 per cent of R&D funds for solar energy originated from public sources,**¹⁶⁹ and research indicates that this share is increasing over time.¹⁷⁰ This is particularly important considering that public investment and policies tend to have a significant and positive effect on private investment towards R&D in renewables.¹⁷¹

WE NEED A GLOBAL PUBLIC GOODS APPROACH

In contrast to the current IP regime, an alternative Global Public Goods (GPG) approach sees access to green technologies as a public good for all and, in turn, will accelerate the renewable energy transition.

A GPG approach would challenge the current system of governments sponsoring R&D for private profits, and instead encourage active sharing and collaboration on research on new renewable technology.¹⁷² IP barriers for new renewable technologies would be replaced with a system where governments are encouraged to share knowledge and collaborate through public-public partnerships.

Rather than invest in R&D to maximise profits, **a GPG approach centres the goals of efficiency, efficacy, and equity, promoting technology transfer and knowledge-sharing** rather than reinforcing monopolies on intellectual property. Further, by promoting partnerships between public entities spanning high-income and low-income countries, a GPG approach has the potential to close the gap between the global rich and global poor in terms of access to low-carbon energy technologies.

SUMMARY

- **Intellectual property rights do NOT help facilitate the energy transition.**
- **IP enforcement exacerbates global inequality by enabling firms in wealthy western countries to gain monopoly control over the production of new low-carbon energy technologies. Just four manufacturers account for 55 per cent of the world's wind turbine production.¹⁷³**
- **In turn, IP slows down the energy transition. Chatham House estimates that because of patents, new inventions in the energy sector take between two and three decades to reach the mass market, with an average of 24 years for most renewable energy innovations.**
- **State-led research has been at the heart of R&D for renewables, challenging the narrative of profit-oriented private company-led innovation and thus undermining the need for IP protections.¹⁷⁴**
- **A Global Public Goods approach based on sharing knowledge and technology requires challenging the intellectual property system and can facilitate the distribution of renewable technology globally through public-public partnerships.¹⁷⁵**

**MYTH #6 –
Investment
protection
is necessary to
encourage
energy transition
investment**

THE MYTH

Investments in the energy sector are often protected by International Investment Agreements. These agreements contain specific measures geared towards ‘investment protection’, in particular investor-state dispute settlement (ISDS) clauses, which enable foreign investors to sue governments at international tribunals to challenge policies that have reduced their profits, or that could do so in the future.

Within the energy sector, the most frequently invoked International Investment Agreement is the 1994 Energy Charter Treaty (ECT). The Treaty is signed by 53 member states in Europe and Asia, including the EU and Euratom.¹⁷⁶ The ECT secretariat has been pushing hard to expand the Treaty into Africa, the Middle East, Latin America and more countries in Asia.¹⁷⁷ Investors and investment lawyers present the ECT and other ISDS schemes as necessary to protect and attract renewable energy investments. They argue that investors need protection through ISDS to provide legal certainty and stability. In the words of the ECT website:

‘...the Treaty is designed to provide a stable interface between the foreign investor and the host government. This stability is particularly important in the global energy sector, where projects are highly strategic and capital-intensive, and where risks have to be assessed over the long-term. It is a major task to reduce these risks, as much as possible, by creating a stable and transparent investment climate.’¹⁷⁸

Because renewable energy projects often require significant upfront investment, it is often argued that renewables investments, in particular, depend upon stable legal and regulatory frameworks. Proponents argue that without ISDS, renewable projects are too risky for investors to back with the scale and urgency required to meet international climate targets.

THE REALITY

International investment treaties, in particular the Energy Charter Treaty (ECT), have become powerful weapons for fossil fuel corporations and investment funds. ISDS enables corporations to sue governments to challenge policies that could reduce their profits — even those enacted to deal with the social, energy and climate crises.

Only investors can initiate ISDS claims — there is no parallel mechanism for governments to sue investors. Arbitration proceedings bypass national jurisdictions and lack transparency, while rulings are unpredictable and depend solely on the arbitrators’ decisions, with no right of appeal. Arbitrators often lack independence and impartiality. Arbitration awards can be enforced anywhere in the world: if states lose cases and fail to pay compensation, investors can seize their assets in other countries.¹⁷⁹

ISDS cases that relate to the environment have significantly increased over recent years. As of December 2022, the total number of known ISDS cases stood at 1,257.¹⁸⁰ **175 of these cases were brought against government measures related to the environment, 192 were initiated by a fossil fuel investor,** and at least 80 challenged measures relating to regulatory changes

for re-newable energy production.¹⁸¹ Around half of all environment-related ISDS cases were brought through the ECT. As of June 2021, the average amount claimed by investors from governments under the ECT reached \$1.6 billion.¹⁸²

The reality is that ISDS is standing in the way of climate action, while alleged benefits pertaining to renewables investment do not seem to be materialising. What's more, ISDS undermines governments' capacity to implement democratically agreed climate policies. **ISDS claims can easily run into billions because corporations not only sue to recover money they have already spent, they can also claim compensation for hypothetical future profits lost due to government actions.**¹⁸³

ISDS BLOCKS CLIMATE ACTION

In its latest report, the Intergovernmental Panel on Climate Change highlighted the danger that treaties like the ECT can 'be used by fossil-fuel companies to block national legislation aimed at phasing out the use of their assets'.¹⁸⁴ Indeed, The ECT does not support an immediate halt to new fossil fuel projects. Even plans for a 'modernised' Energy Charter would continue to protect all fossil fuel investment for at least another 10 years.

As demonstrated by the following examples, **ISDS presents a risk for governments that take measures to advance low-carbon energy transition and offer support for the fossil fuel and nuclear industries:**

Sued for phasing out nuclear energy: Swedish state-owned multinational energy company Vattenfall filed a lawsuit against Germany in 2012, claiming €4.3 billion plus interest for lost profits related to two of its nuclear reactors. The legal action was a response to a decision by the German Parliament to accelerate the phasing out of nuclear energy, following the Fukushima disaster in 2011 and strong anti-nuclear protests throughout the country.¹⁸⁵

Sued for prohibiting coal power production: The Netherlands was sued twice for its plans to stop coal power production by 2030. The German energy giant RWE claimed €1.4 billion in compensation. Meanwhile, Uniper, another German multinational, filed a similar lawsuit, claiming around €1 billion.¹⁸⁶

Sued for banning offshore oil extraction: Italy was sued by the British oil and gas company Rockhopper after cancelling its concession to drill for oil in the Adriatic Sea. This came after a decade-long struggle by coastal Italian communities who denounced the danger of drilling, which had already caused earthquakes and threatened new ecological disasters. The oil company is demanding €300 million compensation, seven times more than the figure initially invested by the company. The claim came after Italy withdrew from the ECT in 2015; **investors can continue to use ISDS procedures provided for in the ECT up to 20 years after withdrawal.**¹⁸⁷

There is a strong precedent, then, of countries being bullied out of important energy transition policies by ISDS. In addition, even the threat of new lawsuits could be enough for a government to reconsider passing new regulations that could 'damage' investors' 'economic expectations'.

It is no wonder, then, that multiple countries including Denmark, France, Spain, Germany and the Netherlands, have announced plans to leave the ECT, citing the tension between the ECT and climate action as central to their decision. What's more, the European Commission recently noted that a joint EU exit from the Treaty appears inevitable, because the Treaty 'clearly undermines' EU climate targets.¹⁸⁸

ISDS DOES NOT SUPPORT RENEWABLES INVESTMENT

There is no evidence to support the claim that ISDS and the ECT help to attract and protect investment in clean energy technologies. Investment Agreements and investment protection measures do not figure in the 167 criteria used by Bloomberg New Energy Finance to assess countries' attractiveness for renewable energy investment.¹⁸⁹ Indeed, **countries that have not signed or have recently terminated Investment Agreements are ranked by Bloomberg New Energy Finance as providing the best opportunities for renewable energy investors.**¹⁹⁰

These findings are congruent with a broader evidence base that suggests that Investment Agreements like the ECT do not contribute to investors' decision-making. Multiple recent studies have demonstrated that investment protection measures have little to no effect on Foreign Direct Investment to a country.¹⁹¹

The case of Spain further debunks the myth that investment protection supports the clean energy transition. Spain is the most sued country under the ECT, largely because of changes to its renewable subsidy schemes. The Spanish government's Feed-in-Tariff scheme created a highly lucrative environment for investment in solar energy, attracting capital from international investors and financial institutions.

However, the government cut the Feed-in-Tariff in 2008 due to the financial crisis. A torrent of ISDS cases have ensued under the ECT: **Spain received 51 claims, of which 27 have already been resolved, 21 of them in favour of the investor.**¹⁹²

An estimated €8 billion is being claimed by foreign investors, with €1.2 billion paid out so far by the government in cases it has already lost — a figure that equals Spain's commitment for spending on climate change, and five times its 2021 spending on measures to alleviate energy poverty.¹⁹³ The beneficiaries of these claims are not renewable energy companies. On the contrary, **89 per cent of the claimants are financial institutions and investment funds, for whom the energy transition is little more than a source of profit.**¹⁹⁴ Indeed, in half of the cases, the companies suing Spain also had investments in the coal, oil, gas, and nuclear energy sectors.¹⁹⁵

As such, while at face value the case of Spain looks like an example of ISDS being used to defend renewables investment, this turns out to be far from the truth. In fact, what we see here is ISDS being used to line the pockets of investors that have no particular interest in renewable energy. Meanwhile, government funds that could have been used to spearhead ambitious climate policy and clean

energy investment are depleted. Some domestic investors even registered a shell company in an ECT member country to sue the Spanish government.¹⁹⁶

ISDS UNDERMINES POPULAR SOVEREIGNTY

The implications of this are compounded, particularly for governments of resource-rich countries in the global South, due to the possibility of ISDS being deployed in cases relating to the metals and minerals required for renewable energy technologies such as lithium, cobalt and nickel. **The risk here is that governments introducing new policies or regulations pertaining to markets in these commodities could be sued through an ISDS tribunal by investors with a stake in the renewable technologies whose supply chains depend upon access to these minerals and metals.**

As the market value of some transition metals alone is expected to reach tens of billions of dollars,¹⁹⁷ ISDS claims in this sector promise to be highly lucrative. For example, following remarks by the government of Chile alluding to plans around the nationalisation of its lithium resources, Simco SpA, a joint venture between the *Chilean* company Grupo Errázuriz and Taiwanese company Simbalik Group, has threatened to invoke ISDS. Any potential claim could be worth more than \$2.5 billion, as Simco estimates that the potential ‘damages’ (including lost future profits) may total this figure.¹⁹⁸

Time and again, ISDS lawsuits — or even the mere threat of them — have been sufficient to deter governments from taking necessary measures. This dangerous dynamic known as ‘regulatory chill’ has also been observed in relation to energy transition resources.¹⁹⁹ Take Newmont, a US mining company registered in the Netherlands that evoked the Indonesian-Dutch Bilateral Investment Treaty in 2014.²⁰⁰ This happened five years after the Indonesian government introduced export restrictions on copper, a move aimed at boosting domestic employment and the local economy — and to support Indonesia in becoming less dependent on the export of raw materials. Newmont ultimately withdrew its claim after obtaining special exemptions from the mining law.²⁰¹

Wealthy Northern governments are using ISDS to protect their industries, at the expense of resource-rich countries’ sovereignty. In a communication to other EU bodies, the European Commission said that in order for the EU’s green tech industry to thrive, ‘[e]xternal energy policy must work hand in hand with the EU industrial and trade policy, ensuring market access for our industry and addressing challenges via the Free Trade Agreements and enforcement action.’ ISDS is the main enforcement mechanism of the many trade deals the EU has signed, so the Commission presents ISDS as necessary for its industries to ensure market access to raw materials critical to energy transition technologies.²⁰² In turn, this usage of ISDS undermines the capacity of resource-rich countries to introduce just transition policies.

ISDS UNDERMINES DEMOCRACY

The anti-democratic implications of the ISDS mechanism present in the ECT and countless other investment protection treaties (there are some 2,500 in total) have generated widespread criticism from academics, lawyers, and civil society.

The heart of the problem is that only foreign investors can sue, making it a one-sided and un-democratic system in which the state is always a defendant and cannot bring counter-claims against investors. It provides special privileges and rights to foreign investors, enhancing their power relative to citizens and governments. As such, **ISDS is a shadow legal system operating outside domestic legislation, capable of overriding national law and government sovereignty.**

Worldwide, ISDS has bolstered corporate impunity, while undermining governments' power to regulate the practices of corporations. It has often left the state as a hostage to investors' interests by enabling corporations to sue for billions of dollars of compensation when they can claim that national policies in some way harm their investments, if not mere hypothetical profits. In the end, the government pays compensation using public money, raising important questions about the balance between private gain and public loss. Moreover, the mechanism can have a chilling effect on public measures. When this happens, a claim or even the mere threat of a claim prevents the state from legislating to protect people's rights. It should be noted, ISDS is also open to domestic companies as long as they have registered a mailbox company abroad in a country where an investment treaty guarantees access to investment protection.

WE NEED A BINDING TREATY TO HOLD ENERGY MULTATIONALS ACCOUNTABLE

ISDS undermines governments' capacity to design and implement ambitious energy transition policies. The threat of international arbitration hampers governments, making it even more difficult to keep fossil fuels in the ground. Luckily, however, by the end of 2022, Spain, France, Italy, Germany, Poland, the Netherlands, Luxembourg and Slovenia decided to pull out of the ECT, after which the European Parliament called for an immediate withdrawal from the Treaty. At the same time, **efforts by the ECT secretariat to lobby countries in Africa, the Middle East, Asia and Latin America to sign on to the Treaty continue unabated.**²⁰³

As discussed in Myth #1, we need to rethink dominant paradigms on energy transition investment: the public sector must lead the way on delivering a just and democratic transition. For this to happen, the ECT — and ISDS schemes more broadly — must become a thing of the past.

Instead of international arbitration tribunals that favour energy multinationals and foreign investors, we need to employ international law in defence of human rights — especially considering the fact that energy companies, green and polluting alike, are often associated with human rights violations.²⁰⁴ While the privileges extending to the corporate sector through ISDS are legally binding, so far all existing international instruments on business and human rights are voluntary schemes. That's why social movements, affected communities and trade unions around the world, together with some low- and middle-income countries, have sustained the struggle for an international legally binding instrument that holds multinationals accountable for their human rights violations.^{205, 206}


This ‘binding treaty’, under negotiations at the United Nations Human Rights Council since 2014, should be part and parcel of our growing struggle to reclaim energy from the market and expand governments’ capacities to develop democratic energy transition policies.

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SUMMARY

- **Investment protection measures are NOT necessary to encourage energy transition investment.**
- **ISDS enables corporations to sue governments for policies in the public interest that reduce their profits, including hypothetical future profits.**
- **ISDS is being used to block climate action and support the fossil fuel industry, who repeatedly sue governments for measures that seek to reduce fossil fuel production and consumption. Multiple countries including Denmark, France, Spain, Germany and the Netherlands are leaving the ECT because of the threat it poses to climate targets and energy transition.**
- **ISDS does not protect or encourage renewables investment: multiple studies show that investors do not take into account the presence of Investment Agreements in their decision-making. Investment Agreements and investment protection measures do not figure in the 167 criteria used by Bloomberg New Energy Finance to assess countries’ attractiveness for renewable energy investment.**
- **ISDS undermines domestic legal systems and government sovereignty. It creates a shadow legal system that is highly untransparent and unaccountable, further concentrating power in the hands of international investors and corporations.**
- **Promoting governments’ capacity to introduce ambitious energy transition policies means dismantling the ECT and ISDS schemes more broadly.**
- **Instead of international arbitration that favours energy multinationals and foreign investors, we need an international legally binding instrument to hold energy multinationals accountable for their human rights violations.**

CONCLUSION



In the face of the ever-worsening climate crisis, this report aims to challenge the six harmful but influential energy transition myths. Together, these myths aim to persuade us that the private sector, free markets, cheaper prices and decentralisation can decarbonise the energy system — and that intellectual property rights and trade and investment protection agreements are necessary to facilitate this.

Such a worldview sees private profiteering as inherent to the energy sector and as necessary for decarbonisation. But as this report has demonstrated, reducing energy demand and switching the entire electricity infrastructure to renewables is not a profitable endeavour. Rather, it entails costly and comprehensive change that will not succeed without public planning, public finance and public ownership.

The transition requires governments to be well equipped and held accountable by a myriad of social movements and populations at large to implement policies in the public interest. Instead of leaving the energy system to the market and corporations, governments should ensure that energy workers and users can participate at every level of the sector to ensure that just, democratic and sustainable public energy systems are built.

We hope these mythbusters contribute to an increasingly powerful and interconnected labour and environmental justice movement that, collectively, can force governments to dismantle the for-profit market model and realise energy transitions by and for the public.

Finally, this publication is part of an open political process in which trade unions, scholar activists and frontline communities have developed an Energy Democracy Movement Declaration. This seeks to work towards taking energy back from the market and moving towards public ownership and democratic management, with popular participation, human rights and equality at its heart.

You can sign on and spread the Energy Democracy Movement Declaration here: <https://www.energydemocracydeclaration.org>

ENDNOTES

1. Cheung, A. (2023) 'Energy Transition in 2023: Into a New Era' <https://about.bnef.com/blog/energy-transition-in-2023-into-a-new-era/>.
2. BP (2022) 'Statistical Review of World Energy 2022' <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2022-full-report.pdf>.
3. IEA (2021) 'Coal 2021: Analysis and forecast to 2024' <https://www.iea.org/reports/coal-2021>.
4. IEA (2021) 'Oil 2021: Analysis and forecast to 2026' <https://www.iea.org/reports/oil-2021>.
5. Sweeney, S., Treat, J. and Chavez, D. (2021) 'Energy Transition or Energy Expansion', TNI and TUED, <https://www.tni.org/en/publication/energy-transition-or-energy-expansion> p. 3.
6. IRENA and CPI (2023) 'Global landscape of renewable energy finance 2023', International Renewable Energy Agency, Abu Dhabi, <https://www.climatepolicyinitiative.org/publication/global-landscape-of-renewable-energy-finance-2023/>.
7. IEA (2023) 'Rapid progress of key clean energy technologies shows the new energy economy is emerging faster than many think' <https://www.iea.org/news/rapid-progress-of-key-clean-energy-technologies-shows-the-new-energy-economy-is-emerging-faster-than-many-think>
8. Climate Policy Initiative (2021) 'Global Landscape of Climate Finance 2021' <https://www.climatepolicyinitiative.org/wp-content/uploads/2021/10/Global-Landscape-of-Climate-Finance-2021.pdf>.
9. Lamperti, F., Mazzucato, M., Roventini, A. and Semieniuk, G. (2019) 'The Green Transition: Public Policy, Finance, and the Role of the State', *Vierteljahrshefte zur Wirtschaftsforschung*, 88(2), pp. 73–88, doi:10.3790/vjh.88.2.73.
10. Sweeney, S., Treat, J. and Shen, I.H. (2020) 'The Rise and Fall of "Community Energy" in Europe', TUED, <https://rosalux.nyc/wp-content/uploads/2020/09/tuedworkingpaper13.pdf> p. 42.
11. Sweeney, S., Treat, J. and Chavez, D. (2021) 'Energy Transition or Energy Expansion', TNI and TUED, <https://www.tni.org/en/publication/energy-transition-or-energy-expansion> p. 30.
12. Malm, A. (2016) *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming*. London: Verso.
13. Morton, A. (2022) Evidence grows of forced labour and slavery in production of solar panels, wind turbines', *The Guardian*, 28 November, <https://www.theguardian.com/environment/2022/nov/29/evidence-grows-of-forced-labour-and-slavery-in-production-of-solar-panels-wind-turbines>.
14. IEA, IRENA, United Nations Statistics Division (UNSD), World Bank, World Health Organization (WHO) (2021) 'Tracking SDG 7: The Energy Progress Report' <https://www.irena.org/Publications/2023/Jun/Tracking-SDG7-2023>.
15. Weghmann, V. (2019) 'Going Public: A Decarbonised, Affordable and Democratic Energy System for Europe', European Federation of Public Service Unions, https://www.epsu.org/sites/default/files/article/files/Going%20Public_EPSU-PSIRU%20Report%202019%20-%20EN.pdf p. 5.
16. Liberalisation can be understood as reducing barriers to the free market in economic activities.
17. IEA (2023) 'For the first time in decades, the number of people without access to electricity is set to increase in 2022' <https://www.iea.org/commentaries/for-the-first-time-in-decades-the-number-of-people-without-access-to-electricity-is-set-to-increase-in-2022>
18. See Myth #1 for a detailed discussion on how public funds and government policies have underpinned the progress made on the renewable transition.
19. Weghmann, V. (2019) *Going Public: A Decarbonised, Affordable and Democratic Energy System for Europe*, European Federation of Public Service Unions, https://www.epsu.org/sites/default/files/article/files/Going%20Public_EPSU-PSIRU%20Report%202019%20-%20EN.pdf pp. 14–15.
20. TUED (forthcoming) 'Towards a public energy future' p. 12.
21. Ibid. p. 13.
22. Our World in Data (2022) 'Solar generation by region' <https://ourworldindata.org/grapher/solar-energy-consumption-by-region?stackMode=relative>.
23. Armstrong, M. (2022) 'The future looks bright for Africa's solar energy output', World Economic Forum, <https://www.weforum.org/agenda/2022/07/africa-solar-power-energy-sustainability-climate-change/>.
24. Sabin Center for Climate Change Law (2022) RWE and Uniper v. the Netherlands (Ministry of Climate and Energy), <http://climatecasechart.com/non-us-case/rwe-and-uniper-v-state-of-the-netherlands-ministry-of-climate-and-energy/>.
25. Bárcena, L. and Flues, F. (2022) 'From Solar Dream to Legal Nightmare', TNI and PowerShift, <https://www.tni.org/en/publication/from-solar-dream-to-legal-nightmare>.
26. Steinfors, L. (2020) 'Putting energy democracy at the heart of a Green New Deal to counter the climate catastrophe' in Kishimoto, S., Steinfors, L. and Petitjean, O. (eds) *The Future is Public*. Amsterdam: TNI, https://www.tni.org/files/futureispublic_chapter_15.pdf.

27. Cheung, A. (2023) 'Energy Transition in 2023: Into a New Era' <https://about.bnef.com/blog/energy-transition-in-2023-into-a-new-era/>.
28. Kerry, J. quoted in Anderson, J. (2021) 'Private sector investments called key to driving energy transition', *S&P Global Commodity Insights*, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/electric-power/060821-private-sector-investments-called-key-to-driving-energy-transition>.
29. European Commission (2020) 'Financing the green transition: The European Green Deal investment plan and just transition mechanism' https://ec.europa.eu/commission/presscorner/detail/en/ip_20_17.
30. European Commission (2022) 'The representation and implications of the financing challenge' <https://op.europa.eu/en/publication-detail/-/publication/159fc467-6952-11ed-b14f-01aa75ed71a1/language-en>.
31. Sweeney, S. and Treat, J., (2017) 'Preparing a Public Pathway: Confronting the Investment Crisis in Renewable Energy', TUED, <https://rosalux.nyc/wp-content/uploads/2021/02/tuedworkingpaper10.pdf>.
32. Ibid.
33. BP (2022) 'Statistical Review of World Energy 2022' <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2022-full-report.pdf>.
34. IEA (2021) 'Coal 2021: Analysis and forecast to 2024' <https://www.iea.org/reports/coal-2021>.
35. Alvarez, C.F. (2021) 'Global coal demand surpassed pre-Covid levels in late 2020, underlining the world's emissions challenge', IEA, <https://www.iea.org/commentaries/global-coal-demand-surpassed-pre-covid-levels-in-late-2020-underlining-the-world-s-emissions-challenge>.
36. Ibid. See also: R. Rapier (2020) 'Global Coal Consumption Is Being Driven By Developing Countries', *Forbes*, <https://www.forbes.com/sites/rrapier/2020/07/19/global-coal-consumption-is-being-driven-by-developing-countries/>.
37. IEA (2020) 'World Energy Outlook 2020 — Outlook for Energy Demand' <https://www.iea.org/reports/world-energy-outlook-2020/outlook-for-energy-demand> Note that the IEA presents their forward-looking projections in terms of alternative 'scenarios', based on different sets of assumptions. The 'Stated Policies Scenario' (STEPS) reflects a projection based on currently stated 'policy intentions and targets, insofar as they are backed up by detailed measures for their realisation'.
38. IEA (2021) 'Oil 2021: Analysis and forecast to 2026' <https://www.iea.org/reports/oil-2021>.
39. Strinati, C., Stout, S., Connolly, J and Fajrian, S. (2023) 'Global Landscape of Renewable Energy Finance 2023' <https://www.climatepolicyinitiative.org/publication/global-landscape-of-renewable-energy-finance-2023/>.
40. Sweeney, S., Treat, J. and Chavez, D. (2021) 'Energy Transition or Energy Expansion', TNI and TUED, <https://www.tni.org/en/publication/energy-transition-or-energy-expansion> p. 3.
41. IEA (2022) 'Renewable Electricity' <https://www.iea.org/reports/renewables-2022/renewable-electricity>.
42. IEA (2023) 'Renewables' <https://www.iea.org/fuels-and-technologies/renewables>.
43. IEA (2023) 'CO₂ Emissions in 2023' <https://www.iea.org/reports/co2-emissions-in-2022>
44. IEA (2023) 'Rapid progress of key clean energy technologies shows the new energy economy is emerging faster than many think' <https://www.iea.org/news/rapid-progress-of-key-clean-energy-technologies-shows-the-new-energy-economy-is-emerging-faster-than-many-think>
45. Sweeney, S., Treat, J. and Chavez, D. (2021) 'Energy Transition or Energy Expansion', TNI and TUED, <https://www.tni.org/en/publication/energy-transition-or-energy-expansion>
46. Common Wealth (2023) 'Shell's Q4 Results: Big Oil Won't Deliver the Green Transition' <https://www.commonwealth.co.uk/publications/shells-exceptional-profits-are-yet-another-reminder-that-big-oil-wont-deliver-the-green-transition>
47. IEA (2021) 'Financing Clean Energy Transitions in Emerging and Developing Economies' <https://www.iea.org/reports/financing-clean-energy-transitions-in-emerging-and-developing-economies>
48. IEA (2023) 'Global Energy Transitions Stocktake' <https://www.iea.org/topics/global-energy-transitions-stocktake>
49. IEA, IRENA, UNSD, World Bank, WHO (2021) 'Tracking SDG 7: The Energy Progress Report' <https://www.irena.org/Publications/2023/Jun/Tracking-SDG7-2023>.
50. Electrification may alleviate poverty, but it does not eradicate it. Poorer urban homes in South Africa spend between 12% and 20% of household income on energy. This meant that Eskom only recovered a fraction of the costs of electrification through electricity payments by users. See Department: Minerals and Energy (DME) (2001) 'National Electrification Programme (NEP) 1994–1999, Summary Evaluation Report' http://www.energy.gov.za/files/media/explained/statistics_electrification_2001.pdf.
51. DME Cabinet Memorandum April 2001, quoted in Newbery, D. and Eberhard, A. (2008) 'South African Network Infrastructure Review: ELECTRICITY'. <https://www.gsb.uct.ac.za/files/saelectricitypaper08.pdf>.
52. Steffen, B., Karplus, V.J. and Schmidt, T.S. (2020) 'State ownership and technology adoption: The case of electric utilities and renewable energy' <https://ceep.mit.edu/wp-content/uploads/2021/09/2020-016.pdf>.

53. Including national, bilateral and multilateral finance institutions, as well as direct governmental funds, see: CPI (2021) 'Global Landscape of Climate Finance 2021' <https://www.climatepolicyinitiative.org/wp-content/uploads/2021/10/Global-Landscape-of-Climate-Finance-2021.pdf>.
54. Ibid.
55. COP26 (2021) 'Climate Finance Delivery Plan: Meeting the US\$100 Billion Goal' <https://ukcop26.org/wp-content/uploads/2021/10/Climate-Finance-Delivery-Plan-1.pdf>.
56. Steffen, B., Karplus V.J. and T.S. Schmidt (2020) 'State ownership and technology adoption: The case of electric utilities and renewable energy' <https://ceep.mit.edu/wp-content/uploads/2021/09/2020-016.pdf>.
57. Lamperti, F., Mazzucato, M., Roventini, A. and Semieniuk, G. (2019) 'The Green Transition: Public Policy, Finance, and the Role of the State', *Vierteljahrshefte zur Wirtschaftsforschung*, 88(2), pp. 73–88, doi:10.3790/vjh.88.2.73.
58. IRENA (2022) 'RE-organising power systems for the transition' <https://www.irena.org/publications/2022/Jun/RE-organising-Power-Systems-for-the-Transition>.
59. TUED South (forthcoming) 'Towards a Public Pathway Approach to a Just Energy Transition for the Global South'.
60. Sweeney, S. and Treat, J. (2017) 'Preparing a Public Pathway: Confronting the Investment Crisis in Renewable Energy', TUED, <https://rosalux.nyc/wp-content/uploads/2021/02/tuedworkingpaper10.pdf> p. 19.
61. Ball, J. (2017) 'Germany's High-Priced Energy Revolution', *Fortune*, <https://fortune.com/2017/03/14/germany-renewable-clean-energy-solar/>.
62. Sweeney, S., and Treat, J. (2017) 'Preparing a Public Pathway: Confronting the Investment Crisis in Renewable Energy', TUED, <https://rosalux.nyc/wp-content/uploads/2021/02/tuedworkingpaper10.pdf> p. 19.
63. Sweeney, S., Treat, J. and Shen. I.H. (2020) 'The Rise and Fall of "Community Energy" in Europe', TUED, <https://rosalux.nyc/wp-content/uploads/2020/09/tuedworkingpaper13.pdf>. See section 3 for a detailed description on how this shift ultimately bankrupted many smaller decentralised renewable energy initiatives and disproportionately benefited large incumbent energy companies, while resulting in a 'death spiral' for utility companies.
64. Ibid. p. 42.
65. Sweeney, S., Treat, J. and Chavez, D. (2021) 'Energy Transition or Energy Expansion', TNI and TUED, <https://www.tni.org/en/publication/energy-transition-or-energy-expansion> p. 25.
66. Congressional Research Service (2022) 'Tax Provisions in the Inflation Reduction Act of 2022 (H.R. 5376)' <https://crsreports.congress.gov/product/pdf/R/R47202>. See sections 13501, 13502, 50142, 50143, and 30001.
67. Mutambatsere, E. and De Vautibault, M. (2022) 'Blended finance can catalyze renewable energy investments in low-income countries', World Bank blogs, <https://blogs.worldbank.org/ppps/blended-finance-can-catalyze-renewable-energy-investments-low-income-countries>.
68. Attridge, S. and Engen, L. (2019) 'Blended Finance in the Poorest Countries: The Need for a Better Approach', ODI, <https://odi.org/en/publications/blended-finance-in-the-poorest-countries-the-need-for-a-better-approach/>.
69. Ibid.
70. Steinfors, L. (2020) 'Putting energy democracy at the heart of a Green New Deal to counter the climate catastrophe', in Kishimoto, S., Steinfors, L. and Petitjean, O. (eds) *The Future is Public*. Amsterdam: TNI, https://www.tni.org/files/futureispublic_chapter_15.pdf.
71. IPCC (2022) 'Working Group II: Overarching frequently asked questions and answers.' https://www.ipcc.ch/report/ar6/wg2/downloads/faqs/IPCC_AR6_WGII_Overarching_OutreachFAQs.pdf; IEA (2021) 'World Energy Investment 2021: executive summary' <https://www.iea.org/reports/world-energy-investment-2021/executive-summary>.
72. Kusnetz, N. (2021) 'Fossil fuel companies took billions in US coronavirus relief funds but still cut nearly 60,000 jobs', *Inside Climate News*, <https://insideclimatenews.org/news/02042021/fossil-fuel-companies-took-billions-in-u-s-coronavirus-relief-funds-but-still-cut-nearly-60000-jobs/>.
73. Greenpeace (2022) 'Oil industry pockets 3 billion in EU profits at the pump since invasion of Ukraine' <https://www.greenpeace.org/eu-unit/issues/climate-energy/46137/oil-industry-pockets-3-billion-in-eu-profits-at-the-pump-since-invasion-of-ukraine/>.
74. Hardin, S. and Rowland-Shea, J. (2022) 'These top 5 oil companies just raked in 35 billion while Americans pay more at the pump', Center for American Progress, <https://www.americanprogress.org/article/these-top-5-oil-companies-just-raked-in-35-billion-while-americans-pay-more-at-the-pump/>.
75. IEA (2022) 'World Energy Investment 2022: Overview and key findings' <https://www.iea.org/reports/world-energy-investment-2022/overview-and-key-findings>.
76. Steinfors, L. (2020) 'Putting energy democracy at the heart of a Green New Deal to counter the climate catastrophe', in Kishimoto, S., Steinfors, L. and Petitjean, O. (eds) *The Future is Public*. Amsterdam: TNI, https://www.tni.org/files/futureispublic_chapter_15.pdf.

77. CPI (2021) 'Global Landscape of Climate Finance 2021' <https://www.climatepolicyinitiative.org/wp-content/uploads/2021/10/Global-Landscape-of-Climate-Finance-2021.pdf>.
78. Sweeney, S. and Treat, J. (2017) 'Preparing a Public Pathway: Confronting the Investment Crisis in Renewable Energy', TUED, <https://rosalux.nyc/wp-content/uploads/2021/02/tuedworkingpaper10.pdf> p. 19.
79. Sweeney, S., Treat, J. and Shen. I.H. (2020) 'The Rise and Fall of "Community Energy" in Europe', TUED, <https://rosalux.nyc/wp-content/uploads/2020/09/tuedworkingpaper13.pdf> pp. 42–43
80. Hardin, S. and Rowland-Shea, J. (2022) 'These top 5 oil companies just raked in 35 billion while Americans pay more at the pump.', Center for American Progress, <https://www.americanprogress.org/article/these-top-5-oil-companies-just-raked-in-35-billion-while-americans-pay-more-at-the-pump/>
81. See Myth #1 for a detailed discussion of how public funds and government policies have underpinned the progress made on the renewable transition.
82. IRENA (2022) 'RE-organising power systems for the transition' https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2022/Jun/IRENA_Organising_Power_Systems_2022.pdf.
83. Kennedy, S. (2022) 'Opinion: Liberalisation and decarbonisation are a recipe for volatility', *Energy Monitor*, <https://www.energymonitor.ai/policy/market-design/opinion-liberalisation-and-decarbonisation-are-a-recipe-for-volatility>; The Left in the European Parliament (2022) 'Energy: how the market is (not) working' <https://left.eu/medias/video/energy-how-the-market-is-not-working/>.
84. Sweeney, S., Treat, J. and Chavez, D. (2021) 'Energy Transition or Energy Expansion', TNI and TUED, <https://www.tni.org/en/publication/energy-transition-or-energy-expansion> p. 4.
85. Liberalisation can be understood as reducing barriers to the free market in economic activities, while privatisation can be understood as taking entities (such as energy companies) that were previously in non-private ownership and selling them off to be available for private investors and ownership.
86. Wegmann, V. (2019) 'Going Public: A Decarbonised, Affordable and Democratic Energy System for Europe', European Federation of Public Service Unions, https://www.epsu.org/sites/default/files/article/files/Going%20Public_EPSU-PSIRU%20Report%202019%20-%20EN.pdf p. 11.
87. Sweeney, S., Treat, J. and Shen. I.H. (2020) 'The Rise and Fall of 'Community Energy' in Europe', TUED, <https://rosalux.nyc/wp-content/uploads/2020/09/tuedworkingpaper13.pdf> p. 40.
88. IEA, IRENA, UNSD, World Bank, WHO (2021) 'Tracking SDG 7: The Energy Progress Report' <https://www.irena.org/Publications/2023/Jun/Tracking-SDG7-2023>.
89. Ibid.
90. IEA (2023) 'For the first time in decades, the number of people without access to electricity is set to increase in 2022' <https://www.iea.org/commentaries/for-the-first-time-in-decades-the-number-of-people-without-access-to-electricity-is-set-to-increase-in-2022>
91. Ibid.
92. Sustainable Energy For All (2021) 'SEforALL Analysis of SDG7 Progress – 2021: SDG7 Data 2010–2019' <https://www.seforall.org/system/files/2021-08/Analysis-SDG7-Progress-2021.pdf>.
93. IEA, IRENA, UNSD, World Bank, WHO (2023) 'Tracking SDG 7: The Energy Progress Report', <https://www.irena.org/Publications/2023/Jun/Tracking-SDG7-2023>
94. Wegmann, V. (2019) 'Going Public: A Decarbonised, Affordable and Democratic Energy System for Europe', European Federation of Public Service Unions, https://www.epsu.org/sites/default/files/article/files/Going%20Public_EPSU-PSIRU%20Report%202019%20-%20EN.pdf p. 5.
95. Right to Energy Coalition (2022) 'About energy poverty' <https://righttoenergy.org/about-energy-poverty/>. Many of these estimates come from 2019 as more recent estimates are not available on the European Commission's Energy Poverty Advisory Hub website at the time of writing.
96. Wegmann, V. (2023 forthcoming) 'Heating for everyone! Why we do not have it and how we could achieve it', Public Services International Research Unit (PSIRU).
97. Haan, M. and Schinkel, M. P. (2023) 'Energieplafond houdt overheidskosten ver boven ramingen'. <https://esb.nu/energieplafond-houdt-overheidskosten-ver-boven-ramingen/>.
98. Karsten, E. And Mulder, M. (2020) 'Hernieuwbare stroom kan voorlopig nog niet zonder subsidie', ESB, <https://esb.nu/hernieuwbare-stroom-kan-voorlopig-niet-zonder-subsidie/>.
99. Sweeney, S., Treat, J. and Shen. I.H. (2020) 'The Rise and Fall of "Community Energy" in Europe', TUED, <https://rosalux.nyc/wp-content/uploads/2020/09/tuedworkingpaper13.pdf> part 3.
100. Sweeney, S. and Treat, J. (2017) 'Preparing a Public Pathway: Confronting the Investment Crisis in Renewable Energy', TUED, <https://rosalux.nyc/wp-content/uploads/2021/02/tuedworkingpaper10.pdf> pp. 24–25.

101. Sweeney, S., Treat, J. and Shen, I.H. (2020) 'The Rise and Fall of "Community Energy" in Europe', TUED, <https://rosalux.nyc/wp-content/uploads/2020/09/tuedworkingpaper13.pdf>.
102. Sweeney, S. and Treat, J. (2017) 'Preparing a Public Pathway: Confronting the Investment Crisis in Renewable Energy', TUED, <https://rosalux.nyc/wp-content/uploads/2021/02/tuedworkingpaper10.pdf> p. 24.
103. Treat, J. and Sweeney, S. (2019) 'Growth in renewables has stalled. Investment is falling. But why?', TUED, <https://web.archive.org/web/20210308094529/http://unionsforenergydemocracy.org/growth-in-renewables-has-stalled-investment-is-falling-but-why/>.
104. Sweeney, S. and Treat, J. (2017) 'Preparing a Public Pathway: Confronting the Investment Crisis in Renewable Energy', TUED, <https://rosalux.nyc/wp-content/uploads/2021/02/tuedworkingpaper10.pdf>.
105. Wegmann, V. (2019) 'Going Public: A Decarbonised, Affordable and Democratic Energy System for Europe', European Federation of Public Service Unions, https://www.epsu.org/sites/default/files/article/files/Going%20Public_EPSU-PSIRU%20Report%202019%20-%20EN.pdf p. 21.
106. Sweeney, S., Treat, J. and Chavez, D. (2021) 'Energy Transition or Energy Expansion', TNI and TUED, <https://www.tni.org/en/publication/energy-transition-or-energy-expansion> p. 3.
107. Wegmann, V. (2019) 'Going Public: A Decarbonised, Affordable and Democratic Energy System for Europe', European Federation of Public Service Unions, https://www.epsu.org/sites/default/files/article/files/Going%20Public_EPSU-PSIRU%20Report%202019%20-%20EN.pdf pp. 14–15.
108. Philippines Department of Energy (undated) '19th Status Report on EPIRA Implementation' <https://www.doe.gov.ph/19th-status-report-epira-implementation>.
109. TUED South (forthcoming) 'Towards a Public Pathway Approach to a Just Energy Transition for the Global South'.
110. Lamb, P.M. (2006) 'The Indian Electricity Market: Country Study and Investment Context', Program on Energy and Sustainable Development at the Center for Environmental Science and Policy, Stanford University, https://fsi-live.s3.us-west-1.amazonaws.com/s3fs-public/India_Country_Study_UPDATE.pdf.
111. TUED South (forthcoming) 'Towards a Public Pathway Approach to a Just Energy Transition for the Global South'.
112. Kennedy, S. (2022) 'Opinion: Liberalisation and decarbonisation are a recipe for volatility', *Energy Monitor*, <https://www.energymonitor.ai/policy/market-design/opinion-liberalisation-and-decarbonisation-are-a-recipe-for-volatility>.
113. Ibid.
114. TUED (forthcoming) 'Towards a public energy future' p. 66.
115. Ibid., p. 66; Jäger-Waldau, A. (2019) 'PV status report', European Commission, <https://op.europa.eu/o/opportal-service/download-handler?identifier=dfa5cde5-05c6-11ea-8c1f-01aa75ed71a1&format=pdf&language=en&productionSystem=cellar&part=7> p. 7.
116. IRENA (2022) 'Renewable Power Generation Costs in 2021' <https://www.irena.org/publications/2022/Jul/Renewable-Power-Generation-Costs-in-2021>.
117. Wegmann, V. (2023 forthcoming) 'Heating for everyone! Why we do not have it and how we could achieve it', PSIRU.
118. Ibid. p. 26.
119. Ibid. p. 31.
120. Sweeney, S., Treat, J. and Chavez, D. (2021) 'Energy Transition or Energy Expansion', TNI and TUED, <https://www.tni.org/en/publication/energy-transition-or-energy-expansion> p. 30.
121. Huber, M. and Stafford, F. (2023) Socialist Politics and the Electricity Grid, *Catalyst*, <https://catalyst-journal.com/2023/03/socialist-politics-and-the-electricity-grid>; Idel, R. (2002) 'Levelized Full System Costs of Electricity', *Energy*. doi.org/10.2139/ssrn.4028640.
122. Morton, A. (2022) Evidence grows of forced labour and slavery in production of solar panels, wind turbines', *The Guardian*, 28 November, <https://www.theguardian.com/environment/2022/nov/29/evidence-grows-of-forced-labour-and-slavery-in-production-of-solar-panels-wind-turbines>.
123. Malm, A. (2016) *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming*. London: Verso.
124. Cited in Malm, A. (2016) *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming*. London: Verso.
125. Sweeney, S., Treat, J. and Chavez, D. (2021) 'Energy Transition or Energy Expansion', TNI and TUED, <https://www.tni.org/en/publication/energy-transition-or-energy-expansion> p. 30.
126. IEA (2022) 'Renewables 2022' <https://iea.blob.core.windows.net/assets/ada7af90-e280-46c4-a577-df2e4fb44254/Renewables2022.pdf>.
127. IRENA (2022) 'Renewable capacity highlights' https://irena.org/-/media/Files/IRENA/Agency/Publication/2022/Apr/IRENA_RE_Capacity_Highlights_2022.pdf.
128. TUED (forthcoming) 'Towards a public energy future' p. 84.

129. Ibid. p. 84.
130. Schumacher, E.F. (1973) *Small is Beautiful: A Study of Economics as if People Mattered*. London: Blond and Briggs.
131. Markman, J. (2019) 'Amazon and Google launch secret plot to power your home', Forbes, <https://www.forbes.com/sites/jonmarkman/2019/02/27/amazon-and-google-launch-secret-plot-to-power-your-home/?sh=59c163576aa8>.
132. Dingwall, E. (2020) 'The downfall of Robin Hood Energy', *Red Pepper*, <https://www.redpepper.org.uk/the-downfall-of-robin-hood-energy>.
133. Ibid.
134. See Myth #2.
135. Pratt, D. (2018) 'Community energy decline continues with just one new company established in 2017', Solar Power Portal, https://www.solarpowerportal.co.uk/news/community_energy_decline_continues_with_just_one_new_company_in_2017.
136. Sweeney, S., Treat, J. and Shen, I.H. (2020) 'The Rise and Fall of 'Community Energy' in Europe', TUED, <https://rosalux.nyc/wp-content/uploads/2020/09/tuedworkingpaper13.pdf>. p. 23.
137. Johnson, C.A. and Hall, S. (2014) 'Community energy and equity: The distributional implications of a transition to a decentralised electricity system', *People, Place and Policy* 8 (3), pp. 149–167.
138. Sweeny, S. and Treat, J. (2021) 'Beyond Disruption: how reclaimed utilities can help cities meet their climate goals' https://rosalux.nyc/wp-content/uploads/2021/11/TUED_WP14_FINAL-1.pdf pp. 35–40.
139. Ibid. pp. 36–37.
140. Ibid. pp. 37–38.
141. Ibid. p. 38. Barcelona's total energy consumption was around 15,000 GWh in 2019.
142. Uddin, M.N., Rahman, M.A., Mofijur, M, et al. (2019) 'Renewable energy in Bangladesh: Status and prospects', *Energy Procedia* 160, pp. 655–661. doi:10.1016/j.egypro.2019.02.218. Halder, P.K., Paul, N., Joardder, M.U.H. and Sarker, M. (2015) 'Energy scarcity and potential of renewable energy in Bangladesh', *Renewable and Sustainable Energy Reviews*, 51, pp.1636–1649, doi:10.1016/j.rser.2015.07.069.
143. Tachev, V. 'The State of Renewable Energy in Bangladesh — Slow Transition, But Big Potential', Energy Tracker Asia, <https://energytracker.asia/the-state-of-renewable-energy-in-bangladesh/>.
Debnath, K.B. and Mourshed, M. (2022) 'Why is Bangladesh's electricity generation heading towards a GHG emissions-intensive future?' *Carbon Management*, 13(1), pp. 216–237, doi.org/10.1080/17583004.2022.2068454.
144. Sweeney, S. and Treat, J. (2021) Beyond Disruption: How Reclaimed Utilities Can Help Cities Meet Their Climate Goals <https://rosalux.nyc/beyond-disruption-how-reclaimed-utilities-can-help-cities-meet-their-climate-goals/>
145. Chavez, D. (2018) 'Energy democracy and public ownership: What can Britain learn from Latin America?', TNI, <https://www.tni.org/en/article/energy-democracy-and-public-ownership>
146. Energy Democracy.net (2023) 'El Cua, Nicaragua: Organising 'La Junta': Combatting Energy Poverty' <https://energy-democracy.net/el-cua-nicaragua/>
147. Messina, P. and Sanguinetti, M. (2023/2024 forthcoming) Article about Costa Rica's public electricity model, Comuna and TNI.
148. Energy Democracy.net (2023) 'COOPELESCA, Costa Rica: The COOPELESCA cooperative experience: Energy democracy at work in a rural context' <https://energy-democracy.net/coopelesca-costa-rica/>
149. Trading Economics (2023) 'Costa Rica – Access to Electricity (% of Population)' <https://tradingeconomics.com/costa-rica/access-to-electricity-percent-of-population-wb-data.html>
150. Pratt, D. (2018) 'Community energy decline continues with just one new company established in 2017', Solar Power Portal, https://www.solarpowerportal.co.uk/news/community_energy_decline_continues_with_just_one_new_company_in_2017
151. IRENA (2013) 'Intellectual Property Rights: The Role of Patents in Renewable Energy Technology Innovation' https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2013/Intellectual_Property_Rights.pdf pp. 5 & 7.
152. Médecins Sans Frontières (2022) 'Removing intellectual-property barriers from COVID-19 vaccines and treatments for people in South Africa' <https://msfaccess.org/removing-intellectual-property-barriers-covid-19-vaccines-and-treatments-people-south-africa>.
153. Guterres, A. (2022) 'Remarks at Press Conference on WMO State of the Global Climate 2021 Report' <https://media.un.org/en/asset/k1q/k1qn0ocy8a>
154. Pradham, N. (2013) 'Moving towards a Sustainable Future: Replacing TRIPS with a New International Regime for Intellectual Property and Sustainable Energy Technology Transfer' <https://heinonline.org/HOL/LandingPage?handle=hein.journals/wisint31&div=10&id=&page=>.

155. TUED (forthcoming) 'Towards a public energy future' p. 12.
156. Raiser, K., Naims, H. and Bruhn T. (2017) 'Corporatization of the climate? Innovation, intellectual property rights, and patents for climate change mitigation', *Energy Research & Social Science*, 27 <https://www.sciencedirect.com/science/article/pii/S2214629617300397#sec0050> p. 5.
157. Rimmer, M. (2011). 'Climate justice for intellectual property at Durban', *The Conversation*, <https://theconversation.com/climate-justice-for-intellectual-property-at-durban-4572>.
158. Ibid. p. 12.
159. Ibid. p. 13.
160. Our world in data. (2022) 'Solar generation by region' <https://ourworldindata.org/grapher/solar-energy-consumption-by-region?stackMode=relative>.
161. Armstrong, M. (2022) 'The future looks bright for Africa's solar energy output', World Economic Forum, <https://www.weforum.org/agenda/2022/07/africa-solar-power-energy-sustainability-climate-change/>.
162. Adewopo, A., Schonwetter, T. and Chuma-Okoro, H. (2018) 'Intellectual property rights and access to energy services in Africa: Implications for development' in Omorogbe, Y. and Ordor, A. (eds.) *Ending Africa's Energy Deficit and the Law: Achieving Sustainable Energy for All in Africa*. Oxford: Oxford University Press. <https://academic.oup.com/book/3285/chapter/144287461>.
163. Backer, A. (2021) 'The Global South's double burden', *Economy and Ecology*, <https://www.ips-journal.eu/topics/economy-and-ecology/the-global-souths-double-burden-5539/>.
164. Neri, J. (2021) 'Mining activity in the Peruvian amazon is impoverishing the Arakbut indigenous people', International Work Group for Indigenous Affairs, <https://www.iwgia.org/en/news/4569-mining-activity-in-the-peruvian-amazon-is-impoverishing-the-arakbut-indigenous-people.html>.
165. Lee, B., Iliev, I. and Preston, F. (2009) 'Who Owns Our Low Carbon Future? Intellectual Property and Energy Technologies', Chatham House, p. 57.
166. Mazzucato, M. (2015) *Entrepreneurial State: Debunking Public Vs. Private Sector Myths*. London and New York: Anthem Press. See chapter 7.
167. Ruegg, R. and Thomas. P. (2009) 'Tracing government-funded research in wind energy to commercial renewable power generation.' *Research Evaluation* 18 (5), p. 392.
168. Mazzucato, M. (2015) *Entrepreneurial State: Debunking Public Vs. Private Sector Myths*. London and New York: Anthem Press, p. 157.
169. Gasser, M. et al. (2022) 'Public Research and Development Funding for Renewable Energy Technologies in Europe: A Cross-Country Analysis.' *Sustainability* 14 (9) 5557. p. 6.
170. Mazzucato, M. and Semieniuk, G. (2018) 'Financing renewable energy: Who is financing what and why it matters', *Technological Forecasting and Social Change* 127: p. 10.
171. Ibid. p. 10.
172. TUED (forthcoming) 'Towards a public energy future' p. 11.
173. TUED (forthcoming) 'Public Energy report'. p. 12.
174. Mazzucato, M. (2015) *Entrepreneurial State: Debunking Public Vs. Private Sector Myths*. London and New York: Anthem Press. See chapter 7.
175. TUED (forthcoming) 'Towards a public energy future' p. 52.
176. Eberhardt, P., Olivet, C. and Steinfort L. (2018), One Treaty to Rule them All: the ever-expanding Energy Charter Treaty and the power it gives corporations to halt the energy transition, Corporate Europe Observatory and TNI, <https://www.tni.org/en/energy-charter-dirty-secrets>.
177. Eberhardt, P. and Olivet, C. (2020) 'Silent expansion: Will the world's most dangerous investment treaty take the global south hostage?', TNI, <https://www.tni.org/en/publication/silent-expansion>.
178. International Energy Charter (2023) 'Frequently Asked Question about the Energy Charter Process' <https://www.energycharter.org/process/frequently-asked-questions/>.
179. Eberhardt, P. and Olivet, C. (2012), Profiting from injustice. How law firms, arbitrators and financiers are fuelling an investment arbitration boom, Corporate Europe Observatory and TNI, <https://www.tni.org/files/download/profitfrominjustice.pdf>.
180. United Nations Conference on Trade and Development (UNCTAD) (2023) 'Total number of known investment treaty cases rises to 1,257' <https://investmentpolicy.unctad.org/news/hub/1717/20230419-total-number-of-known-investment-treaty-cases-rises-to-1-257>.
181. UNCTAD (2022) 'Treaty-based investor-state dispute settlement cases and climate action' https://unctad.org/system/files/official-document/diaepcbinf2022d7_en.pdf.

182. Aydos, M., Toledano, P., Brauch, M.D. et al (2022) 'Scaling Investment in Renewable Energy Generation to Achieve Sustainable Development Goals 7 (Affordable and Clean Energy) and 13 (Climate Action) and the Paris Agreement: Roadblocks and Drivers'. New York: Columbia Center on Sustainable Investment, <https://ccsi.columbia.edu/content/renewable-energy-investment-roadblocks-drivers>.
183. Eberhardt, P., Olivet C. and Steinfort, L. (2018) 'One Treaty to Rule Them All', Corporate Europe Observatory and TNI, https://www.tni.org/files/publication-downloads/one_treaty_to_ruled_them_all.pdf p. 26.
184. Intergovernmental Panel on Climate Change (2022) 'WG III contribution to the Sixth Assessment Report' https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Chapter_14.pdf, Chapter 14, pp. 74 & 81.
185. Eberhardt, P., Olivet C. and Steinfort, L. (2018) 'One Treaty to Rule Them All', Corporate Europe Observatory and TNI, https://www.tni.org/files/publication-downloads/one_treaty_to_ruled_them_all.pdf p. 44.
186. Both companies claimed the ban was a form of expropriation. But when the companies were in need of state aid, as a consequence of Russia's 2022 invasion of Ukraine, they both dropped their claims. The dropping of the claims was a requirement from the German government to be eligible for aid d. See Ballantyne J (2023) 'Uniper withdraws ECT claim', Global Arbitration Review, <https://globalarbitrationreview.com/article/uniper-withdraws-ect-claim>. This decision to retract the cases was preceded by the verdict of a Dutch district court that dismissed the claims by RWE and Uniper on the basis that the coal ban did not unlawfully infringe on their property rights and that companies could have expected the announcement given the relatively high levels of CO2 emissions. For more information about the verdict of the Dutch district court see Investment Treaty News (2022) 'Dutch court denies compensation to RWE and Uniper', <https://www.iisd.org/itn/en/2022/12/26/dutch-court-denies-compensation-to-rwe-and-uniper/>.
187. Red Carpet Courts (2023) 'Dirty Oil Attacks Action On Fossil Fuels: Rockhopper vs Italy', <https://10isdsstories.org/cases/case9/>.
188. Abnett, K. 2023. 'Brussels says EU exit from Energy Charter Treaty 'unavoidable'', Reuters, <https://www.reuters.com/world/europe/brussels-says-eu-exit-energy-charter-treaty-unavoidable-2023-02-07/>
189. Bloomberg New Energy Finance (2019) 'Emerging Markets Outlook 2019', <https://2019.global-climatescope.org/assets/data/reports/climatescope-2019-report-en.pdf>
190. Ibid. p. 52.
191. Pohl, J. (2018) 'Societal benefits and costs of International Investment Agreements: A Critical Review of Aspects and Available Empirical Evidence', *OECD Working Papers on International Investment*, https://www.oecd-ilibrary.org/finance-and-investment/societal-benefits-and-costs-of-international-investment-agreements_e5f85c3d-en, p. 30. Brada, J.C., Drabek, Z. and Iwasakis, I. (2020) 'Does Investor Protection Increase Foreign Direct Investment? A Meta-Analysis', *Journal of Economic Surveys*, <https://doi.org/10.1111/joes.12392>, 25.
192. Bárcena, L. and Flues, F. (2022), 'From Solar Dream to Legal Nightmare', TNI and PowerShift, <https://www.tni.org/en/publication/from-solar-dream-to-legal-nightmare>
193. Ibid.
194. Ibid.
195. Ibid.
196. Ibid. p. 13.
197. BloombergNEF (2023) 'Transition Metals Become \$10 Trillion Opportunity as Demand Rises and Supply Continues to Lag' <https://about.bnef.com/blog/transition-metals-become-10-trillion-opportunity-as-demand-rises-and-supply-continues-to-lag/>
198. Deepak, G. (2022) 'LITHIUM MINER THREATENS TREATY CLAIM AGAINST CHILE', *Investment Arbitration Reporter*, <https://www.iareporter.com/articles/lithium-miner-threatens-treaty-claim-against-chile/>
199. Fritz, T. (2015) 'International Investment Agreements Under Scrutiny' <https://www.tni.org/en/publication/international-investment-agreements-under-scrutiny>; Roeline Knottnerus (2018) 'The EU-Indonesia CEPA negotiations' TNI, Centre for Research on Multinational Corporations (SOMO) and Indonesia for Global Justice (IGJ), <https://www.tni.org/en/publication/the-eu-indonesia-cepa-negotiations>
200. Nusa Tenggara Partnership B.V. and PT Newmont Nusa Tenggara v. Republic of Indonesia, ICSID Case No. ARB/14/15, <https://investmentpolicy.unctad.org/investment-dispute-settlement/cases/584/nusa-tenggara-v-indonesia>
201. van der Pas, H. and Damanik, R. (2014), 'Netherlands-Indonesia Bilateral Investment Treaty Rolls Back Implementation of New Indonesian Mining Law', IGJ, TNI and the EU-ASEAN FTA Network, <https://www.tni.org/files/download/newmont-indonesia-case-4.pdf>.
202. European Commission (2022) 'Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and The Committee of the Regions', <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52022JC0023>

203. Eberhardt, P. and Olivet, C. (2020) 'Silent Expansion: Will the world's most dangerous investment treaty take the global South hostage?' Corporate Europe Observatory, TNI and Southern and Eastern Africa Trade Information and Negotiations Institute (SEATINI), <https://www.tni.org/en/publication/silent-expansion>. To see which countries the ECT secretariat has been lobbying recently see the news section of the ECT website <https://www.energycharter.org/media/all-news/>.
204. Business and Human Rights Resource Centre (2020) 'Renewable Energy & Human Rights Benchmark' <https://www.business-humanrights.org/en/from-us/briefings/renewable-energy-human-rights-benchmark/>; Amnesty International (2023) 'Fossil Fuels and the Defence of Rights at Risk' <https://amnesty.ca/fossil-fuels-and-the-defence-of-rights-at-risk/>
205. The Global Campaign to Reclaim People's Sovereignty, Dismantle Corporate Power, and Stop Impunity (2023) 'Frontiers of an effective Binding Treaty' <https://www.stopcorporateimpunity.org/frontiers-of-an-effective-binding-treaty/>. For more information about the history of the Global Campaign, see The Global Campaign (2022) '10 Years Ago, 10 Years Ahead, The Global Campaign Towards 2032', <https://www.stopcorporateimpunity.org/wp-content/uploads/2022/10/10th-Anniversary-of-the-Global-Campaign.pdf>
206. The struggle for a binding treaty has always pushed to include environmental protection and violations. With the UN General Assembly recognising the right to a Clean, Healthy, and Sustainable Environment as a human right since 2022, this dimension is now also formally included in the treaty negotiations.



The Transnational Institute (TNI) is an international research and advocacy institute committed to building a just, democratic and sustainable planet. For more than 40 years, TNI has served as a unique nexus between social movements, engaged scholars and policy-makers. TNI has gained an international reputation for carrying out well researched and radical critiques. As a non-sectarian institute, TNI has also consistently advocated alternatives that are both just and pragmatic, for example providing support for the practical work of public services reform. <https://www.tni.org/en>



TRADE UNIONS FOR ENERGY DEMOCRACY (TUED) is a growing global network of unions and close allies working to advance democratic control and social ownership of energy, in ways that promote solutions to the climate crisis, address energy poverty, resist the degradation of both land and people, and respond to the attacks on workers' rights and protections. Established in late 2012, TUED has grown to span dozens of trade unions, labour federations and social movement and policy allies from countries around the world, both North and South. <https://www.tuedglobal.org/>