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AN ORDERLY AND EQUITABLE GLOBAL TRANSITION AWAY FROM FOSSIL FUELS AN ACTION FRAMEWORK TO NAVIGATE ECONOMIC, FINANCIAL AND GEOPOLITICAL VOLATILITY

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At COP28, almost 200 countries agreed to transition away from fossil fuels in the energy system in a “just, orderly and equitable manner”. This shift will have profound impacts on global trade, finance and geopolitics. Unless countries act now to prepare for the structural changes that will accompany the historic drop in oil, coal and gas, more extreme shocks and instability lie ahead.

Achieving net zero carbon emissions by 2050 will require reducing fossil fuels from 80% to just 16% of the global energy mix, according to the IEA’s Net Zero Scenario. This means a radical phase-down of coal, gas and oil use and production over the next two and a half decades.¹

This transition is already underway, marked by record growth in renewable capacity and electrification of heat and transport sectors. It brings extraordinary new opportunities. However, the uneven distribution of benefits across geographies highlights the need for careful planning to avoid extreme economic and political volatilities.

¹ Fossil fuel use does not fall to zero in the IEA NZE because significant amounts will still be used for non-goods, in plants with carbon capture, utilisation and storage (CCUS), and hard to abate sectors such as heavy industry and long-distance transport. This would have to be offset by carbon dioxide removal (CDR) technologies according to the IEA.



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The transition will be faster and more disruptive than anticipated

The transition away from fossil fuels is bound to be disruptive and will continue to move faster than many energy analysts predicted. The exponential growth in cost-effective clean energy deployment² over the past decade will continue, driven by economics, energy security and climate concerns. Pakistan's surge in solar power this year as electricity prices skyrocketed, and the EU's swift action to wean itself off Russian fossil fuels show the varied motivations at play. Fossil fuel demand in major economies is falling faster than projected; accelerated EV uptake in China, heat pump deployment in the EU and energy efficiency improvements in key sectors such as AI chips³ are rapidly transforming global energy demand.

This shift will not just impact energy systems, it will reshape geopolitics and transform global trade and financial systems as well. International power dynamics will change as fossil fuel exporters lose much of their political leverage and ability to shape global commodity markets.

Global trade will transform, given fossil fuels fuel 99%⁴ of international shipping and form 40% of maritime cargo.⁵ Trade will likely become more regionalised and smaller in scale. The global macroeconomic system will change as falling oil demand undoes links between oil price and inflation, and devaluation of oil-backed assets affects countries' ability to take up credit and deal with debt.

The existing energy transportation and distribution infrastructure will be rewired, creating new topography, stranding fossil fuel assets and changing the role of today's infrastructure owners (especially state-owned enterprises) who will need to adapt or become obsolete.

Financial stability risks will increase as the financial system struggles to deal with rapid changes to capital allocations, and with stranded assets. New employment challenges will arise, especially in countries and regions where coal, oil and gas industry are major employers. Governments and central banks must be ready for these changes.

² IRENA, **Renewable Power Generation Costs in 2023**, September 2024.

³ Financial Times, **Chinese solar panel boom threatens Pakistan's debt-ridden grid**, September 18 2024

⁴ IEA, **International Shipping Overview** (accessed October 2024)

⁵ By volume.



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Risks of extreme economic and political volatility without an orderly transition

The geopolitical, financial, and socio-economic volatilities ahead should not be underestimated. Fossil fuel price shocks will affect both economies dependent on fossil fuel use and those dependent on fossil fuel rent.

A sudden fall in demand will lead to an economic shock for fossil fuel producers, potentially spilling over into wider political and financial instability. And if fossil fuel consumers fail to reduce demand fast enough, they will face price spikes and market volatility.

It is in all countries' interest to ensure a more orderly transition. Careful planning and international cooperation at a new scale is the only way to minimise the risk of these volatilities and ensure the benefits of this transition reach beyond major economies in an equitable way.

A framework for the transition: a whole-systems approach is required

The above global shifts and uncertainties that might accompany the global energy transition are closely interconnected and mismanaging one area will inevitably have spillovers on all others. Countries must therefore act on their commitment to transition away from fossil fuels by tackling all aspects of the energy system, including social aspects. If they are to avoid damaging exposure to the “messiness” of the global transition, they cannot cherry-pick and exit only the elements of the fossil energy system that suit their political interests.

Aside from hitting climate targets, it is in countries' interests to take a planned, whole-system approach if the transition is to be delivered in the just, orderly and equitable manner envisaged at COP28. Such an approach needs to start with managing the entire fossil fuel value chain – thinking beyond just reducing fossil fuel consumption – and must include:

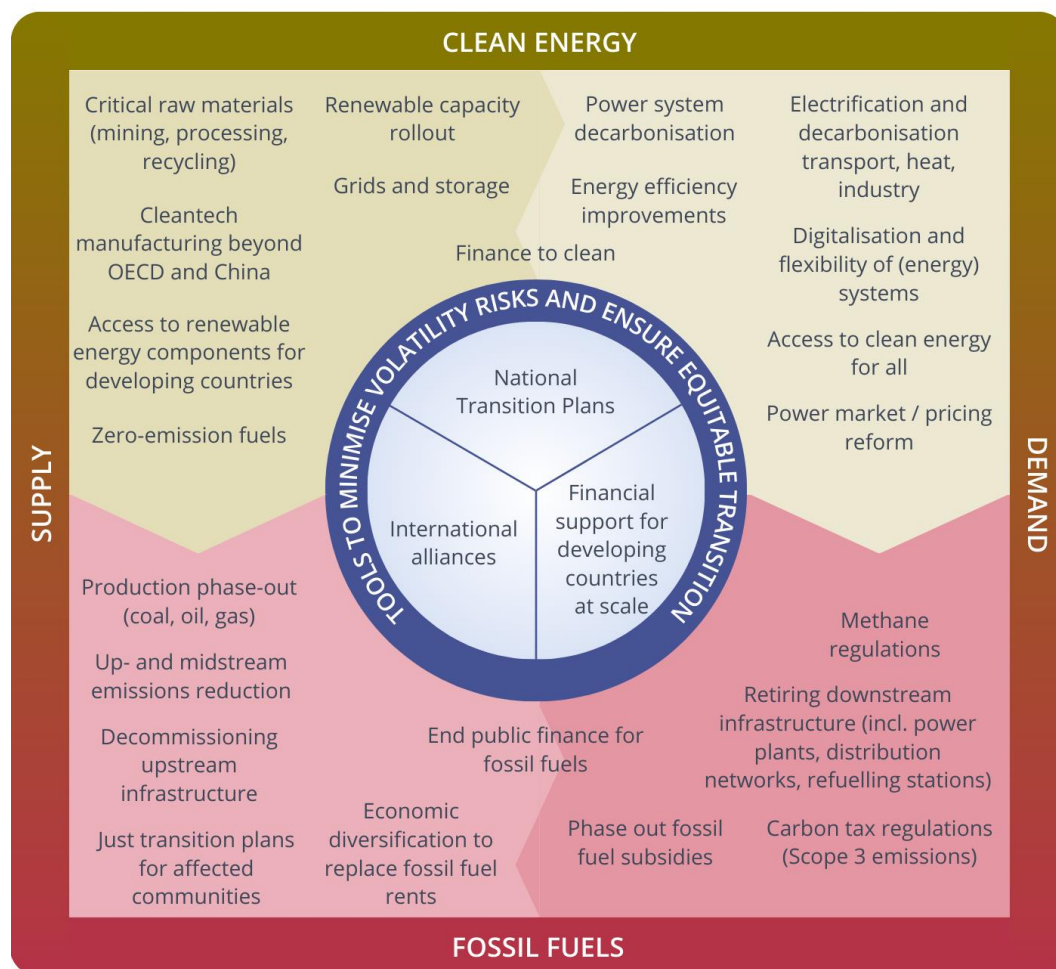
- > Action to cut fossil fuel supply as well as demand.
- > Quickly and purposefully decommissioning and repurposing fossil fuel infrastructure.
- > Managing the impacts of the transition on countries highly dependent on fossil fuel rents, and countries for whom fossil fuels are currently a development pathway.



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- > Supporting a just and fast transition for regions and communities dependent on fossil fuel industries.

Action framework for a just, orderly and equitable transition away from fossil fuels



This framework builds on work by the IEA: IEA, 2024, From taking stock to taking action: How to implement the COP28 energy goals



Figure 1: To achieve a just, orderly and equitable transition, countries need to take a whole-system approach to phasing out fossil fuels, that addresses demand as well as supply.



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Action to cut fossil fuel supply as well as demand to mitigate economic shocks and price volatility

To successfully transition their energy systems, countries must address fossil fuel demand and production at the same time. This is not only essential to stay within global carbon budgets and avoid locking in emissions and/or creating stranded assets, but also to minimise market volatility and ensure energy security through a more “orderly” transition. If fossil fuel producing countries fail to cut production while demand is shrinking they will put themselves in a challenging market situation, potentially spilling over into socio-economic, financial, and political instability. Conversely, consumers failing to reduce their fossil fuel demand and switch to alternative sources at a pace and scale required will result in further energy price and supply shocks. Developing countries in particular will need support and access to finance to ramp up clean energy to meet their rapidly growing needs and insulate themselves from such volatility.

Critical action to reduce fossil fuel demand, especially in the power sector, is needed this decade. Coal, gas and oil combustion need to fall by 45%, 22% and 27% respectively by 2030 for the world to stay on a net zero trajectory, according to IEA’s Net Zero Emissions scenario.⁶ Enabling this unprecedented demand reduction will be especially critical in the power sector, which will in turn unlock faster transformation of transportation, heating, industry and other sectors as electrification takes off. While new electricity demand is now largely being covered by wind and solar,⁷ action on a different scale is needed to replace the existing coal, gas, and, in some regions, oil use in power.

The Powering Past Coal Alliance and Energy Transition Council champion coal phase-out in key geographies, but global action on gas and oil demand reduction is yet to emerge. Delivering the global commitment to triple renewables, as well as targeted action to ramp up key enabling infrastructure including storage and grids, will be key this decade. At the same time, a laser-like focus on doubling energy efficiency improvements must be maintained, both to address the surging demand in power – especially for cooling – and to ensure faster electrification of other sectors.

Countries must commit to cut fossil fuel production as well as demand. While global action to drive down fossil fuel use is picking up speed, progress on phasing down fossil fuel production is extremely fragmented. First mover coalitions such

⁶ IEA, **World Energy Outlook 2023**. The values for oil don’t include oil use in the non-energy sector.

⁷ Ember, **Global Electricity Review 2024**, p. 63



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as the Danish-led Beyond Oil and Gas Alliance (BOGA) have started to push the fossil fuel supply phase-out agenda, but they have yet to recruit major producers. Support is growing for a Fossil Fuel Non-Proliferation Treaty to coordinate the international phase-out of production and manage a just transition.

However, major producing countries still fail to acknowledge that the transition away from fossil fuels is about reducing production as much as demand. Delivering the 1.5 °C-aligned transition in a managed way means that the two must go hand in hand, while an “à-la-carte” approach will only add further volatility risks. Both first-mover coalitions and major oil and gas consumers must play their role in leading by example and getting other producing countries on board.

Decommissioning and repurposing of fossil fuel infrastructure to avoid long-term pollution, higher emissions and stranded assets

The world is covered in energy infrastructure that will have to be wholly or largely dismantled or repurposed as the transition picks up speed. Many coal and gas power plants will need to be retired before reaching the end of their investment cycle; the same applies to gas transmission and distribution pipelines, and oil and LNG tankers. Ensuring the orderly decommissioning and repurposing of some of these assets will require careful planning. So far only fragmented efforts to enable a managed phase-out of this infrastructure have emerged, including ADB’s coal power plant retirement scheme under its Energy Transition Mechanism⁸ and the EU’s request to gas network operators to start planning for decommissioning of gas infrastructure.⁹

Overly optimistic claims about repurposing infrastructure to transport or process other fuels such as hydrogen and ammonia will need to be tempered with realistic assessments of economic feasibility and future demand projections.

Governments will need to take action to manage stranded assets, to avoid associated financial volatility, and to make sure the incumbents of today’s energy system come up with realistic transition plans where transition is possible. Delaying this process will drive up the costs (estimated to be over \$1.2 trillion for

⁸ ADB, **Energy Transition Mechanism**

⁹ European Commission, **Commission welcomes deal to decarbonise EU gas markets and promote hydrogen**



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oil and gas assets in the US alone¹⁰), and lead to higher emissions and methane leaks from ageing and abandoned infrastructure.¹¹

Governments must set decommissioning timelines for up-, mid- and downstream fossil fuel infrastructure as part of their national transition plans. These timelines need to be built based on countries' fossil fuel demand reduction trajectories and in line with the global 1.5 °C target. Countries should facilitate the creation of national, regional and global initiatives to assess the economically feasible options for repurposing existing infrastructure.

Managing the impacts on fossil fuel rent-dependent countries to mitigate political instability risks and prevent transition rollbacks

Developing countries dependent on fossil fuel rents face a risk of economic, social and political instability if they do not diversify their economies in time as the global fossil fuel demand drops. While wealthier producers, such as Norway, Saudi Arabia and UAE, have the financial and institutional capacity to respond to these risks, many other countries have few options.

Supporting developing countries must remain a global priority. Developing countries dependent on fossil fuel revenues, particularly higher cost producers in Africa and the Middle East, face the greatest risks in the transition, with oil and gas accounting for 80–90% of revenues in the most extreme cases.¹² Many countries, such as Nigeria and Iraq, depend on fossil fuel rent to pay for welfare, subsidies or secure political support. Many, such as Libya and South Sudan, are struggling with armed conflict or civil war. As the transition takes hold, high-cost, high-emissions producers will face a revenue squeeze and are likely to drop out of the market first.¹³ Falling revenues could destabilise these regions unless they receive international assistance and finance to explore new economic pathways.

Emerging producers will need to explore alternative development pathways as carbon-intensive growth proves a less viable and increasingly risky option.

While many developing countries still regard oil and gas expansion as the only viable development pathway, the overwhelming evidence from countries such as

¹⁰ Carbon Tracker Initiative, 2023, **Overlooked: Why oil and gas decommissioning liabilities pose overlooked financial stability risk**

¹¹ Patridge et al., 2023, **Decommissioning: another critical challenge for energy transitions in: Global Social Challenges Journal Volume 2 2**

¹² IMF, 2024, **Key Challenges Faced By Fossil Fuel Exporters during the Energy Transition**

¹³ IEA, 2023, **The Oil and Gas Industry in net Zero Transitions**



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Mozambique demonstrates this is not the case.¹⁴ Countries that are just beginning to develop fossil fuel reserves, like Senegal, will see projects come online in the early 2030s, leaving them with stranded assets and heavy debts as the market for their exports dries up. While countries like Kenya are trying to industrialise through green growth, for many countries the financial and structural barriers are currently insurmountable.

Wealthy producers must take steps to phase out production and ramp up support for vulnerable producers.

While it is clear that global production must be cut significantly this decade, there are various “fair share” estimates of how remaining extraction should be allocated across countries. Based on equity, historic responsibility and capacity to diversify, wealthy producers need to move first and fastest, as well as provide support to developing countries to follow.¹⁵ However, the US, Norway, Canada, Australia and the Gulf countries are leading global oil and gas expansion – and many consumer countries will want to keep these countries as their main suppliers for security and other concerns. OECD consumers, especially the G7, should take a leadership role on stronger commitments on the transition, including ending public finance and eliminating fossil fuel subsidies.

Just transition for affected workers and communities to maintain socio-economic stability and build public support for the transition

Regions that rely on fossil fuels face unique challenges and risk of economic downturn. Governments need to support affected regions and communities with targeted investment, re-skilling, and clear transition plans. Getting this process right will also reduce potential opposition to climate action. There are lessons to learn from previous traumatic coal transitions, such as the United Kingdom in the 1980s and Eastern Europe after the fall of the Soviet Union. The oil and gas sector make up double the share of the global energy supply compared to coal in 2019 and provide double the number of direct jobs. However, no major oil and gas producing country has started a government-led transition plan.

Governments must work with industry, unions and communities to draw up national and regional transition plans, covering specifics of where new opportunities will be created, backed by investment.

¹⁴ E3G, 2021, **The failure of 'gas for development' - Mozambique case study**

¹⁵ Welsby et.al. 2021, **Unextractable fossil fuels in a 1.5-degree world**, Nature



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Governments will also need to work with central banks and financial supervisors, both at domestic level and internationally, to address financial stability concerns caused by high exposure to transition risks including the risk of stranded assets. This may require innovative approaches including coordination between monetary and fiscal policy.

What's next?

Careful planning and international governance are the best tools to ensure macroeconomic stability and avoid damaging fiscal and political knock-on effects of a disorderly transition.

This requires all countries to develop and commit to clear fossil fuel transition strategies as part of their NDCs in 2025 and strengthen international initiatives to help countries transition off their dependency on fossil fuel use and fossil fuel rent, while protecting themselves from higher fossil fuel price volatility.

To maintain momentum and address the challenges outlined above, developed countries must demonstrate leadership at COP29 in Baku and on the road to COP30 in Belém, by taking the following steps:

- > Develop ambitious national transition plans.
- > Strengthen coordination and coherence across the existing fragmented diplomatic efforts.
- > Show developing countries that financial and technical support will be provided at scale.

Develop ambitious national transition plans

Developed/OECD countries must demonstrate they are taking decisive action at home by developing energy strategies as part of national climate transition plans to end consumption and production of fossil fuels in NDCs in 2025 and delivering on existing commitments. This will provide the framework for reducing emissions and production, aligning global targets with real world action on phase-out of (unabated) fossil fuels by mid-century. The NDC update process and the Long-Term Strategies which plan out countries' national transition until 2050 are crucial for reflecting COP28 energy commitments. This will avoid ambiguity and misuse of the global commitment and send a clear signal to countries that claim it is enough to reduce emissions rather than the production of fossil fuels (i.e. via



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carbon capture and storage or fossil fuel-based hydrogen) – some producers and major consumers among them.

Within other diplomacy fora: The G7 and G20, as the groups of the largest economies, must deliver on their existing energy transition commitments and make it clear that these are parts of the wider package for transitioning away from fossil fuels. The G20 failed to do so in its Energy Ministerial¹⁶ communication in Brazil in October; the job now falls to this year's G20 Leaders' Summit and the upcoming G7 Canada Presidency.

Within the existing energy and financial governance institutions, member governments should ask for and facilitate better monitoring of global progress (e.g. through the IEA and IRENA), and conditions for an equitable transition (e.g. through IMF reform).¹⁷

Build a robust global governance and risk management regime by strengthening coordination and coherence across the existing fragmented diplomatic efforts

Existing diplomatic efforts to drive forward the global energy transition (Figure 2) lack coherence, coordination and high-level political leadership to effectively deliver these commitments.

Coalitions have consolidated around delivering power sector decarbonisation¹⁸ but major gaps exist across other areas including energy efficiency, production phase-out, orderly retiring of coal, oil and gas infrastructure, and transition governance.

The UK's proposal to start a Global Clean Power Alliance to accelerate the deployment of clean energy and technology globally, including in the Global South, could be a positive first step if designed in the right way.

¹⁶ G20 Energy Transitions: **Ministerial Outcome Statement**, 4 October 2024

¹⁷ The IEA doesn't track oil and gas (beyond methane emissions and gas in power) as part of their COP28 energy commitment progress tracker. **Tracking Clean Energy Progress 2023 – Analysis - IEA**

¹⁸ E3G, 2024: **Building a Clean Power Alliance: Priorities for a Labour government**



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Existing diplomatic initiatives to deliver the transition away from fossil fuels

● Diplomatic ● Multi-stakeholder ● Legislation

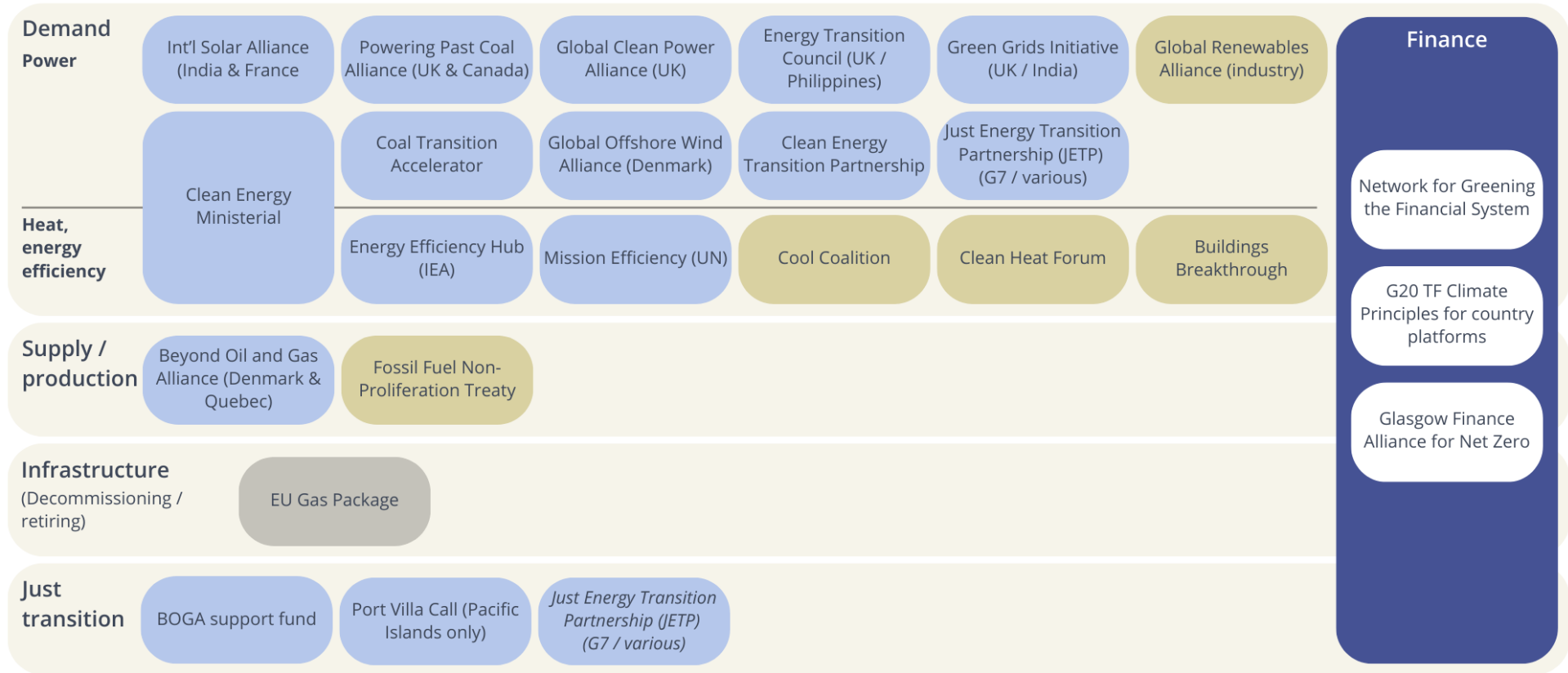


Figure 2: Existing diplomatic initiatives to drive forward the energy transition have consolidated around power sector decarbonisation. Major gaps exist in other essential areas.



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National transition plans have been a key item on the 2024 G20 agenda and we can expect to see this focus carry through to the 2025 South African Presidency. There has also been an increased focus on transition finance in multiple multilateral forums over the last few years, driven both by concern about climate-related financial risks and by the urgency of financing climate and development goals.

For these diplomatic alliances to continue to deliver, OECD countries need to:

- > **Increase coordination between, grow membership and ratchet ambition of existing high-ambition coalitions** to drive momentum on delivering the transition.
- > **Expand and strengthen existing alliances** to build broader political and social coalitions across G20, and first-mover coalitions. This would also demonstrate real world progress on energy transition goals.
- > **Pivot efforts towards neglected areas** including energy efficiency, equitable fossil fuel production phase-out, asset retirement and repurposing of infrastructure, and transition of oil and gas communities.

Show developing countries that finance and technical support will be available at scale

OECD countries must foster strong collaboration and cooperation with the Global South by scaling up the financial and technical support offer available. Yet multilateral efforts to mobilise finance at scale are yet to emerge. Mechanisms that do exist are fragmented and in the case of the Just Energy Transition Partnerships (JETPs) are at risk of failing unless donors inject fresh political and financial capital into them. Existing transition finance targets solely fossil fuel demand, mostly focused on coal use in power (Figure 3). There is no focus on fossil fuel production, infrastructure or broader socio-economic transition. Furthermore, most international initiatives to date don't involve direct financial support but focus on capacity building and feasibility studies.



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Initiatives providing finance for fossil fuel phase-out (Almost exclusively coal-focused.)

-  Investment support
-  Support for studies
-  Peer support

Initiative	Phase-out planning	Asset retirements	Implementing a just transition	Whole economy transition	Comments
Beyond Oil and Gas Alliance					Oil and gas upstream only, open to national and subnational governments in Global South. Finance for developing transition plan, not direct support.
Energy Transition Council					Power sector only, not conditional on phase-out.
Just Energy Transition Partnerships					Only available to countries with existing fossil fuel capacity. Lack of follow-through on financial promises so far. Support for co-drafting transition investment plans, not direct support.
ADB coal retirement mechanism					
EBRD Egypt gas retirement pilot					So far not available to other countries.
EBDR sector strategy – support for asset retirement					Unclear what “ambition” level has been set.
Clean Energy Transition Partnership					Shifting international public support from across the whole fossil energy supply chain into clean.
ADB coal retirement mechanism					Disburses funds in Indonesia and Philippines. Also active in India and South Africa.
CIF Accelerating Coal Transitions Fund					

Figure 3: Existing transition finance initiatives focus mostly on coal, and within that mainly on asset retirements. There is little investment support for just transition or whole economy transition.



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Financial mechanisms such as debt-for-climate swaps, just energy transition partnerships, carbon credits initiatives and international transfer schemes¹⁹ (e.g. those proposed by the IMF) could play a role reducing transition costs for less diversified and higher-cost fossil fuel exporters or compensating countries forced to forgo fossil fuel revenues. However, these funds will not make up for lost revenues and foreign currency for large producers. At the same time, the world's major economies will need to go beyond providing additional technology transfer and technical assistance to emerging markets and developing economies. This will require cooperation formats that go beyond the existing toolbox of JETPs and scale up country platforms to mobilise investment, backed by national transition plans, and include new economy wide partnerships and progress on the global tax and debt reform.²⁰

Governments must act now to deliver on all elements of the transition away from fossil fuels so they can reap the benefits of an orderly, just and equitable process in the coming years and decades.

About E3G

E3G is an independent climate change think tank with a global outlook. We work on the frontier of the climate landscape, tackling the barriers and advancing the solutions to a safe climate. Our goal is to translate climate politics, economics and policies into action.

E3G builds broad-based coalitions to deliver a safe climate, working closely with like-minded partners in government, politics, civil society, science, the media, public interest foundations and elsewhere to leverage change.

More information is available at www.e3g.org

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¹⁹ IMF, March 2024, **Key Challenges Faced by Fossil Fuel Exporters during the Energy Transition**

²⁰ E3G, September 2024, **Country platforms for climate safety and sustainable development**