



LEAD REPORT: POLICY DIALOGUE ON JUST ENERGY TRANSITIONS 2.0

Trends in Oil and Gas Demand and their Implications for Exporting Countries

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About the report

This report was commissioned by Climate Strategies to support the **Policy Dialogue on Just Energy Transitions 2.0: Identifying Pathways to Prosperity Post-Fossil Fuels** (PPFF). This is a multiannual dialogue convening policymakers, researchers, and practitioners from oil and gas (O&G) producing and consuming countries to build mutual trust, explore shared interests, and address barriers to just energy transitions. The views expressed in this report do not necessarily represent those of the project partners or the dialogue participants.

As part of the dialogue, Climate Strategies commissioned this lead report as well as five case studies exploring the implications of demand decline for O&G exporter countries, and providing policy recommendations to support domestic just energy transitions across Brazil, Canada, Malaysia, Namibia, and Nigeria. Find out more [here](#).

About Climate Strategies (CS)

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Climate Strategies enables its Members and

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Windward Fund is a 501(c)3 non-profit that incubates and host projects and helps leaders pursue bold solutions to the climate crisis and other pressing environmental challenges.

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Key messages

According to most energy forecasters, **oil and gas demand is set to peak in the coming years** even without governments adopting new policies. This is being driven by technological advances and cost reductions in alternatives to oil and gas, especially electric vehicles as well as wind and solar power. Clean alternatives to oil and gas are increasingly able to align energy security, affordability and environmental sustainability objectives, especially in importer countries. Policies aiming to jointly achieve these goals will bolster the transition, accelerating the decrease in oil and gas demand.

A peak and decline in demand will push down oil and gas prices. This can have a profound impact on economies that depend on oil and gas exports, including stresses on fiscal budgets, balance of payments difficulties, loss of access to foreign exchange and macroeconomic shocks. About 20 countries rely on oil and gas for more than 20% of their fiscal revenues; for about 10 countries, it represents more than half. While exporters have experienced the difficulties of previous price downturns, this time the effect is long-term and systemic.

Oil and gas exporters urgently need to diversify their economies, reducing their reliance on oil and gas and building resilience. This entails both building new sectors to create a broader economic base, and diversifying their sources of fiscal revenue.

Economic diversification can take decades: it is important to start concerted efforts now, to stay ahead of the global energy transition.

The energy transition poses a serious dilemma for new and prospective oil and gas producers. It commonly takes over ten years for new oil and gas fields to be developed, and even longer for a government to start to see meaningful revenues. Given that the global energy transition is expected to take place over the next two to three decades, demand may already have diminished and prices dropped before new producers ever see significant revenues.

Transitioning away from dependence on oil and gas creates an opportunity for a more prosperous economy. Economic diversification has been a priority for governments long before climate change was on the policy agenda, recognising that balanced economies tend to grow faster, are more resilient to changes in international markets, and enable consistent development rather than boom/bust cycles.

International cooperation will be crucial, given the scale and urgency of the challenges. There are many forms cooperation can take: among exporters, with importers, and with providers of finance, technology and capacity-building.

1. Introduction

The energy transition is already under way. While oil and gas consumption have so far continued to grow at a global level, underlying drivers are set to transform demand in the coming years, even if governments fail to achieve the Paris climate goals. This report unpacks these underlying drivers to give a picture of the trends and prospects for global energy demand, and how this will affect oil and gas exporters.

Where we are today

December 2025 will mark 10 years since the Paris Agreement, where governments agreed to hold global temperature rise to well below 2°C, and to pursue efforts to limit the rise to 1.5°C. Above 1.5°C the world will experience a high risk of damage to ecosystems, food supplies, economies and human health. Above 2°C, these risks become very high¹.

Today, we are a long way off course from achieving the Paris goals. Global average temperatures have already risen by more than 1.3°C above pre-industrial levels due to human activities,² causing major impacts through droughts, fires, storms and floods. If we continue with the policies already in force, we are headed for 2.9°C of warming. If governments achieve all their conditional and unconditional nationally determined contributions, the most likely peak temperature rise is still 2.4°C. If they also achieve their net zero pledges, it is 1.7°C.³

Fossil fuels and climate change

About 90% of global carbon dioxide emissions come from burning fossil fuels.⁴ This is why governments agreed in the Global Stocktake,

at COP28 in 2023, to transition away from fossil fuels in energy systems, in a just, orderly and equitable manner, accelerating action already this decade.⁵

Under the international climate system, governments are responsible for territorial greenhouse gas emissions. To reduce these, they will need to reduce fossil fuel consumption. Reducing fossil fuel imports is also attractive to policymakers wanting to improve energy security, as highlighted by the response from Europe following Russia's invasion of Ukraine.⁶



Photo credits: Clay LeConey via Unsplash

The policies governments adopt will shape the future trajectory of oil and gas demand.

Figure 1 shows future demand in three scenarios with varying policy ambition, produced by the International Energy Agency, IEA:⁷

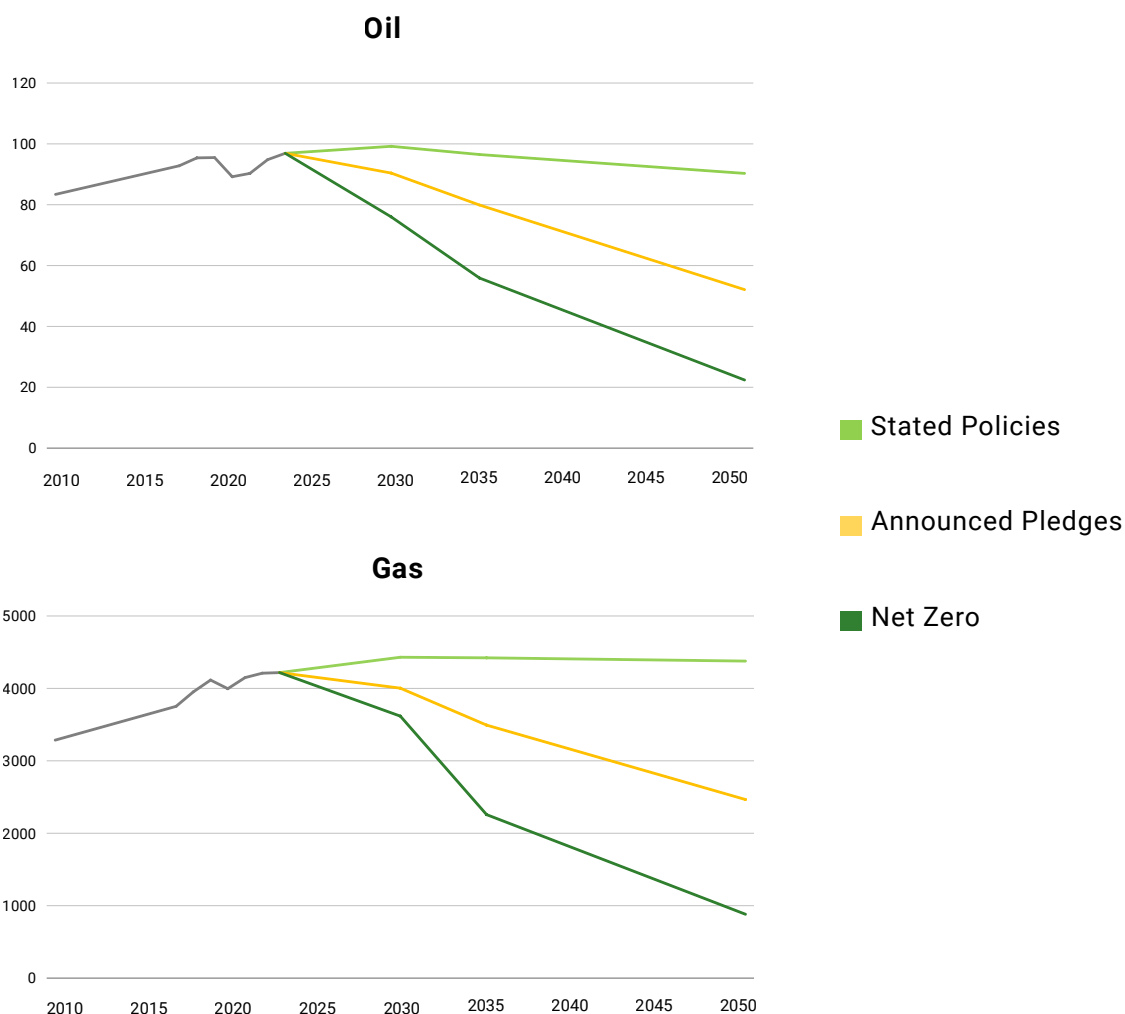
- In the Stated Policies Scenario, governments implement their existing policies (including most of what is in their NDCs) but introduce no new policies. In this case, we are on course for a temperature rise of 2.4°C by 2100.
- In the Announced Pledges Scenario, the governments that have set targets for net

zero emissions achieve these targets. This leads to approximately 1.7°C of warming.

- The Net Zero Emissions scenario assumes governments succeed in limiting warming to 1.5°C and in achieving the energy-related Sustainable Development Goals. To achieve this, they strengthen their pledges and introduce new policies.

As Figure 1 shows, even in the Stated Policies case, oil and gas demand are both set to peak before 2030 and go into slow decline. The Announced Pledges and Net Zero Emissions scenarios see demand fall by about half and about three quarters, respectively, by 2050.

Figure 1: Projected global oil & gas demand in three IEA scenarios



Source: IEA (2024)⁸

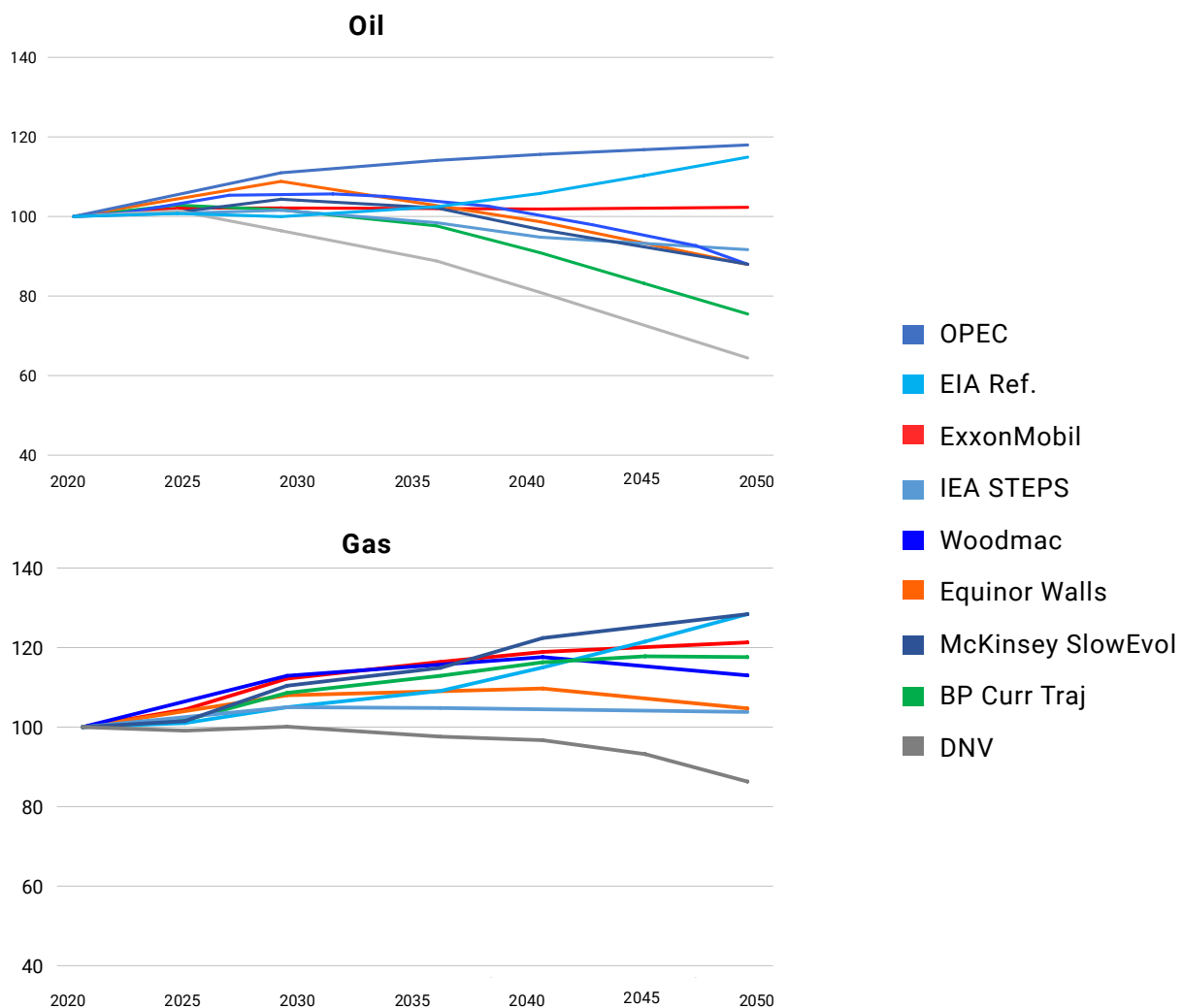
2. Trends in oil and gas demand

While not enough to achieve the Paris goals, global energy systems are already changing. *Figure 2* shows the global oil and gas demand projections from all the major forecasters, based on continuation of current policies. The IEA's Stated Policies Scenario (STEPS) is somewhere in the middle.

All of these forecasters project a slowdown in oil and gas demand growth, compared to past trends. With the exception of the Organisation

of the Petroleum Exporting Countries (OPEC) and the US Energy Information Administration (EIA), all forecasters project that oil demand will peak this decade and start to decrease thereafter. Notably, Shell's head of scenario planning recently commented that "There is very little doubt that peak oil demand is coming".¹⁰ About half of the forecasters, including the IEA, project that gas demand too will peak either this decade or next decade.^a

Figure 2: Global oil and gas demand projections by all major forecasters, assuming current policies



Source: various outlooks⁹

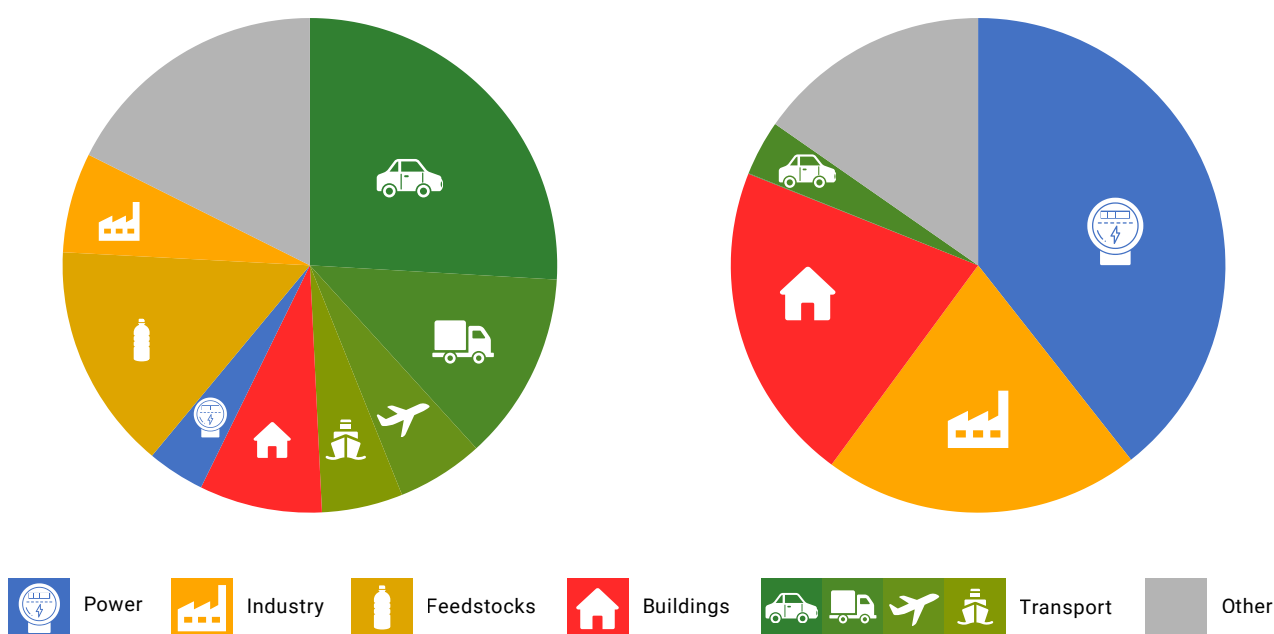
a Note that this peak in oil and gas demand, in which new technologies create alternative ways to satisfy energy demands, is very different from the prospect of a peak in supply due to geological depletion, which some "peak oil" theorists worried about in the late 2000s. (In the event, production of conventional oil peaked in 2008, but overall production continued to rise, due to the rapid growth of tight oil production by fracking, primarily in the United States).

To understand the drivers of these forecasts, we can look in more detail at what they say about demand in specific regions and uses.

Figure 3 breaks down what oil and gas are used for. About half of global oil consumption is in transport, with cars alone consuming a quarter of the total. After transport, petrochemical feedstocks are the most

important use. The greatest share of gas consumption is in power generation, with large shares also in buildings (for heating and cooking) and in industrial heat. The biggest demand segments – cars and power generation – also happen to be the ones in which the technological alternatives are most advanced, namely vehicle electrification and renewable power.

Figure 3: Oil and gas consumption by demand segment, 2022



Source: IEA 2023¹¹

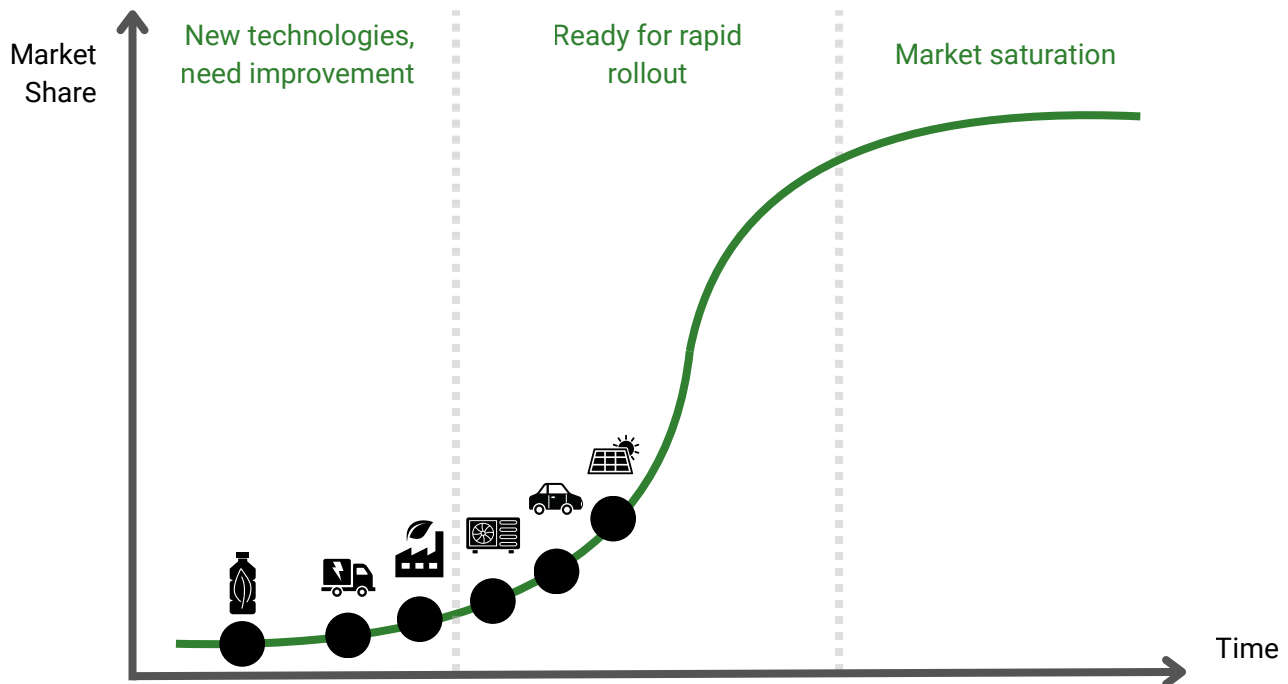
The spread of alternatives to oil and gas

New technologies generally diffuse according to an S-shaped curve (*Figure 4*).¹² Starting from zero, progress is initially slow as the technologies are improved and their costs brought down, but the upward curve is exponential. Once new technologies are affordable, they enter a middle phase where they rapidly spread. In a final mature phase, technologies settle at a market saturation level.

This same pattern has been seen for all previous new technologies, from televisions to refrigerators to cell phones.¹³

Three of the alternatives to oil and gas are in the middle, rapid-rollout phase: wind and solar power, electric cars, and heat pumps. Other technologies such as clean industrial heat, electric trucks, and bioplastics are in the initial, formative phase.

Figure 4: Alternatives to oil and gas on the S-curve of technological diffusion



Source: Adapted from Victor, Geels and Sharpe 2019¹⁴

The main medium-term difference between the demand projections in *Figure 1* is how fast they expect electric cars and wind and solar power to climb the curve.^b We can thus interpret trends over this period by looking more closely at what is happening in electric cars and in wind and solar power, shown in *Figure 5*.

Today, just over 20% of the cars sold worldwide are electric, a share that is growing fast. In China, the world's largest car market, there are now more electric cars sold every month than internal combustion engine (ICE) cars. Most of the forecasters above are lagging behind the real-world growth rates, as their models are calibrated on earlier data and/or explicitly constrain new technology growth based on modelers' judgement of realism, and there are indications that they are

too conservative in the projections of future growth and cost reduction.¹⁶ future oil and gas demand may thus be lower than the forecasts. New cars are generally used for 12 to 15 years, so it takes time for the stock of vehicles to turn over. But as more and more sales are electric, this stock will be replaced, so the writing is on the wall for oil demand. Wind and solar are now approaching 15% of power generation globally, and also growing fast, especially in the major gas-importing markets of Europe and Asia. So far, gas-fired power generation has continued to grow slowly at a global level (while decreasing in some countries, such as in Europe, where wind and solar already generate more electricity than fossil fuels).

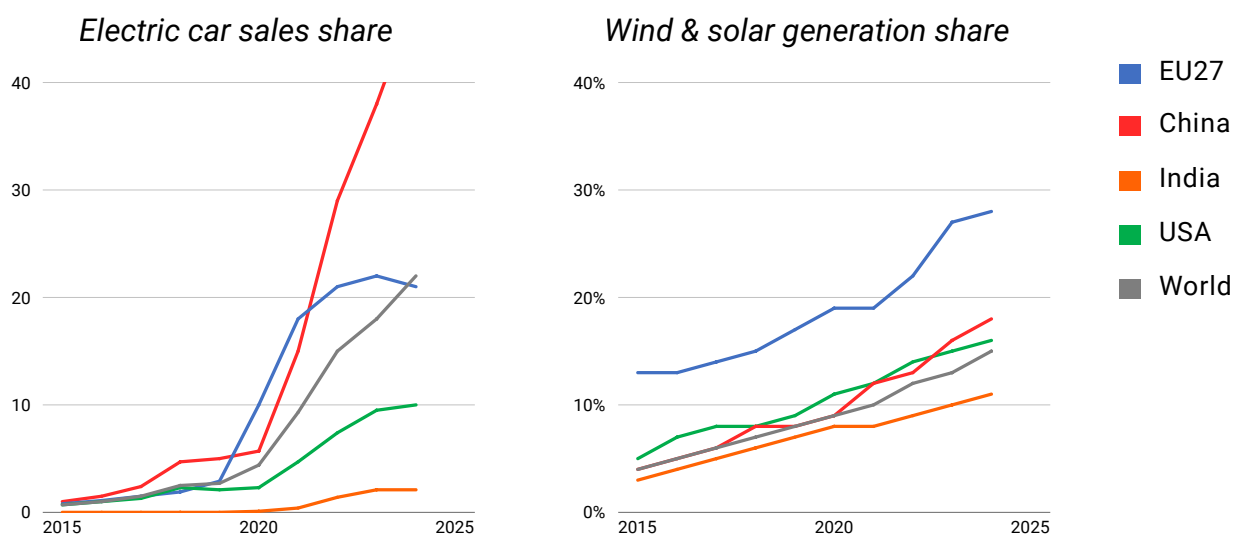
However, the rate of wind and solar installation is increasing: once it overtakes the

^b For example, Shell and OPEC project nearly 5% growth in use of oil by road transport from 2023 to 2035, while the IEA, Bloomberg and BP project around 3% decrease, and consultancies McKinsey and DNV project respectively 5% and 8% decreases. In contrast, all forecasters project similar modest growth in industrial oil use (including feedstocks) and little change in buildings use. Over the same period, the major forecasters' projections of gas consumption in power generation range from an increase of 8% (ExxonMobil) to a decrease of about 12% (Bloomberg), with more modest variation in gas consumption in industry and buildings.¹⁵

annual growth in total electricity demand, wind and solar will push fossil fueled generation into decline.¹⁷ This too has happened in China, for example, where in the first quarter of 2025, wind and solar growth exceeded total demand growth, leading coal-fired generation to decrease for the first time.¹⁸ The present rapid increase in grid-scale battery storage is helping enable wind and solar growth.¹⁹

A consequence of the growth in alternatives to gas – wind and solar power, and heat pumps – is that there may be neither time nor need for gas to serve as a “transition fuel”. That idea was proposed in the 1980s and 1990s, when alternatives were much less ready and the climate crisis less pressing than today.²²

Figure 5: Growth to date of alternatives to oil and gas: (a) Electric car sales; (b) wind and solar power generation



Source: IEA (2025);²⁰ Energy Institute (2025)²¹

The roles of technology and policy

Technological improvements in batteries are rapidly reducing the cost of electric cars. When measured in terms of “total cost of ownership” over the lifetime of a vehicle, electric cars are cheaper than their ICE equivalents in much of the world, as the lower fuel and maintenance costs outweigh the higher initial purchase price.²³

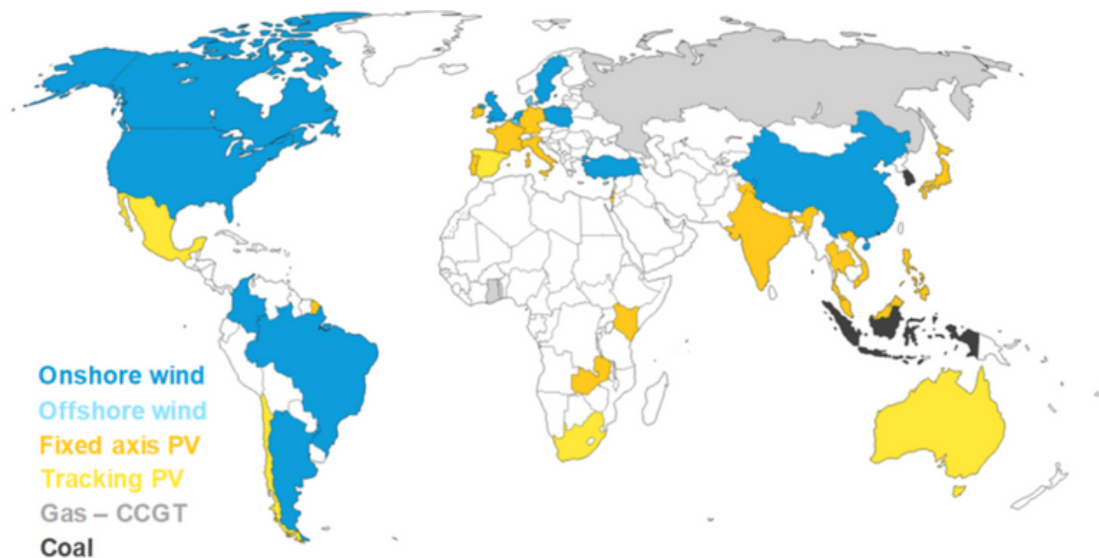
However, many drivers are influenced more by the purchase price than the total cost, so a bigger inflection point in their take-up is likely to occur once the purchase price becomes

cheaper. This is already the case on average (across all car types) in China, and close to being the case in many emerging markets, where imports from China are less restricted than in industrialised countries. In Europe, the price gap is narrowing, whereas the US lags behind (even before recent legislative changes).²⁴

Figure 6 shows the cheapest power generation technology in different countries, in terms of levelized cost of energy, which combines capital and operating costs. In almost all cases for which there are data,^c

c Unfortunately, there are a lot of countries for which no data are available. These are mostly countries of the Global South, and in many of these the cost of capital is much higher, making renewables more expensive. While these countries represent a minority of global power generation, the resulting higher cost of clean energy is one of the many injustices of climate change. However, there are early signs of growth even in countries with higher cost of capital, with a major increase in imports of Chinese solar panels into Africa in the twelve months to June 2025.²⁵

Figure 6: Lowest-levelized-cost means of generating electricity by country, 1H 2023



Source: Graphic from Bloomberg New Energy Finance 2023²⁶

the cheapest technology is either wind or solar: only in Russia is gas the cheapest option. Wind or solar are cheaper in countries accounting for 80% of global power generation.

These falling costs are driving the replacement of oil and gas uses even without policy change, based on the present state of the technologies. Policies can speed up or slow down this process of replacement, but they cannot stop it, as the technologies are already competitive. For example, the rate of growth in US adoption of electric cars will slow following the repeal of many provisions of the Inflation Reduction Act, but Bloomberg projects that the electric share of US car sales will still nonetheless grow to 27% in 2030, from the present 11% (though lower than an earlier projection of 48% by 2030).²⁷

The pace of electric car adoption is shaped by policies like the building of charging infrastructure, financial incentives such as vehicle taxes, and regulatory incentives such as reduced congestion charging and cheaper parking. Policies to ban sales of internal combustion engine cars in 2030 or 2035 are driving faster technological improvement and

evolving sales strategies by car manufacturers. Policies will similarly shape how fast wind and solar are rolled out, including government targets for clean power generation, air pollution policies restricting coal generation, market structures that shape incentives for operators, and the ways in which electrical grids are upgraded.

Especially since Russia's invasion of Ukraine in 2022, there has been an increasingly prevalent view in energy-importing countries that renewable energy offers a path to greater energy security, as the resources – wind, sunshine and water – exist within a country's own borders and relieve it of dependence on commodities that are held in concentrated and often unfriendly hands.²⁸

Policy choices are motivated by the combined objectives of energy security, affordability (or equity of access) and environmental sustainability. These three objectives have been termed the energy trilemma, as historically the objectives were often at odds with each other.²⁹ However, today they increasingly point in the same direction: clean

alternatives to oil and gas are seen as more reliable and secure, more affordable and more sustainable.

Possible further demand disruption

In the longer term, it is worth paying attention also to the alternatives at earlier technological stages, including bioplastics, electric trucks, clean industrial heat, and in some countries heat pumps too. Whereas there are uncertainties about the steepness of the climb in the middle phase of the S-curve, there are much greater uncertainties in this early phase, where technologies are still being improved and their costs brought down. Ten to fifteen years ago, wind, solar and electric cars were at this earlier stage, and forecasters underestimated how quickly their costs would fall and the technologies would be rolled out^d.

Policy plays a key role for newer technologies. At the earliest stages governments support research and development, to help the technologies get started. A second form of support is subsidies, which play their most important role once the technologies have been improved but are not yet commercially competitive. This enables the new technologies to be deployed, often in specific applications (“niches”), and once they are, their costs start to come down through “learning by doing”, as manufacturers develop better ways to produce them.

Medium- and heavy-duty truck electrification lags behind cars and other light-duty vehicles, because of the additional power required and the size and weight of battery needed. However, advances in car batteries have natural spillovers to the larger truck batteries.

Again, China is a key driver, with over 22% of medium-duty truck sales now electric, on a steep upward curve.³³ Truck fleet operators tend to be more sensitive to total cost of ownership, compared to private car owners; in some regions and uses, this is already lower for electric trucks than for diesel, while in all other major markets parity of total cost is expected before 2033.³⁴

The largest industrial uses of gas are in chemicals, iron and steel, and cement. These uses are seeing rapid innovation, with alternatives to gas likely to be cost-competitive in the 2030s or 2040s for most uses.³⁵ Some commentators argue that we should no longer refer to such sectors as having emissions that are “hard to abate”, given the rapid development of technologies.

Whereas electric cars and renewable power are already eating into oil and gas demand, progress in the earlier-stage alternative technologies could create additional disruptions to oil and gas demand in the late 2030s and 2040s, to a greater extent than forecasters are accounting for.³⁶



Photo credits: aiyumi from Getty Images

^d For example, in 2015, the IEA projected that wind and solar photovoltaic would together generate 3,500 TWh by 2030 under existing policies or 4,600 TWh if governments adopted more ambitious climate policies. In the event, these totals were reached respectively by 2022 and 2024, after seven and nine years rather than the projected fifteen. In 2017, BP projected 6% of the global car fleet would be electric in 2035, while ExxonMobil projected 6% in 2040. Already in 2024, 4.5% of cars were electric: this will likely pass the 6% mark in early 2026.³⁰

3. Implications for oil and gas exporters

For countries that depend on fossil fuel production and exports, transitioning away will involve not only shifting their energy systems, but transforming their whole economies to a new paradigm.³⁷ Fossil fuels often provide a significant share of government revenues and of exports. These countries face the task of making their economies more resilient in the face of the global energy transition.

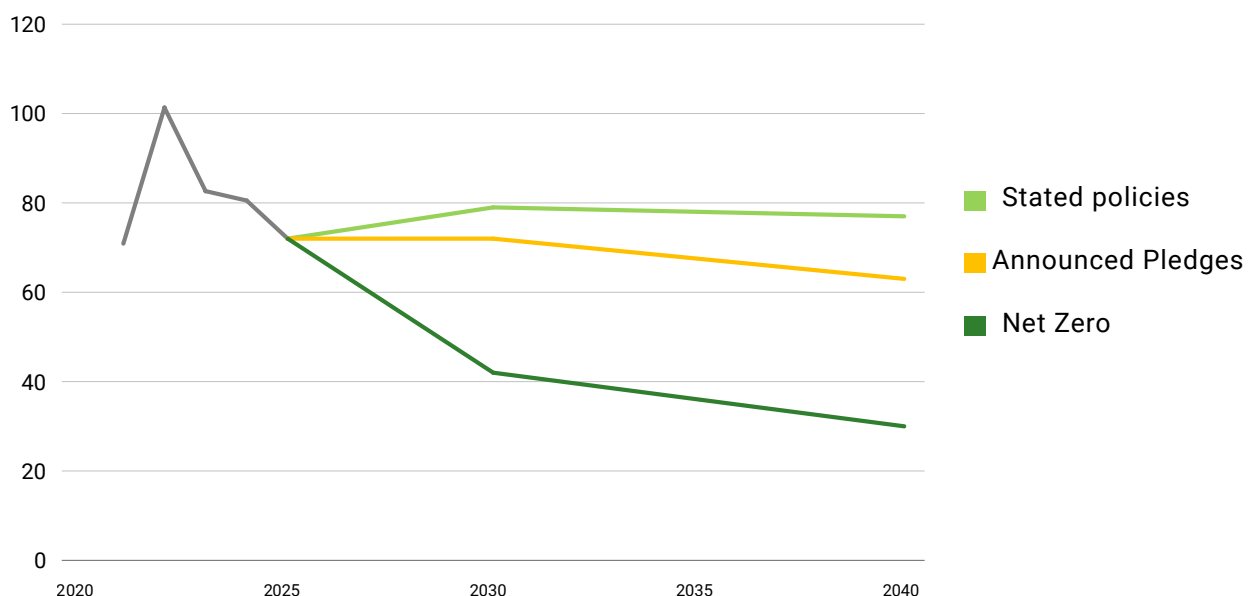
The oil industry globally risks losing trillions of dollars of value³⁸ through 'stranded assets', where investments fail to make the expected returns as the global energy transition diminishes demand. The highest-cost projects will be at greatest risk of losing money, as their smaller margins are more sensitive to demand and price changes.

But even low-cost producers that depend on oil and gas exports will see their revenues affected by low prices. Countries facing this problem have been described as at risk of becoming 'stranded nations'.³⁹

Downward pressure on oil and gas prices

Figure 7 shows the IEA's projection of long-term equilibrium oil prices at different demand levels, based on economic theory. Lower demand will mean a lower-cost marginal barrel, and hence lower equilibrium oil and gas prices. While with the demand levels of the Stated Policies Scenario, the IEA projects that oil prices continue at around their recent level of about \$75, Announced Pledges will drive a decrease to \$60, and Net Zero Emissions to below \$40 a barrel.

Figure 7: Equilibrium Brent oil price projections in three IEA scenarios



Source: IEA 2024⁴⁰

Gas prices vary between regions, but there are similar patterns. LNG in particular is likely to see much lower prices in the coming years, due to a glut of capacity.⁴¹ Exporters hoping to capitalize on what was previously anticipated as a “Golden Age of Gas”⁴² may thus find themselves losing money.

The impact on energy markets may go beyond this theoretical picture. It is hard to predict because the world has never seen long-term, structural decline in oil and gas demand: demand has always grown every year, except during some short blips where the global economy has slowed. Now we are moving from a paradigm of oil scarcity to one of abundance.⁴³ This change will create new market dynamics, which will put further downward pressure on oil and gas prices,⁴⁴ while uncertainties in this time of change will also make prices more volatile. Furthermore, efforts to sustain higher prices, by producer clubs such as OPEC and OPEC+, tend to be less effective in falling markets,⁴⁵ as we have seen recently with countries like Kazakhstan and Iraq overproducing their quotas, and Saudi Arabia responding by increasing its own production.⁴⁶

Economic implications for exporters

Oil and gas exporters have experienced the

economic impacts of previous periods of low prices. For example in Iraq, the low oil price caused by the Covid-19 pandemic pushed 4.5 million Iraqis below the poverty line and nearly doubled the child poverty rate to 38%, as the resulting fiscal deficit left the government unable to pay monthly public sector salaries, while devaluation of the dinar increased food prices.⁴⁷ This time, however, the price fall is not an acute crisis to be temporarily endured, but a chronic, long-term condition.

For oil and gas exporters, lower prices will mean lower revenues for their governments, and hence stressed fiscal budgets. The more economies rely on oil and gas, the greater the risks. About 20 countries rely on oil and gas revenues for more than 20% of their fiscal revenues (*Figure 8*). This is the IMF’s definition of resource dependence. For about 10 countries, it’s more than half of their revenues, and for a few it’s 80% or more.

An analysis by Carbon Tracker finds that 28 countries would lose more than half their expected oil and gas revenue in a moderate-paced transition in line with the IEA’s Announced Pledges Scenario. In nine of these countries, where economic dependence on oil and gas is greatest, more than 60% of total fiscal budgets could be lost.⁴⁸

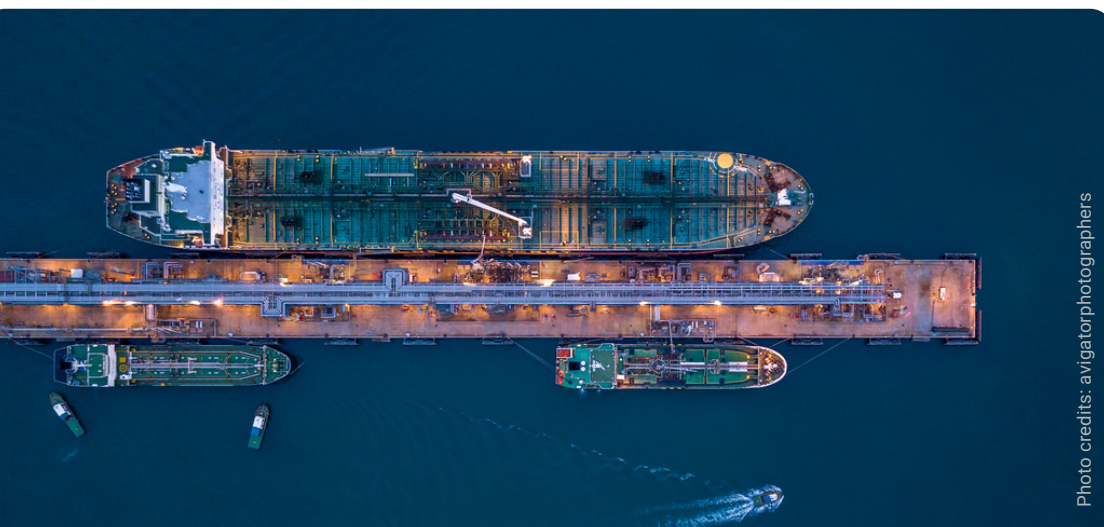
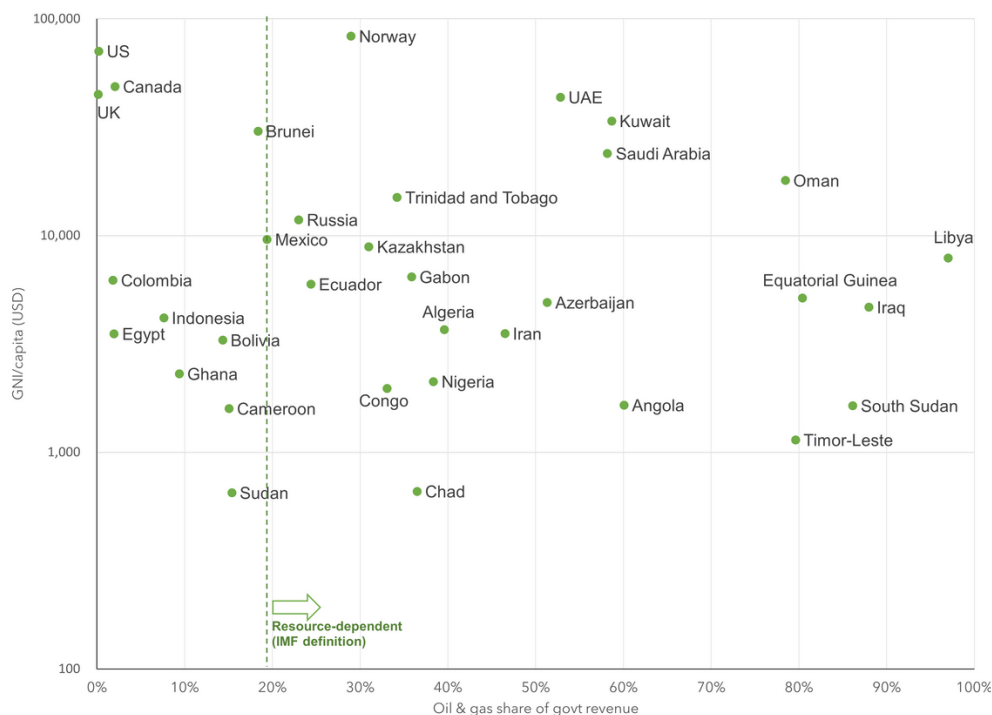


Photo credits: avigatorphotographers

Figure 8: Oil and gas share of government revenue, and countries' gross national income

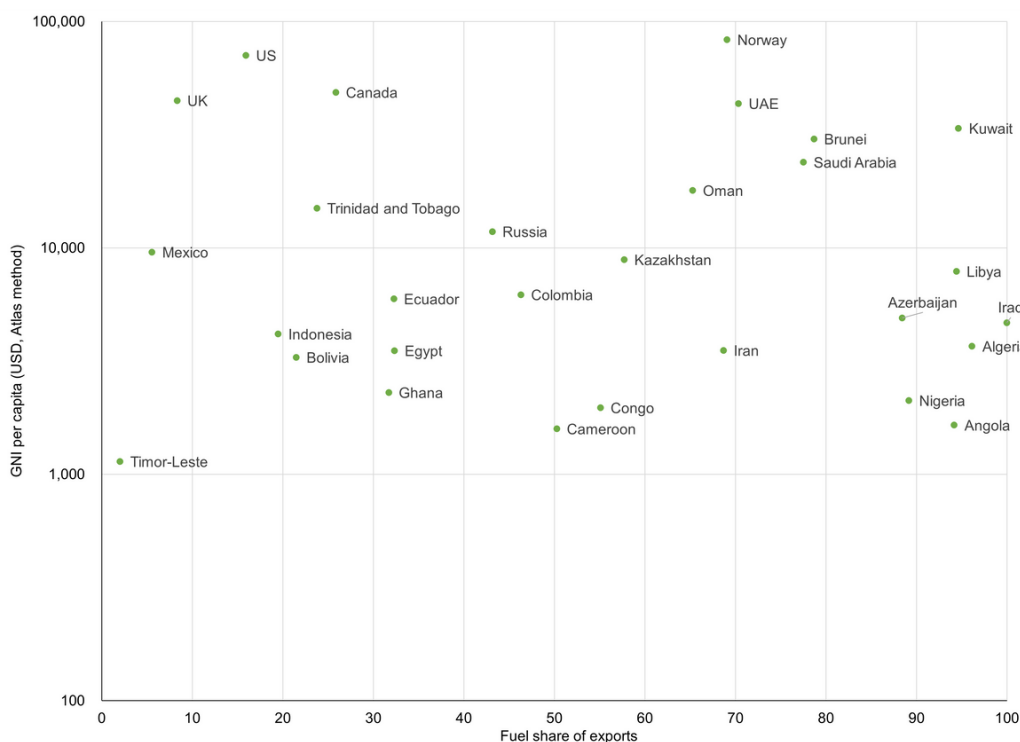


Source: Data from World Bank and IMF or national accounts, updating graph from Muttitt & Kartha 2020⁴⁹

Fossil fuels often account for an even larger share of exports than of revenues. For nearly 20 countries, they are more than 50% of total exports (Figure 9).

A reduced value of oil and gas exports can create balance of payments problems, and limit access to foreign currency.

Figure 9: Oil and gas share of exports, and countries' gross national income



Source: World Bank⁵⁰

These stresses on revenues and exports can cause wider macroeconomic shocks, including a contraction in the economy, a loss of investor confidence, inflation and spiraling exchange rates.⁵¹

Time pressures and new oil and gas producers' dilemma

It commonly takes ten or more years from a discovery until oil and gas start to flow. It can take even longer for a government to start to see meaningful revenues, as contracts with international oil companies tend to frontload payments to the companies, while delaying government revenues.⁵² For example, gas was discovered in Mozambique in 2010; the first gas started to flow in 2023, and major government revenues are not expected until at least the mid-2030s.⁵³

The energy transition therefore creates a particular dilemma for new and prospective fossil fuel producers. Given that the global energy transition is expected to take place over the next two to three decades, demand may already have diminished and prices dropped before new producers ever see significant revenues.

In addition, oil and gas have often failed to deliver the developmental benefits governments hoped for, and instead led to indebtedness and slower growth, a problem known as the resource curse.⁵⁴ In addition to oil unbalancing the economy and constricting performance of non-oil sectors, well-paid jobs go to foreign workers and benefits to foreign companies, as governments with weak bargaining power strike unfavourable deals,

and inexperienced public institutions fail to oversee foreign companies' finances to ensure the country gets its share of revenues. Studies of the resource curse tell us that the best development outcomes are generally achieved by slowly growing fossil fuel extraction, to give time to build domestic supply chains, a skilled workforce and effective institutions.⁵⁵

This is how Norway succeeded in thriving from its oil and gas, developed in the 1970s and 1980s under a policy that explicitly restrained production growth.⁵⁶ In the Gulf monarchies, developmental benefits from oil also took time, but in a different way. Contracts signed when the countries were weak – Saudi Arabia in 1933, Kuwait in 1934, Qatar in 1935, Oman in 1937 – had grossly one-sided terms that gave international oil companies effective rights to all of their oil over 50 or 60 years, while the governments saw little of the revenue.⁵⁷ It was only decades later, when these countries had built some of their own technical and institutional capacities and worked together through OPEC, that the countries managed to capture the benefits of oil to drive their development.⁵⁸

New oil and gas producers are caught between the time pressures to move quickly to stay ahead of the global energy transition, or slowly to avoid and manage the resource curse.⁵⁹ With this contradiction, it may be hard to capture developmental benefits from new production, so these governments will need to carefully balance the role of fossil fuels in their economic strategies.

4. The policy solution: economic diversification

For countries that rely on fossil fuels, the global energy transition creates a need to reduce their economic reliance, in order to avoid the economic shocks described above. There are two elements of this. First, to diversify their broad economic base from a central role for the fossil fuel sector, to a mixed economy with many sectors. Second, to move public revenue generation away from oil and gas to new and diverse sources.

Economic reliance will take time to overcome. Since the familiar, established fossil fuel sector has near-term advantages, compared to uncertain new directions, a gradual transition is more likely to be successful than a sudden one. Time is also needed to develop skills for the new sectors, to build physical infrastructure, and to evolve institutions to drive the new economy. Furthermore, transitioning away from oil and gas dependence faces structural barriers that will take time to overcome. A strong oil and gas sector can hold back the growth of other sectors, as Dutch disease inflates the currency and resources invested in oil and gas crowd out other economic activities.⁶⁰ In heavily oil- and gas-dependent countries, oil revenues also tend to shape political settlements in such a way that change can provoke opposition or cause political instability.⁶¹

Indeed, historical experience tells us that economic diversification takes a long time, usually decades, even with strong policy efforts.⁶² Given that the energy transition is expected to unfold over the next 20 to 40

years, governments that rely on fossil fuels would be wise to actively pursue economic transformation, starting now.

The countries that have succeeded at diversification have done so through concerted industrial strategies that play to their strengths, enabling and investing in targeted sectors. For example, Dubai moved away from oil dependence in the 1990s and 2000s by investing in trading and logistics, playing to its geographical location at the heart of the Gulf and to its mercantile history and culture,⁶³ it later built on this with high-value sectors such as property, finance and luxury tourism.

In addition, diversification can be enabled by building broader capacities that unlock economic expansion, such as infrastructure, education and institutions supporting innovation: many of the Gulf oil exporters did this through the 1970s boom.⁶⁴



A third ingredient of diversification is to make the change politically sustainable by building a national consensus around the country's future economic direction, especially important in the context of just energy transitions.

Alongside broad economic diversification, governments also need to diversify their sources of revenue beyond oil and gas. One step towards this is to improve the efficiency of collecting existing taxes, a task in which Nigeria is presently making significant progress.⁶⁵ New revenue sources can also be introduced, or rates of existing taxes increased. For example, Saudi Arabia and UAE introduced value-added taxes in 2018; in the same year, Oman increased corporate taxes and introduced excise taxes on tobacco and soft drinks.⁶⁶

The need for international cooperation

Achieving the Paris goals will require rapid changes in energy systems and economies. Contrary to the present trends towards a more competitive geopolitical environment, countries will need to work together to make the transition just, orderly and equitable.⁶⁷ Oil and gas exporters in similar circumstances can work together to share experience, and build collective structures to enable change; for example, OPEC could play a greater role in supporting diversification to help overcome the present systemic challenge for exporters, just as it helped coordinate them in the earlier epochal shift away from foreign control of their oil.⁶⁸

Exporters can seek support also from wealthy countries, in finance, technology transfer and capacity building; indeed these forms of support are required under the Paris Agreement.⁶⁹

Positive signs for the prospects of international cooperation include the emergence of "climate clubs"⁷⁰ such as the Beyond Oil and Gas Alliance, the Clean Energy Transition Partnership and the Powering Past Coal Alliance. In such groupings, governments work together to support each other in achieving common transition goals, through knowledge exchange, joint action and technical grants. Another opportunity lies in the growing interest in country platforms,⁷¹ in which countries define their needs consistent with both decarbonisation and their development priorities, for financing by international public and private investors. For example, in 2024, Colombia published a USD 40 billion investment plan, setting out its financial needs for both transitioning away from fossil fuels and adapting to climate change.⁷²

Conversely, developing country fossil fuel exporters will face a dilemma if sufficient finance is not available:⁷³ while wanting to mitigate climate change, their ability to do so will be limited without adequate resources.⁷⁴ However, these countries will at least want to manage their economic risks associated with the global energy transition.

5. Conclusions

While the transition to cheaper, cleaner technologies is unstoppable, the pace at which these technologies spread will be shaped by policy actions. Credible forecasts indicate that even without new policies, oil and gas demand are likely to peak in the coming years, putting downward pressure on prices. This peaking is not enough to achieve the temperature goals of the Paris Agreement. However, aiming to achieve energy security, affordability and sustainability will lead governments to introduce new policies that decrease demand and prices faster. Governments of importer countries will be especially motivated to adopt such policies. Since the majority of the world's oil is traded,⁷⁵ it is important for governments of exporter countries to understand those trends in demand and in policymaking.

The issues in this report lie at the heart of development: how can countries build thriving economies, while enabling healthy, fulfilling and prosperous lives for their citizens? Do fossil fuels help or hinder these efforts? How can economies become more resilient as markets for fossil fuels change?

Transitioning away from dependence on oil and gas creates an opportunity for a more prosperous economy. Indeed, governments wanted to diversify long before climate change was on the policy agenda, recognising that balanced economies tend to grow faster, are more resilient to changes in international markets, and enable consistent development rather than boom/bust cycles.⁷⁶

One thing that is clear is that countries will be better able to tackle these challenges, and grasp the opportunities, through cooperation than in isolation.

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6. References

- 1 Intergovernmental Panel on Climate Change (2022), Climate Change 2022: Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, <https://www.ipcc.ch/report/ar6/wg2/>
- 2 Forster, PM et al (2025), Indicators of Global Climate Change 2024: annual update of key indicators of the state of the climate system and human influence, Earth System Science Data 17, pp.2659–2660, <https://doi.org/10.5194/essd-16-2625-2024>
- 3 United Nations Environment Program (UNEP) (2024), The Emissions Gap Report 2024, p.34 (median estimates), <https://www.unep.org/resources/emissions-gap-report-2024>
- 4 Friedlingstein, P et al (2025), Global Carbon Budget 2024, Earth System Science Data 17, pp.965-1039, <https://doi.org/10.5194/essd-17-965-2025>
- 5 United Nations Framework Convention on Climate Change (2023), Outcome of the first global stocktake: Proposal by the President, Draft decision -/CMA.5, para. 28(d), https://unfccc.int/sites/default/files/resource/cma2023_L17_adv.pdf
- 6 European Commission (2025), REPowerEU: Affordable, secure and sustainable energy for Europe, https://commission.europa.eu/topics/energy/repower_eu_en
- 7 International Energy Agency (2024), World Energy Outlook 2024, pp.78-79, <https://www.iea.org/reports/world-energy-outlook-2024>
- 8 World Energy Outlook 2024, note 6, pp. 137,144 (excludes processing gains).
- 9 OPEC (2024), World Oil Outlook 2024, <https://www.opec.org/assets/assetdb/woo-2024.pdf>; EIA (2023); International Energy Outlook 2023, Reference scenario, <https://www.eia.gov/outlooks/ieo/>; ExxonMobil (2024), Global Outlook 2024, <https://corporate.exxonmobil.com/sustainability-and-reports/global-outlook>; Shell (2025), The 2025 Energy Security Scenarios, Archipelagos scenario, <https://www.shell.com/news-and-insights/scenarios/the-2025-energy-security-scenarios.html>; World Energy Outlook 2024, note 6; Wood Mackenzie (2024), Energy Transition Outlook 2024, <https://www.woodmac.com/market-insights/topics/energy-transition-outlook/>; Equinor (2024), Energy Perspectives 2024, Walls scenario, <https://cdn.equinor.com/files/h61q9gi9/global/d382569e001922c6abb25871edd52019d91cfa2d.pdf?20240606-energy-perspectives-2024.pdf>; McKinsey (2024), Global Energy Perspective 2024, Slow Evolution scenario, <https://www.mckinsey.com/industries/energy-and-materials/our-insights/global-energy-perspective>; Bloomberg (2024), New Energy Outlook 2024, Executive summary, Economic Transition Scenario, <https://about.bnef.com/insights/clean-energy/new-energy-outlook/>; BP (2024), BP Energy Outlook 2024, Current Trajectory scenario <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2024.pdf>; DNV (2024), Energy Transition Outlook 2024,
- 10 Moore, M (2025), Big Oil faces up to its sunset era, Financial Times, 18 June, <https://www.ft.com/content/46e6dab5-db5e-4207-b339-aca5dd5c0ea6>
- 11 IEA (2023), World Energy Outlook 2023, pp.130-136, <https://www.iea.org/reports/world-energy-outlook-2023>
- 12 Marchetti, C and Nakicenovic, N (1979), The Dynamics of Energy Systems and the Logistic Substitution Model, International Institute for Applied Systems Analysis, <http://pure.iiasa.ac.at/id/eprint/1024/>
- 13 Speelman, L and Numata, Y (2022), A Theory of Rapid Transition: How S-Curves work and what we can do to accelerate them, Rocky Mountain Institute, https://rockymnt.wpenginepowered.com/wp-content/uploads/2022/10/theory_of_rapid_transition_how_s_curves_work.pdf
- 14 Victor, DG, Geels, FW and Sharpe, S (2019), Accelerating the Low Carbon Transition: The case for stronger, more targeted and coordinated international action, Brookings Institution, p.14, <https://www.brookings.edu/wp-content/uploads/2019/12/Coordinatedactionreport.pdf>
- 15 Various outlooks, note 8.

- 16 Bond, K et al (2023), X-change: Cars - The end of the ICE age, Rocky Mountain Institute, pp.25-28, <https://rmi.org/insight/x-change-cars/>; Way, R, Ives, MC, Mealy, P & Farmer, JD (2022), Empirically grounded technology forecasts and the energy transition, Joule 6, 1–26, <https://doi.org/10.1016/j.joule.2022.08.009>; Lopez, G, Pourjamal, Y and Breyer, C (2025), Paving the way towards a sustainable future or lagging behind? An ex-post analysis of the International Energy Agency's World Energy Outlook, Renewable and Sustainable Energy Reviews 212, 115371, <https://doi.org/10.1016/j.rser.2025.115371>.
- 17 Ember (2024), Global Electricity Review 2024, pp.27-28, <https://ember-energy.org/app/uploads/2024/05/Report-Global-Electricity-Review-2024.pdf>
- 18 Myllyvirta, L (2025), Clean energy just put China's CO2 emissions into reverse for first time, CarbonBrief, 22 May, https://www.carbonbrief.org/analysis-clean-energy-just-put-chinas-co2-emissions-into-reverse-for-first-time/?utm_source=cbnewsletter&utm_medium=email&utm_term=2025-07-29&utm_campaign=Daily+Briefing+15+05+2025
- 19 Kaelin, C and Jones, D (2024), Six highlights of the global energy transition in 2024, Ember, 17 December, <https://ember-energy.org/latest-insights/six-highlights-of-the-global-energy-transition-in-2024/> 20 IEA (2025), Global EV Data Explorer: EV sales share – cars, <https://www.iea.org/data-and-statistics/data-tools/global-ev-data-explorer>
- 20 IEA (2025), Global EV Data Explorer: EV sales share – cars, <https://www.iea.org/data-and-statistics/data-tools/global-ev-data-explorer>
- 21 Energy Institute (2025), Statistical Review of World Energy 2025, <https://www.energyinst.org/statistical-review>
- 22 Muttitt, G et al (2021), Step off the gas: International public finance, natural gas and clean alternatives in the Global South, International Institute for Sustainable Development, pp.14-15, <https://www.iisd.org/publications/natural-gas-finance-clean-alternatives-global-south>
- 23 Carello, F (2024), Examining Total Cost of Ownership: Battery electric vs internal combustion engine vehicles, Ayvens, p.8, <https://www.ayvens.com/-/media/ayvens/public/cp/files/white-papers/examining-the-tco-of-bev-vs-ice-vehicles--may-2024.pdf?rev=6d5ab10798684deab714ce20e78f27ab>
- 24 IEA (2025), Global Electric Vehicle Outlook 2025, pp.47-56, <https://iea.blob.core.windows.net/assets/7ea38b60-3033-42a6-9589-71134f4229f4/GlobalEVOutlook2025.pdf>
- 25 IEA (2024), Reducing the Cost of Capital: Strategies to unlock clean energy investment in emerging and developing economies, <https://www.iea.org/reports/reducing-the-cost-of-capital>; Jones, D. (2025), The first evidence of a take-off in solar in Africa, Ember, 26 August, <https://ember-energy.org/latest-insights/the-first-evidence-of-a-take-off-in-solar-in-africa/>
- 26 BloombergNEF (2023), Cost of Clean Energy Technologies Drop as Expensive Debt Offset by Cooling Commodity Prices, 7 June, <https://about.bnef.com/insights/commodities/cost-of-clean-energy-technologies-drop-as-expensive-debt-offset-by-cooling-commodity-prices/>
- 27 BloombergNEF (2025), Electric Vehicle Outlook 2025, Executive summary, <https://about.bnef.com/insights/clean-transport/electric-vehicle-outlook/>
- 28 Energy Transitions Commission (2022), Building Energy Security Through Accelerated Energy Transition, <https://www.energy-transitions.org/wp-content/uploads/2023/06/Building-Energy-Security-v2.pdf>
- 29 World Energy Council (2012), World Energy Trilemma 2012: Time to get real – the case for sustainable energy policy, https://www.worldenergy.org/publications/entry/world-energy-trilemma-2012-time-to-get-real-a-the-case-for-sustainable-energy-policy_
- 30 IEA (2015), World Energy Outlook 2015, pp.586-587, <https://www.iea.org/reports/world-energy-outlook-2015>; Statistical Review, note 20; BP (2017), Energy Outlook 2017, p.47, <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2017.pdf>; ExxonMobil (2017), Outlook for Energy 2017, p.18; Global EV Data Explorer, note 19, EV stock share – cars.
- 31 Geels, FW (2002), Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study, Research Policy 31, pp.1257–1274. [https://doi.org/10.1016/S0048-7333\(02\)00062-8](https://doi.org/10.1016/S0048-7333(02)00062-8)
- 32 Grubb, M, Hourcade, JC and Neuhoﬀ, K (2014), Planetary Economics: Energy, Climate Change and the Three Domains of Sustainable Development, Abingdon and New York: Routledge, pp.321-326.
- 33 Akther, A et al (2025), Driving the Transition to Zero-Emission Trucks, University of Exeter et al, <https://eest.co.uk/wp-content/uploads/EEIST-Driving-the-Transition-to-Zero-Emission-Trucks-Policy-Brief.pdf>

34 Driving the Transition, note 32

35 Step off the gas, note 22, pp.28-30.

36 Rathi, A (2024), Time to Retire 'Hard to Abate' as Climate Solutions Become More Affordable, Bloomberg, 6 August, <https://www.bloomberg.com/news/articles/2024-08-06/cheaper-climate-solutions-mean-it-s-time-to-retire-hard-to-abate>

37 Paes Leme, JM (2024), Leading Brazil Toward a Just Energy Future, interview by Plimpton, A, Salzburg Global, 17 October, <https://www.salzburgglobal.org/news/latest-news/article/leading-brazil-toward-a-just-energy-future>

38 Semieniuk, G et al (2022), Stranded fossil-fuel assets translate to major losses for investors in advanced economies, Nature Climate Change, 12(6), pp.532–538, <https://doi.org/10.1038/s41558-022-01356-y>

39 Manley, D, Cust, JF and Cecchinato, G (2017), Stranded Nations? The Climate Policy Implications for Fossil Fuel-Rich Developing Countries, OxCarre Policy Paper 34, <http://dx.doi.org/10.2139/ssrn.3264765>

40 World Energy Outlook 2024, note 6, p.90

41 IEA (2023), The Oil & Gas Industry in Net Zero Transitions, p.45, <https://www.iea.org/reports/the-oil-and-gas-industry-in-net-zero-transitions>

42 IEA (2013), Golden Rules for a Golden Age of Gas, <https://www.iea.org/reports/golden-rules-for-a-golden-age-of-gas>

43 Dale, S and Fattouh, B (2018), Peak Oil Demand and Long-Run Oil Prices, Oxford Institute for Energy Studies, Energy Insight 25, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2018/01/Peak-Oil-Demand-and-Long-Run-Oil-Prices-Insight-25.pdf>

44 Bond, K and Butler-Sloss, S (2022), Why Peaks Matter - The Turning Point from Growth to Decline, Rocky Mountain Institute, <https://rmi.org/insight/peaks-why-they-matter/>

45 Fattouh, B., Poudineh, R. and Sen, A. (2015). The Dynamics of the Revenue Maximisation–Market Share Trade-off – Saudi Arabia's Oil Policy in the 2014–2015 Price Fall, Oxford Institute for Energy Studies. <https://www.oxfordenergy.org/publications/the-dynamics-of-the-revenue-maximisation-market-share-trade-off-saudi-arabias-oil-policy-in-the-2014-2015-price-fall/>

46 El Wardany, S and Smith, G (2025), Saudis Warn of More Supply Unless OPEC+ Cheats Fall in Line, Bloomberg, 4 May, <https://www.bloomberg.com/news/articles/2025-05-04/saudis-warn-opec-cheats-of-more-supply-unless-they-fall-in-line>

47 UNICEF Iraq et al (2020), Assessment of COVID-19 Impact on Poverty and Vulnerability in Iraq, <https://www.unicef.org/iraq/reports/assessment-covid-19-impact-poverty-and-vulnerability-iraq>

48 Prince, G et al (2023), Petrostates of Decline: Oil and gas producers face growing fiscal risks as the energy transition unfolds, Carbon Tracker Initiative, <https://carbontracker.org/reports/petrostates-of-decline/>

49 Muttitt, G and Kartha, S (2020), Equity, climate justice and fossil fuel extraction: Principles for a managed phaseout, Climate Policy 20(8), p.1029, <https://doi.org/10.1080/14693062.2020.1763900>

50 World Bank (2025), World Development Indicators: Fuel exports (% of merchandise exports), <https://data.worldbank.org/indicator/TX.VAL.FUEL.ZS.UN>

51 Puyo, DM et al (2024), Key Challenges Faced by Fossil Fuel Exporters during the Energy Transition, International Monetary Fund, pp.6-9 <https://www.elibrary.imf.org/view/journals/066/2024/001/article-A001-en.xml>

52 Fuhr, L and West, J (2014), Risky Reserves, Project Syndicate, 12 May, <https://www.project-syndicate.org/commentary/lili-fuhr-and-johnny-west-encourage-oil-producing-countries-to-prepare-for-more-robust-climate-policies>

53 Hubert, D (2019), Government Revenues From Coral FLNG, Oxfam, https://webassets.oxfamamerica.org/media/documents/Government_Revenues_From_Coral_Flng.pdf

- 54 Savoia, A and Sen, K (2021), The Political Economy of the Resource Curse: A Development Perspective, Annual Review of Resource Economics 13, pp.203-223, <https://doi.org/10.1146/annurev-resource-100820-092612>; Steadman, S et al (2023), Indebted: How to support countries heavily reliant on oil and gas revenues to secure long-term prosperity, Overseas Development Institute, https://cdn.odi.org/media/documents/ODI_report_Indebted-fossil-fuel_producers_and_debt.pdf; Natural Resource Governance Institute (2015), The Resource Curse: The Political and Economic Challenges of Natural Resource Wealth, https://resourcegovernance.org/sites/default/files/documents/nrgi_primer_resource-curse.pdf
- 55 Stevens, P, Lahn, G, & Kooroshy, J (2015), The resource curse revisited, Royal Institute of International Affairs (Chatham House) <https://www.chathamhouse.org/sites/default/files/publications/research/20150804ResourceCurseRevisitedStevensLahnKooroshyFinal.pdf>
- 56 Wicken, O. (2017). Industrial diversification processes and strategies in an oil economy, pp.304-307. In S. Mahroum, & Y. al-Saleh, (Eds.), Economic diversification policies in natural resource rich economies, Abingdon and New York: Routledge.
- 57 Stocking, G (1970), Middle East Oil, Nashville: Vanderbilt University Press
- 58 Parra, F. (2003), Oil Politics: A Modern History of Petroleum, London and New York: IB Tauris.
- 59 Equity, climate justice, note 47
- 60 Alsharif, N, Bhattacharyya, S and Intartaglia, M (2017), Economic Diversification in Resource Rich Countries: Uncovering the State of Knowledge, Oxford University Centre for the Study of African Economies, Working Paper WPS/2016-28, p.10, https://sussex.figshare.com/articles/report/Economic_diversification_in_resource_rich_countries_uncovering_the_state_of_knowledge/23436332?file=41148425
- 61 Gopalakrishnan, T and Miller, J (2024), New climate dis-economies: The political economy of energy transitions in fragile fossil fuel producers, Environment and Security, 2(3), pp.348-374, <https://doi.org/10.1177/27538796241272361>
- 62 Alsharif, N, Bhattacharyya, S and Intartaglia, M (2017). Economic diversification in resource rich countries: History, state of knowledge and research agenda. Resources Policy, 52, pp.154–164, <https://doi.org/10.1016/j.resourpol.2017.02.007>.
- 63 Mishrif, A and Kapetanovic, H (2018), Dubai's Model of Economic Diversification, in: Mishrif, A and Al-Balushi, Y (eds), Economic Diversification in the Gulf Region, Volume II. The Political Economy of the Middle East, Singapore: Palgrave Macmillan, https://doi.org/10.1007/978-981-10-5786-1_5
- 64 Peszko, G (2020), Diversification and Cooperation in a Decarbonizing World: Climate strategies for fossil fuel-dependent countries, World Bank, <https://documents1.worldbank.org/curated/en/469241593746087038/pdf/Diversification-and-Cooperation-in-a-Decarbonizing-World-Climate-Strategies-of-Fossil-Fuel-Dependent-Countries.pdf>
- 65 Olurounbi, R (2024), Nigeria Aims to Boost Tax Collections by 57% in 2024, Bloomberg, 15 January, <https://www.bloomberg.com/news/articles/2024-01-15/nigeria-aims-to-boost-tax-collections-by-57-in-2024-as-reforms-take-hold>
- 66 Magazzino, C (2022), Fiscal sustainability in the GCC countries. International Journal of Economic Policy Studies 16, p.390, <https://doi.org/10.1007/s42495-022-00082-9>
- 67 Paroussos, L et al (2019), Climate clubs and the macro-economic benefits of international cooperation on climate policy. Nature Climate Change 9, pp.542–546, <https://doi.org/10.1038/s41558-019-0501-1>
- 68 Muttitt, G (2020), What role for OPEC in the last generation of oil? In: Claes, DH and Garavini, G (eds), Handbook of OPEC and the Global Energy Order: Past, present and future challenges, Abingdon and New York: Routledge.
- 69 United Nations Framework Convention on Climate Change (2015), Paris Agreement, articles 9, 10 and 11, https://unfccc.int/sites/default/files/english_paris_agreement.pdf
- 70 Koppenborg, F. (2025). Phase-out clubs: an effective tool for global climate governance? Environmental Politics, <https://doi.org/10.1080/09644016.2025.2483070>
- 71 ODI Global (2025), Country Platforms: the key to aligning national development priorities and climate goals? <https://odi.org/en/about/our-work/country-platforms/>

72 Reuters (2024), Colombia launches \$40 bln investment portfolio for energy, climate transition, 27 September, <https://www.reuters.com/business/environment/colombia-launches-40-bln-investment-portfolio-energy-climate-transition-2024-09-27/>

73 African Arguments (2024), View(s) from Africa: Verdicts on the “shameful” COP29 climate talks, 25 November, <https://africanarguments.org/2024/11/views-from-africa-verdicts-on-the-cop29-climate-talks/>

74 Muttitt, G and Yanguas Parra, P (2024), Costing a fossil fuel phaseout, UCL Policy Brief, <https://www.ucl.ac.uk/bartlett/news/2024/nov/costing-fossil-fuel-phaseout-toolkit-cop29>

75 Only 30% is consumed in the same country where extracted. Statistical Review, note 20

76 Delechat, CC et al (2024), Economic Diversification in Developing Countries: Lessons from Country Experiences with Broad-Based and Industrial Policies, International Monetary Fund, <https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2024/07/20/Economic-Diversification-in-Developing-Countries-Lessons-from-Country-Experiences-with-532135>