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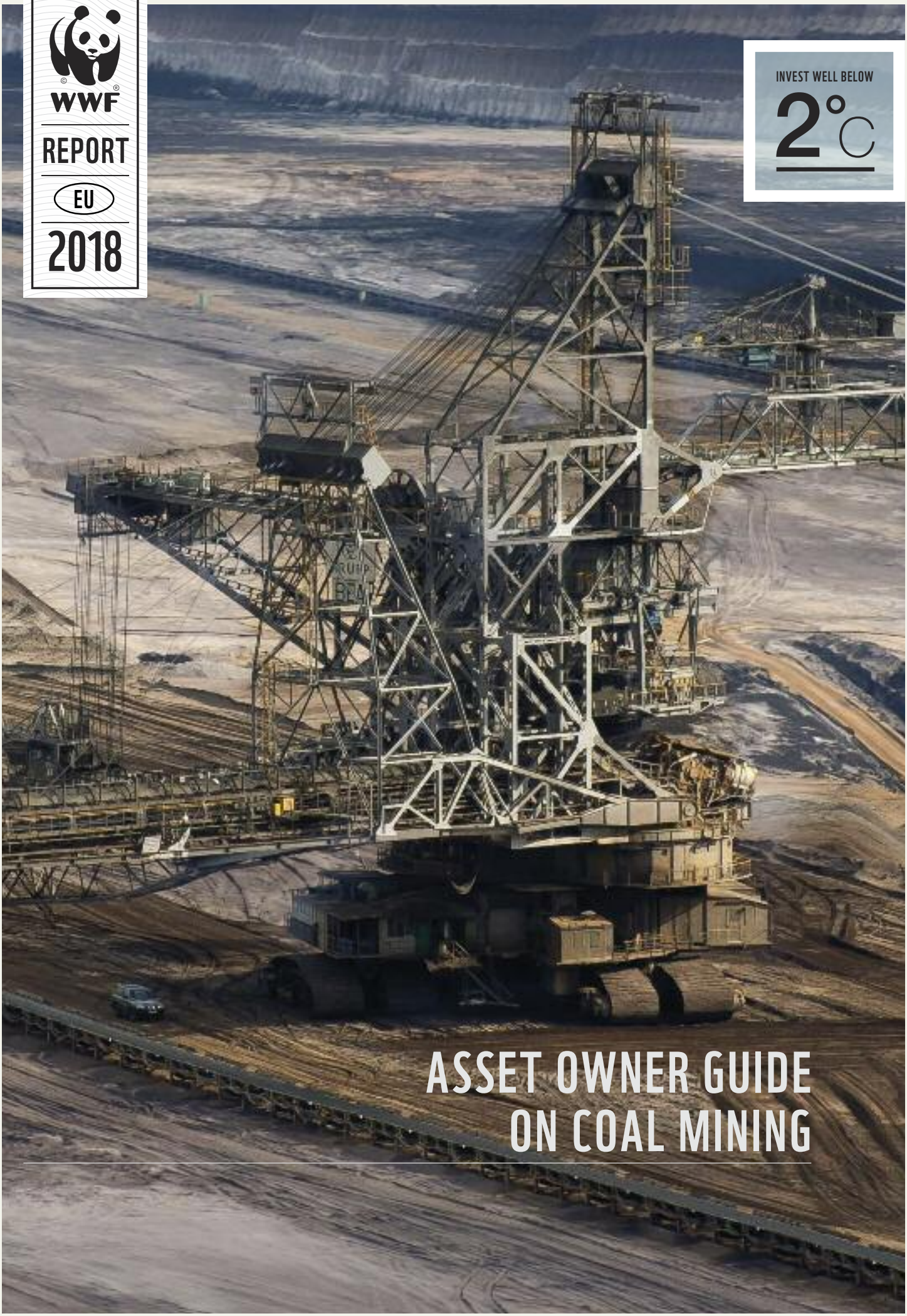

ASSET OWNER GUIDE ON COAL MINING

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The Glentaggart open cast coal mine in Lanarkshire, Scotland, UK.

INTRODUCTION: HOW TO USE THIS GUIDE

In the Paris Climate Change Agreement ('Paris Agreement'), 195 countries committed to curb the current emissions trajectory in accordance with climate science. This commitment translated into an objective to 'hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C'.

There is a growing consensus amongst leading investors globally that we are moving irreversibly towards a low carbon economy. With this Guide, WWF wishes to support asset owners and show how they can align their coal mining investments with the objectives set in the Paris Agreement. Coal is the most carbon-intensive fossil fuel, responsible for about 46% of global carbon emissions from fossil fuels.[1] **This Guide focuses on thermal coal** comprising steam coal and lignite, which are primarily used for generating electricity (85% of the total coal market); it does not address metallurgical or coking coal (15 % of the market).[2]

This Guide complements the **WWF Climate Guide to Asset Owners**, which presents 15 topline recommendations of a more general nature (see reminder on page 24). While this Guide does not duplicate each of the Climate Guide recommendations, it follows its structure that is based on asset owners' key roles: learning and seeking advice; decision-making; and monitoring service providers and engaging with key stakeholders.

The recommendations argue that asset owners should address all coal mining companies in their investment portfolio in light of financial risks and opportunities that spring from climate science – in particular as coal mining is one of the sectors most vulnerable to the low carbon transition. The Guide presents recommendations on how asset owners can mitigate risks, most notably through the development and adoption of a coal mining policy.

Finally, WWF is publishing simultaneously an **Asset Owner Guide on Coal and Renewable Electric Power Utilities**. It notably provides more details to asset owners on specific climate science, key developments, and financial risks and opportunities related to the coal and renewable power sector. WWF encourages asset owners to use this Guide as well, in order to better address the urgent coal issue.

1 Olivier, J. G. J., Greet J.-M., Marilena M., and Jeroen P (2016), Trends in Global CO_2 Emissions: 2016 Report. European Commission, Joint Research Centre.

2 Steam coal production amounted to 5,811 million tonnes (Mt) in 2015 (75% market share), lignite to 807 Mt (10% market share) and metallurgical or coking coal to 1,090 Mt (15% market share) (IEA/OECD (2016), Coal Information 2016).

LEARNING & SEEKING ADVICE

1. ASSESS WHAT THE PARIS AGREEMENT IMPLIES FOR THE COAL MINING SECTOR

WWF RECOMMENDATION 1

WWF recommends that asset owners assess what the Paris Agreement implies for coal mining: latest climate science would mean that no new coal mine should be developed globally, and that under a least-cost strategy existing coal assets have to be phased out extremely quickly so that the EU and OECD fully exit coal by 2030, China by 2040 and the rest of the world by 2050.

According to latest climate science, limiting warming to 2°C by 2100 means that the net emissions of greenhouse gases need to be reduced by 40-70% by the time we reach 2050, and brought to zero by the end of the century.[3] Respecting the more stringent limit of 1.5°C will require reducing emissions of greenhouse gases even more rapidly in the coming years and decades, and bring them to zero around mid-century.[4]

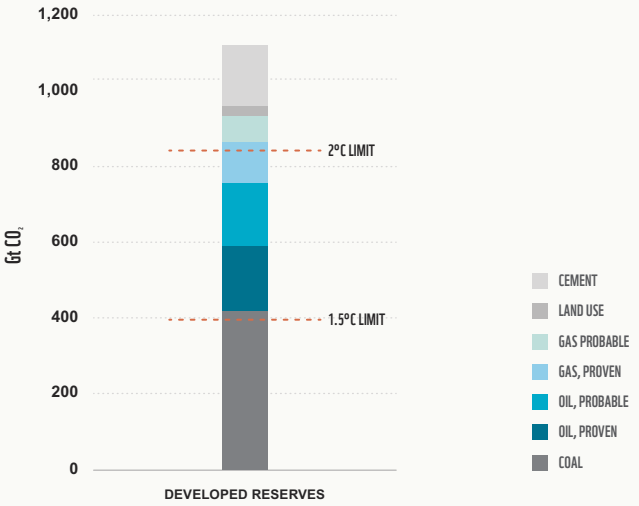
In 2012 the International Energy Agency found that almost four-fifths of CO_2 emissions allowable by 2035 under its 2°C scenario were already locked-in by existing power plants, factories, buildings, etc., and stated that 'if action to reduce CO_2 emissions is not taken before 2017, all the allowable CO_2 emissions would be locked-in by energy infrastructure existing at that time'.[5]

In 2015 a study from McGlade and Ekins found that, globally, 82% to 88% of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2°C.[6]

In 2016 an Oil Change International study found that the potential carbon emissions from oil, gas, and coal in the world's currently operating fields and mines would take us beyond 2°C of warming. Alone, coal reserves of operating mines (425 gigatonnes of CO_2) would be sufficient to bust the 1.5°C carbon budget (393 gigatonnes of CO_2) (see Figure 1).[7] This would imply that no new coal mine should be developed globally and some operating mines should undergo early closure.

3 IPCC (2014), AR5.
4 Climate Action Tracker (Climate Analytics, Ecofys, NewClimate Institute, Potsdam Institute for Climate Impact Research).
5 International Energy Agency found (2012), World Energy Outlook.
6 McGlade C., Ekins P. (2015), The geographical distribution of fossil fuels unused when limiting global warming to 2°C, University College London (UCL). Nature Vol. 517.
7 Oil Change International (2016), The Sky's limit – Why the Paris climate goals require a managed decline of fossil fuel production, in collaboration with fourteen organisations.

FIGURE 1 EMISSIONS FROM DEVELOPED FOSSIL FUEL RESERVES, PLUS PROJECTED LAND USE AND CEMENT MANUFACTURE (SOURCE: OIL CHANGE INTERNATIONAL)[8]



The analysis on the coal production side is consistent with complementary analysis on the consumption side (i.e. coal plants that consume 85% of global coal). The Climate Action Tracker – a research consortium composed of the Potsdam Institute for Climate Impact Research, Ecofys, Climate Analytics and the NewClimate Institute – found that 'even with no new construction, emissions from coal-fired power generation in 2030 would still be 150% higher than what is consistent with scenarios limiting warming to below 2°C above pre-industrial levels'.[9]

A ClimateAnalytics study assessed the implication of the Paris Agreement for coal in the power sector and concluded: 'under a least-cost strategy, the EU and the OECD would need to phase out coal by 2030, China by 2040 and the rest of the world, including the majority of emerging economies, would need to phase out coal by 2050'.[10]

TOOLBOX FOR RECOMMENDATION 1	
WWF TOPLINE RECOMMENDATIONS OF THE CLIMATE GUIDE TO ASSET OWNERS	• 1. Assess the evidence of climate-related financial risks and opportunities
MAIN REFERENCES	• McGlade C., Ekins P. (2015), The geographical distribution of fossil fuels unused when limiting global warming to 2°C, University College London (UCL). Nature Vol. 517New • Oil Change International (2016), The Sky's limit – Why the Paris climate goals require a managed decline of fossil fuel production • ClimateAnalytics (2016), Implication of the Paris Agreement for coal use in the power sector • Climate Action Tracker (2015), The Coal Gap: planned coal-fired power plants inconsistent with 2˚C and threaten achievement of INDCs

8 Oil Change International (2016), The Sky's limit – Why the Paris climate goals require a managed decline of fossil fuel production, in collaboration with fourteen organisations.

9 Climate Action Tracker (2015), The Coal Gap: planned coal-fired power plants inconsistent with 2˚C and threaten achievement of INDCs.

10 ClimateAnalytics (2016), Implication of the Paris Agreement for coal use in the power sector.

2. ASSESS THE EVIDENCE OF GROWING FINANCIAL RISKS FOR THE COAL MINING SECTOR

WWF RECOMMENDATION 2

WWF recommends that asset owners assess the evidence of growing financial risks for the coal mining market: many analysts see a structural decline in most key geographies, despite volatility and occasional upticks.[11]

Mercer finds that coal mining, together with coal power, are the sectors that will be most negatively affected by the low carbon transition.[12] Depending on the climate scenario which plays out, Mercer finds that the average annual returns from the coal sub-sector could fall by anywhere between 26% and 138% of average annual returns in the coming decade – meaning that average annual returns could become negative.

Coal mining has already been impacted by several trends, most notably a reduction of coal demand due to energy market developments. Coal mining assets are therefore increasingly at risk of becoming stranded, and hence constitute a growing financial risk to investors. The part below provides more details on global developments, while regional developments are elaborated in Annex 1.

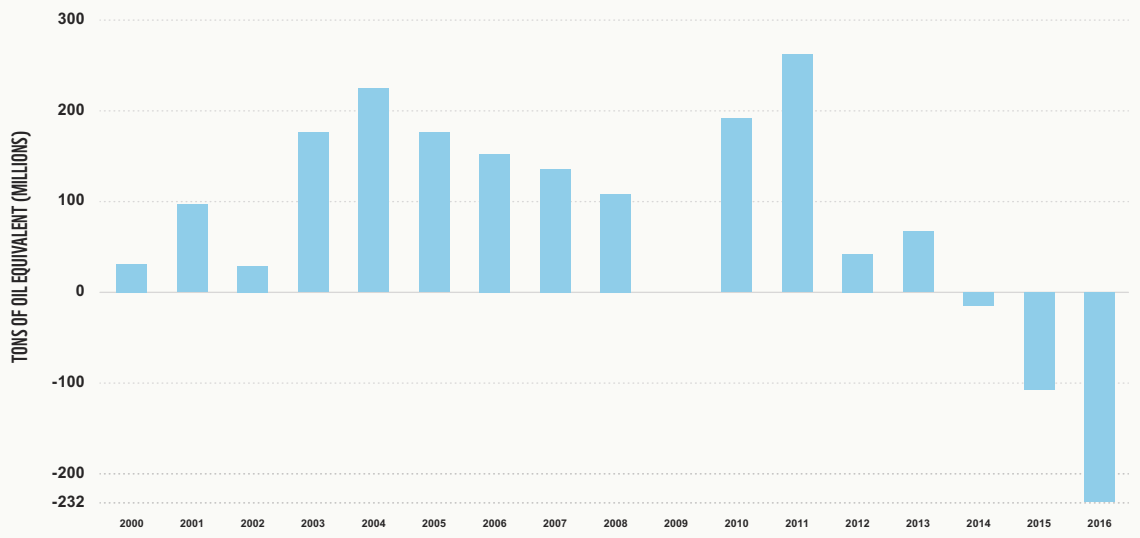
Global coal production is falling on the back of reduced coal demand

Coal production appears to have peaked in 2013. The speed of its demise has stunned analysts. In 2013, the IEA expected coal-burning to grow by 40% by 2040 – now it anticipates an increase by just 1%.[13] Building on two extensive literature reviews, WWF has found that the global coal market became bearish in the period 2013-2014.[14] Many studies confirm the downward prospects for the global coal market, for example Citigroup and Bernstein Research.[15]

In 2016 global coal production decreased for the third year in a row, with the decline gradually accelerating from 0.3 % in 2014 over 2.6 % in 2015 to 6.2 % in 2016 (see Figure 2).[16]

11 WWF (2014), Global coal: the market has shifted; and WWF, (2015), Global coal: the acceleration of market decline.
12 Mercer (2015), Investing in at time of climate change.
13 The Guardian, The seven megatrends that could beat global warming, 8 November 2017.
14 WWF (2014), Global coal: the market has shifted; and WWF, (2015), Global coal: the acceleration of market decline.
15 Citigroup (2013), The Unimaginable: Peak Coal in China. Bernstein Research (2013) Asian coal and power: less, less, less... The beginning of the end of coal.
16 BP (2017), BP Statistical Review of World Energy.

FIGURE 2 YEARLY CHANGE IN GLOBAL COAL PRODUCTION, 2000-2016 (SOURCE: BP STATISTICAL REVIEW)[17]



Coal production has been impacted by decreased thermal coal demand: the amount of electricity produced globally by burning coal has fallen each year since 2013.[18]

- Key drivers of the fall in coal power production include growing competition from alternative power sources (renewables and gas) in key geographies, structural economic change in China, increased competitiveness of energy efficiency and grid efficiency improvements, decentralisation and diversification of the power system, lower energy demand growth, and tighter air pollution standards and regulations.
- Even though there are more power plants than in 2013, the load factor (i.e the number of hours per year that coal-fired power plants are producing power) has decreased significantly: this has, in turn, reduced income and financial viability of these power assets.[19]
- The global coal power capacity retired is increasing, from 10-15 GW a year in 2010-2011 to 20 GW a year in 2012-2014 to 30-40 GW a year in 2015-2016.[20]

WWF has expanded on the power demand dynamics in its an Asset Owner Guide on Coal and Renewable Electric Power Utilities.

In light of the above, many analysts believe the coal market is in structural decline despite volatility and occasional upticks. Coal prices are down, just as the returns and share prices of pure play coal miners. The Stowe Coal Index has lost over 80% since its high-point in June 2008 while the MSCI International World Index was up over 45%.

17 BP (2017), BP Statistical Review of World Energy.
18 CoalSwarm (2017), Boom and Bust 2017.
19 In China, the coal fleet ran at only 47,5% capacity in 2016 (Institute for Energy Economics and Financial Analysis (2017), China: A glut in the Chinese electricity market). India, in September 2017, reported its national coal fleet on average ran at little more than 60% of its capacity - well below what is generally considered necessary for an individual generator to be financially viable.
20 CoalSwarm (2017), Boom and Bust 2017.

Coal mining is already stranded

"GLOBALLY, AN ESTIMATED US$1.1 TRILLION OF CURRENT ENERGY-SECTOR ASSETS, PARTICULARLY COAL MINES, MAY BE STRANDED IN THE TRANSITION TO A LOW-CARBON ECONOMY"

The New Climate Economy Commission[22]

Carbon stranding of coal mining assets has been assessed: it points to both loss of value invested in coal producers (about US$ 800 billion according to IRENA), and potential wasted capex in mining (worth US$ 177 billion) if climate policies are later implemented successfully.[21]

Mark Carney, Governor of the Bank of England and Chairman of the G20 Financial Stability Board, is using the coal mining sector to demonstrate that changes in policy, technology and physical risks can prompt sharp changes in asset valuations: 'the combined market capitalisation of the top four US coal producers has fallen by over 99% since the end of 2010, and three (i.e. Peabody Energy, Arch Coal and Alpha Natural) have recently filed for bankruptcy'.[23]

BOX 1. CARBON CAPTURE AND STORAGE (CCS) IS NOT RELEVANT FOR THERMAL COAL

One specific technological issue that can be raised about coal power is CCS. CCS has been framed by its proponents as the solution to give coal-fired power a mid-long term future in a low carbon economy.

WWF does not support the use of CCS for the power sector: CCS development assumptions for electric power generation are unrealistic economically and technically and thus risky climate wise, while renewable energy and energy efficiency provide no-risk affordable alternatives. WWF considers that CCS may have a larger role to play in reducing non-energy CO_2 emissions from *industrial* processes, only after all other options including energy and material efficiency have been exhausted, and subject to truly safe geological CO_2 storage.[24]

High costs and technological challenges (e.g. storage) have heavily put into question the feasibility to apply CCS for coal-fired power plants. Recent development with several large scale CCS demonstration projects confirms these challenges (see the WWF Asset Owner Guide on Coal and Renewable Electric Power Utilities for more information). As a consequence the new IEA well below 2°C scenario ('B2DS') foresees no such development in Europe anymore.[25]

A challenge is that thermal coal and metallurgical coal are often hard to disentangle: a given coal mine may contain different coal qualities – with high quality coal usually being reserved for steel, and lower quality coal for thermal use. Several coal miners remain opaque on whether the mined coal is for thermal or metallurgical use. WWF considers that if the company reporting is unclear on the issue, all coal should be considered as thermal.

21 IRENA (2017), Stranded Assets and Renewables: How the Energy Transition Affects the Value of Energy Reserves, Buildings and Capital Stock. Carbon Tracker Initiative (2015), The $2 Trillion Stranded Assets Danger Zone: How Fossil Fuel Firms Risk Destroying Investor Returns.

22 The New Climate Economy Commission (2016), The Sustainable Infrastructure Imperative.

23 Carney Mark (2016), Resolving the climate paradox, Speech at the Arthur Burns Memorial Lecture, Berlin.

24 WWF (2013), Reaction to the European Commission's 'Consultative Communication on The Future of Carbon Capture and Storage in Europe'.

25 IEA (2017), Energy Technology Perspectives 2017.

BOX 2. THE NEED FOR A JUST TRANSITION AWAY FROM COAL

Phasing out coal can have important societal benefits, going beyond climate change mitigation. Key among these are improved air quality, and increased water availability.[26]

However, in some cases a transition away from coal can be politically difficult. Lessons learned from previous successful experiences provide guidance and show that social dialogue, social protection and economic diversification are instrumental in ensuring just transitions.[27]

Interests of workers and coal communities need to be taken into account and addressed by additional measures. Public support for workers, such as wage subsidies (for hiring in expanding sectors, training, re/upskilling) and unemployment insurance, helps effectively mitigate most of the losses at generally modest costs.[28] It is instrumental to kick-start the viable economic transformation of coal regions.

The just transition issue gets increasing interest from investors: the Investor Group on Climate Change published a recent report with relevant recommendations about investing in a just transition in Australia to move away from coal.[29] Asset owners should take the just transition issue into account to facilitate the coal exit and smooth related social impacts.

BOX 3. HARD COAL VERSUS LIGNITE

Both hard coal and lignite are used to produce electric power. They have distinctive characteristics, however, that will impact their climate and air pollution-related financial risks:

- Lignite (1030 grams CO_2 /kWh) has a higher carbon emission factor than thermal hard coal (870-940 grams CO_2 /kWh), making it more vulnerable to climate policies.[30]
- Lignite contains more local pollutants (e.g. NOx, SOx and dust) that have a proven negative impact on public health, making it more prone to air pollution regulation that aims to limit these negative externalities.[31]
- Lignite is not fit for long distance transport due to its high moisture content and low energy density. As opposed to hard coal, which can be exported, production and consumption of lignite are closely interlinked and local. In some cases both mining and power production are even undertaken by the same company (e.g. RWE).

26 IEA/OECD. (2016). Coal Information 2016.
27 Caldecott, B., Sartor, O. and Spencer, T., (2017), Lessons from Previous Coal Transitions: High-Level Summary for Decision-Makers.
28 Louie, E. P., and Pearce, J.M., (2016), Retraining Investment for U.S. Transition from Coal to Solar Photovoltaic Employment, Energy Economics 57, pp. 295–302.
29 IGCC (2017), Coal, carbon and the community – Investing in a just transition.
30 IEA (2016), CO_2-emissions from fuel combustion.
31 DNV-GL (2016), Fact-based scenario to meet commitments under the LCP BREF.

As of 1 November 2017, lignite amounted to 35.6% of the EU coal power capacity – far more than the world's average. Total lignite capacity was 55.8 GW – situated mainly in Germany, Poland and Czech Republic.[32]

EU lignite capacity and related lignite mining activities are particularly prone to newly adopted air quality regulations (LCP BREF) that will impose stricter limits on toxic pollutants from all 2,900 Large Combustion Plants in the EU as from 2021:[33]

- 89% of lignite capacity operational in 2021 would in current conditions not be compliant with LCP BREF, compared to 78% of hard coal capacity.
- The estimated capital expenditure required to bring the lignite capacity in compliance with LCP BREF would amount to approximately €6 billion.[34]

In addition to the European regulation, individual countries – most notably Germany – might set in place specific targets to reduce lignite in their energy mix.[35]

Companies that own lignite assets are particularly vulnerable, because they will either need to heavily invest in retrofitting plants or will be forced to close down their lignite power stations (and related mines). In both cases, this will weigh on their balance sheet. Asset owners should therefore closely scrutinise the lignite issue.

TOOLBOX FOR RECOMMENDATION 2

WWF TOPLINE RECOMMENDATIONS OF THE CLIMATE GUIDE TO ASSET OWNERS	• 1. Assess the evidence of climate-related financial risks and opportunities
MAIN REFERENCES	• UNEP (2017), The Emissions Gap Report 2017. • IRENA (2017), Stranded Assets and Renewables. • Carbon Tracker Initiative (2015), The $2 Trillion Stranded Assets Danger Zone: How Fossil Fuel Firms Risk Destroying Investor Returns. • CoalSwarm (2017), Boom and Bust 2017.

32 Europe Beyond Coal Database, version of 1 November 2017.
33 European Commission (2017) LCP BREF.
34 DNV-GL (2016), Fact-based scenario to meet commitments under the LCP BREF. Research based on capacity data from 2014.
35 Platts, German forward power prices drop as coalition talks collapse amid coal closure disagreement, 20 November 2017.

INVEST WELL BELOW 2°C

DECISION-MAKING

PRIORITY

3. ADOPT A COAL MINING POLICY AT PORTFOLIO LEVEL

WWF RECOMMENDATION 3

WWF recommends that asset owners adopt a coal mining policy with the following elements:

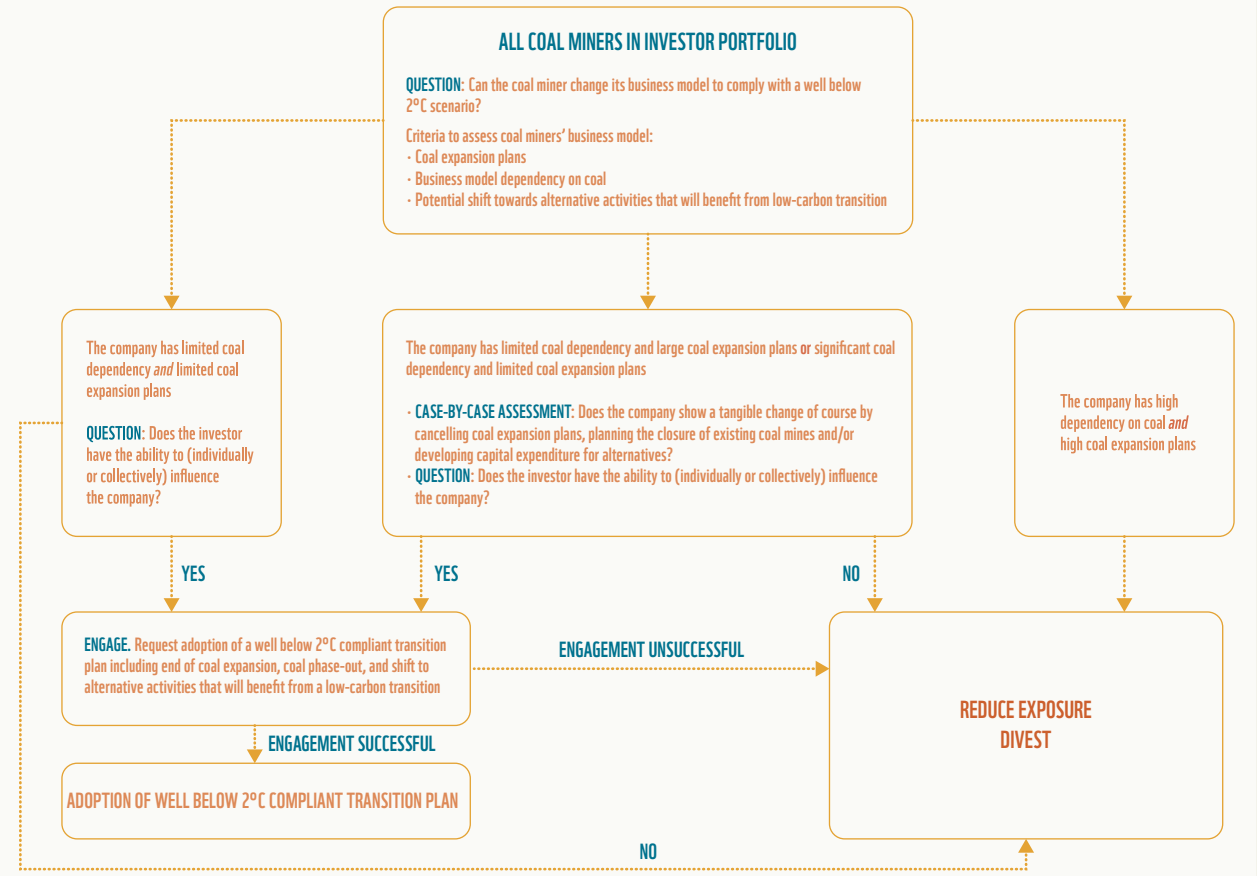
- **An urgent request to coal mining portfolio companies to rapidly align with the Paris Agreement.**
- **Criteria to engage (or divest) with all coal mining portfolio companies (see Recommendation 4), time-bound requests to engaged companies (see Recommendation 5), and criteria for follow up in case of success or failure of engagement (see Figure 6).**
- **Guidelines that guarantee tight implementation of the coal mining policy by investment managers and other service providers, and an update of the proxy voting policy.**
- **Commitments to publicly and regularly signal the coal mining-related decisions and activities (see Recommendation 7).**

Three factors incentivise asset owners to develop a coal mining policy: climate science and the need to align their investment portfolio with the Paris Agreement (see Recommendation 1); increasing risks associated with changing dynamics in the coal mining sector (see Recommendation 2); and growing opportunities in low carbon sectors (see the WWF Climate Guide to Asset Owners).

WWF believes that asset owners can carefully define criteria in their coal mining policy to maximise their ability to harness change in the sector. These criteria must enable identifying relevant companies for engagement and companies not suited for engagement, guarantee an impactful dialogue with coal miners, and ensure implementation of the policy by service providers.

Figure 3 provides an overview of questions and criteria that will help asset owners in developing their coal mining policy. More details are provided in Recommendations 4 and 5, and Annex 2 provides a template coal mining policy.

FIGURE 3 DEVELOPING A COAL MINING INVESTMENT POLICY AND ENGAGEMENT STRATEGY (WWF)



TOOLBOX FOR RECOMMENDATION 3

WWF TOPLINE RECOMMENDATIONS OF THE CLIMATE GUIDE TO ASSET OWNERS	• 6. Integrate climate change in investment policy • 8. Adopt sector-specific policies
AVAILABLE TOOLS	• Global Investor Coalition on Climate Change (GICCC) (2015), Investor expectations of Mining Companies • GICC (2015), Climate change investment solutions: a guide for asset owners • PRI (2015), Developing an asset owner climate change strategy: pilot framework
MAIN REFERENCES	• FSB Task Force on Climate-related Financial Disclosures (2017), Final Report. • Mercer (2015), Investing in a time of climate change. • WRI, UNEP-FI, 2° Investing Initiative (2015), Climate strategies and metrics: exploring options for institutional investors.

MONITORING SERVICE PROVIDERS & ENGAGING WITH KEY STAKEHOLDERS

PRIORITY

4. IDENTIFY COAL MINING COMPANIES SUITED FOR FORCEFUL SHAREHOLDER ENGAGEMENT

WWF RECOMMENDATION 4

WWF recommends that asset owners, in collaboration with relevant service providers and like-minded peers, identify coal mining companies suited for forceful shareholder engagement building on three criteria of 1) coal expansion plans; 2) business model dependency on coal and 3) potential to shift their business model towards alternative activities.

Coal mining companies should either be actively engaged, with timelines, or divested. There is no relevance to engage with companies that have no future in a well below 2°C economy.

The WWF Climate Guide to Asset Owners highlights the need to prioritise sustained and meaningful engagement with a selected number of companies, given the limited engagement capacity of asset owners and the scale and pace of action required by climate science. Shareholder engagement with coal mining portfolio companies is critical to ensure they will realise a meaningful low-carbon transition within the relevant timeframe, and thus maintain or enhance shareholder value while complying with well below 2°C pathways.

WWF believes that asset owners should not keep coal mining companies in their portfolio without taking action, as inaction can only exacerbate risks. However, some coal mining companies are not willing or will not be able to transition rapidly enough. Identifying the coal mining companies suited for engagement is therefore critical so that the engagement will bear fruits.

Three criteria to identify an asset owner approach to coal mining companies

1. **Coal expansion plans:** climate science indicates that no new coal mine should be developed (see Recommendation 1). Whatever their coal dependency, coal miners that have capital expenditure in their books for new coal mines or the expansion/purchase of existing coal mines go counter climate imperatives and will face growing risks of stranded assets in a context of stricter carbon regulations following the Paris Agreement. This issue should thus be addressed as the top priority by asset owners.
2. **Business model's dependency on coal:** the degree to which a mining company is entrenched in coal will influence its capacity to shift to a low carbon business model in a timely fashion. The share of coal in total revenues of the company is the most relevant metric to identify coal dependency. There is already a relatively common industry practice amongst European institutional investors that have employed a 30% divestment threshold (e.g. the Norwegian Sovereign Wealth Fund, Allianz, etc.). Some asset owners even go beyond that threshold.[36]
3. **Potential to shift their business model towards alternative activities that will benefit from the low-carbon transition:** on the opportunity side, the same criteria can be applied – capital expenditure for sectors/assets that will benefit from to the low-carbon transition and share of revenues from those sectors.[37]

36 E.g. FRR, CNP Assurances, Caisse Des Dépôts, Hesta use a divestment threshold of 15 or 20%.

37 Importantly – aside climate change – mining activities have a well-documented track record of high negative impacts on water consumption and pollution, ecosystem and land degradation, human rights violations and abuse of indigenous peoples' rights, corruption and more. Asset owners should therefore have tight policies in place addressing all such concerns when investing in mining companies in general. For biodiversity impacts, WWF has developed the WWF-SIGHT tool that maps if mining concessions threaten environmentally protected areas (World Heritage Sites, national parks and other key biodiversity areas). See http://wwf-sight.org/.

The 'Global Coal Exit List' is a new database of 775 coal parent companies that asset owners can use to identify coal mining companies.[38] It identifies 328 coal mining companies that represent over 88% of world coal production. The database also identifies 225 companies that have coal expansion plans (forward looking criterion). The Global Coal Exist List is described in Annex 3, which also provides the 120 largest coal miners.

FIGURE 4 USING THREE CRITERIA TO DISTINGUISH COAL MINING COMPANIES AND ASSET OWNERS' ACTION (WWF)

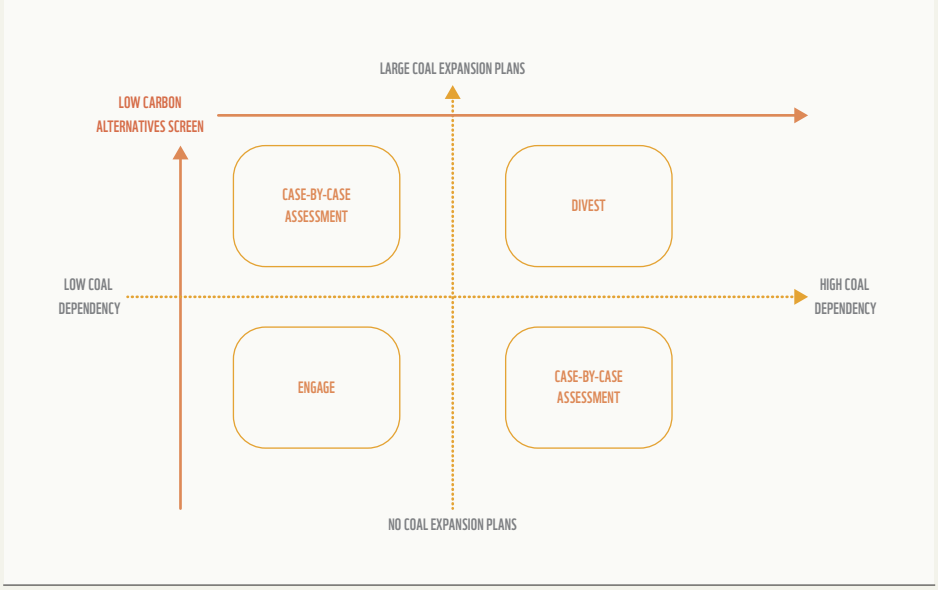


Figure 4 suggests three courses of action an asset owner can take based on the business model of the coal miner. Each is elaborated on in more detail below.

- **Engagement** is a worthwhile option for coal mining companies with low coal dependency and no or limited coal expansion plans, as they are well placed to adapt to the low-carbon transition. Notably, the large diversified miners BHP Billiton and South32 have relatively limited revenues from coal (see Figure 5), and do not seem to have coal expansion plans anymore. When asset owners have few shareholder rights in these companies, and wish to engage, they should systematically do it through collective action in investor coalitions, in order to reach the critical mass forcing the company to change (see Recommendation 5). Engagement should be time-bound, and followed by gradual exposure reduction if not successful (see Figure 6).
- **Case-by-cases assessments** are required for coal mining companies with significant coal dependency and limited coal expansion plans, and coal mining companies with limited coal dependency and large coal expansion plans. Notably,

38 Urgewald (2017), Global Coal Exit List.

the large diversified miners Glencore[39], Anglo American, Rio Tinto and Teck have relatively limited revenues from coal (see Figure 5) but still have coal expansion plans. Engagement with these companies should be made strictly conditional on the positive outcome of the assessment – i.e. if the company shows a tangible change of course by cancelling coal expansion plans, planning the closure of existing coal mines, and developing capital expenditure plans for alternatives. Engagement should be time-bound (see Figure 6) and, in case of a negative assessment or unsuccessful engagement, the company should be divested from.

- **Divestment** is the only option for coal mining companies with both high coal dependency and large coal expansion plans, as they are in no position to shift their business model *within the necessary timeframe*.
  - This group covers pure play or highly coal-dependent companies that generate all or most of their revenues from coal mining like Peabody (USA), Datong Coal Industry (China), Alliance Resource Partners (USA), Indo Tambangraya Megah TBK PT (Indonesia) and Banpu Public Company (Thailand).[40]
  - Divestment should also be undertaken for companies that are climate deniers or aggressively lobby against climate and energy regulations relevant for the achievement of the Paris Agreement, e.g. Peabody in the US.[41]

  WWF does not see relevance to engage with such companies: the asset owner policy must indicate that public equity and bonds in these companies will be sold, and that no new bonds and shares will be purchased until further notice.

Low coal dependency is not enough to stop engagement: all companies must have a coal exit strategy

The fact that a coal mining company has a relatively limited coal dependency does not mean that it is adequately managing its climate-related risks nor that it is aligned with the Paris Agreement. As a result, 'the job is not done': such companies simply have a higher potential to exit coal in a timely fashion than those more coal-dependent – and in fact are more likely to fully exit coal. WWF therefore believes they should be actively engaged by asset owners to gradually align their business model with the Paris Agreement.

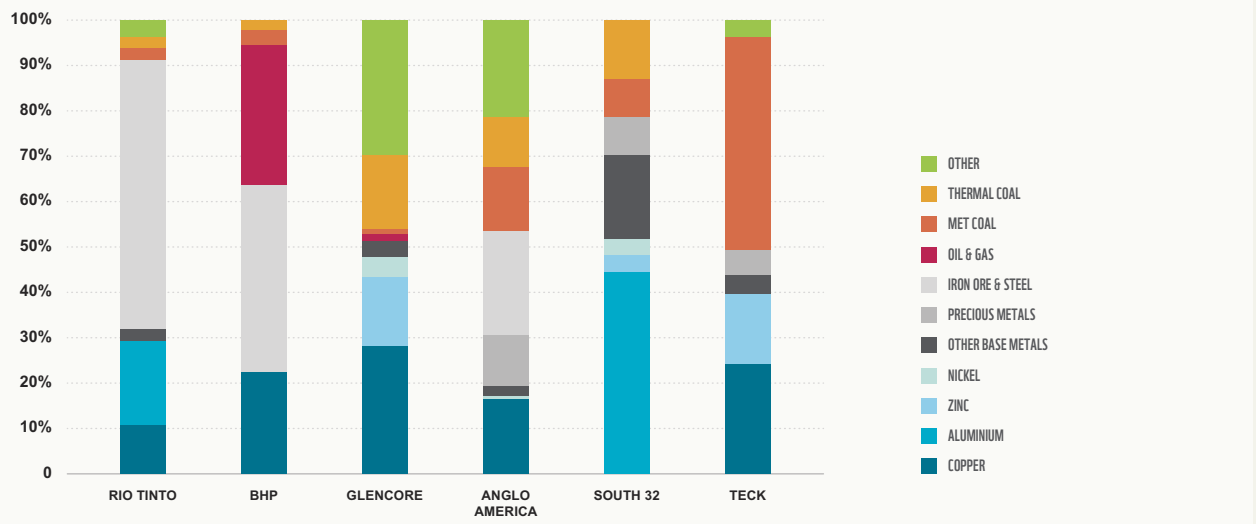
The above notably applies to large companies that have a relatively small part of their revenues from coal mining, but can mine large amounts of coal – and hence have a significant climate impact. Out of 328 coal miners profiled in the 'Global Coal Exit List' database (see Annex 2), 30 companies account for over half of the world's annual coal production: 9 of these 30 companies have less than 50% of revenues from coal, and 10 even have less than 30% of revenues from coal. For these companies, an absolute amount of coal mined per year is a more relevant indicator (also provided in the 'Global Coal Exist List' database) to establish climate impact than a percentage of revenues from coal.

39 Glencore is quite worrying as it seems to largely discount the energy transition and build its assessment on both outdated and wrong data (e.g. Glencore 2017, Climate change considerations for our business 2017): see the analysis of Carbon Tracker Initiative (2017), Glencore: Still digging for a future based on the past. In addition, since 2015 the chairman of the World Coal Association - the leading global coal industry body - is Mike Buffier, Group Executive, Coal Assets at Glencore.

40 Oxford Smith School (2016), Stranded Assets and Thermal Coal.

41 The Guardian, Biggest US coal company funded dozens of groups questioning climate change, 13 June 2016.

FIGURE 5 DIVERSIFIED MINERS' EARNINGS BY COMMODITY 2015-2016 (SOURCE: CDP)[42]



A CDP study shows that out of the twelve large diversified miners globally, the six ones that still mine coal all have less than 20% of their revenues from coal (except Teck for metallurgical coal).[43] However, the annual amount of coal they mine is very uneven:

- Glencore is the 10th largest coal miner globally (125 Mt).
- Anglo American (95 Mt) and BHP Billiton (77 Mt) also mine huge amounts of coal.
- South32 (39 Mt), Rio Tinto (30 Mt) and Teck (28 Mt) mine smaller amounts in comparison, but still have an enormous climate impact.

Finally there are specific cases, for example large power utilities operating coal mines to fuel their own coal-fired plant fleet (e.g. RWE in Germany with lignite).

TOOLBOX FOR RECOMMENDATION 4

WWF TOPLINE RECOMMENDATIONS OF THE CLIMATE GUIDE TO ASSET OWNERS	• 13. Engage forcefully with portfolio companies
AVAILABLE TOOLS	• Global Coal Exit List: open-source database of 775 coal parent companies • Global Investor Coalition on Climate Change (GICCC) (2015), Investor expectations of Mining Companies • CDP, Global Compact, WRI, WWF: sciencebasedtargets.org • League tables of coal mining companies: Transition Pathway Initiative (2017), The toolkit • InfluenceMap (2017), Corporate Carbon Policy Footprint
MAIN REFERENCES	• Preventable Surprises (2017), Forceful Stewardship • Portfolio Decarbonisation Coalition (PDC), UNEP-Finance Initiative, CDP (2016), Investment portfolios in a carbon constrained world: the second annual progress report of the PDC • PRI (2015), Investor expectations on corporate climate lobbying

42 CDP (2017), Digging deep - Which miners are facing up to the low-carbon challenge?

43 Ibid.

PRIORITY

5. DEFINE MEANINGFUL REQUESTS TO COAL MINING PORTFOLIO COMPANIES

WWF RECOMMENDATION 5

WWF recommends that asset owners develop an assertive engagement strategy to ensure that coal mining portfolio companies, in the very near term, publish time-bound well below 2°C transition plans and climate science-based targets, and deliver TCFD-aligned reporting. A litmus test for engagement is a corporate commitment to immediately end capital expenditures for coal expansion. Asset owners should reduce exposure/divest from coal mining companies, and require investment managers to act accordingly, if engagement efforts do not result in the targeted companies publishing meaningful climate targets and transition plans in a timely fashion.

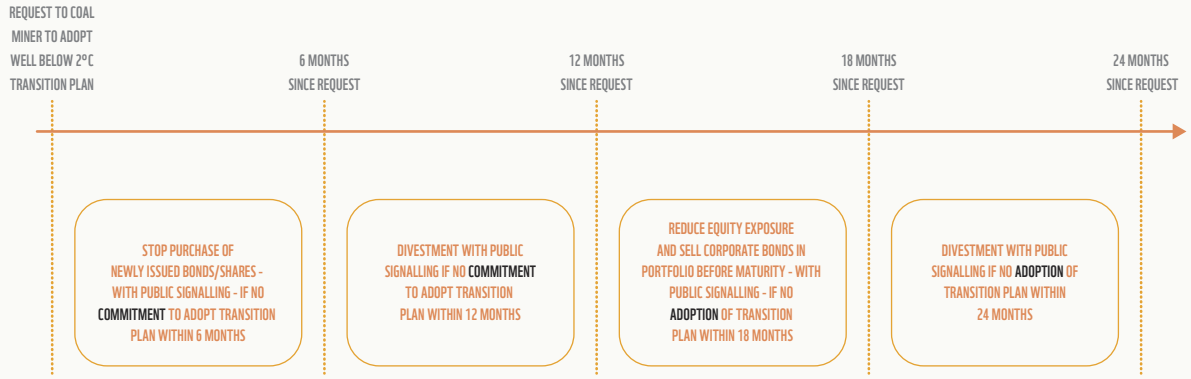
The explicit ultimate objective of engagement should be the alignment of coal mining portfolio companies' business models with the Paris Agreement. Asset owners should request coal miners to adopt and publish time-bound well below 2°C transition plans composed of the six following elements:

- **Long term goal:** a commitment to align business models with the Paris Agreement and, more concretely, a time-bound climate science-based target built on forward looking climate-scenario analysis. WWF recommends the sectoral decarbonisation approach, developed by Ecofys for the Science-Based Target Initiative, to set science-based targets.[44]
- **'No new coal' commitment:** an immediate end to capital expenditures for new coal mines and the expansion/purchase of existing coal mines. WWF views such capital expenditures discipline as an imperative before any meaningful engagement can be followed up: increasing coal dependency cannot be compatible in any way with climate science.
- **Coal exit strategy:** a clearly articulated roadmap for the gradual closure of existing coal mines, ending at the latest in 2030 in EU/OECD and in 2050 globally. This could include cash returns to shareholders through buybacks or dividends, and be accompanied with increased capital expenditure for low carbon projects. The least profitable coal mines should be closed first.
- **TCFD-aligned disclosure:** the disclosure of the target and transition plan and alignment with the TCFD recommendations. Such information should be published in mainstream financial reports (integrated reporting).
- **Regular review:** a commitment to review and ratchet up targets and transition plans in the light of evolving climate science, in particular the development of 1.5°C scenarios driven by the Paris Agreement.
- **No counterproductive lobbying:** a public commitment to not oppose policies that aim to reduce emissions in line with the Paris Agreement, be transparent about lobbying activities and related expenditures, and leave third party organisations (e.g. business and trade associations) that promote policies that risk to derail the Paris Agreement.

44 Science-Based Target Initiative (2015), sectoral decarbonisation approach (SDA) – A method for setting corporate emission reduction targets in line with climate science.

Given the urgency to tackle coal-related climate change, asset owners should require internal and external investment managers to reduce/remove exposure to the targeted companies if the engagement process does not lead to significant results within set timeframes (6, 12, 18, 24 months) as recommended in Figure 6:

FIGURE 6 ROADMAP FOR EXPOSURE MANAGEMENT IN CASE OF UNSUCCESSFUL ENGAGEMENT (WWF)



In addition to the above requests, asset owners can ask additional guiding questions to coal mining companies about their governance structure, and just transition. A good start for formulating such questions has been made by the Global Investor Coalition on Climate Change[45], but asset owners should also include the following:

- Has the coal mining company put in place a **governance structure** that defines board and senior management responsibilities and accountability for overseeing the well below 2°C transition plan's implementation; and adjusted the board's remuneration policy accordingly? If not, when can it adopt such a structure?
- Has the coal mining company **a just transition** policy in place?

45 Global Investor Coalition on Climate Change (GICCC) (2015), Investor expectations of Mining Companies.

BOX 4. CLOSING NOT SELLING COAL MINES

Rio Tinto has adopted a strategy to sell its coal mines in order to focus on 'better assets'. The CEO Jacques has reportedly stated that 'even a mining firm as big as his has so much managerial talent and money, and must focus those on more productive assets'. The company is notably looking for buyers for its remaining coal mines in Australia.

Throughout the engagement process, the selling of existing coal mines by the company should explicitly be discouraged by asset owners as simply selling the assets may not have any positive impact in term of reducing CO_2 emissions, and may instead extend the lifetime of the coal mine. Indeed, because the mine may be sold at a discounted price, there is a risk that the company purchasing it intends on running the mine to maximise short term profit, with little priority on efficiency and responsibility, and so selling the asset could actually result in additional negative environmental impact.

In addition, if coal miner ownership is moving from one coal miner to another, global diversified investors are likely to keep them in their portfolio anyway, nullifying the impact at portfolio level. What is required instead is the timely closure of coal mines, as the only secure way to reduce climate-related risks. This is where asset owners' engagement may yield major climate benefits.

Finally, as universal owners, global diversified investors will be most affected by accelerated climate change, as they have large exposures across the economy. Therefore, the selling of an asset (for a likely discounted rate) in one part of their portfolio, has the potential to negatively affect the performance of other parts of their portfolio, for example through increased air pollution, lower agricultural yields, increased exposure to stranded assets through banks held in their portfolio.

TOOLBOX FOR RECOMMENDATION 5

WWF TOPLINE RECOMMENDATIONS OF THE CLIMATE GUIDE TO ASSET OWNERS	• 13. Engage forcefully with portfolio companies
AVAILABLE TOOLS	• Global Coal Exit List: open-source database of 775 coal parent companies • Global Investor Coalition on Climate Change (GICCC) (2015), Investor expectations of Mining Companies • CDP, Global Compact, WRI, WWF: sciencebasedtargets.org • League tables of coal mining companies: Transition Pathway Initiative (2017), The toolkit • InfluenceMap (2017), Corporate Carbon Policy Footprint
MAIN REFERENCES	• Preventable Surprises (2017), Forceful Stewardship • Portfolio Decarbonisation Coalition (PDC), UNEP-Finance Initiative, CDP (2016), Investment portfolios in a carbon constrained world: the second annual progress report of the PDC • PRI (2015), Investor expectations on corporate climate lobbying

6. ENGAGE FORCEFULLY WITH POLICY MAKERS

WWF RECOMMENDATION 6

WWF recommends that asset owners engage with policy makers to ask for coal-related climate and energy policies and regulations that drive a timely implementation of the Paris Agreement, for adequate climate and wider ESG corporate disclosure policies and regulations, and for financial policies and regulations that drive better understanding of coal-related risks for financial institutions, as part of wider climate assessments.

Government policies and regulations are key drivers of systemic change. Asset owners therefore need to engage with policy makers to accelerate the integration of coal-related risk analysis and mitigation across the whole investor and financial community: it is always more productive to try to influence change than to be a passive bystander. WWF believes that given the urgency of the climate challenge, asset owners should swiftly and unequivocally engage with policy makers in favour of the proper implementation of the Paris Agreement and what it implies for coal: a gradual phase out.

A group of six investor coalitions (AIGCC, CDP, Ceres, IGCC, IIGCC, PRI), covering investors across the globe, urged G7 and G20 leaders to maintain momentum on climate change, stating: 'it is imperative that the public and private sectors work closely together to get the signalling and incentives right to shift the trillions of capital required across the global economy'.[46]

Asset owners should notably support the following coal-specific policies and regulations:

- Coal phase out plans by governments, accompanied by systematic just transition measures to ease the transition away from coal in regions where coal is mined or where large coal infrastructure exists.
- The Council's decision to end subsidies for unprofitable coal mines by 2018.[47]
- Policies to establish and enhance carbon pricing (in particular – in the EU – by tightening of ETS policies) and remove coal power and free pollution subsidies.
- The legislative proposal of the European Commission for the Regulation on the internal market for electricity (Art 23§4) that introduces an Emissions Performance Standard of 550g CO_2 /kWh for capacity mechanisms – preventing coal plants from benefitting such subsidy mechanisms.[48]
- Non-market based instruments, such as ones to enact a ban on new coal mines beyond a specific timeline.[49]

TOOLBOX FOR RECOMMENDATION 6

CHAPTERS IN WWF CLIMATE GUIDE TO ASSET OWNERS	• 14. Engage forcefully with policy makers
MAIN REFERENCES	• PRI, UNEP-Inquiry, UNEP Finance Initiative, UN Global Compact (2014), Policy frameworks for long-term responsible investment - The case for investor engagement in public policy • EU High-Level Expert Group on Sustainable Finance (2017), Interim report • E3G e.a. (2016), A sustainable finance plan for the European Union

46 AIGCC, CDP, Ceres, IGCC, IIGCC, PRI (2017a), Governments urged to maintain momentum on climate change action.
47 European Council (2010), Council decision of 10 December 2010 on State aid to facilitate the closure of uncompetitive coal mines (2010/787/EU).
48 European Commission (2017), Proposal for a regulation of the European Parliament and of the Council on the internal market for electricity.
49 Rozenberg, J., Vogt-Schilb, A. and Hallegatte, S. (2017). Instrument Choice and Stranded Assets in the Transition to Clean Capital. Inter-American Development Bank.

7. PUBLICLY SIGNAL COAL MINING RELATED DECISIONS AND ACTIVITIES

WWF RECOMMENDATION 7

WWF recommends that asset owners publicly signal their coal mining related decisions and activities to add impact, notably the adoption of their coal mining policy, the integration of this policy in their mandates to investment managers and proxy voting policy, the engagement with targeted coal mining portfolio companies and requests to such companies, the filling or support of coal-related shareholder resolutions, and the exposure reduction/divestment if engagement is not deemed relevant or does not rapidly deliver.

By signalling (i.e. making public) key coal mining decisions and activities, asset owners will amplify their impact. Given the climate urgency, the signalling effect is critical to raise the awareness of coal mining companies, relevant service providers (notably investment managers) and stakeholders (policy makers); to emphasise the importance of the issue; and to accelerate efforts of parties mentioned above.[50]

Signalling is particularly critical for a meaningful engagement strategy: asset owners should become **forceful stewards**, using their full influence to make business part of the solutions to address climate-related risks; and this should include sending public signals to drive deeper and faster corporate change, and gather more investors to reach a critical mass.[51] It is extremely likely that bilateral engagement behind closed doors will not have enough impact to get coal mining companies shift their business model at the pace and scale required by the Paris Agreement.[52]

Similarly, public signalling is critical when reducing exposure/divesting in case engagement did not deliver: for very liquid asset classes – public equity and bonds – the rapid exchange of assets can quickly cancel out potential impact on the coal mining company, except through signalling or if a critical mass is reached.[53]

Public signalling is particularly important in cases where the engagement with a given coal mining company is difficult or not very likely to deliver (see Recommendation 5).

When asset owners publicly signal their coal related intentions/activities, they should always make clear that it is with the objective to align with the Paris Agreement, to adequately frame the issue.

TOOLBOX FOR RECOMMENDATION 7	
CHAPTERS IN WWF CLIMATE GUIDE TO ASSET OWNERS	• 11. Closely monitor investment managers • 12. Closely monitor other service providers • 13. Engage forcefully with portfolio companies
MAIN REFERENCES	• WRI, UNEP-FI, 2° Investing Initiative (2015), Climate strategies and metrics: exploring options for institutional investors • Portfolio Decarbonisation Coalition (PDC), UNEP-Finance Initiative, CDP (2016), Investment portfolios in a carbon constrained world: the second annual progress report of the PDC

50 WRI, UNEP-FI, 2° Investing Initiative (2015), Climate strategies and metrics: exploring options for institutional investors.
51 Preventable Surprises (2017), Forceful Stewardship.
52 Some investors (e.g. Norwegian Sovereign Wealth Fund, KLP, Storebrand, etc.) have already been actively signalling the names of companies with which they engage, or from which they have divested – based on clear criteria of coal dependency and/or coal expansion.
53 WRI, UNEP-FI, 2° Investing Initiative (2015), Climate strategies and metrics: exploring options for institutional investors.

REMINDER. TOPLINE RECOMMENDATIONS FROM THE WWF CLIMATE GUIDE TO ASSET OWNERS

To avoid duplication, this Asset Owner Guide on Coal Miners does not repeat the 15 Topline Recommendations of the WWF Climate Guide to Asset Owners that have a general nature. Instead, it focuses on specific coal mining Recommendations. This part reminds the general Recommendations from the WWF Climate Guide to Asset Owners.

LEARNING AND SEEKING ADVICE

1. Assess the evidence of climate-related financial risks and opportunities p.7
2. ! Use tools to measure portfolio climate risks and portfolio alignment with climate goals p.8
3. Assess the regulatory and policy context and ensure TCFD-aligned reporting p.9

DECISION-MAKING

4. Adopt climate-related investment beliefs p.10
5. Establish a climate governance structure p.11
6. ! Integrate climate change in investment policy p.12
7. Adjust strategic asset allocation to harness climate-related opportunities p.13
8. Adopt sector-specific policies p.14
9. ! Develop tools and metrics to set climate science based targets p.15

MONITORING SERVICE PROVIDERS AND ENGAGING WITH KEY STAKEHOLDERS

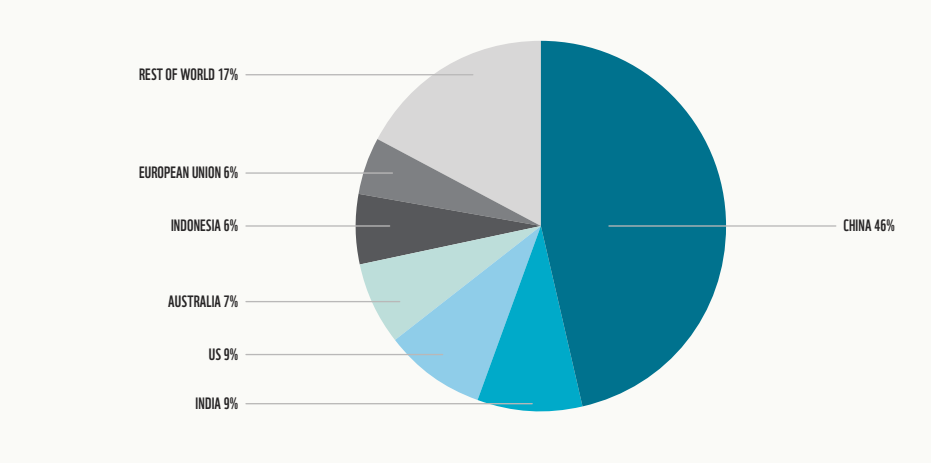
10. Work collectively with other institutional investors p.16
11. ! Closely monitor investment managers p.17
12. Closely monitor other service providers p.18
13. ! Engage forcefully with portfolio companies p.19
14. ! Engage forcefully with policy makers p.21
15. Engage with members and beneficiaries p.22

! PRIORITY

ANNEX 1. COAL MINING DYNAMICS IN KEY GEOGRAPHIES

Global coal mining production is very concentrated. Figure 7 indicates that China, India, USA, Australia, Indonesia and the European Union are responsible for 83% of global coal production.

FIGURE 7 GLOBAL COAL PRODUCTION (SOURCE: BP STATISTICAL REVIEW)[54]



China and India

Changes in China largely drive the global coal market. Following reduced coal consumption, the Chinese government restricted coal mining days from 330 to 276 days per year. Coal production decreased by 7.9% in 2016. Still, Chinese coal imports in 2016 were down 22 % over its 2013 peak.[55]

Indian energy demand growth has slowed down as well, while renewable energy capacity is expanding. Government policy aims to secure domestic energy security and bring coal imports to zero by 2020. Domestic coal production has increased indeed, and therefore India does not offer an alternative to reduced Chinese imports for coal miners.[56]

Australia and Indonesia

The developments in China and India have an impact on countries that export coal in or to Asia, most notably Australia and Indonesia – the two largest coal exporters globally.

- In Indonesia – which exports mainly to neighbouring countries such as China, India, Japan, South-Korea and the Philippines – both coal production and exports have seen a decrease in recent years;[57]
- For Australia, Citigroup sees no incentive for investments in new major coal mining projects – most notably the development of the enormous Carmicheal mine by Adani.[58]

54 BP (2017), BP Statistical Review of World Energy.
55 IEEFA (2017), China Is Now Three Years Past Peak Coal.
56 IEEFA (2017), India Turns Purposefully Away From Coal.
57 UNEP (2017), The Emissions Gap Report 2017.
58 The Guardian, Coal in decline: Adani in question and Australia out of step, 24 August 2017.

Despite regional volatility and occasional upticks, the overall trend is clear: the Newcastle seaborne thermal coal price has decreased from $140 per metric tonne in 2010 to $85 per metric tonne in June 2017. Price forecasts foresee this price fall to $60 by the end of the decade.[59] This will continue to put downward pressure on coal miners.

United States

US coal miners have come under immense pressure following increased competition from gas and renewable energy and government regulation. Coal production was down 38% in 2016 compared to its 2008 peak.[60] The Dow Jones U.S coal index is down over 90% since 2012. A string of mining companies (e.g. Peabody, Alpha Natural Resources, Walter Energy) have filed for bankruptcy over the last few year: while some of those have restarted activities with debt-relief, they will continue to function in a hostile market environment; and confront reduced coal demand, decreasing coal prices, and little prospects for export.[61]

In 2010 there were six massive coal export terminals planned in the Pacific Northwest coast that would have totalled around 180 million metric tons of exports per year. In 2017, all have had permit denials from government regulators at the local, state or federal level, or the projects were abandoned by the developers.

Recent analysis suggest that whatever the new US federal government will do will not change much the US structural decline that is driven essentially by the market and not by policy.[62]

European Union

Most Western European countries have either already phased out coal (Belgium, Baltic countries), agreed on a phase-out path (UK by 2025, France by 2022, Italy by 2025, Netherlands by 2030, Portugal by 2030, Finland by by 2030, Austria by 2020), or are currently discussing mid-term pathways with declining coal demand (Germany, Spain).[63]

Moreover, the Council decision to end subsidies for unprofitable coal mines will materialise in 2018.[64]

Coal is declining very rapidly in some countries: until recently UK was Europe's third biggest coal polluter and coal provided 40% of the nation's electricity in 2011; the figure fell to 2% in the first six months of 2017.[65]

While these developments appear quite rapidly and tend to accelerate, it should be noted that they are still too slow to be on track with a well below 2°C pathway. While global CO_2 emissions appeared to have hit a plateau over the last three years, first estimates indicate that global CO_2 emissions may have increased again in 2017.[66]

In the EU, 11.3 GW of coal power capacity should be closed annually until 2030 – while the average annual capacity shut down/fuel switch in 2005-2017 reached 4.3 GW only (increasing to an average 7.1 GW a year in 2016-2017). Thermal coal mining production should follow the same pathway.

59 Carbon Tracker Initiative (2014), Carbon supply cost curves: evaluating financial risk to coal capital expenditures; The Guardian, Coal in decline: Adani in question and Australia out of step, 24 August 2017.
60 Energy Information Administration (2017), Coal review.
61 IEEFA (2017), U.S. Coal Outlook 2017: Short-Term Gains Muted by Prevailing Weaknesses in Fundamentals.
62 See for example FiveThirtyEight, Trump's Plan Won't Reverse Coal's Decline, 28 March 2017.
63 The Economist Intelligence Unit (2017), The role of coal in Europe's power mix; Graichen, P., Kleiner, M., Buck, M. (2016), Energy Transition in the Power Sector in Europe: State of Affairs in 2015.
64 European Council (2010), Council decision of 10 December 2010 on State aid to facilitate the closure of uncompetitive coal mines (2010/787/EU).
65 The Guardian, The coal truth: how a major energy source lost its power in Britain, 19 July 2017.
66 Carbon Brief, Analysis: Global CO_2 emissions set to rise 2% in 2017 after three-year 'plateau', 13 November 2017.

ANNEX 2.

ASSET OWNER'S TEMPLATE COAL MINING POLICY

In the Paris Climate Change Agreement, 195 countries committed to 'hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C'. This has various repercussions:

- According to latest climate science, limiting warming to 2°C by 2100 means that the net emissions of greenhouse gases need to be reduced by 40-70% by the time we reach 2050, and brought to zero by the end of the century. Respecting the more stringent limit of 1.5°C will require reducing emissions of greenhouse gases even more rapidly in the coming years and decades, and bring them to zero around mid-century.
- Coal is the most carbon-intensive fossil fuel, responsible for about 46% of global carbon emissions from fossil fuels. Globally, 82% to 88% of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2°C.

[Asset owner] believes that we are moving irreversibly towards a low carbon economy. Aligning investments with the objectives set in the Paris Agreement will allow protecting our investment portfolio from climate-related physical and transition risks, as well as harnessing climate-related opportunities.

This policy focuses on coal mining. [Asset owner] will request coal miners to rapidly align their business model with the Paris Agreement.

Criteria to define an approach for coal mining companies

[Asset owner] will address all coal mining companies across its entire investment portfolio, and screen each coal miners according to three criteria:

- Coal plant expansion plans: coal miners that have capital expenditure in their books for new coal mines or the expansion/purchase of existing coal mines face growing risks of stranded assets in a context of stricter carbon regulations following the Paris Agreement.
- Business model's dependency on coal: the share of coal in the coal mining company's total revenue will be used as a metric for the degree to which the company is entrenched in coal.
- Potential to shift their business model towards alternative activities that will benefit from the low-carbon transition: on the opportunity side, the same metrics (i.e. capital expenditure and share of revenues will be applied) for sectors/assets that will benefit from to the low-carbon transition.

On the basis of above-mentioned screening, [asset owner] will identify an approach for each coal miner. We will:

- Engage with coal mining companies with low coal dependency and no or limited coal expansion plans, as these are well placed to adapt to the low-carbon transition.
- Divest from coal mining companies with both high dependency on coal and large coal expansion plans, as they are in no position to shift their business model within the necessary timeframe. This implies that we will sell our equity and bonds in the company, and no longer purchase newly issued equity and bonds until further notice.

- Undertake an in-depth assessment of coal mining companies with significant coal dependency and limited coal expansion plans, and coal miners with limited coal dependency and large coal expansion plans. Engagement with these companies will be made strictly conditional on the positive outcome of the assessment – i.e. if the company shows a tangible change of course by cancelling coal expansion plans, planning the closure of existing coal mines, and developing capital expenditure plans for alternatives.

Requests and criteria for forceful engagement with coal mining companies

[Asset owner] commits to prioritise sustained and meaningful engagement with the selected companies. Such engagement is critical to ensure a meaningful low-carbon transition within the relevant timeframe, and thus maintain or enhance shareholder value while complying with well below 2°C pathways.

[Asset owner] will request the coal mining companies to adopt and publish a time-bound well below 2°C transition plans composed of the six following elements:

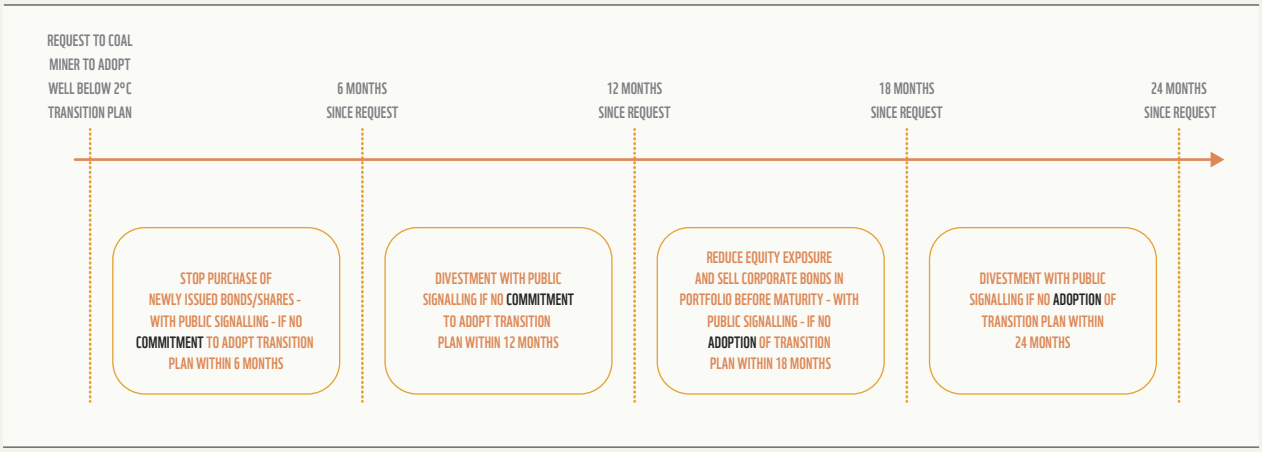
- Long term goal: a commitment to align business models with the Paris Agreement and, more concretely, a time-bound climate science-based target built on forward looking climate-scenario analysis.
- 'No new coal' commitment: an immediate end to capital expenditure for new coal mines and/or extension or purchase of existing coal mines.
- Coal exit strategy: a clearly articulated roadmap for the gradual closure of coal mines, ending at the latest in 2030 in EU/OECD and in 2050 globally.
- TCFD-aligned disclosure: the disclosure of the target and transition plan and alignment with the TCFD recommendations. Such information should be published in mainstream financial reports (integrated reporting).
- Regular review: a commitment to review and ratchet up targets and transition plans in the light of evolving climate science, in particular the development of 1.5°C scenarios driven by the Paris Agreement.
- No counterproductive lobbying: a public commitment to not oppose policies that aim to reduce emissions in line with the Paris Agreement, be transparent about lobbying activities and related expenditures, and leave third party organisations (e.g. business and trade associations) that promote policies that risk to derail the Paris Agreement.

In addition to the requests for a well below 2°C transition plan, [asset owner] will increase the effectiveness of its engagement in four ways:

- Ensure tight implementation of the coal mining policy by investment managers and other service providers, and update the proxy voting policy accordingly.
- Make engagement time-bound and gradually decrease exposure to the coal mining companies if the engagement does not bear fruit (see Figure below).
- Undertake collective action through investor coalitions, in order to reach the critical mass to generate a change of course from the coal mining companies.

- Publicly signal coal mining related decisions and activities. This notably includes publicly disclosing: this policy, the integration of the policy in mandates to investment managers and proxy voting policy, the engagement with targeted portfolio coal mining companies and requests to such companies, the filling or support of coal-related shareholder resolutions, and the exposure reduction/divestment if engagement is not deemed relevant or does not deliver within set timeframes.

ROADMAP FOR EXPOSURE MANAGEMENT IN CASE OF UNSUCCESSFUL ENGAGEMENT



ANNEX 3.

THE 'GLOBAL COAL EXIT LIST' DATABASE

The 'Global Coal Exit List' (GCEL) is the world's largest coal company database, identifying almost 2000 companies - **775 parent companies** and 1178 subsidiaries or joint ventures. The database is open-source, free and can be consulted on https://coalexit.org/. It has been developed by Urgewald with the support of WWF European Policy Office, CoalSwarm and other organisations.[67]

The GCEL includes three categories of coal companies: miners, utilities and service companies (i.e. companies that provide various services throughout the coal value chain like dedicated trade, infrastructure, port terminals, finance, etc).[68] It provides data, key statistics and identifiers (ISIN codes, if available) for each company.

The GCEL includes all companies that qualify for one or more of the **3 following criteria**: companies that have a coal share of revenue/power generation above 30%; companies that produce over 20 million tons of coal annually; and companies that operate more than 10 gigawatt of coal-fired capacity.[69] As a result, the companies listed in the GCEL represent over 88% of world coal production and 86% of the world's coal-fired capacity.

In addition, the GCEL is forward-looking: it identifies 225 companies that are planning to expand coal mining and 282 companies that are planning new coal plants.

The GCEL also contains three priority sub-lists: the world's 120 largest coal plant developers, 120 largest coal miners (see **table** below) and 120 largest coal utilities.[70]

The database will be updated regularly and specifically at least once a year for coal plant developers, given the rapid developments in this field.

TABLE 1 THE GLOBAL 120 LARGEST COAL MINERS (SOURCE: GLOBAL COAL EXIT LIST)[71]

PARENT COMPANY	ISIN CODE	COUNTRY OF HEADQUARTERS	COAL MINING EXPANSION PLANS	ANNUAL COAL PRODUCTION (IN MILLION METRIC TONS)	COAL SHARE OF REVENUE
Coal India Ltd	INE522F01014	India	Yes	538,8	>90%
Shenhua Group Corp Ltd	Private	China	Yes	433,3	79%
Datong Coal Mine Group Co Ltd	Private	China	Yes	171,6	>30%
China National Coal Group Corp (ChinaCoal)	Private	China	Yes	167	
Peabody Energy Corp	US7045492037	USA	No	159,3	100%
Shandong Energy Group Co Ltd	Private	China	No	133,7	20%
Shaanxi Coal and Chemical Industry Group Co Ltd	Private	China	No	126	>94%
Glencore PLC	JE00B4T3BW64	Switzerland	Yes	124,9	21%
PT United Tractors Tbk	ID1000058407	Indonesia	Yes	109,2	>60%
Yankuang Group Co Ltd	Private	China	No info found	109	48%
SUEK Ltd (Siberian Coal Energy Company)	Private	Russia	Yes	105,4	100%
Shanxi Coking Coal Group Co Ltd	Private	China	Yes	105,4	15%
Jizhong Energy Group Co Ltd		China	Yes	101,8	34%

67 The Global Coal Exit List primary source is the CoalSwarm Global Coal Plant Tracker database that provides information on all existing coal plants of 30 MW or larger globally, as well as every plant proposed since January 1, 2010.
68 Out of the 775 companies 218 mine coal, 214 operate coal plants, 110 operate both coal mines and coal plants, and the remaining 233 provide services.
69 20 million tons is the entire annual coal consumption of a country like Italy.
70 Employing a larger threshold (3 gigawatt of installed capacity) and geographical filters.
71 Urgewald (2017), Global Coal Exit List.

PARENT COMPANY	ISIN CODE	COUNTRY OF HEADQUARTERS	COAL MINING EXPANSION PLANS	ANNUAL COAL PRODUCTION (IN MILLION METRIC TONS)	COAL SHARE OF REVENUE
Henan Energy and Chemical Industry Group Co Ltd	Private	China	No info found	101,6	16%
Anglo American PLC	GB00B1XZS820	United Kingdom	Yes	94,8	23%
Arch Coal Inc	US0393803087	USA	No info found	93,3	>90%
Kailuan (Group) LLC	Private	China	Yes	91,7	11%
RWE AG	DE0007037129	Germany	No	90,5	41%
PT Bumi Resources Tbk	ID1000068703	Indonesia	Yes	86,5	>50%
China Huaneng Group	Private	China	No	83,3	NA
Energetický a průmyslový holding, a.s. (EPH)		Czech Republic	No info found	82	
BHP Billiton Group	Private	Australia	No info found	77	15%
Yangquan Coal Industry Group Co Ltd	CNE000001FP1	China	Yes	76	9%
Shanxi Lu'an Mining Industry (Group) Co Ltd	Private	China	Yes	74,3	12%
State Power Investment Corporation (SPIC)	Private	China	No	73,7	37%
Jinneng Group Co Ltd	Private	China	Yes	70,4	30%
Shanxi Jincheng Anthracite Mining Group Co Ltd	Private	China	No info found	70,4	11%
Huainan Mining Industry Group	Private	China	Yes	70	>37%
Singareni Collieries Company Limited (SCCL)	Private	India	Yes	61,3	>90%
Murray Energy Corp	Private	USA	No info found	59	>50%
China Guodian Corporation	Private	China	No	58,7	77%
Cloud Peak Energy Inc	US18911Q1022	USA	Yes	53	>90%
PT Adaro Energy Tbk	ID1000111305	Indonesia	No	52,6	>90%
Ural Mining Metallurgical Company (UMMC)		Russia	No info found	50,7	
Banpu Public Company Limited	TH0148A10Z06	Thailand	Yes	50,6	98%
EN+ Group	Private	Russia	No info found	50	
Heilongjiang Longmay Mining Holding Group Co Ltd		China	No	47,9	85%
PGE SA (Polska Grupa Energetyczna SA)	PLPGER000010	Poland	No	47,7	>50%
Westmoreland Coal Co	US9608781061	USA	No info found	47,5	>90%
Public Power Corporation SA (PPC)	GRS434003000	Greece	No	43,8	>30%
China Huadian Corporation	Private	China	No	43,5	NA
Exxaro Resources Ltd	ZAE000084992	South Africa	Yes	42,8	99%
Sasol Ltd	ZAE000006896	South Africa	No info found	40,3	10%
Sumitomo Corporation	JP3404600003	Japan	Yes	40	<30%
Polska Grupa Górnicza (PGG)	Private	Poland	No info found	40	>90%
China Pingmei Shenma Group	Private	China	No info found	39,5	9%
Inner Mongolia Yitai Group Co Ltd		China	Yes	39,3	
South32 Ltd	AU000000S320	Australia	No info found	38,7	28%
Vietnam National Coal Mineral Industries Holding Corporation Limited (Vinacomin)	VN000000KSV1	Vietnam	Yes	37,3	>50%
Elektroprivreda Srbije (EPS)	Private	Serbia	Yes	37	>30%
Alliance Holding Group L.P. (AHGP)	US01861G1004	USA	Yes	35,2	96%
Huaibei Mining Group Company		China	No info found	35,1	23%

PARENT COMPANY	ISIN CODE	COUNTRY OF HEADQUARTERS	COAL MINING EXPANSION PLANS	ANNUAL COAL PRODUCTION (IN MILLION METRIC TONS)	COAL SHARE OF REVENUE
Delta Dunia Makmur Tbk PT	ID1000110505	Indonesia	No info found	33,2	>90%
Inner Mongolia Mengtai Coal and Electricity Group Co Ltd		China	No	32,8	
Bulgarian Energy Holding (BEH)	Private	Bulgaria	No info found	32	30%
SDIC (State Development and Investment Corporation)	Private	China	No	31,8	49%
NLC India Ltd (former Neyveli Lignite Corp Ltd)	INE589A01014	India	Yes	30,6	>95%
Natural Resource Partners L.P.	US63900P6088	USA	No info found	30,2	>60%
AGL Energy Ltd	AU000000AGL7	Australia	No info found	30	44%
OAO HK SDS-Ugol (OAO Siberian Business Union (SDS)	Private	Russia	No info found	30	>90%
Rio Tinto Group	AU000000RIO1	United Kingdom	Yes	29,5	7%
NACCO Industries Inc	US6295791031	USA	No info found	29,5	13%
Inner Mongolia Huineng Group	Private	China	Yes	29,4	
Eurasian Resources Group (ERG)	Private	Luxemburg	No info found	28,8	<30%
DTEK BV Group		Ukraine	No info found	28,7	>80%
Xuzhou Coal Mining Group	Private	China	No info found	28,6	46%
Drummond Co Inc	Private	USA	No info found	28	>50%
Teck Resources Ltd	CA8787422044	Canada	Yes	27,6	45%
Kiewit Mining Group Inc		USA	No info found	27,5	16%
Tata Power Co Ltd	INE245A01021	India	Yes	26,4	>50%
Essel Mining & Industries Limited (EMIL)	U51109WB1950PLC018728	India	Yes	23,6	
Shanxi Coal Import & Export Group Co Ltd		China	No	23,2	62%
Complexul Energetic Oltenia S.A	Private	Romania	No info found	23	>90%
Mechel PJSC	US5838406081	Russia	No info found	22,7	25%
CONSOL Energy Inc	US20854P1093	USA	No info found	22,4	>50%
Evraz PLC	GB00B71N6K86	United Kingdom	No info found	22,3	17%
CEZ Group	CZ0005112300	Czech Republic	No	21	NA
Shaanxi Yulin Energy Group Co Ltd		China	Yes	20,9	NA
Foresight Energy LLC	US34552U1043	USA	No info found	20,1	99%
Jilin Provincial Coal Industry Group Co Ltd		China	No info found	20	43%
Wanbei Coal - Electricity Group Co Ltd		China	Yes	19,6	63%
PT Bukit Asam	ID1000094006	Indonesia	No	19,6	>90%
Grand Ocean Advanced Resources Co Ltd	KYG4065F1037	China	No info found	19,4	100%
Samruk Energy JSC	Private	Kazakhstan	No info found	19	
Chongqing Energy Investment Group	Private	China	No	18	NA
Zhengzhou Coal Industry Group Co Ltd	CNE000000TS8	China	No info found	17,3	33%
Reliance Power Ltd	INE614G01033	India	Yes	17	92%
Manshi Group	Private	China	Yes	16,5	
Wesfarmers Resources Limited	Private	Australia	No info found	16,3	>90%
Shenyang Coal Trade Group Corp Ltd	Private	China	No info found	15,9	42%

PARENT COMPANY	ISIN CODE	COUNTRY OF HEADQUARTERS	COAL MINING EXPANSION PLANS	ANNUAL COAL PRODUCTION (IN MILLION METRIC TONS)	COAL SHARE OF REVENUE
Samtan Co Ltd	Private	South Korea	No	15,7	>30%
Whitehaven Coal Mining Ltd	AU000000WHC8	Australia	Yes	15,1	100%
PT Darma Henwa Tbk	ID1000107303	Indonesia	No info found	15,1	>90%
China Kingho Energy Group Co., Ltd.	Private	China	Yes	15	
PT Indika Energy	ID1000110901	Indonesia	Yes	14,8	>50%
ERP Compliant Fuels	Private	USA	No info found	14,5	>50%
Russian Coal Co	Private	Russia	No info found	14	>90%
China Resources Power Holdings Co Ltd	HK0836012952	China	No	13,9	88%
Jastrzębska Spółka Węglowa SA (JSW)	PLJSW0000015	Poland	No info found	13,5	53%
Elektrik Üretim A.Ş. Genel Müdürlüğü (EÜAŞ)	niBB	Turkey	Yes	13,3	NA
Fuxin Mining (Group) Co Ltd		China	No info found	13,3	64%
OAO Severstal	Private	Russia	No info found	13,2	31%
Alpha Natural Resources Inc	US02076X1028	USA	No info found	13	>50%
Bowie Resource Partners, LLC ('BRP')	Private	USA	No info found	13	>90%
Sichuan Coal Industry Group LLC		China	Yes	12,9	51%
Turkish Coal Enterprises (TKİ)		Turkey	No info found	12,8	
Sibuglemet Holding		Russia	No info found	11,7	>90%
OAO Kuzbasskaya Toplivnaya Kompaniya (KTK)	RU000A0JPYD7	Russia	Yes	11	95%
Adani Group		India	No	11	
Guizhou Panjiang Investment Holding (Group) Co Ltd	Private	China	Yes	10,9	69%
Idemitsu Australia Resources Pty Ltd	Private	Australia	Yes	10,9	>50%
Beijing Energy Investment Holding	Private	China	No	10,5	NA
Czech Coal Group	niBB	Czech Republic	No info found	10,1	>90%
QCoal Pty Ltd	Private	Australia	Yes	10	>90%
Xinjiang Production and Construction Corps (XPCC)	Private	China	No	10	
PT Dian Swastatika Sentosa Tbk	ID1000113400	Indonesia	No info found	9,8	80%
Jellinbah Group	Private	Australia	No info found	9,8	>90%
Gansu Jingyuan Coal Industry and Electricity Power Co Ltd	CNE000000D40	China	No info found	9,8	100%
James River Coal Co	US4703552079	USA	No info found	9,7	>90%
PT Bayan Resources Tbk	ID1000111701	Indonesia	No info found	9,7	96%

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Lumps of coal. The burning of coal, the dirtiest of all fossil fuels, in power stations is a major contributor to climate change.


INVEST WELL BELOW
2°C

WWF ASSET OWNER GUIDE ON COAL MINING

100% RECYCLED

OPPORTUNITIES

Asset owners should harness the growing opportunities in low carbon sectors.

RISKS

The coal mining sector is in structural decline globally and already stranded.

JOURNEY

Asset owners' engagement should not stop before coal mining portfolio companies have a coal exit strategy.

LEADERSHIP

Leading asset owners should adopt a coal mining policy ensuring alignment with the Paris Agreement.

Why we are here
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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